

**FIRE STATION #3 AREA, SWMU 106
PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)
SITE ASSESSMENT PROGRESS REPORT
KENNEDY SPACE CENTER, FLORIDA**

Prepared for:



**National Aeronautics and Space Administration
Kennedy Space Center, Florida**

**January 2023
Revision 0**

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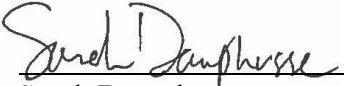
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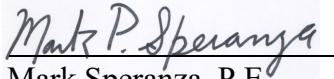
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January 2023

PROFESSIONAL ENGINEER CERTIFICATION

This Per-and Polyfluoroalkyl Substances (PFAS) Site Assessment Progress Report for the Fire Station #3 Area, Solid Waste Management Unit 106, Kennedy Space Center, Florida, dated January 2023, has been prepared by or under the responsible supervision, direction, or control of the Florida-licensed professional engineer whose signature and seal appear below. This document and the work described herein complies with standard professional practices and the requirements of Chapter 62-780, Florida Administrative Code (F.A.C.) and other rules of the Florida Department of Environmental Protection according to Rule 62-780.400(1), F.A.C.



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ABBREVIATIONS AND ACRONYMS

ADP	Advance Data Package
AFFF	Aqueous Film-Forming Foam
bls	below land surface
CS	Confirmatory Sampling
DoD	U.S. Department of Defense
DPT	Direct Push Technology
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FS3	Fire Station #3
ft	feet or foot
GCTL	Groundwater Cleanup Target Level
HDPE	high density polyethylene
HFPO-DA	Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX]
HQ	Hazard Quotient
IDW	Investigation-Derived Waste
IMWP	Interim Measure Work Plan
KSC	Kennedy Space Center
KSCRT	KSC Remediation Team
LC	Launch Complex
LC/MS/MS	Liquid Chromatography Tandem Mass Spectrometry
LOC	Location of Concern
LTM	Long-Term Monitoring
mg/kg	milligram per kilogram
NASA	National Aeronautics and Space Administration
NFA	No Further Action
ng/L	nanograms per liter
PCBs	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
PFBS	Perfluoro-1-butanesulfonic acid

ABBREVIATIONS AND ACRONYMS (Continued)

PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluoro-n-nonanoic acid
PFOA	Perfluoro-n-octanoic acid
PFOS	Perfluorooctanesulfonic acid
pGCTL	provisional Groundwater Cleanup Target Level
PRL	Potential Release Location
QA/QC	Quality Assurance/Quality Control
QSM	Quality Systems Manual
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RSL	Regional Screening Level
SA	Site Assessment
SAPR	Site Assessment Progress Report
SCAPE	Self-Contained Atmospheric Protective Ensemble
SOP	Standard Operating Procedure
SWMU	Solid Waste Management Unit
SWSL	Surface Water Screening Level
TOC	Total Organic Carbon
TCE	Trichloroethene
µg/kg	micrograms per kilogram
USEPA	United States Environmental Protection Agency
VAB	Vehicle Assembly Building
VC	Vinyl Chloride
VFI	Vacuum Fault Interrupter
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

This Per- and Polyfluoroalkyl Substances (PFAS) Site Assessment (SA) Progress Report (SAPR) presents the activities and results associated with PFAS investigation in the Fire Station #3 (FS3) Area located at Kennedy Space Center (KSC), Florida. FS3 (formerly known as Fire Station #6) was previously designated as Solid Waste Management Unit (SWMU) 106 for legacy contaminants that were investigated and still being managed under KSC's Resource Conservation and Recovery Act (RCRA) Corrective Action Program. This PFAS SA is being managed under SWMU 106 as the fire station was also identified as the potential source of PFAS to the environment in this area.

The FS3 Area encompasses approximately 0.28 square miles, and is located at the corner of Pad B Road and Pad A Emergency Road. Previously known as Fire Station #6, the FS3 Area includes several structures, with the primary buildings including Fire Station #3 (J7-1339), Self-Contained Atmospheric Protective Ensemble (SCAPE) Building (J7-1338), and the Industrial Water Pumping Station (J7-1388). Previous PFAS investigations were conducted in the FS3 Area between 2018 and 2021 and included Phase I SWMU Assessment and Confirmatory Sampling (CS) and subsequent Phase II/III SWMU Assessment and CS. These investigations identified the FS3 Area as Location of Concern 4. The investigations were conducted to evaluate the presence of source areas and impacts of potential PFAS use, particularly aqueous film-forming foam (AFFF), a PFAS-based firefighting foam that is typically stored at fire stations.

During the Phase II/III SWMU Assessment and CS Report, interviews with site personnel indicated that AFFF materials were historically and presently stored at FS3, but there were no known AFFF releases within the area. Sampling efforts detected PFAS in soil, groundwater, surface water, and sediment at the site, which confirmed PFAS releases to the environment had occurred. The Phase II/III SWMU Assessment and CS evaluation included a forensic analysis of groundwater and surface water data to identify common PFAS mixture signatures. The investigation concluded that PFAS detections in groundwater showed a signature of potential legacy (long chain) AFFF, and surface water results indicated a potential legacy AFFF signature with some wastewater treatment plant influence. The highest detected PFAS in groundwater during the Phase II/III SWMU Assessment and CS was perfluorooctanesulfonic acid (PFOS),

with concentrations greater than 10,000 nanograms per liter (ng/L). There were also detections of PFOS and perfluoro-n-octanoic acid (PFOA) at concentrations greater than screening levels in the deepest collected interval (41-45 feet below land surface [ft bls]). It was then recommended that FS3 advance to a Site Assessment to delineate PFAS in groundwater and further characterize soil and surface water at the site.

During SA activities, documented herein this report, a total of 48 groundwater, six soil, and eight surface water samples were collected between December 9, 2021, and March 8, 2022. The samples were analyzed for 28 PFAS compounds using the Department of Defense Quality Systems Manual-compliant Method. SA sample results were used along with historical results to evaluate the extent of PFAS impacts to the environment in the FS3 Area. Data generated to date and prior results were screened against the United States Environmental Protection Agency (USEPA) May 2022 Tap Water Regional Screening Levels (RSL) for groundwater and residential RSLs for soil (hazard quotient of 0.1). Surface water results were screened against the State of Florida Human Health Surface Water Screening Levels (SWSLs).

The six soil samples were collected from one location, FS3-SB0001, where a continuous soil core was advanced from 0 to 80 ft bls. Soil samples were collected at depths 11-12, 25-26, 38-39, 55-56, 59-60, and 70-71 ft bls and were analyzed for PFAS and Total Organic Carbon (TOC). This location was chosen because it is collocated with a previous groundwater sample location, PFAS-DPT106, which had the maximum deepest result during the Phase II/III SWMU Assessment and CS. Several PFAS were detected in the soil samples, but results showed no RSL exceedances for the six PFAS compounds with applicable screening criteria. TOC concentrations across all samples ranged from 1,500 to 20,000 milligrams per kilogram (mg/kg) with the highest result at 12 ft bls where the lithology was recorded to be black organic rich sands. The lithology of the soil core was evaluated to determine the best placement for screen intervals during the direct push technology (DPT) groundwater sampling event.

The 48 groundwater samples were collected via DPT from six depth intervals (3-7, 10-14, 23-27, 33-37, 43-47, and 52-56 ft bls) at eight locations (FS3-DPT0001 to FS3-DPT0008). Three PFAS were detected at concentrations greater than their respective USEPA RSLs: perfluorohexanesulfonic acid (PFHxS), PFOA, and PFOS. The maximum concentrations were

all from FS3-DPT0001, located near the corner of the Crawlerway and Pad A Emergency Road. The PFHxS maximum concentration was 340 ng/L in the 23-27 ft bls depth interval, which is greater than the RSL of 39 ng/L. The maximum PFOA concentration was 18 ng/L in the 23-27 ft bls interval, which is greater than the RSL of 6 ng/L. The maximum PFOS concentration was 110 ng/L in the 3-7 ft bls interval, which is greater than the RSL of 4 ng/L. PFAS concentrations generally decreased with depth as no exceedances were found in the deepest intervals within the 52 to 56 ft bls range.

The eight surface water locations (FS3-SW0001 to FS3-SW0008) sampled during the SA detected PFOA and PFOS in all samples. The range of detected PFOA concentrations was from 4.5 to 64 ng/L, with the maximum concentration significantly less than the screening criteria of 500 ng/L. The range of detections for PFOS was from 20 to 1,800 ng/L, with all detections greater than the screening criteria of 10 ng/L. The maximum detected concentrations of PFOA and PFOS were from FS3-SW0004, with lesser PFOS exceedances located in the surrounding area.

A summary of samples collected during the SA are presented in the table below:

	PFOA	PFOS	PFBS	PFHxS	PFNA	HFPO-DA (GenX)
(USEPA) Soil RSLs (µg/kg)	19	13	1,900	130	19	23
Samples collected	6	6	6	6	6	6
No. of Detections	0	4	0	3	0	0
Results above RSL	0	0	0	0	0	0
(USEPA) Groundwater RSLs (ng/L)	6	4	600	39	5.9	6
Samples collected	48	48	48	48	48	48
No. of Detections	13	20	6	17	3	0
Results above RSL	5	13	0	5	0	0
(Florida) Surface Water SLs (ng/L)	500	10	NA	NA	NA	NA
Samples collected	8	8	8	8	8	8
No. of Detections	8	8	7	8	8	0
Results above SWSL	0	8	NA	NA	NA	NA

NA = Not applicable; no screening criteria

Results from the SA showed exceedances of the applicable screening criteria for groundwater and surface water while no exceedances were observed for soil. Considering the current and historical dataset, PFOS is the prevalent PFAS compound, which is indicative of AFFF releases,

with environmental impacts mostly in the vicinity of buildings with lesser concentrations spreading outward. Based on the results of the assessment, additional sampling should be considered at the site, including continued plume delineation via DPT and installation of monitoring wells to evaluate the interaction between the groundwater and surface water at the site.

Results included in this report were presented to the KSCRT in October 2022.

An overall summary of samples collected to date in the FS3 Area with maximum concentrations is provided below:

	No. Samples Collected	PFOA	PFOS	PFBS	PFHxS	PFNA	HFPO-DA (GenX)
Phase I/II/III (2018-2021)		Maximum Concentrations					
Groundwater (ng/L)	44	2,600 PFAS-DPT0032-010.0	65,000 PFAS-DPT0032-010.0	1,200 PFAS-DPT0102-035.0	19,000 PFAS-DPT0034-035.0	340 PFAS-DPT0032-010.0	NA
Soil (µg/kg)	14	1.1 PFAS-SB0019-002.0	15 PFAS-SB0013-002.0	ND	0.4 PFAS-SB0019-000.5	1.8 PFAS-SB0019-002.0	NA
Surface Water (ng/L)	3	269 PFAS-SW0040	8,940 PFAS-SW0040	243 PFAS-SW0040	5,430 PFAS-SW0040	32.5 PFAS-SW0040	NA
Sediment (µg/kg)	4	2.6 PFAS-SD0004	856 PFAS-SD0004	0.81 PFAS-SD0004	46 PFAS-SD0004	1.2 PFAS-SD0004	NA
Site Assessment (2021-2022)		Maximum Concentrations					
Groundwater (ng/L)	48	18 FS3-DPT0001-025.0	110 FS3-DPT0001-005.0	18 FS3-DPT0003-005.0	340 FS3-DPT0001-025.0	1.9 FS3-DPT0001-005.0	ND
Soil (µg/kg)	6	ND	4.7 FS3-SB0001-025.5	ND	1.1 FS3-SB0001-011.5	ND	ND
Surface Water (ng/L)	8	64 FS3-SW0004	1,800 FS3-SW0004	NA	NA	NA	NA

NA = Not applicable; not analyzed or no screening criteria
ND = Not detected

SECTION I INTRODUCTION

1.1 OVERVIEW

This Per- and Polyfluoroalkyl Substances (PFAS) Site Assessment (SA) Progress Report (SAPR) discusses the investigation activities and findings for the Fire Station #3 (FS3) Area (formerly known as Fire Station #6) located at Kennedy Space Center (KSC), Florida (Figure 1-1). This site was previously designated as Solid Waste Management Unit (SWMU) 106 for legacy contaminants associated with Fire Station #6, including chlorinated solvents in groundwater and polychlorinated biphenyls (PCBs) in soil that are currently being managed through monitoring and institutional controls, under KSC's Resource Conservation and Recovery Act (RCRA) Corrective Action Program. This PFAS SA is being managed under SWMU 106 as the fire station was also identified as the potential source of PFAS to the environment. For the purposes of PFAS investigations documented herein this report, the fire station will be referenced with its current designation, FS3. This PFAS SAPR was prepared by Tetra Tech, Inc., for the National Aeronautics and Space Administration (NASA) under Indefinite Delivery Indefinite Quantity Contract 80KSC019D0011-80KSC019F0070.

A Center-Wide Phase I SWMU Assessment and Confirmatory Sampling (CS) project conducted in 2018 and 2019 (NASA, 2019) identified FS3 as location of concern (LOC) 4 because aqueous film-forming foam (AFFF) is a potential PFAS source to the environment. The Phase I SWMU Assessment and CS activities included groundwater and surface water sampling, which confirmed detections of PFAS at the site with exceedances of the applicable screening criteria, although, as noted in the Phase I report, no documented spills or discharges of AFFF were identified at FS3. The Phase I concluded with the recommendation of further confirmatory sampling to evaluate the horizontal extent of impacted groundwater, and collection of additional surface water, sediment, and soil to evaluate potential impacts from AFFF releases.

A Center-Wide Phase II/III SWMU Assessment and CS project (NASA, 2022) was completed in 2022 where additional sampling was conducted at KSC, including the FS3 Area (LOC 4) to continue investigation into potential PFAS releases. Similar to the Phase I, personnel interviews

were conducted during the Phase II/III with FS3 firefighters that revealed that AFFF products were being stored at FS3, but there were no known AFFF releases within the area. Groundwater, surface water, soil, and sediment samples were collected during the Phase II/III and results showed similar PFAS compounds were in exceedance of applicable screening criteria in the groundwater and surface water, and PFAS were identified in soil and sediment samples. The Phase II/III evaluated PFAS signatures using forensics analysis, which indicated legacy (long chain) AFFF signatures in groundwater, while in surface water, legacy AFFF signatures with some wastewater treatment plant influence was identified. There were several PFAS detected in groundwater at concentrations exceeding screening levels, including perfluorooctanesulfonic acid (PFOS), in excess of 10,000 nanograms per liter (ng/L). The conclusion of the Phase II/III recommended that FS3 advance to an SA, which is detailed in this report. Previous PFAS investigations are further discussed in Section 2.4, with historical results presented in Appendix A.

1.2 PURPOSE

The purpose of this report is to present the activities and results associated with the PFAS SA conducted at FS3. The SA results along with the historical dataset is evaluated to provide recommendations and a path forward for further PFAS assessment at FS3.

1.3 REPORT ORGANIZATION

The remainder of this PFAS SAPR is organized as follows:

Section II: Site Description and Setting – Provides description of the site, including an overview of previous and current site operations, site topography, geology, and hydrogeology, and a summary of previous investigations.

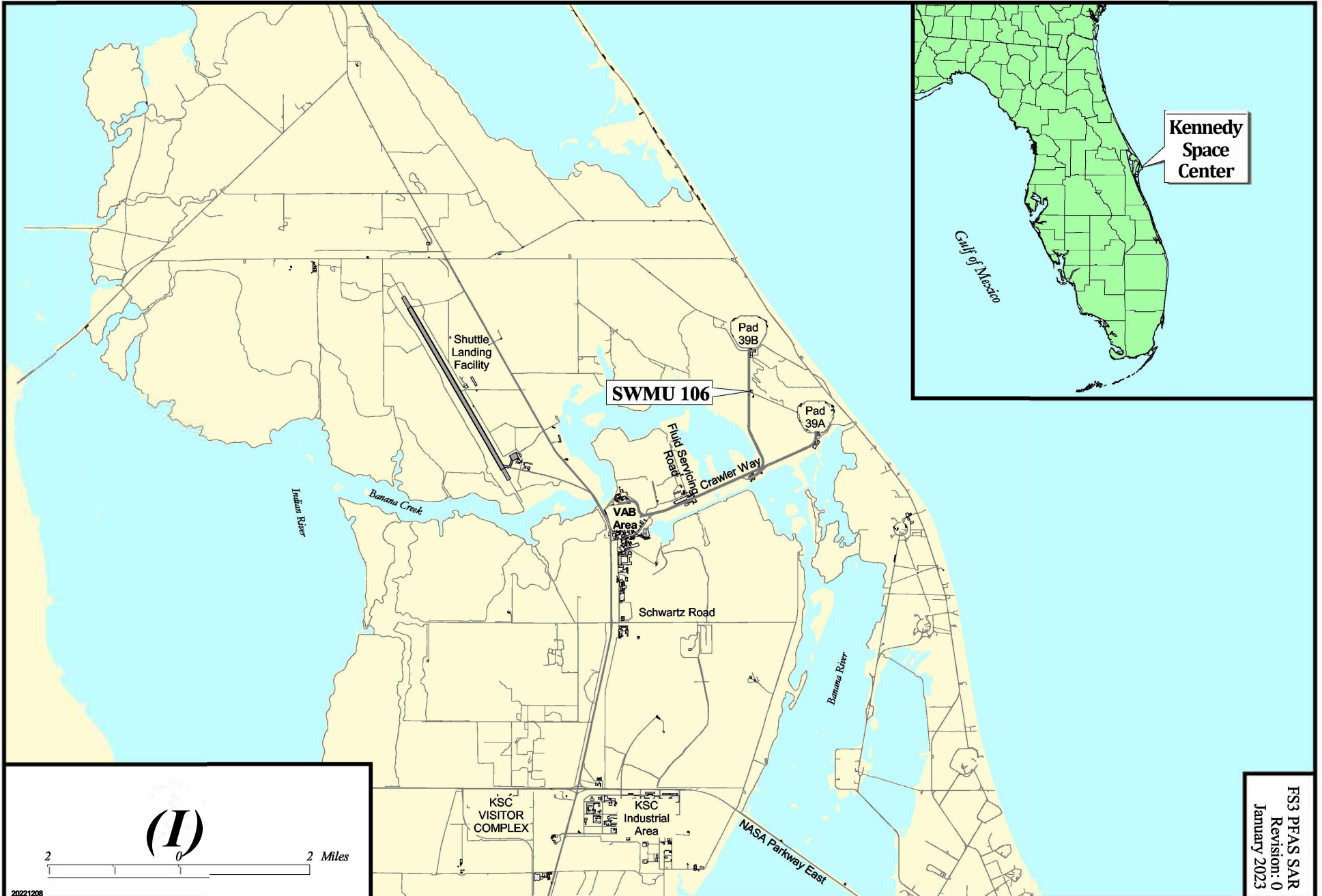
Section III: PFAS Assessment Methodologies and Activities – Presents the objectives, rationale, and methodologies used to accomplish the PFAS SA.

Section IV: Data Evaluation – Provides a summary of the screening process for soil, groundwater, and surface water samples collected during the PFAS SA.

Section V: Conclusions and Recommendations – Provides a summary of the PFAS SA results and recommendations for future investigations.

Section VI: References – Provides a listing of references cited in this report.

FIGURE 1-1 LOCATION OF KENNEDY SPACE CENTER AND FIRE STATION #3 AREA
SWMU 106, KENNEDY SPACE CENTER, FLORIDA



SECTION II

SITE DESCRIPTION AND SETTING

2.1 SITE LOCATION

The FS3 Area is located within KSC, on the East Coast of Florida in Brevard County (Figure 1-1). It is located at the corner of Pad B Road and the Pad A Emergency Road, approximately one mile north from Saturn Causeway.

2.2 SITE DESCRIPTION

2.2.1 Major Features

The FS3 Area covers approximately 0.28 square miles, and includes multiple numbered and unnumbered buildings, as shown on Figure 2-1. The buildings and associated structures primarily support the operations at Launch Complex (LC)39A and LC39B. As noted in the previous Phase I and Phase II/III investigation reports, information regarding historical and current property use was compiled during the SWMU Assessment from site reconnaissance, interviews, property records, historical aerials, and construction drawings. An overview of this information is provided below and detailed in the Fire Station #6 SWMU Assessment Report/CS Work Plan Advance Data Package (ADP) presented to the KSC Remediation Team (KSCRT) in October 2007 (Geosyntec, 2007).

The main buildings near the PFAS assessment area include the Emergency Response Building (J7-1339) (also known as Fire Station #3), the Self-Contained Atmospheric Protective Ensemble (SCAPE) Building (J7-1338), and the Industrial Water Pumping Station (J7-1388). These buildings support operations at LC39A and LC39B. FS3 houses firefighting personnel that respond to emergencies at LC39A and LC39B, the SCAPE Building serves as a staging area for all SCAPE operations, and the Industrial Water Pumping Station provides Firex Water to LC39A and LC39B. Other ancillary buildings and structures in the area include two Groundwater Storage Tanks (J7-1387 and J7-1389) and Hazardous Waste Staging Buildings/Portables (J7-1388B and J7-1388C) that support the SCAPE building. There are other numbered buildings in the area including: the Gate House (J7-0686) used as the primary security checkpoint for LC39B;

Operations Building No. 2 (J7-0688) utilized primarily as office storage space; Pad B Operations Support Building (J7-0689), which houses LC39B personnel; and Repeater Building No. 5 (J7-1736) and No. 6 (J7-0986) used as data link reporters for the Apollo program and had transformers installed on concrete pads outside of the building.

Several support structures at FS3 contain transformers including a concrete mounted transformer north of the Industrial Water Pumping Station and a concrete mounted transformer north of the SCAPE Building. Other support structures include three vacuum fault interrupters (VFIs) along Pad B Road; five diesel storage tanks east of the Industrial Water Pumping Station; three drainage outfalls from the Industrial Water Pumping Station area; two former drainfields at the Industrial Water Pumping Station and one former drainfield at the Pad B Operation Support Building; lift station control switches north of the Emergency Response Building and the SCAPE Building; and two drainage outfalls north of the Emergency Response Building and the SCAPE Building.

2.2.2 Topography and Surface Features

The central portion of the site, housing the main buildings and infrastructure, consist of pavement and impervious surfaces which are surrounded by mowed vegetation. The pavement includes parking lots and intra-roadways connecting different buildings and areas. A swale runs along a portion of the east perimeter of the site, in particular near the FS3 building with the ground sloped toward the swale from the building. Drainage outfalls are also located near FS3, the SCAPE Building, and the Industrial Water Pumping Station.

The surrounding area consists of salt and freshwater marshes, a bay/estuary area, wetland shrub, and shrub and brushland. The Pad B Road intersects these features that runs South to North from the Saturn Causeway to 39B. The site is classified as anthropogenic under the Florida Land Use Classification Codes with the surrounding area considered water, upland scrub, wetland scrub, and marsh. The site is not considered ecological habitat, as noted in the CS Report and Interim Measures (IM) Work Plan (IMWP) for Fire Station #6 (NASA, 2010).

2.3 GEOLOGY AND HYDROGEOLOGY

2.3.1 Regional Geology and Hydrogeology

The regional geology and hydrogeology has been documented in the CS Report and IMWP for the Fire Station No. 6 Area (NASA, 2010). As noted in the report, the surface and near-surface deposits of east-central Florida range from surficial unconsolidated sands to well indurated limestones and dolomites at depth. Four distinct geologic units are characteristic of east-central Florida and are believed to exist at KSC. In ascending order these are: (i) Eocene limestones; (ii) Lower and Middle Miocene compact silt and clays; (iii) Upper Miocene and Pliocene silty and clayey sands; and (iv) Pleistocene and Recent aged sands with interbedded shell layers.

2.3.2 Local Geology and Hydrogeology

As part of the PFAS SA, the geology for FS3 was evaluated in December 2021 by collecting a soil core at PFAS-SB0001, centrally located at the corner of Pad B Road and the Pad A Emergency Road. The continuous soil core was collected from 0 to 80 feet (ft) below land surface (bls) and recorded in a boring log provided in Appendix B. Soil samples were collected from six depths and submitted to a laboratory for analysis of PFAS and total organic carbon (TOC) as further discussed in Section 3.2.1 and Section 4.2. The lithology is described in Table 2-1 and summarized below.

The soil core evaluation indicated that the underlying lithology generally consists of primarily sand and shell down to approximately 50 ft bls and clays to 80 ft bls. The upper 12 feet consists of gray to black silty, fine-grained sand with organics. From approximately 12-26 ft bls, the lithology consists of fine-grained brown sands. The intervals of 26-39 and 39-56 ft bls consists of gray fine-grained sand with shell fragments. From 56-60 ft bls, a gray clay layer was evident. From 60-71 ft bls, the lithology consisted of sandy shelly clays, and in the final depth evaluated, the 71-80 ft bls interval consists of gray clay. This lithology is consistent with previous evaluations.

The hydrogeology at the site has been historically evaluated through collection of water level measurements from monitoring wells during routine long-term monitoring (LTM) events.

Groundwater at FS3 is included in the Vehicle Assembly Building (VAB) Area LTM program and is being monitored biennially for vinyl chloride (VC). During the biennial sampling events in October 2018 and June 2020, water levels were collected from monitoring wells MW0001, MW0002, and MW0003, and the average depth to water measured was approximately 1 to 2 ft bls (NASA, 2021). Historically, the shallow surficial aquifer has been documented at 3 to 8 ft bls. Based on recorded levels, groundwater flow was determined to be to the southeast. Figure 2-2 shows the groundwater flow direction at the site.

2.4 SUMMARY OF PREVIOUS INVESTIGATIONS

2.4.1 Previous RCRA Investigations

The original investigation for FS3 was a SWMU Assessment completed in December 2007, which gathered site information and ultimately identified 15 LOCs throughout the area along Pad B Road. The general areas identified for the LOCs comprised of the Pad B Support Operations Building consisting of 2 LOCs, the Industrial Water Pumping Station Area/Emergency Response Building Area consisting of 11 LOCs, and the Repeater Buildings/VFIs consisting of 2 LOCs. The SWMU Assessment and CS Work Plan was presented to the KSCRT in October 2007 and submitted to the Florida Department of Environmental Protection (FDEP) in December 2007. Consensus was reached by the Team to proceed to CS at the LOCs.

In August 2010, the CS Report and IMWP was presented to the KSCRT. The CS activities mainly comprised of 163 soil samples, one concrete sample, field screening of soil samples, 114 groundwater samples via direct push technology (DPT), and installation and sampling of one monitoring well. Based on results, the identified contaminants of potential concern in soil were PCBs, benzo(a)pyrene total equivalents, arsenic, barium, chromium, copper, lead, and mercury, and in groundwater, VC was identified. Based on sampling results, No Further Action (NFA) was approved for LOCs 3, 4, 7, and 9 through 15 and for groundwater at LOC 5. An IM was approved for soil at LOC 1 (Drainage Outfalls from parking lot of Industrial Water Pumping Station J7-1388), LOC 2 (Groundwater Storage Tank J7-1387), LOC 5 (Hazardous Waste Staging Buildings J7-1388B/J7-1388C), and LOC 8 (Former Aboveground Storage Tank), and a RCRA Facility Investigation (RFI) was approved for groundwater at LOC 1.

In December 2011, the IM Report (NASA, 2012) was presented to the KSCRT which detailed the soil IM. The soil excavation comprised of approximately 24.7 cubic yards of soil excavated from LOC 1, 15.9 cubic yards of soil excavated from LOC 2, 39.3 cubic yards of soil excavated from LOC 5, and 24.5 cubic yards of soil excavated from LOC 8. Consensus was reached for NFA in soil at LOC 1, LOC 2, and LOC 8. LOC 5 was later approved for NFA during the implementation of the Interim Land Use Control Implementation Plan, which was presented to the KSCRT in February 2012 and submitted to FDEP in May 2012. Following the soil IMs, groundwater at LOC 1 remained to be investigated.

The RFI Progress Report was presented to the KSCRT in January 2013, which detailed results from the groundwater assessment of LOC 1. Characterization activities mainly included 87 DPT groundwater samples collected from 15 locations, installation of two monitoring wells, and sampling of three monitoring wells. Consensus was reached on the delineation of trichloroethene (TCE) and VC. Interim groundwater monitoring of MW0001, MW0002, and MW0003 was planned for volatile organic compounds (VOCs) during two semi-annual events, so either LTM or NFA could be recommended upon completion. In 2014, the RFI Progress Report Addendum was presented to the KSCRT, which detailed results from the interim groundwater monitoring events. The results showed VC concentrations above the State of Florida groundwater cleanup target level (GCTL) in MW0001 and MW0003. No other VOCs exceeded their respective GCTLs. The KSCRT reached consensus that LTM of groundwater at LOC 1 was appropriate based on results of the investigation.

FS3 was added to the VAB Area LTM program in May 2013 and long-term groundwater monitoring is ongoing on a biennial frequency, alternating between wet and dry seasons. The site contaminant of concern is VC. The most recent Biennial LTM Report recommended NFA for groundwater if VC concentrations remain below GCTLs (NASA, 2021). FS3 was also evaluated under the Center-Wide PFAS Project, as discussed in the section below.

2.4.2 Previous PFAS Investigations

The previous PFAS investigations at FS3 are detailed in the Phase I SWMU Assessment and Confirmatory Sampling Report for Potential Release Location (PRL) 237 (NASA, 2019) and the

Phase II/III SWMU Assessment and CS Report for PRL 237 (NASA, 2022). These reports discuss the Center-wide PFAS investigations at KSC, under which FS3 was identified as LOC 4. These Phase I and Phase II/III reports, which represent the historical PFAS datasets at this site, include a total of 44 groundwater samples, 14 soil samples, three surface water samples, and four sediment samples. At the time of the previous investigations, results were being compared to the Provisional GCTLs (pGCTLs) developed for FDEP by the University of Florida in 2018. During Phase I, only groundwater and surface water were collected, and the results were screened against the pGCTLs, which were consistent with the 2016 United States Environmental Protection Agency (USEPA) Lifetime Drinking Water Health Advisory levels of 70 ng/L for perfluoro-n-octanoic acid (PFOA) and PFOS individually, and 70 ng/L for the sum of PFOA and PFOS (USEPA, 2016a and 2016b). In February 2021, FDEP published a PFAS Dynamic Plan, which was subsequently updated with the latest version dated March 2022 (FDEP, 2022), and includes provisional screening levels for PFOA and PFOS in groundwater, irrigation water, surface water, and soil. There were no applicable screening levels for sediment. The samples collected during the Phase II/III were compared to these provisional screening levels in the Dynamic Plan.

After the Phase I and Phase II/III investigations, in May 2022, the USEPA issued updated Tap Water Regional Screening Levels (RSLs) for PFOA, PFOS, and perfluoro-1-butanesulfonic acid (PFBS), and included RSLs for additional PFAS compounds including perfluorohexanesulfonic acid (PFHxS), perfluoro-n-nonanoic acid (PFNA), and hexafluoropropylene oxide dimer acid (HFPO-DA), commonly referred to as GenX.

Historical results for each media are included in Tables A-1 through A-4 in Appendix A. Historical PFAS sample locations are presented in Figure 2-3. The historical dataset included in Appendix A has been re-screened and compared to the May 2022 USEPA RSLs for groundwater and soil, and the State of Florida Human Health Surface Water Screening Levels (SWSLs) for surface water listed in the FDEP Dynamic Plan. There are currently no screening criteria for sediment. The historic results were re-screened against the updated criteria because these are being used as the project screening levels for this SA, which is further discussed in Section 4.1 of this report. The tables in Appendix A are organized to present the PFAS with applicable

screening criteria at the top of the tables. The following summary refers to the historical results compared to the updated screening levels.

During Phase I in 2018-2019, groundwater and surface water samples were collected to evaluate the potential PFAS impacts associated with the site. A total of 28 DPT groundwater samples were collected from seven locations (PFAS-DPT0031 to PFAS-DPT0034, PFAS-DPT0102, PFAS-DPT0105, and PFAS-DPT0106) and one surface water sample (PFAS-SW0023) was collected during the investigation. A re-screening of the historical DPT groundwater results showed five PFAS compounds greater than RSLs (HFPO-DA [GenX] was not analyzed for in these samples). These were PFBS, PFHxS, PFNA, PFOA, and PFOS. The location with the maximum concentration of PFBS was PFAS-DPT0102 in the 33-37 ft bls interval; the maximum concentration of PFHxS was PFAS-DPT0034 in the 33-37 ft bls interval; the maximum concentrations of PFNA, PFOA, and PFOS were all from PFAS-DPT0032 in the 8-12 ft bls interval. The highest detected concentration overall was PFOS at 65,000 ng/L (previously reported as 67,600 ng/L for the sum of PFOA and PFOS) at PFAS-DPT0032, located near the southeast corner of FS3. The other locations with the highest detections were PFAS-DPT0102 near the northeast corner of the SCAPE Building, and PFAS-DPT0034 located near the southwest corner of FS3.

The surface water sample result with the maximum detection collected during the Phase I event was located similarly at the north side of the SCAPE Building and FS3. The result at PFAS-SW0023 showed a concentration of 1,500 ng/L for PFOS, which exceeded screening criteria. Based on the groundwater and surface water results, additional sampling was proposed to evaluate the horizontal extent of the PFAS impacts in the FS3 Area.

During Phase II/III SWMU Assessment and CS in 2020-2021, groundwater, surface water, sediment, and soil samples were collected to continue to evaluate the potential impacts associated with FS3. A total of 16 groundwater samples from four DPT locations (PFAS-DPT0154 through PFAS-DPT0156 and PFAS-DPT0172), two surface water samples (PFAS-SW0040 and PFAS-SW0041), four sediment samples (PFAS-SD0001 and PFAS-SD0003 through PFAS-SD0005), and 14 soil samples collected from seven boring locations (PFAS-SB0013 through PFAS-SB0019). The DPT groundwater results showed four PFAS (PFHxS, PFNA, PFOA, and PFOS)

in exceedance of the RSLs (HFPO-DA [GenX] was not analyzed for in these samples). The highest detections for these compounds were all at DPT0156 in the 6-10 ft bls interval. The results were 9,450 ng/L for PFHxS, 82.5 ng/L for PFNA, 796 ng/L for PFOA, and 7,170 ng/L for PFOS. PFAS-DPT0156 is located east of the Industrial Water Pumping Station along the Pad A Emergency Road. Other samples collected during this effort were also around the Industrial Water Pumping Station (PFAS-DPT154 to PFAS-DPT0156) with one location (PFAS-DPT0172) west of the SCAPE Building along the west side of the Crawlerway. All four locations yielded samples that exceeded the RSLs at all sample intervals (8 to 43 ft bls).

Surface water results showed that PFOS was the only PFAS detected at a concentration greater than the SWSL. PFAS-SW0040 was collected near the southeast corner of the Industrial Water Pumping Station while PFAS-SW0041 was collected along the Pad A Emergency Road, approximately 800 east from the Pumping Station. The four sediment samples were collected in different areas of the site. PFAS-SD0001 and PFAS-SD0003 were located north of the SCAPE Building and Fire Station #3, PFAS-SD0004 was located near the southeast corner of the Industrial Water Pumping Station, and PFAS-SD0005 was located east of the Pumping Station near the PFAS-SW0041.

Sediment results showed detections of PFAS in all four samples, with PFOS having the highest concentrations. There are currently no screening levels for sediment. Soil samples were collected around the SCAPE Building and FS3. Similar to the sediment samples, PFOS was detected in all soil samples and was the highest detected compound with two samples showing slight exceedances of the PFOS RSL of 13 micrograms per kilogram ($\mu\text{g}/\text{kg}$) at PFAS-SB0013(0.5-2) and PFAS-SB0019(0.5-2).

The Phase II/III event also included forensic analysis of groundwater and surface water data to identify common PFAS mixture signatures. The investigation concluded that PFAS detections in groundwater showed a signature of potential legacy (long chain) AFFF, and surface water results indicated a potential legacy AFFF signature with some wastewater treatment plant influence. The conceptual site model for FS3 identified muddy swales, which could indicate an increased potential for saturated sorption of PFAS. The conclusion of the Phase II/III included recommendation for FS3 to advance to Site Assessment.

Table 2-1. Lithology Description

Location	Depth (ft bls)	Description
FS3-SB0001	0 - 12	Gray to black silty, fine-grained organic rich sands
	12 - 26	Fine-grained brown sands
	26 - 39	Gray fine-grained sands with little shell fragments
	39 - 56	Gray fine-grained sands with shell fragments
	56 - 60	Gray clay
	60 - 71	Sandy shelly clays
	71 - 80	Gray clay

Note:

ft bls = feet below land surface

FIGURE 2-1 SITE LAYOUT
SWMU 106, KENNEDY SPACE CENTER, FLORIDA



FIGURE 2-2 GROUNDWATER FLOW DIRECTION
SWMU 106, KENNEDY SPACE CENTER, FLORIDA

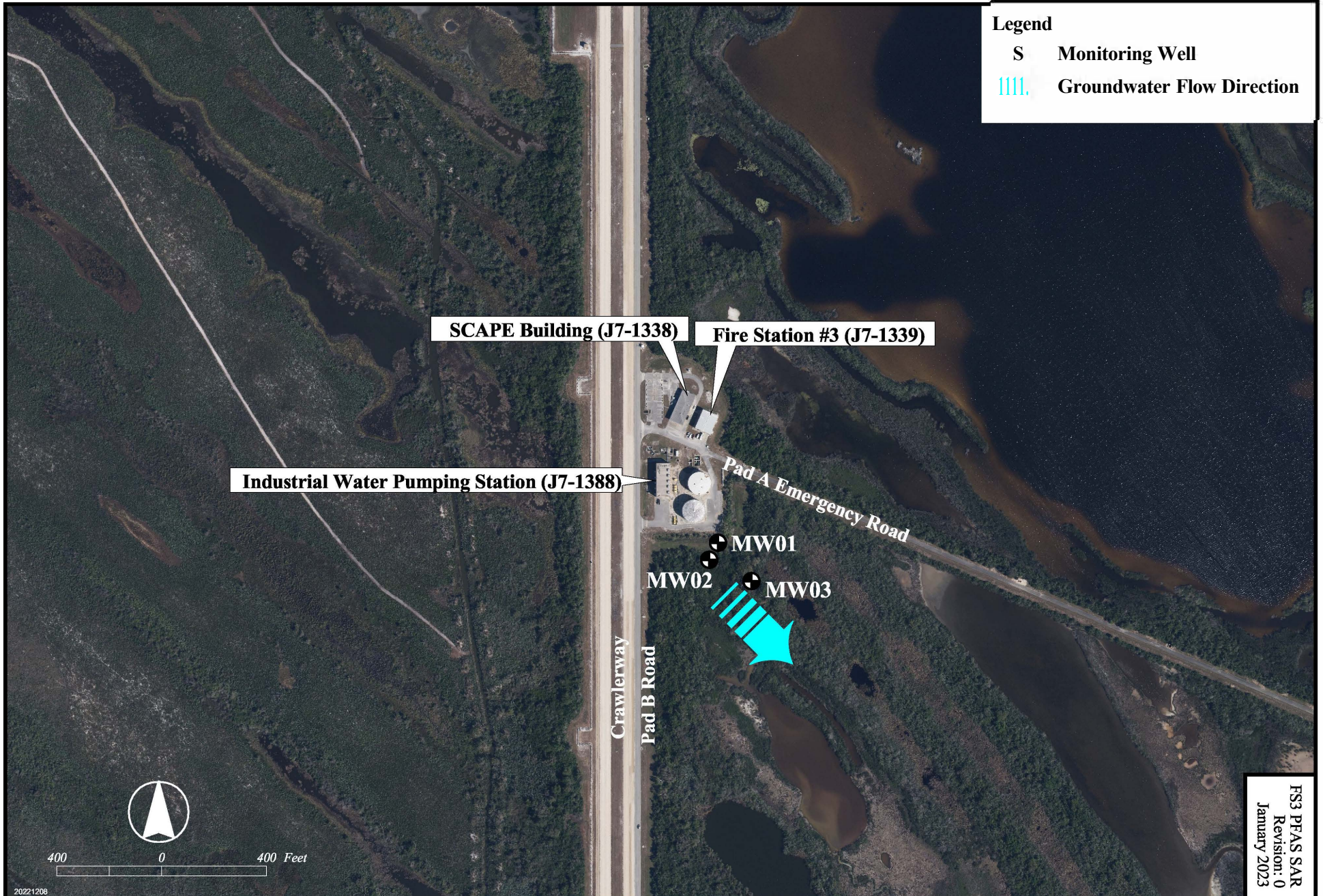
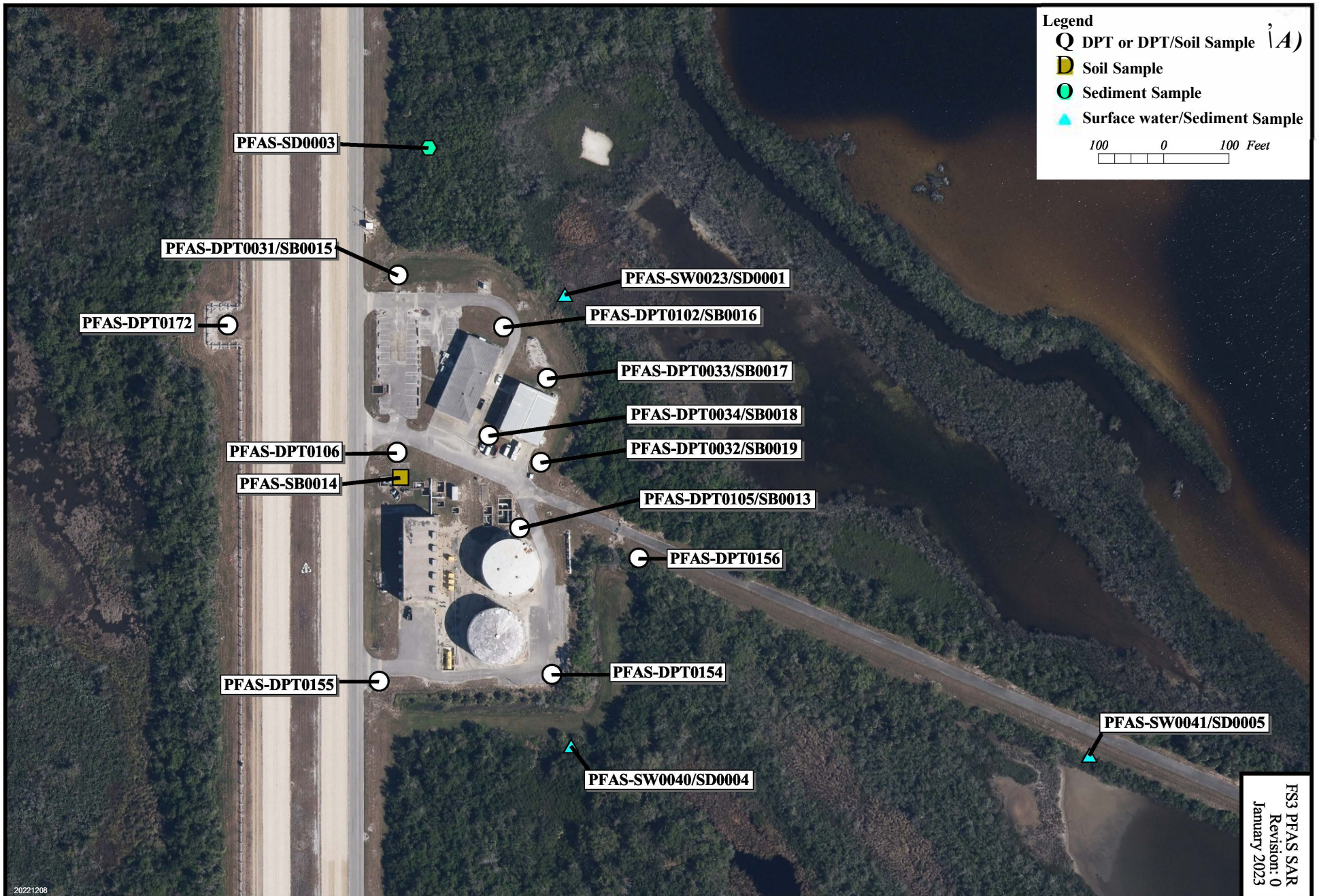


FIGURE 2-3 HISTORICAL PFAS SAMPLE LOCATIONS
 SWMU 106, KENNEDY SPACE CENTER, FLORIDA



SECTION III

PFAS SITE ASSESSMENT METHODOLOGIES AND ACTIVITIES

Based on findings of the Center-wide PFAS Phase II and III SWMU Assessment/CS (NASA, 2022), additional sampling was conducted in the FS3 Area between December 2021 and March 2022 to supplement the existing dataset and further characterize PFAS impacts to the environment. PFAS sampling locations are shown on Figure 3-1. Activities conducted during the FS3 PFAS SA included:

- Collection of a continuous soil core to 80 ft bls to evaluate lithology, with collection of grab samples from six depth intervals for PFAS and TOC analysis in support of site characterization;
- Collection of DPT groundwater samples at six depth intervals from eight boring locations (total of 48 DPT samples) for PFAS analysis; and
- Collection of eight surface water samples for PFAS analysis.

3.1 PFAS SAMPLING PROTOCOL

PFAS are present in many consumer products (including some typical sampling equipment) and are widely present in the environment. Therefore, special precautions were followed to avoid compromising sampling integrity during collection. Field sampling methodologies were conducted in accordance with applicable portions of the KSC Sampling and Analysis Plan (NASA, 2017), FDEP Standard Operating Procedures (SOPs) for groundwater, soil, and surface water sampling (FDEP, 2017), and applicable portions of the FDEP draft PFAS Sampling SOP (FDEP, 2019). Field quality assurance/quality control (QA/QC) samples were also collected to evaluate potential PFAS cross-contamination in site samples, as further discussed in Section 3.5.

3.2 PFAS SITE ASSESSMENT SAMPLING ACTIVITIES

The following sections discuss the PFAS sampling activities conducted during the SA.

3.2.1 Soil Sampling

On December 9, 2021, a continuous soil core (FS3-SB0001) was advanced to 80 ft bls using a Geoprobe 8140LS Sonic drill rig to evaluate the site's lithology and determine the best placement for DPT groundwater sample intervals. The soil core was collocated with a DPT groundwater sample previously collected in March 2019 as part of the Phase I SWMU Assessment/CS (PFAS-DPT106). This location was chosen for evaluation because it had the highest concentration of total PFOA and PFOS in the deepest interval sampled to date (10,110 ng/L at 43-47 ft bls).

Lithologic descriptions were recorded, as described in Section 2.3.2, and grab samples were collected from the soil core at six discrete 1-foot depth intervals (11-12 ft bls, 25-16 ft bls, 38-39 ft bls, 55-56 ft bls, 59-60 ft bls, and 70-71 ft bls) for laboratory analysis of PFAS and TOC. Soil sampling locations and rationale are presented in Table 3-1 and shown on Figure 3-1. The soil boring log for FS3-SB0001 is included in Appendix B.

3.2.2 DPT Groundwater Sampling

In January and February 2022, DPT groundwater samples were collected from eight locations (FS3-DPT0001 through FS3-DPT0008) at six depth intervals (3-7 ft bls, 10-14 ft bls, 23-27 ft bls, 33-37 ft bls, 43-47 ft bls, and 52-56 ft bls), for a total of 48 DPT groundwater samples. The sample locations were selected in areas around the site to provide a wide step-out from the historical groundwater samples collected during the Phase I and Phase II/III events. The four-foot screen intervals were selected based on the lithology observed in the continuous soil core collected from FS3-SB0001 in December 2021. DPT groundwater sampling locations and rationale are presented in Table 3-2 and shown on Figure 3-1.

At each DPT groundwater sample location, the upper 5 feet of soil was excavated using a stainless-steel hand auger to verify the absence of underground utilities. Groundwater grab samples were collected by DPT methods via a 4-foot-long stainless-steel retractable screen. New high density polyethylene (HDPE) tubing was used for each sampling location. When the desired sampling depth was reached, the tubing was placed into the borehole through the sampling rods at mid-screen, and groundwater was purged with a peristaltic pump for a minimum of five screen volumes (approximately 1.5 liters) prior to sample collection. During the sample purge, field

observations including odor and color were recorded prior to collecting each sample. Upon completion, each sample borehole was abandoned via pressure grouting techniques. DPT groundwater samples were placed in laboratory-provided sample containers, sealed, labeled, packed on ice, and delivered under proper chain-of-custody protocol to the laboratory. DPT groundwater sample logs are provided in Appendix B.

3.2.3 Surface Water Sampling

In March 2022, surface water samples were collected from eight locations (FS3-SW0001 through FS3-SW0008). Grab samples were collected from the mid-point of the standing water locations using a pre-cleaned pole-mounted scoop. Water quality parameters were collected at each location using a peristaltic pump equipped with a flow-through cell through HDPE tubing attached to a sample collection pole. Surface water locations and rationale are presented in Table 3-3 and on Figure 3-1. Surface water sample logs are provided in Appendix B.

3.3 PFAS LABORATORY ANALYSIS

All collected soil, groundwater, and surface water samples were shipped under chain-of-custody to Pace Laboratories in West Columbia, South Carolina, a National Environmental Laboratory Accreditation Program-certified laboratory. The PFAS samples were analyzed by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) Compliant with Table B-15 of the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) version 5.3. A list of 28 PFAS analytes were reported. The soil samples collected from the soil core were also analyzed for TOC by the Walkley-Black Method. Note the analytical method used for this SA included a more robust list of PFAS compounds than the method utilized during the prior investigations.

3.4 INVESTIGATION DERIVED WASTE

Investigation-derived waste (IDW) generated during the SA included soil cuttings, sampling purge water, and decontamination fluids. Once the soil core was evaluated and samples were collected, the soil cuttings were containerized and characterized prior to off-site disposal. The aqueous IDW was containerized into totes, characterized, and determined to be non-hazardous prior to being transferred to KSC's on-site IDW treatment system, per NASA's PFAS IDW

disposal protocols. Miscellaneous trash, construction debris, and personal protective equipment generated during field activities was wiped clean and disposed of in an appropriate trash container.

3.5 FIELD DATA QUALITY

QA/QC samples were collected for PFAS analysis throughout the duration of the SA and included field blanks at a frequency of one per day, equipment blanks at a frequency of one per reusable equipment type, sample duplicates at a ratio of approximately one per 10 samples, and matrix spikes at a ratio of approximately one per 20 samples. The QA/QC samples were collected in accordance with FDEP SOP FQ 1000 (Field Quality Control Requirements) (FDEP, 2017). The field blanks were collected by transferring laboratory-provided PFAS-free water into proper laboratory provided containers. The equipment blanks were collected from sampling equipment such as HDPE tubing and decontaminated stainless-steel Geoprobe sampler screens. Analytical results for the field QC samples are presented in Section 4.

Table 3-1. Soil Sample Locations and Rationale

Location (FS3-)	Sample Identification	Sample Depth (ft bls)	Sampling Rationale
SB0001	FS3-SB0001-011.5-20211209	11 - 12	Soil core to evaluate lithology and best placement of groundwater sample screen intervals
	FS3-SB0001-025.5-20211209	25 - 26	
	FS3-SB0001-038.5-20211209	38 - 39	
	FS3-SB0001-055.5-20211209	55 - 56	
	FS3-SB0001-059.5-20211209	59 - 60	
	FS3-SB0001-070.5-20211209	70 - 71	

Note:

Samples were analyzed for 28 PFAS compounds by LC/MS/MS Compliant with QSM 5.3 Table B-15.

Samples were also analyzed for Total Organic Carbon (TOC)

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

Table 3-2. DPT Sample Locations and Rationale

Location (FS3-)	Sample Depth (ft bls)	Sampling Rationale
DPT0001	3 - 7	Horizontal delineation of previous screening level exceedances; south of PFAS-DPT0106
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	
DPT0002	3 - 7	Horizontal delineation of previous screening level exceedances; north of PFAS-DPT0031
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	
DPT0003	3 - 7	Horizontal delineation of previous screening level exceedances; eastern boundary
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	
DPT0004	3 - 7	Horizontal delineation of previous screening level exceedances; northern boundary on western side of crawlerway
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	
DPT0005	3 - 7	Horizontal delineation of previous screening level exceedances; southwestern boundary on western side of crawlerway
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	
DPT0006	3 - 7	Western locations to determine if impacts exist
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	
DPT0007	3 - 7	Western locations to determine if impacts exist
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	

Table 3-2. DPT Sample Locations and Rationale

Location (FS3-)	Sample Depth (ft bls)	Sampling Rationale
DPT0008	3 - 7	Western locations to determine if impacts exist
	10 - 14	
	23 - 27	
	33 - 37	
	43 - 47	
	52 - 56	

Samples analyzed for 28 PFAS compounds by LC/MS/MS Compliant with QSM 5.3 Table B-15

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

Table 3-3. Surface Water Sample Locations and Rationale

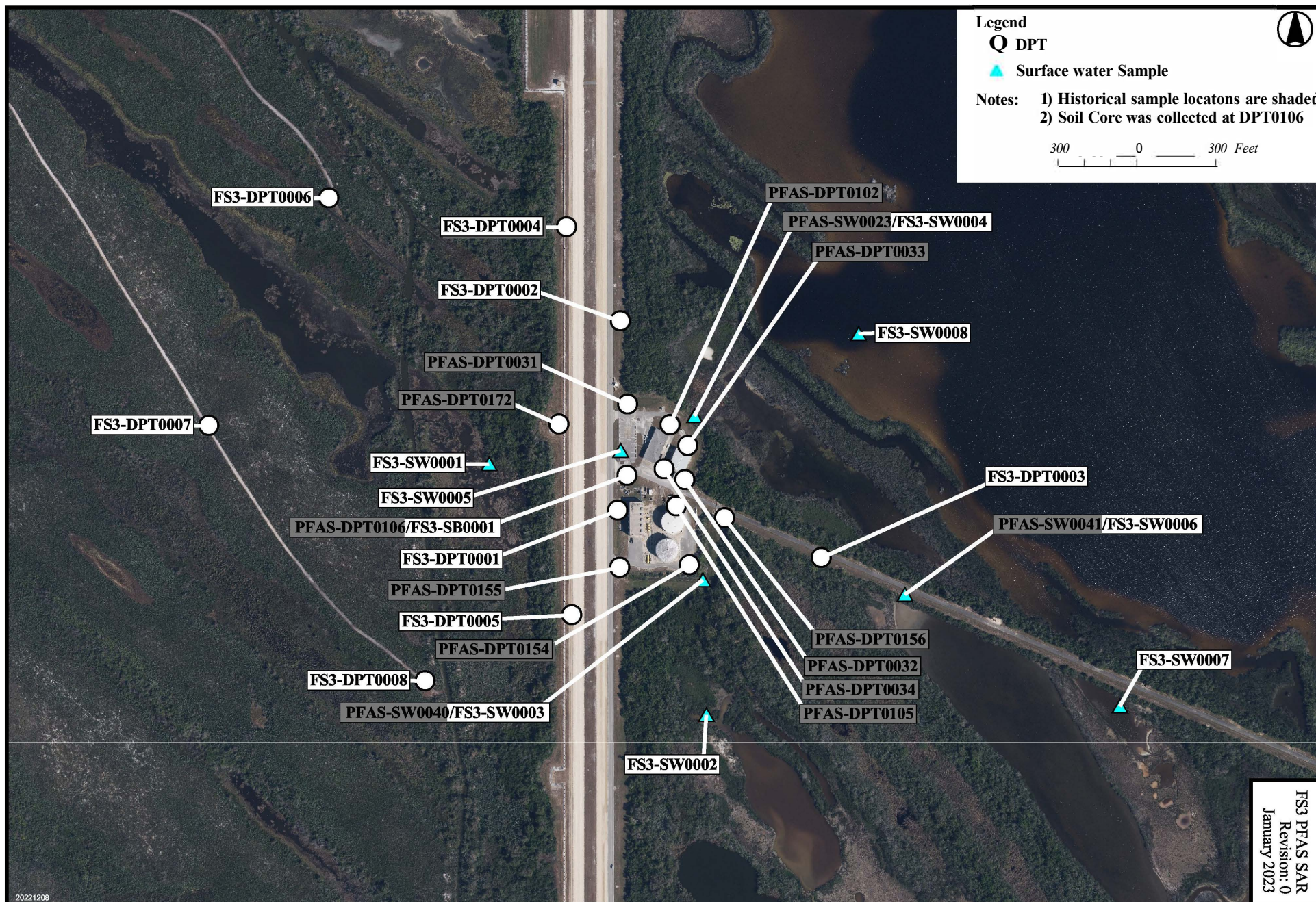
Location (FS3-)	Sample Depth (ft bls)	Sampling Rationale
SW0001	0 - 0.5	Horizontal extents; west of site
SW0002	0 - 0.5	Horizontal extents; south of site
SW0003	0 - 0.5	Confirm results at peviously collected PFAS-SW0040
SW0004	0 - 0.5	Confirm results at peviously collected PFAS-SW0023
SW0005	0 - 0.5	Sample from vault in parking lot (Pit No. 9)
SW0006	0 - 0.5	Confirm results at peviously collected PFAS-SW0041
SW0007	0 - 0.5	Horizontal extents; east of site
SW0008	0 - 0.5	Sample from Gator Pond

Samples analyzed for 28 PFAS compounds by LC/MS/MS Compliant with QSM 5.3 Table B-15

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

FIGURE 3-1 PFAS SITE ASSESSMENT SAMPLE LOCATIONS
SWMU 106, KENNEDY SPACE CENTER, FLORIDA



FS3 PFAS SAR
Revision: 0
January 2023

SECTION IV DATA EVALUATION

4.1 DATA EVALUATION AND SCREENING PROCESS

In May 2022, the USEPA issued updated RSLs, calculated using a Hazard Quotient (HQ) of 0.1, for PFOA, PFOS, and PFBS, and included RSLs for additional PFAS compounds including PFHxS, PFNA, and HFPO-DA (GenX) (USEPA, 2022). In November 2022, the USEPA RSL tables were updated, but there were no changes to the PFAS screening levels. The USEPA RSLs for tap water and residential soil were used as project screening levels for this assessment.

The State of Florida developed provisional cleanup target levels for PFAS in various media, as described in the FDEP Dynamic Plan (FDEP, 2022). The published SWSLs for Human Health in freshwater and marine environments for PFOA and PFOS were used as project screening levels for this assessment. Florida does not currently have SWSLs for other PFAS compounds or screening levels for sediment.

Project screening levels for each media sampled during this assessment are presented in the analytical data tables and listed below:

Chemical	Soil RSL ¹ (µg/kg)	Groundwater RSL ² (ng/L)	Surface Water SWSL ³ (ng/L)
HFPO-DA (GenX)	23	6	NA
PFBS	1,900	600	NA
PFHxS	130	39	NA
PFNA	19	5.9	NA
PFOA	19	6	500
PFOS	13	4	10

(1) USEPA residential soil RSLs based on HQ of 0.1

(2) USEPA Tap Water RSLs based on HQ of 0.1

(3) State of Florida screening levels for human health in freshwater and marine environments

NA – Not applicable; no screening criteria

4.2 SOIL

Six soil samples were collected from one location (FS3-SB0001) in December 2021 to evaluate PFAS at FS3. The soil results are summarized in Table 4-1 and presented on Figure 4-1. The

results are organized to present the six compounds with USEPA RSLs at the top of the table for comparison to the applicable screening criteria. The frequencies of detection along with maximum detected concentrations for all 28 analyzed compounds are presented in Table 4-2. In addition to the PFAS compounds analyzed, TOC was analyzed in all soil samples to further characterize the soil. The laboratory report for all soil data collected in December 2021 is included in Appendix C. The soil results are further discussed and evaluated below.

Six soil samples were collected from one boring location, FS3-SB0001, where a continuous soil core was advanced from 0 to 80 ft bls to evaluate lithology in the area. The grab samples were collected from 1-ft sample intervals at 11-12 ft bls, 25-26 ft bls, 38-39 ft bls, 55-56 ft bls, 59-60 ft bls, and 70-71 ft bls. No exceedances of the RSLs were observed for the six PFAS compounds with applicable screening criteria. The results also showed that higher soil PFAS concentrations were found in shallower depths at 11-12 and 25-26 ft bls; however, the concentration differences between depths remain insignificant because no screening criteria was exceeded. It should be noted that all soil samples were from the saturated zone, and co-located with a historical DPT location where PFAS RSL exceedances were identified in groundwater (see Section 3.2.1).

TOC was analyzed at each of the six soil samples collected at FS3-SB0001. TOC was analyzed to further characterize the soil and to provide evidence of environmental partitioning and adsorption of PFAS compounds on soil organic carbon. The concentration of TOC ranged across all samples from 1,500 to 20,000 milligrams per kilogram (mg/kg). The highest result of 20,000 mg/kg was found at 11-12 ft bls where the lithology was recorded to be black organic rich sands. Lesser organic rich depth intervals showed lower TOC results at 25-26 ft bls, 38-39 ft bls, and 55-56 ft bls. At 59-60 ft bls, a TOC result of 18,000 mg/kg was reported in a lithology observed to be gray clay. The deepest result at 70-71 ft bls was 1,900 mg/kg in sandy shelly clays. Compared to the PFAS concentrations found in soil, the higher TOC found in the shallower intervals loosely correlated with the higher PFAS concentrations at the same depths. The elevated levels of TOC potentially contribute to higher adsorption of PFAS compounds to the soil and conversely to less potential leaching of PFAS from soil to groundwater.

4.3 GROUNDWATER

There were 48 DPT groundwater samples collected from eight locations (FS3-DPT0001 to FS3-DPT0008) in January and February 2022. Four field duplicate samples were also collected during the field event. The groundwater results are summarized in Table 4-3 and presented on Figure 4-2. The frequencies of detection along with maximum detected concentrations for all 28 analyzed compounds are presented in Table 4-4. The laboratory reports for all groundwater data collected are included in Appendix C. The groundwater results are further discussed and evaluated below.

Out of the six compounds with applicable screening criteria, three compounds (PFHxS, PFOA, and PFOS) were found in exceedance of the USEPA RSLs. Detections were observed for PFNA and PFBS but did not exceed the RSLs. Furthermore, no detections were observed for HFPO-DA (GenX). The maximum detected concentrations for PFHxS, PFOA, and PFOS were all from FS3-DPT0001, centrally located near the corner of the Crawlerway and Pad A Emergency Road. The maximum PFHxS detection was 340 ng/L at 23-27 ft bls, greater than the RSL of 39 ng/L; the maximum PFOA detection was 18 ng/L at 23-27 ft bls, greater than the RSL of 6 ng/L; and the maximum PFOS detection was 110 ng/L at 3-7 ft bls, greater than the RSL of 4 ng/L. As shown in Table 4-3, multiple other sample locations had detections of these three PFAS at concentrations greater than RSLs, including in FS3-DPT0001, FS3-DPT0002, FS3-DPT0003, FS3-DPT0004, FS3-DPT0005, and FS3-DPT0007. Samples collected from FS3-DPT0006 and FS3-DPT0008 had no detections. Field duplicates were collected from FS3-DPT0002 at 23-27 ft bls, FS3-DPT0003 at 3-7 ft bls, FS3-DPT0005 at 10-14 ft bls, and FS3-DPT0007 at 33-37 ft bls. The results included in Table 4-3 show that the duplicates were comparable to the parent samples.

In general, PFAS concentrations decreased vertically with sample depth as no exceedances were found in the 52-56 ft bls interval. The locations of the exceedances are spread directionally across the site with some boundary locations at the northern, western, and eastern extents. The historical dataset also shows exceedances with the highest maximum detections in PFAS-DPT0032 at 10 ft bls (65,000 ng/L PFOS), PFAS-DPT0034 at 35 ft bls (19,000 ng/L PFHxS), and PFAS-DPT0032

at 10 ft bls (2,600 ng/L PFOA). These locations are in the northeast portion of the site, just outside of the Fire Station #3 building (J7-1339).

4.4 SURFACE WATER

A total of eight surface water locations (FS3-SW0001 to FS3-SW0008) were sampled in March 2022. The surface water and field duplicate results are summarized in Table 4-5 and presented on Figure 4-3. The applicable SWSLs are represented at the top of the table for compounds, PFOA and PFOS. The four other PFAS compounds that have groundwater RSLs are also listed at the top of this table to help evaluate potential correlation or interaction of groundwater-to-surface water pathways. The frequencies of detection along with the maximum detected concentrations for all 28 analyzed compounds are presented in Table 4-6. The laboratory reports for all surface water data are included in Appendix C. The surface water results are further discussed and evaluated below.

PFOA and PFOS were detected at all eight surface water sample locations. None of the PFOA detections exceeded the SWSL of 500 ng/L. The PFOS detections; however, were greater than the SWSL of 10 ng/L in all eight samples. The PFOS detections ranged from 20 ng/L in FS3-SW0007 to 1,800 ng/L in FS3-SW0004. Location FS3-SW0004 also had the highest detection of PFOA (64 ng/L), although it was less than the SWSL. This location is near the northeast corner of the SCAPE Building (J7-1338) and north of the Fire Station #3 building (J7-1339). As shown in Table 4-5, there were 13 other PFAS compounds detected that do not have SWSLs. The location with the most maximum detections of other PFAS was FS3-SW0004.

Overall, the highest PFOS exceedance was observed at FS3-SW0004 with lesser PFOS exceedances located in the surrounding area. Three locations were collocated with historical sample points to compare datasets. Sample FS3-SW0004 was collocated with the historical surface water location PFAS-SW0023 sampled in 2019. Comparatively, results from FS3-SW0004 showed the same order of magnitude for both PFOA and PFOS with concentrations at PFAS-SW0023 of 93 ng/L and 1,500 ng/L for PFOA and PFOS, respectively. Sample FS3-SW0003 was collocated with PFAS-SW0040 sampled in 2020. This location is southeast of the Industrial Water Pumping Station (J7-1388). A comparison of results show PFOA concentrations

still less than the SWSL and PFOS concentrations greater than SWSLs, but the recent sample collected from FS3-SW0003 is orders of magnitude lower. Lastly, FS3-SW0006 was collocated with PFAS-SW0041. This location is approximately 1,000 feet east of the Industrial Water Pumping Station off the Pad A Emergency Road. In both samples, PFOA concentrations were less than the SWSL and the PFOS concentrations were greater than the SWSL.

The surface water results show PFOS detections greater than the SWSL across the site with most in the area of Fire Station #3 building (J7-1339), SCAPE Building, and the Industrial Water Pumping Station. The presence of PFOS exceedances in surface water is similar to the groundwater dataset. Considering the current and historical dataset for PFOS in groundwater, the majority of higher level concentrations are in the vicinity of buildings with lesser concentrations spreading outward. This correlation suggests interaction between the surface water and groundwater potentially contributing to the extent of PFAS impacts to the environment. Additional site assessment would be needed for both surface water and groundwater media to better understand the interaction and provide further delineation.

4.5 FIELD QA/QC EVALUATION

The analytical results for the field blanks and equipment blanks are presented in Table 4-7. The analytical results for field duplicates are presented in the analytical results tables with their parent sample results. As shown in the Table 4-7, there were no PFAS detected in the equipment blanks or field blanks. The field duplicate/parent pairs were evaluated and determined to be within the acceptable range for relative percent difference criteria.

Table 4-1. Soil Analytical Results

Location ID (FS3-)	Date	CAS No.	Screening Criteria ^{1,2}	SB0001					
				12/9/21	12/9/21	12/9/21	12/9/21	12/9/21	12/9/21
				11 - 12	25 - 26	38 - 39	55 - 56	59 - 60	70 - 71
PFAS with Screening Criteria (µg/kg)									
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³		13252-13-6	23	1.2 U	1.3 U	1.2 U	1.1 U	1.4 U	1.2 U
Perfluoro-1-butanefulfonic acid (PFBS)		375-73-5	1900	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluorohexanesulfonic acid (PFHxS)		355-46-4	130	1.1 I	0.38 I	0.58 I	0.23 U	0.29 U	0.23 U
Perfluoro-n-nonanoic acid (PFNA)		375-95-1	19	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-octanoic acid (PFOA)		335-67-1	19	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluorooctanesulfonic acid (PFOS)		1763-23-1	13	3.2	4.7	4.3	0.3 I	0.29 U	0.23 U
PFAS without Screening Criteria (µg/kg)									
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)		757124-72-4	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)		27619-97-2	--	0.62 U	5.4 V	3.8 V	3.4 V	1.7 IV	1.6 IV
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)		39108-34-4	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)		756426-58-1	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)		763051-92-9	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		919005-14-4	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)		4151-50-2	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)		2991-50-6	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)		2355-31-9	--	0.62 U	0.63 U	0.61 U	0.57 U	0.72 U	0.58 U
Perfluoro-n-butanoic acid (PFBA)		375-22-4	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-1-decanesulfonic acid (PFDS)		335-77-3	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-decanoic acid (PFDA)		335-76-2	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-dodecanoic acid (PFDoA)		307-55-1	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-1-heptanesulfonic acid (PFHpS)		375-92-8	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-heptanoic acid (PFHpA)		375-85-9	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-hexanoic acid (PFHxA)		307-24-4	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-1-nonanesulfonic acid (PFNS)		68259-12-1	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-1-pentanesulfonic acid (PFPeS)		2706-91-4	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-pentanoic acid (PFPeA)		2706-90-3	--	0.3 I	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-tetradecanoic acid (PFTeDA)		376-06-7	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-tridecanoic acid (PFTrDA)		72629-94-8	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Perfluoro-n-undecanoic acid (PFUdA)		2058-94-8	--	0.25 U	0.25 U	0.24 U	0.23 U	0.29 U	0.23 U
Other Parameters (mg/kg)									
Total Organic Carbon		--	--	20,000	4,200	1,500	2,400	18,000	1,900

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Soil RSL is cited from the EPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

FS3 = Fire Station #3

USEPA = United States Environmental Protection Agency

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

U = Analyte was not detected

V = Detected in the method blank

Note: A data quality review was performed by Tetra Tech's data manager and the results provided in this table were found to have been generated in conformance with good analytical practices. Some minor nonconformance issues were noted in the quality control elements associated with project samples, and the appropriate data qualification was applied to the affected results as needed. Additional details on data quality are included in the analytical reports provided in the Appendices.

Table 4-2. Soil Frequencies of Detection

Parameter	CAS No.	Screening Criteria ^{1,2}	Method DoD QSM 5.3						
			No. of Samples ³	No. of Detections	Minimum Concentration (µg/kg)	Maximum Concentration (µg/kg)	Location with Maximum Concentration	Average Concentration (Detections Only)	No. Samples > Screening Level
PFAS with Screening Criteria (µg/kg)									
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ⁴	13252-13-6	23	6	0	NA	NA	NA	NA	NA
Perfluoro-1-butananesulfonic acid (PFBS)	375-73-5	1900	6	0	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	130	6	3	0.38	1.1	FS3-SB0001-011.5-20211209	0.7	0
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	19	6	0	NA	NA	NA	NA	NA
Perfluoro-n-octanoic acid (PFOA)	335-67-1	19	6	0	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	13	6	4	0.30	4.7	FS3-SB0001-025.5-20211209	3.1	0
PFAS without Screening Criteria (µg/kg)									
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	6	0	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	6	5	1.60	5.40	FS3-SB0001-025.5-20211209	3.2	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	6	0	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	6	0	NA	NA	NA	NA	NA
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	6	0	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	6	0	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	6	0	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	6	0	NA	NA	NA	NA	NA
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	6	0	NA	NA	NA	NA	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	6	0	NA	NA	NA	NA	NA
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	6	0	NA	NA	NA	NA	NA
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	6	0	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	6	1	0.30	0.30	FS3-SB0001-011.5-20211209	0.30	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	6	0	NA	NA	NA	NA	NA
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	6	0	NA	NA	NA	NA	NA

All results reported in microgram per kilogram (µg/kg)

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Soil RSL is cited from the EPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 Only samples collected for FS3 on and after December 2021 are represented in this table. QA/QC samples are not included in the dataset.

4 HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

FS3 = Fire Station #3

USEPA = United States Environmental Protection Agency

NA = Not Applicable due to no detections or screening criteria not available

PFAS = per- and polyfluoroalkyl substances

Table 4-3. DPT Analytical Results

Location ID (FS3-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	DPT0001						DPT0002						
			1/24/22 3 - 7	1/24/22 10 - 14	1/24/22 23 - 27	1/24/22 33 - 37	1/24/22 43 - 47	1/24/22 52 - 56	1/25/22 3 - 7	1/25/22 10 - 14	1/25/22 23 - 27	1/25/22 23 - 27*	1/25/22 33 - 37	1/25/22 43 - 47	1/25/22 52 - 56
PFAS with Screening Criteria (ng/L)															
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	600	1.1 U	0.97 UQ	8.7 Q	1.5 I	14	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	1.4 I	17 Q	340 Q	29	190	1.5 I	3.7 I	11	5.5	5	1.1 U	1.1 U	0.88 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	1.9 I	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	1.1 I	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	1.2 I	2.8 IQ	18 Q	3 I	16	1 U	1.9 I	2.8 I	2.1 I	2.7 I	1.1 U	1.1 U	0.88 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	110	18 Q	24 Q	9.8 V	23 V	1 U	15 V	48 V	8.3	8.5	1.1 U	1.9 I	0.88 U
PFAS without Screening Criteria (ng/L)															
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	2.2 U	1.9 UQ	76 Q	1.8 U	4.2 I	2 U	1.9 U	1.9 U	1.9 U	2.9 I	30	100	1.8 U
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	2.2 U	1.9 UQ	1.9 UQ	1.8 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.2 U	2.3 U	1.8 U
Perfluoro-n-butyric acid (PFBA)	375-22-4	--	1.1 U	2.9 IQ	31 Q	7.3	14	1 U	5.4	8.3	8.9	9.2	1.1 U	1.1 U	0.88 U
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	1.1 U	1.5 IQ	4.5 Q	0.92 U	2.6 I	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	1.1 U	2 IQ	25 Q	3.9	16	1 U	2.8 I	3 I	0.93 U	1.1 I	1.1 U	1.1 U	0.88 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	1.1 U	2.5 IQ	69 Q	4.5	37	1 U	2 I	3.1 I	1.4 I	1.5 I	1.1 U	1.1 U	0.88 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	1.1 U	0.97 UQ	15 Q	0.92 U	15	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	1.1 U	0.97 UQ	93 Q	4.9	28	1 U	1.9 I	4.2	1.7 I	1.9 I	1.1 U	1.1 I	0.88 U
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.1 U	0.97 UQ	0.96 UQ	0.92 U	1 U	1 U	0.95 U	0.93 U	0.93 U	0.94 U	1.1 U	1.1 U	0.88 U

Table 4-3. DPT Analytical Results

Location ID (FS3-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	DPT0003							DPT0004					
			1/25/22 3 - 7	1/25/22 3 - 7*	1/25/22 10 - 14	1/25/22 23 - 27	1/25/22 33 - 37	1/25/22 43 - 47	1/25/22 52 - 56	1/26/22 3 - 7	1/26/22 10 - 14	1/26/22 23 - 27	1/26/22 33 - 37	1/26/22 43 - 47	1/26/22 52 - 56
PFAS with Screening Criteria (ng/L)															
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	600	18	19	18	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	140	160	130	0.89 U	0.94 U	0.9 U	0.88 U	1.9 I	1.3 I	1.8 I	1 U	0.9 U	1 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	0.94 U	0.9 U	1.7 I	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	16	14	14	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	1.3 I	1.2 U	1 U	0.9 U	1 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	15	15	33	0.89 U	0.94 U	0.9 U	0.88 U	17	3.4 I	2.1 I	1.7 I	0.9 U	1 U
PFAS without Screening Criteria (ng/L)															
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	1.9 U	3.5 I	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.3 U	1.9 U	2.3 U	2.1 U	1.8 U	2 U
Perfluoro-n-butyric acid (PFBA)	375-22-4	--	34	35	31	0.89 U	0.94 U	0.9 U	0.88 U	4.6	6.1	11	1 U	0.9 U	1 U
Perfluoro-1-decanedisulfonic acid (PFDS)	335-77-3	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	3.2 I	3.5 I	2.9 I	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	11	11	12	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	23	23	22	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	19	19	19	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	20	20	20	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	1.1 I	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	0.94 U	0.9 U	0.88 U	0.89 U	0.94 U	0.9 U	0.88 U	1.1 U	0.95 U	1.2 U	1 U	0.9 U	1 U

Table 4-3. DPT Analytical Results

Location ID (FS3-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	DPT0005						DPT0006						
			1/26/22 3 - 7	1/26/22 10 - 14	1/26/22 10 - 14*	1/26/22 23 - 27	1/26/22 33 - 37	1/26/22 43 - 47	1/26/22 52 - 56	2/7/22 3 - 7	2/7/22 10 - 14	2/7/22 23 - 27	2/7/22 33 - 37	2/7/22 43 - 47	2/7/22 52 - 56
PFAS with Screening Criteria (ng/L)															
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	600	0.92 U	0.92 U	0.95 U	0.96 U	7.1	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	1.6 I	0.92 U	0.95 U	5.4	120	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	1.9 I	0.92 U	0.95 U	0.96 U	11	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	3.7	2.1 I	2.4 I	3.3 I	23	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
PFAS without Screening Criteria (ng/L)															
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	20 U	20 U	1.8 U	1.8 U	1.8 U	1.8 U
Perfluoro-n-butyric acid (PFBA)	375-22-4	--	11	3.1 I	3.1 I	5.9	11	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	0.92 U	0.92 U	0.95 U	0.96 U	1.2 I	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	0.99 I	0.92 U	0.95 U	1.3 I	16	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	1.3 I	0.92 U	0.95 U	2.1 I	31	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	0.92 U	0.92 U	0.95 U	0.96 U	9.3	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	1.4 I	0.92 U	0.95 U	2.1 I	25	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-tridecanoic acid (PFTTrDA)	72629-94-8	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	--	0.92 U	0.92 U	0.95 U	0.96 U	0.91 U	0.89 U	0.89 U	10 U	10 U	0.92 U	0.91 U	0.9 U	0.92 U

Table 4-3. DPT Analytical Results

Location ID (FS3-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	DPT0007						DPT0008							
			2/8/22	2/8/22	2/8/22	2/8/22	2/8/22	2/8/22	2/8/22	2/8/22	2/8/22	2/8/22	2/8/22			
			3 - 7	10 - 14	23 - 27	33 - 37	33 - 37*	43 - 47	52 - 56	3 - 7	10 - 14	23 - 27	33 - 37	43 - 47	52 - 56	
PFAS with Screening Criteria (ng/L)																
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	600	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	20 I	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
PFAS without Screening Criteria (ng/L)																
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	20 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	20 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U
Perfluoro-n-butyric acid (PFBA)	375-22-4	--	10 U	5.9	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	10 U	0.94 U	0.89 U	0.9 U	0.89 U	0.94 U	0.9 U	10 U	0.88 U	0.92 U	0.9 U	0.93 U	0.87 U	0.87 U

All results reported in nanogram per liter (ng/L)

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Groundwater RSL is cited from the EPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 HFPO-DA is commonly referred to as GenX

* Duplicate sample results are included in this table and labeled with asterisk; other Quality Control/Quality Assurance sample results are included in the laboratory reports (Appendix C) and Table 4-7

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

FS3 = Fire Station #3

USEPA = United States Environmental Protection Agency

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

Q = Out of holding time

U = Analyte was not detected

V = Detected in the method blank

Note: A data quality review was performed by Tetra Tech's data manager and the results provided in this table were found to have been generated in conformance with good analytical practices. Some minor nonconformance issues were noted in the quality control elements associated with project samples, and the appropriate data qualification was applied to the affected results as needed. Additional details on data quality are included in the analytical reports provided in the Appendices.

Table 4-4. DPT Groundwater Frequencies of Detection

Parameter	CAS No.	Screening Criteria ^{1,2}	Method DoD QSM 5.3						
			No. of Samples ³	No. of Detections	Minimum Concentration (ng/L)	Maximum Concentration (ng/L)	Location with Maximum Concentration	Average Concentration (Detections Only)	No. Samples > Screening Level
PFAS with Screening Criteria (ng/L)									
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ⁴	13252-13-6	6	48	0	NA	NA	NA	NA	NA
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	600	48	6	1.5	18	FS3-DPT0003-005.0-20220125	11.2	0
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	48	17	1.3	340	FS3-DPT0001-025.0-20220124	59	5
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	48	3	1.1	1.9	FS3-DPT0001-005.0-20220124	1.6	0
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	48	13	1.2	18	FS3-DPT0001-025.0-20220124	7.1	5
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	48	20	1.7	110	FS3-DPT0001-005.0-20220124	19	13
PFAS without Screening Criteria (ng/L)									
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	48	0	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	48	4	4.2	100	FS3-DPT0002-045.0-20220125	53	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	48	0	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	48	0	NA	NA	NA	NA	NA
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	48	0	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	48	0	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	48	0	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	48	0	NA	NA	NA	NA	NA
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	48	0	NA	NA	NA	NA	NA
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	48	17	2.9	34.0	FS3-DPT0003-005.0-20220125	11.8	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	48	0	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	48	0	NA	NA	NA	NA	NA
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	48	0	NA	NA	NA	NA	NA
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	48	6	1.2	4.5	FS3-DPT0001-025.0-20220124	2.7	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	48	11	1.0	25	FS3-DPT0001-025.0-20220124	8.5	NA
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	48	12	1.3	69	FS3-DPT0001-025.0-20220124	17	NA
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	48	0	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	48	5	9.3	19	FS3-DPT0003-005.0-20220125	15.5	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	48	13	1.1	93	FS3-DPT0001-025.0-20220124	15.7	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	48	0	NA	NA	NA	NA	NA
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	48	0	NA	NA	NA	NA	NA
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	48	0	NA	NA	NA	NA	NA

All results reported in nanogram per liter (ng/L)

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Groundwater RSL is cited from the EPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 Only samples collected for FS3 on and after December 2021 are represented in this table. QA/QC samples are not included in the dataset.

4 HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

FS3 = Fire Station #3

EPA = United States Environmental Protection Agency

NA = Not Applicable due to no detections or screening criteria not available

PFAS = per- and polyfluoroalkyl substances

Table 4-5. Surface Water Analytical Results

Location ID (FS3-)	CAS	Screening Criteria ¹	SW0001	SW0001	SW0002	SW0003	SW0004	SW0005	SW0006	SW0007	SW0008
Date			3/8/2022	3/8/2022	3/8/2022	3/8/2022	3/8/2022	3/8/2022	3/8/2022	3/8/2022	3/11/2022
Sample Depth (ft bls)			0 - 0.5	0 - 0.5*	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
PFAS with Screening Criteria (ng/L)											
Perfluoro-n-octanoic acid (PFOA)	335-67-1	500	9.3	9.4	10	7.5	64	4.5	14	7.8	9.1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	10	37	36	21	220	1800	40	40	20	30
PFAS without Screening Criteria (ng/L)											
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	2.8 I	2.9 I	1.8 U	1.8 U	13	9.1	5.3 U	1.8 U	1.7 U
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	5.6 I	5.3 U	1.8 U	1.7 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	1.8 U	1.8 U	1.8 U	1.8 U	2.2 U	1.7 U	5.3 U	1.8 U	1.7 U
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	16	16	27	13	39	5.1	46	29	17
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	--	8.7	8.7	3.8	4.6	26	0.87 U	7.7 I	4.3	5.6
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	0.88 U	0.9 U	0.9 U	0.88 U	1.1 U	0.87 U	2.7 U	0.88 U	0.86 U
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.88 U	0.9 U	0.9 U	1.1 I	1.8 I	0.89 I	2.7 U	0.88 U	0.86 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	0.88 U	0.9 U	0.9 U	0.88 U	1.1 U	0.87 U	2.7 U	0.88 U	0.86 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	1.7 I	1.6 I	0.9 U	2.5 I	32	0.87 U	2.7 U	0.88 U	1.2 I
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	18	17	9.6	6.2	93	4.6	11	6.2	9
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	34	32	11	9.1	100	9.6	13	9	14
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	--	100	97	23	53	730	13	34	23	43
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	--	1.6 I	1.5 I	1.9 I	2.4 I	17	1.5 I	2.9 I	1.4 I	1.3 I
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	0.88 U	0.9 U	0.9 U	0.89 I	1.1 U	0.87 U	2.7 U	0.88 U	0.86 U
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	11	11	2.8 I	4.5	49	1.1 I	6 I	3.1 I	4.8
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	31	30	11	7.4	110	8.7	13	8.3	12
Perfluoro-n-tetradecanoic acid (PFTrDA)	376-06-7	--	0.88 U	0.9 U	0.9 U	0.88 U	1.1 U	0.87 U	2.7 U	0.88 U	0.86 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	0.88 U	0.9 U	0.9 U	0.88 U	1.1 U	0.87 U	2.7 U	0.88 U	0.86 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	0.88 U	0.9 U	0.9 U	0.88 U	1.1 U	0.87 U	2.7 U	0.88 U	0.86 U

All results reported in nanogram per liter (ng/L)

¹ The State of Florida human health Surface Water Screening Levels for PFOA and PFOS are presented in this table

* Duplicate sample results are included in this table and labeled with asterisk; other Quality Control/Quality Assurance sample results are included in the laboratory reports (Appendix C) and Table 4-7

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

FS3 = Fire Station #3

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

U = Analyte was not detected

Note: A data quality review was performed by Tetra Tech's data manager and the results provided in this table were found to have been generated in conformance with good analytical practices. Some minor nonconformance issues were noted in the quality control elements associated with project samples, and the appropriate data qualification was applied to the affected results as needed. Additional details on data quality are included in the analytical reports provided in the Appendices.

Table 4-6. Surface Water Frequencies of Detection

Parameter	CAS No.	Screening Criteria ¹	Method DoD QSM 5.3						
			No. of Samples ²	No. of Detections	Minimum Concentration (ng/L)	Maximum Concentration (ng/L)	Location with Maximum Concentration	Average Concentration (Detections Only)	No. Samples > Screening Level
PFAS with Screening Criteria (ng/L)									
Perfluoro-n-octanoic acid (PFOA)	335-67-1	500	8	8	4.5	64	FS3-SW0004-000.5-20220308	16	0
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	10	8	8	20.0	1800	FS3-SW0004-000.5-20220308	276	8
PFAS without Screening Criteria (ng/L)									
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	8	0	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	8	3	2.8	13	FS3-SW0004-000.5-20220308	8	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	8	1	5.6	5.6	FS3-SW0005-000.5-20220308	5.6	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	8	0	NA	NA	NA	NA	NA
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	8	0	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	8	0	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	--	8	0	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	8	0	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	8	0	NA	NA	NA	NA	NA
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	8	0	NA	NA	NA	NA	NA
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	8	8	5.1	46.0	FS3-SW0006-000.5-20220308	24.0	NA
Perfluoro-1-butanefulfonic acid (PFBS)	375-73-5	--	8	7	3.8	26	FS3-SW0004-000.5-20220308	8.7	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	8	0	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	8	3	0.9	2	FS3-SW0004-000.5-20220308	1.3	NA
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	8	0	NA	NA	NA	NA	NA
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	8	4	1.2	32.0	FS3-SW0004-000.5-20220308	9.4	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	8	8	4.6	93.0	FS3-SW0004-000.5-20220308	19.7	NA
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	8	8	9.0	100	FS3-SW0004-000.5-20220308	25.0	NA
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	--	8	8	13.0	730	FS3-SW0004-000.5-20220308	127	NA
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	--	8	8	1.3	17	FS3-SW0004-000.5-20220308	4	NA
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	8	1	0.9	0.9	FS3-SW0003-000.5-20220308	0.9	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	8	8	1.1	49	FS3-SW0004-000.5-20220308	10.3	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	8	8	7.4	110	FS3-SW0004-000.5-20220308	25.2	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	8	0	NA	NA	NA	NA	NA
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	8	0	NA	NA	NA	NA	NA
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	8	0	NA	NA	NA	NA	NA

All results reported in nanogram per liter (ng/L)

1 The State of Florida human health Surface Water Screening Levels for PFOA and PFOS are presented in this table.

2 Only samples collected for FS3 on and after December 2021 are represented in this table. QA/QC samples are not included in the dataset.

3 HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

FS3 = Fire Station #3

NA = Not Applicable due to no detections or no screening criteria available

PFAS = per- and polyfluoroalkyl substances

Table 4-7. Field QA/QC Analytical Results

Sample ID (FS3-)	CAS No.	Screening Criteria ^{1,2}	FB01-20211209	RB01-20211209	FB-20220124-01	EB-20220125-01	EB-20220125-02	FB-20220125-01	EB-20220126-01	FB-20220126-01	EB-20220208-01	FB-20220208-01	EB-20220308-01	FB-20220308-01	
Date			12/9/2021	12/9/2021	1/24/2022	1/25/2022	1/25/2022	1/25/2022	1/26/2022	1/26/2022	2/8/2022	2/8/2022	3/8/2022	3/8/2022	
Sample Depth (ft bls)			-	-	-	-	-	-	-	-	-	-	-	-	-
Type			FB	EB	FB	EB	EB	FB	EB	FB	EB	FB	EB	FB	EB
PFAS with Screening Criteria (ng/L)															
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
Perfluoro-1-butananesulfonic acid (PFBS)	375-73-5	600	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
PFAS without Screening Criteria (ng/L)															
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
11-chloroicosadecafluoro-3-oxadecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2.1 U	2 U	2 U	1.9 U	2.1 U	1.8 U	1.8 U	
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	0.97 U	0.93 U	0.91 U	1 U	1 U	1.1 U	0.98 U	1 U	0.97 U	1 U	0.91 U	0.88 U	

All results reported in nanogram per liter (ng/L)

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Groundwater RSL is cited from the EPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

EB = Equipment Blank

FB = Field Blank

FS3 = Fire Station #3

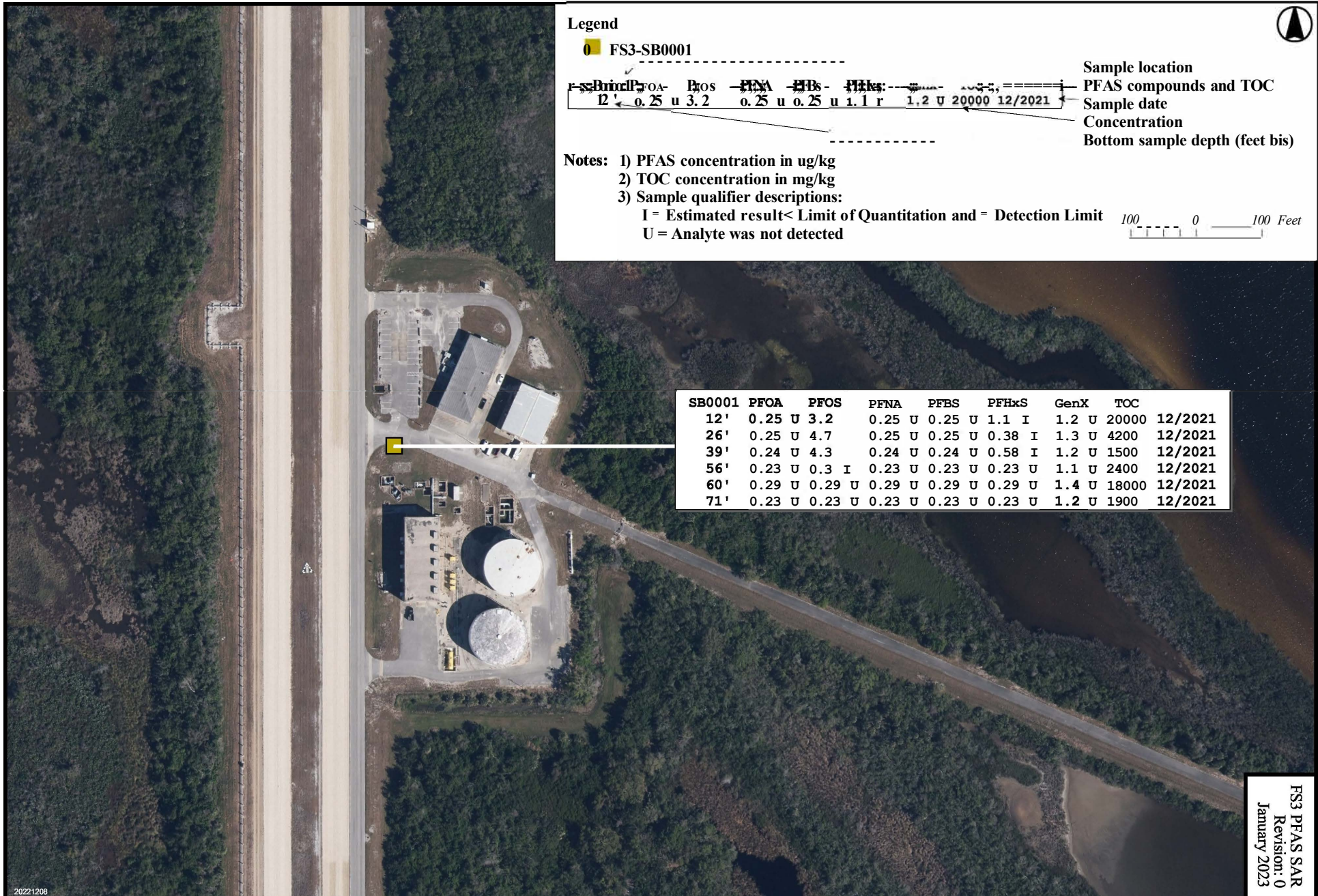
USEPA = United States Environmental Protection Agency

ft bls = feet below land surface

PFAS = per- and polyfluoroalkyl substances

U = Analyte was not detected

FIGURE 4-1 PFAS SOIL RESULTS
SWMU 106, KENNEDY SPACE CENTER, FLORIDA

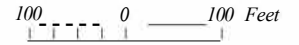


Legend

0 ■ FS3-SB0001

Sample location
 PFAS compounds and TOC
 Sample date
 Concentration
 Bottom sample depth (feet bis)

- Notes:**
- 1) PFAS concentration in ug/kg
 - 2) TOC concentration in mg/kg
 - 3) Sample qualifier descriptions:
 I = Estimated result < Limit of Quantitation and = Detection Limit
 U = Analyte was not detected



SB0001	PFOA	PFOS	PFNA	PFBS	PFHxS	GenX	TOC
12'	0.25 U	3.2	0.25 U	0.25 U	1.1 I	1.2 U	20000
26'	0.25 U	4.7	0.25 U	0.25 U	0.38 I	1.3 U	4200
39'	0.24 U	4.3	0.24 U	0.24 U	0.58 I	1.2 U	1500
56'	0.23 U	0.3 I	0.23 U	0.23 U	0.23 U	1.1 U	2400
60'	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.4 U	18000
71'	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	1.2 U	1900

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FIGURE 4-2 PFAS DPT GROUNDWATER RESULTS
SWMU 106, KENNEDY SPACE CENTER, FLORIDA

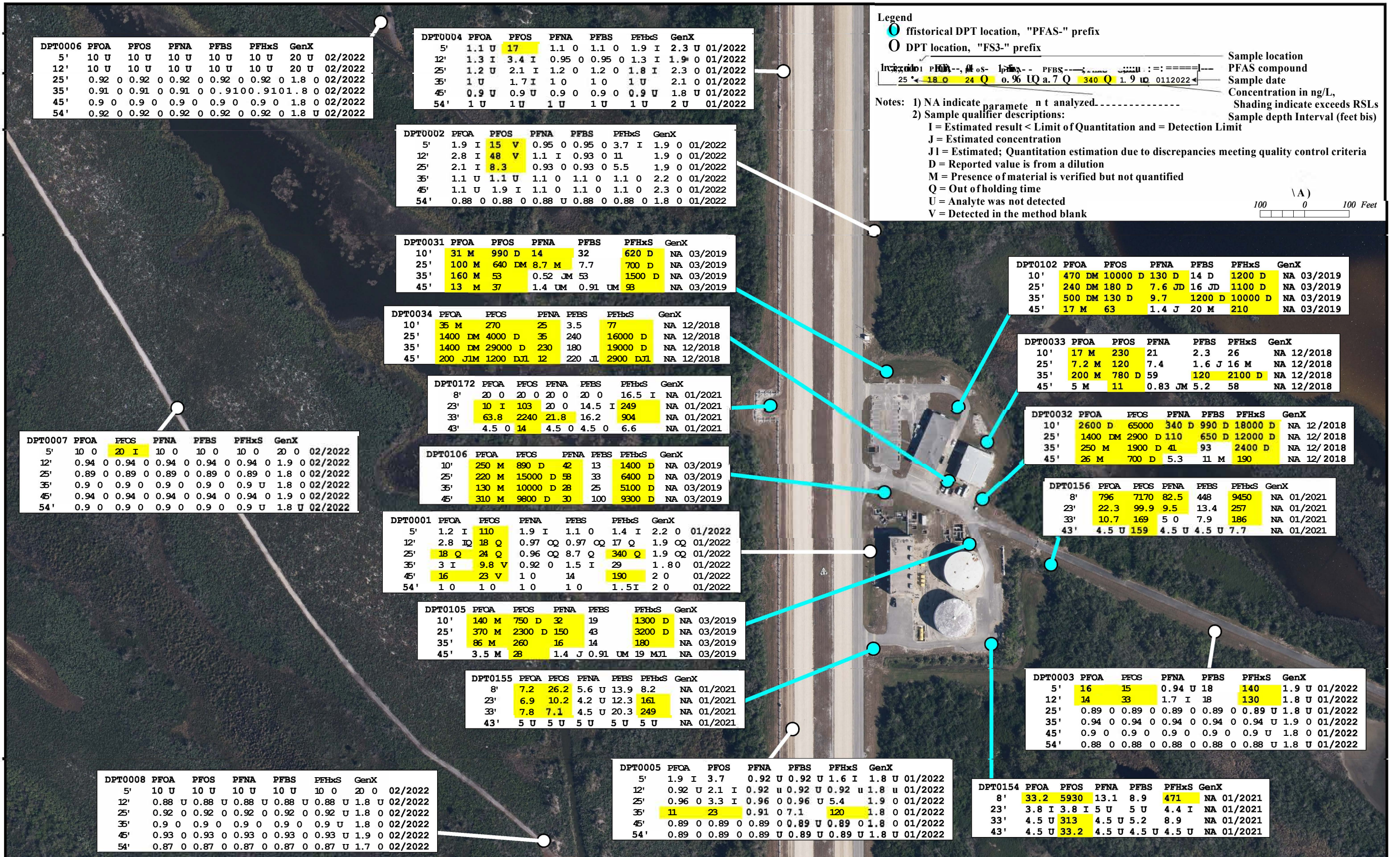
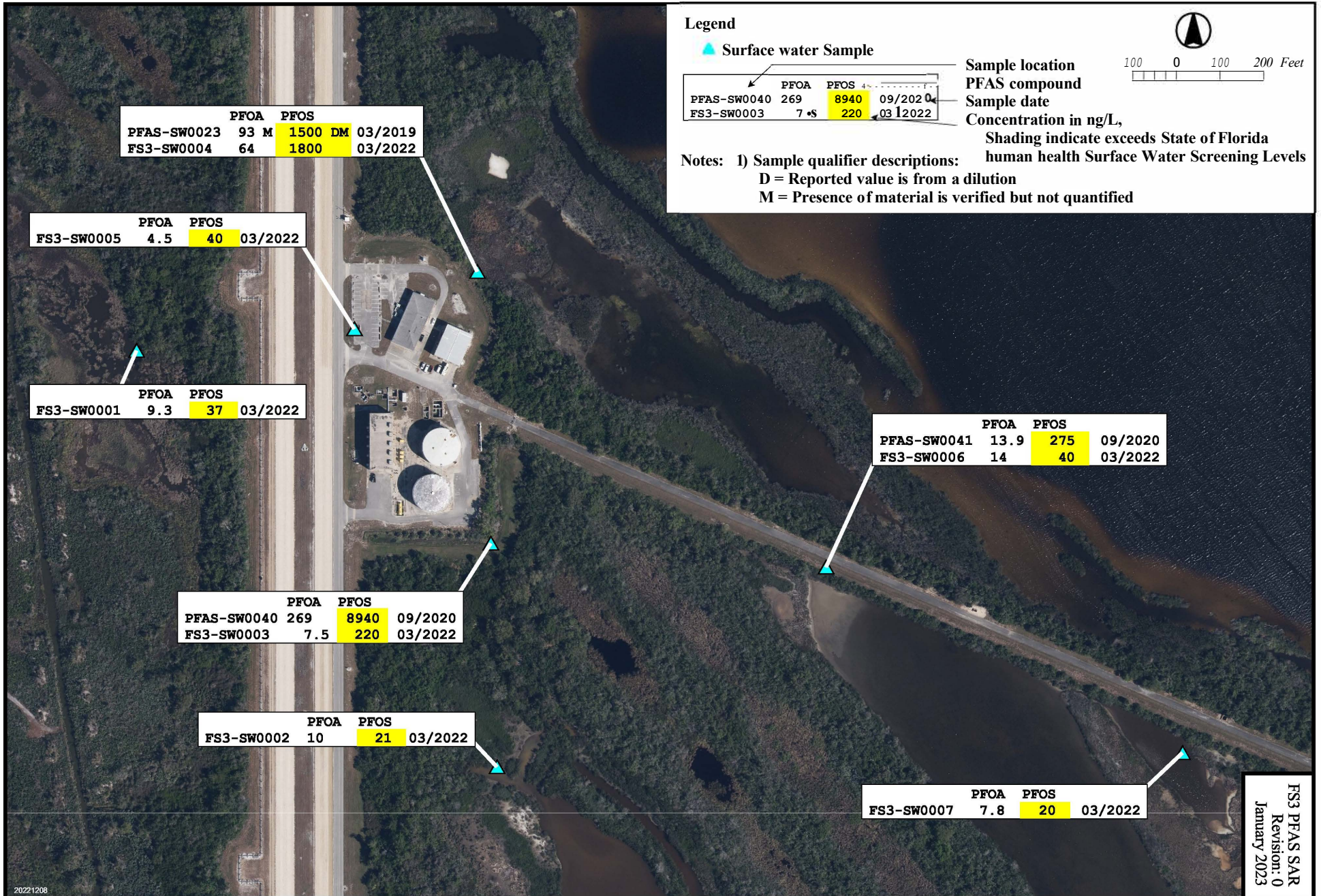


FIGURE 4-3 PFAS SURFACE WATER RESULTS
SWMU 106, KENNEDY SPACE CENTER, FLORIDA



SECTION V

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

PFAS SA activities were conducted between December 2021 and March 2022 to collect additional data to supplement the existing dataset and better understand the extent of PFAS impacts to the environment in the FS3 Area. Sampling included completion of one continuous soil core to 80 ft bls to evaluate site lithology, collection of six soil samples from the soil core for analysis of PFAS and TOC, collection of 48 groundwater DPT samples from eight DPT locations up to depths of 56 ft bls for PFAS analysis, and collection of six surface water samples for PFAS analysis. Soil and groundwater results were screened against the most recent (May 2022) USEPA RSLs and surface water results were screened against the Florida SWSLs. In addition, historical PFAS analytical results collected at FS3 were re-screened against the most up-to-date screening levels and evaluated along with the recently collected results to gain an overall understanding of PFAS distribution at the site.

Re-screening of historical analytical results from samples collected between 2018 and 2021 identified groundwater, surface water, and soil with screening level exceedances (sediment samples identified PFAS detections, but there are currently no screening values for sediment). Results from the SA showed exceedances of applicable screening criteria for groundwater and surface water, while no exceedances were observed for soil. Of the 48 DPT groundwater samples collected over eight locations, 12 PFAS compounds were detected with three compounds (PFHxS, PFOA, and PFOS) exceeding RSLs. The maximum concentration for all three compounds was from FS3-DPT0001. The PFHxS maximum concentration was 340 ng/L in the 23-27 ft bls depth interval, which is greater than the RSL of 39 ng/L. The PFOA maximum concentration was 18 ng/L in the 23-27 ft bls interval, which is greater than the RSL of 6 ng/L. The PFOS maximum concentration was 110 ng/L in the 3-7 ft bls interval, which is greater than the RSL of 4 ng/L. PFAS concentrations generally decreased with depth as no exceedances were found in the deepest interval (52-56 ft bls). Of the six soil samples collected at the continuous boring location, four PFAS compounds were detected with no PFAS compounds exceeding the RSLs. Of the eight surface water samples collected, 15 PFAS compounds were detected with

PFOS exceeding the SWSL in all eight samples. The PFOS maximum concentration in surface water was 1,800 ng/L at FS3-SW0004, greater than the SWSL of 10 ng/L. Considering the current and historical dataset, PFOS is the prevalent PFAS in the FS3 Area with the highest concentrations mostly in the vicinity of buildings and improved areas, with lesser concentrations spreading outward.

A summary of collected samples during the SA are presented in the table below:

	PFOA	PFOS	PFBS	PFHxS	PFNA	HFPO-DA (GenX)
(USEPA) Soil RSLs (µg/kg)	19	13	1,900	130	19	23
Samples collected	6	6	6	6	6	6
No. of Detections	0	4	0	3	0	0
Results above RSL	0	0	0	0	0	0
(USEPA) Groundwater RSLs (ng/L)	6	4	600	39	5.9	6
Samples collected	48	48	48	48	48	48
No. of Detections	13	20	6	17	3	0
Results above RSL	5	13	0	5	0	0
(Florida) Surface Water SLs (ng/L)	500	10	NA	NA	NA	NA
Samples collected	8	8	8	8	8	8
No. of Detections	8	8	7	8	8	0
Results above SWSL	0	8	NA	NA	NA	NA

NA = Not applicable; no screening criteria

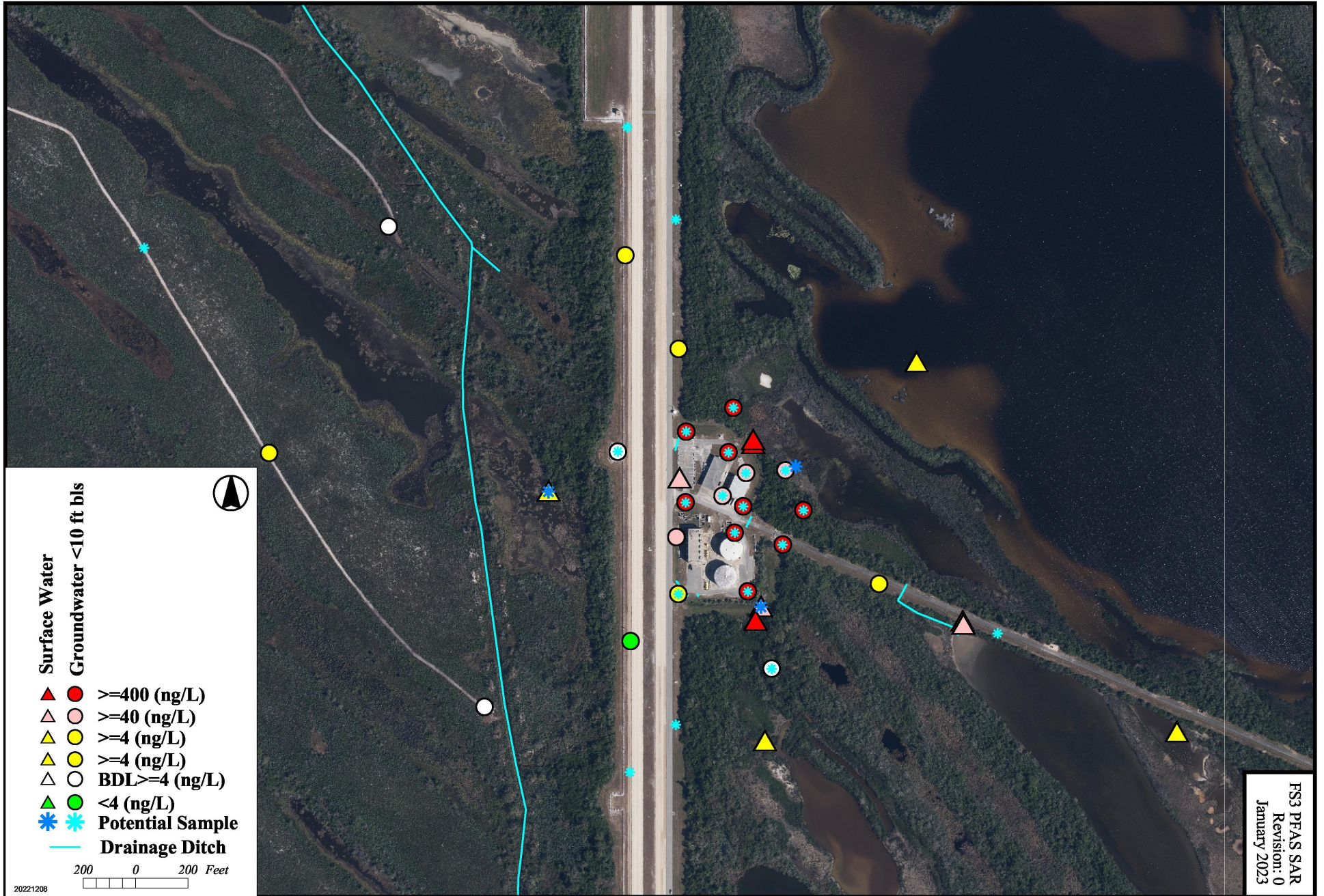
A photographic log for SA activities is provided in Appendix D.

5.2 RECOMMENDATIONS

Based on the results of the SA, additional groundwater and surface water sampling should be considered. Additional soil sampling should also be considered at the two historical soil sample locations where PFOS was found in slight exceedance of the RSL. Continued plume delineation via DPT groundwater sampling should be considered based on the groundwater and surface water results. Additionally, installation of monitoring wells should be considered to evaluate the interaction between the groundwater and surface water at the site. Potential samples are shown on Figure 5-1. It should be noted that not all potential samples are expected to be sampled during the next phase of the investigation, but may be considered as funding allows. The results and potential path forward were presented to the KSCRT in October 2022 (Meeting Minute 2210-

M04). An action item was taken (2210-A04) to provide FDEP with locations of potential monitoring wells once they are determined. The draft meeting minutes are included in Appendix E.

FIGURE 5-1 PROPOSED SAMPLE LOCATIONS
 SWMU 106, KENNEDY SPACE CENTER, FLORIDA



SECTION VI REFERENCES

FDEP, 2017. Florida Department of Environmental Protection (FDEP) Standard Operating Procedure FS 2200 Groundwater Sampling, FS2100 Surface Water Sampling, FS3000 Soil Sampling, FDEP-SOP-001/01, January.

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USEPA, 2022. Regional Screening Level Tables. November.

APPENDIX A
HISTORICAL ANALYTICAL RESULTS

Table A-1. Historical Soil Analytical Results

Location ID (PFAS-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	SB0013		SB0014			SB0015		SB0016		SB0017	
			1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21
			0 - 0.5	0.5 - 2	0 - 0.5	0 - 0.5*	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
PFAS with Screening Criteria (µg/kg)													
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] [†]	13252-13-6	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-butananesulfonic acid (PFBS)	375-73-5	1900	0.47 U	0.47 U	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	130	0.47 U	0.26 I	0.52 U	0.48 U	0.25 I	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	19	0.47 U	0.37 I	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.52	0.5 U	0.53 U	0.52 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	19	0.47 U	0.47 U	0.52 U	0.48 U	0.36 I	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	13	1.1	15	0.56	0.73	5.4	2.8	1.1	2.4	0.76	3.1	2.4
PFAS without Screening Criteria (µg/kg)													
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	0.94 U	0.94 U	1 U	0.96 U	1 U	1.2 U	1.3 U	1 U	1 U	1.1 U	1 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	0.94 U	0.94 U	1 U	0.96 U	1 U	1.2 U	1.3 U	1 U	1 U	1.1 U	1 U
Perfluoro-n-butanolic acid (PFBA)	375-22-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.28 I	0.56	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.84	0.4 I	0.52 I	0.52 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.1	0.47 U	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.39 I	0.53	0.53 U	0.52 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	0.29 I	0.26 I	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	0.47 U	0.47 U	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTrDA)	376-06-7	--	0.47 U	0.47 U	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	0.4 I	0.47 U	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.52 U	0.5 U	0.53 U	0.52 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.9	0.47 U	0.52 U	0.48 U	0.5 U	0.61 U	0.64 U	0.54	1.1	0.27 I	0.52 U

Table A-1. Historical Soil Analytical Results

Location ID (PFAS-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	SB0018		SB0019		
			1/11/21	1/11/21	1/11/21	1/11/21	1/11/21
			0 - 0.5	0.5 - 2	0 - 0.5	0 - 0.5*	0.5 - 2
PFAS with Screening Criteria (µg/kg)							
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	23	NA	NA	NA	NA	NA
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	1900	0.51 U	0.52 U	0.49 U	0.47 U	0.52 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	130	0.32 I	0.52 U	0.4 I	0.45 I	0.52 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	19	0.51 U	0.31 I	0.75	0.83	1.8
Perfluoro-n-octanoic acid (PFOA)	335-67-1	19	0.51 U	0.52 U	0.65	0.65	1.1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	13	4.8	6.6	5.6	7	14.1
PFAS without Screening Criteria (µg/kg)							
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA
11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	1 U	1 U	0.97 U	0.95 U	1 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	1 U	1 U	0.97 U	0.95 U	1 U
Perfluoro-n-butanedisulfonic acid (PFBS)	375-73-5	--	NA	NA	NA	NA	NA
Perfluoro-1-decanedisulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.46 I	0.28 I	3.4	3.8	0.47 I
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	0.46 I	0.52 U	0.84	0.93	0.52 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	0.51 U	0.52 U	0.45 I	0.45 I	0.67
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	0.51 U	0.52 U	0.38 I	0.4 I	0.3 I
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTrDA)	376-06-7	--	0.51 U	0.52 U	0.49 U	0.47 U	0.52 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	0.51 U	0.52 U	0.49 U	0.47 U	0.52 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.2	0.52 U	2.8	2.7	0.52 U

All results reported in microgram per kilogram (µg/kg)

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Soil RSL is cited from the USEPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 HFPO-DA is commonly referred to as GenX

* Duplicate sample results are included in this table and labeled with asterisk.

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

EPA = United States Environmental Protection Agency

ft bls = feet below land surface

NA = Not Applicable; compound not analyzed

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

U = Analyte was not detected

Table A-2. Historical DPT Analytical Results

Location ID (PFAS-) Date	CAS No.	Screening Criteria ^{1,2}	DPT0031					DPT0032				
			3/26/19	3/26/19	3/26/19	3/26/19	3/26/19	12/17/18	12/17/18	12/17/18	12/17/18	12/17/18
Sample Depth (ft bls)			8 - 12	23 - 27	23 - 27*	33 - 37	43 - 47	8 - 12	23 - 27	33 - 37	33 - 37*	43 - 47
PFAS with Screening Criteria (ng/L)												
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	600	32	7.7	7.2 M	53	0.91 UM	990 D	650 D	93	97	11 M
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	620 D	700 D	690 D	1500 D	93	18000 D	12000 D	2400 D	2600 D	190
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	14	8.7 M	9 M	0.52 JM	1.4 UM	340 D	110	41	39	5.3
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	31 M	100 M	100 M	160 M	13 M	2600 D	1400 DM	250 M	250	26 M
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	990 D	640 DM	690 D	53	37	65000	2900 D	1900 D	2100 D	700 D
PFAS without Screening Criteria (ng/L)												
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	9.4 U	9.4 U	9.3 U	9.4 U	9.1 U	92 U	9.6 U	9.5 U	9.6 U	9.2 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	9.4 U	9.4 U	9.3 U	9.4 U	9.1 U	92 U	9.6 U	9.5 U	9.6 U	9.2 U
Perfluoro-n-butyric acid (PFBA)	375-22-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-decanedisulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.49 JM	1.2 J	1.2 J	0.94 U	0.91 U	9.2 U	0.96 U	0.95 U	0.96 U	0.92 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	14 U	1.4 U	1.4 U	1.4 U	1.4 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	67	51 M	51 M	200	8.8	3000 D	920 D	250	240	24
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	130	71	68	320	11 M	7900 D	3400 D	820 D	800 D	69 M
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	28 U	2.8 U	2.9 U	2.9 U	2.8 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	28 U	2.9 U	2.9 U	2.9 U	2.8 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.4 U	1.4 UM	1.4 UM	1.4 U	1.4 U	14 UM	1.4 UM	1.4 U	1.4 U	1.4 U

Table A-2. Historical DPT Analytical Results

Location ID (PFAS-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	DPT0033				DPT0034			
			12/18/18	12/18/18	12/18/18	12/18/18	12/17/18	12/17/18	12/18/18	12/18/18
			8 - 12	23 - 27	33 - 37	43 - 47	8 - 12	23 - 27	33 - 37	43 - 47
PFAS with Screening Criteria (ng/L)										
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-butananesulfonic acid (PFBS)	375-73-5	600	2.3	1.6 J	120	5.2	3.5	240	180	220 J1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	26	16 M	2100 D	58	77	16000 D	19000 D	2900 DJ1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	21	7.4	59	0.83 JM	25	35	230	12
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	17 M	7.2 M	200 M	5 M	35 M	1400 DM	1400 DM	200 J1M
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	230	120	780 D	11	270	4000 D	29000 D	1200 DJ1
PFAS without Screening Criteria (ng/L)										
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA	NA	NA	NA
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	9.4 U	9.2 U	9.6 U	9 U	9.6 U	9.7 U	9.5 U	9.1 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	9.4 U	9.2 U	9.6 U	9 U	9.6 U	9.7 U	9.5 U	9.1 U
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	0.94 UM	0.92 UM	0.96 U	0.9 U	0.96 U	0.97 U	0.51 J	0.91 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 UM
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	16 M	12	210	5.9	49	1100 D	1000 D	170 J1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	18 M	9 M	520 D	16	86	2300 D	2400 D	740 DJ1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	2.8 U	2.8 U	2.9 U	2.7 U	2.8 U	2.9 U	2.8 U	2.7 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	2.8 U	2.8 U	2.9 U	2.7 U	2.9 U	2.9 U	2.8 U	2.7 UM
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.4 U	1.4 U	1.4 UM	1.4 UM	1.4 UM	1.4 U	1.4 U	1.4 U

Table A-2. Historical DPT Analytical Results

Location ID (PFAS-) Date	CAS No.	Screening Criteria ^{1,2}	DPT0102					DPT0105			
			3/26/19	3/26/19	3/26/19	3/26/19	3/26/19	3/26/19	3/26/19	3/26/19	3/26/19
Sample Depth (ft bls)			8 - 12	8 - 12*	23 - 27	33 - 37	43 - 47	8 - 12	23 - 27	33 - 37	43 - 47
PFAS with Screening Criteria (ng/L)											
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-butananesulfonic acid (PFBS)	375-73-5	600	14 D	14	16 JD	1200 D	20 M	19	43	14	0.91 UM
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	1200 D	1100 D	1100 D	10000 D	210	1300 D	3200 D	180	19 MJ1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	130 D	140	7.6 JD	9.7	1.4 J	32	150	16	1.4 J
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	470 DM	450 D	240 DM	500 DM	17 M	140 M	370 M	86 M	3.5 M
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	10000 D	11000 D	180 D	130 M	63	750 D	2300 D	260	28
PFAS without Screening Criteria (ng/L)											
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	47 U	9.4 U	93 U	9.3 U	8.8 U	9.2 U	9.3 U	9.2 U	9.1 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	47 U	9.4 U	93 U	9.3 U	8.8 U	9.2 U	9.3 U	9.2 U	9.1 U
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	9 JD	8.7	9.3 U	0.93 U	0.88 UM	8.5	39	0.63 J	0.48 JM
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	7 U	1.4 U	14 U	1.4 U	1.3 U	1.4 U	1.4 U	1.4 U	1.4 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	660 D	650 D	270 D	630 D	27	200	510 D	91	4.5 M
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	650 D	660 D	310 D	2500 D	73 M	260	680 D	99	8.2 M
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	14 U	2.8 U	28 U	2.8 U	2.7 U	2.8 U	2.8 U	2.8 U	2.7 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	14 U	2.8 U	28 U	2.8 U	2.7 U	2.8 U	2.8 U	2.8 U	2.7 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	7 U	1.4 UM	14 U	1.4 UM	1.3 U	1.4 U	1.4 U	1.4 UM	1.4 U

Table A-2. Historical DPT Analytical Results

Location ID (PFAS-) Date	CAS No.	Screening Criteria ^{1,2}	DPT0106				DPT0154				
			3/26/19	3/26/19	3/26/19	3/26/19	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21
Sample Depth (ft bls)			8 - 12	23 - 27	33 - 37	43 - 47	6 - 10	6 - 10*	21 - 25	31 - 35	41 - 45
PFAS with Screening Criteria (ng/L)											
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-butananesulfonic acid (PFBS)	375-73-5	600	13	33	25	100	8.9	9	5 U	5.2	4.5 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	1400 D	6400 D	5100 D	9300 D	471	468	4.4 I	8.9	4.5 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	42	58	28	30	13.1	13	5 U	4.5 U	4.5 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	250 M	220 M	130 M	310 M	33.2	35	3.8 I	4.5 U	4.5 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	890 D	15000 D	10000 D	9800 D	5930	6110	3.8 I	313	33.2
PFAS without Screening Criteria (ng/L)											
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	9.5 U	9.2 U	9.4 U	9.3 U	8.3 U	9.1 U	10 U	9.1 U	9.1 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	9.5 U	9.2 U	9.4 U	9.3 U	8.3 U	9.1 U	10 U	9.1 U	9.1 U
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	1.1 JM	0.9 JM	0.94 U	93 U	7.1	7.2	5 U	4.5 U	4.5 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.4 U	1.4 U	1.4 U	1.4 U	4.2 U	4.5 U	5 U	4.5 U	4.5 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	770 D	220	190	250	41.1	43.2	5 U	4.5 U	4.5 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	850 DM	490 D	470 D	870 D	82	85.8	5 U	2.5 I	4.5 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	2.8 U	2.8 U	2.8 U	2.8 U	4.2 U	4.5 U	5 U	4.5 U	4.5 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	2.8 U	2.8 U	2.8 U	2.8 U	4.2 U	4.5 U	5 U	4.5 U	4.5 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.4 UM	1.4 U	1.4 UM	1.4 U	4.2 U	4.5 U	5 U	4.5 U	4.5 U

Table A-2. Historical DPT Analytical Results

Location ID (PFAS-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ^{1,2}	DPT0155				DPT0156				DPT0172			
			1/10/21	1/11/21	1/11/21	1/11/21	1/11/21	1/11/21	1/12/21	1/12/21	1/19/21	1/19/21	1/19/21	1/19/21
			31 - 35	6 - 10	21 - 25	41 - 45	6 - 10	21 - 25	31 - 35	41 - 45	6 - 10	21 - 25	31 - 35	41 - 45
PFAS with Screening Criteria (ng/L)														
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ³	13252-13-6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-butanedisulfonic acid (PFBS)	375-73-5	600	20.3	13.9	12.3	5 U	448	13.4	7.9	4.5 U	20 U	14.5 I	16.2	4.5 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	39	249	8.2	161	5 U	9450	257	186	7.7	16.5 I	249	904	6.6
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	5.9	4.5 U	5.6 U	4.2 U	5 U	82.5	9.5	5 U	4.5 U	20 U	20 U	21.8	4.5 U
Perfluoro-n-octanoic acid (PFOA)	335-67-1	6	7.8	7.2	6.9	5 U	796	22.3	10.7	4.5 U	20 U	10 I	63.8	4.5 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4	7.1	26.2	10.2	5 U	7170	99.9	169	159	20 U	103	2240	14
PFAS without Screening Criteria (ng/L)														
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	9.1 U	56 U	8.3 U	10 U	8 U	80 U	10 U	9.1 U	40 U	40 U	11 U	9.1 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	9.1 U	56 U	8.3 U	10 U	8 U	8 U	10 U	9.1 U	40 U	40 U	11 U	9.1 U
Perfluoro-n-butyric acid (PFBA)	375-22-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-decanedisulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	4.5 U	5.6 U	4.2 U	5 U	4 U	4 U	5 U	4.5 U	20 U	20 U	5.3 U	4.5 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	4.5 U	28 U	4.2 U	5 U	4 U	40 U	5 U	4.5 U	100 U	20 U	5.3 U	4.5 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	10.5	4 I	6.8	5 U	684	22	31	4.5 U	20 U	11 I	76.2	4.5 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	40.4	7	24.1	5 U	1650	26.9	50.3	4.5 U	20 U	24.6	97.6	2.6 I
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	4.5 U	5.6 U	4.2 U	5 U	4 U	4 U	5 U	4.5 U	20 U	20 U	5.3 U	4.5 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	4.5 U	28 U	4.2 U	5 U	4 U	4 U	5 U	4.5 U	20 U	20 U	5.3 U	4.5 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	4.5 U	28 U	4.2 U	5 U	4 U	4 U	5 U	4.5 U	20 U	20 U	5.3 U	4.5 U

All results reported in nanogram per liter (ng/L)

1 The USEPA Regional Screening Levels (RSLs) for HFPO-DA, PFBS, PFHxS, PFNA, PFOA, and PFOS are presented in this table.

2 The Groundwater RSL is cited from the EPA Regional Screening Levels and calculated with the EPA RSL Calculator based on a hazard quotient of 0.1 (USEPA, 2022)

3 HFPO-DA is commonly referred to as GenX

* Duplicate sample results are included in this table and labeled with asterisk.

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

FS3 = Fire Station #3

EPA = United States Environmental Protection Agency

ft bls = feet below land surface

NA = Not Applicable; compound not analyzed

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

J = Result is between the Method Detection Limit and Limit of Quantitation and is an estimated value

Q = Out of holding time

D = Reported value is from a dilution

M = Presence of material is verified but not quantified

U = Analyte was not detected

Table A-3. Historical Surface Water Analytical Results

Location ID (PFAS-) Date Sample Depth (ft bls)	CAS No.	Screening Criteria ¹	SW0023	SW0040	SW0041
			3/13/19	9/23/20	9/23/20
			0 - 0.5	0 - 0.5	0 - 0.5
PFAS with Screening Criteria (ng/L)					
Perfluoro-n-octanoic acid (PFOA)	335-67-1	500	93 M	269	13.9
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	10	1500 DM	8940	275
PFAS without Screening Criteria (ng/L)					
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ²	13252-13-6	--	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	9.1 U	8.3 U	8.3 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	9.1 U	8.3 U	8.3 U
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	NA	NA	NA
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	--	53 M	243	12
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	3.2	2.9 I	4.2 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.4 U	4.2 U	4.2 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	150	145	11.2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	240 M	379	18.2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	--	1000 D	5430	102
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	--	16	32.5	3.8 I
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	2.7 U	4.2 U	4.2 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	2.7 U	4.2 U	4.2 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.3 J	4.2 U	4.2 U

All results reported in nanogram per liter (ng/L)

1 The State of Florida human health Surface Water Screening Levels for PFOA and PFOS are presented in this table.

2 HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

Bolding indicates analyte was detected

Shading indicates exceedance of screening criteria

FS3 = Fire Station #3

ft bls = feet below land surface

NA = Not Applicable; compound not analyzed

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

J = Result is between the Method Detection Limit and Limit of Quantitation and is an estimated value

D = Reported value is from a dilution

M = Presence of material is verified but not quantified

U = Analyte was not detected

Table A-4. Historical Sediment Analytical Results

Location ID (PFAS-) Date	CAS No.	Screening Criteria	SD0001	SD0003	SD0004	SD0005
Sample Depth (ft bls)			9/23/20	9/23/20	9/23/20	9/23/20
			0 - 1	0 - 1	0 - 1	0 - 1
PFAS without Screening Criteria (µg/kg)						
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	--	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	--	NA	NA	NA	NA
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	--	NA	NA	NA	NA
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CL-PF3ONS)	756426-58-1	--	NA	NA	NA	NA
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUDS)	763051-92-9	--	NA	NA	NA	NA
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	--	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) [GenX] ¹	13252-13-6	--	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	--	NA	NA	NA	NA
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	--	2.9 U	1.3 U	2.4 U	9.3 U
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	--	2.9 U	1.3 U	2.4 U	9.3 U
Perfluoro-n-butanoic acid (PFBA)	375-22-4	--	NA	NA	NA	NA
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	--	1.5 U	0.67 U	0.81 I	4.7 U
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	--	NA	NA	NA	NA
Perfluoro-n-decanoic acid (PFDA)	335-76-2	--	1.5 U	0.67 U	1.2 U	4.7 U
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	--	1.5 U	0.67 U	1.2 U	4.7 U
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	--	NA	NA	NA	NA
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	--	1.5 U	0.67 U	0.82 I	4.7 U
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	--	1.5 U	0.67 U	1.4	4.7 U
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	--	0.75 I	0.38 I	46	4.7 U
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	--	0.94 I	0.67 U	1.2	4.7 U
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	--	NA	NA	NA	NA
Perfluoro-n-octanoic acid (PFOA)	335-67-1	--	1.5 U	0.67 U	2.6	4.7 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	--	102	5	856	38.6
Perfluorooctane sulfonamide (PFOSA)	754-91-6	--	NA	NA	NA	NA
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	--	NA	NA	NA	NA
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	--	NA	NA	NA	NA
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	--	1.5 U	0.67 U	1.2 U	23 U
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	--	1.5 U	0.67 U	1.2 U	23 U
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	--	1.5 U	0.67 U	0.81 I	4.7 U

All results reported in microgram per kilogram (µg/kg)

¹ HFPO-DA is commonly referred to as GenX

-- = No applicable screening criteria

Bolding indicates analyte was detected

ft bls = feet below land surface

NA = Not Applicable; compound not analyzed

PFAS = per- and polyfluoroalkyl substances

I = Estimated result < Limit of Quantitation and ≥ Detection Limit

U = Analyte was not detected

APPENDIX B
FIELD DOCUMENTATION



BORING LOG

PROJECT NAME: NASA PFAS
 PROJECT NUMBER: 112G09232
 DRILLING COMPANY: Deve Longino
 DRILLING RIG: Geoprobe 5170LS

BORING No.: FS3-SB0001
 DATE: 12-9-2021
 GEOLOGIST: Audrey Rogers
 DRILLER: Groundwater Protection

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)						
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**			
				L1			Black, Dark Brown to Red organic rich fine sands - clean, little s.l.f. (temp holds Brn) but crumbly									
								- portion yellow/gray - organic black @ 10-11 ft, charcoal-like with vegetation - no shells								
				LIB			Dark Brown to Brown fine sands with trace fine roots									
								- no shells - Grading from dark brown to brown/orange with depth. - trace s.l.f, more with depth.								
								- still trace s.l.f, grading to brown/tan/green with depth.								

* When rock coring, enter rock brokenness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: _____

Drilling Area
 Background (ppm): 0

Converted to Well: Yes _____ No X Well I.D. #: _____



BORING LOG

PROJECT NAME: NASA PFAS
 PROJECT NUMBER: 112609237
 DRILLING COMPANY: Dave Longac
 DRILLING RIG: Geoprobe 8140LS

BORING No.: FS-SB0001
 DATE: 12-9-2021
 GEOLOGIST: Anderson, Rogers
 DRILLER: Groundwater Protection

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth Ft.) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)								
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**					
	30			26			Gray loose fine sands with some laminated rusty layers - little silt (as above)											
				L2			- no shells											
							- few, v. min shells @ 35'											
							- more shells @ 37'											
	40			39			very loose sandy shells with trace silt and minor trace areas of clay											
				L3			- shells are < 1mm to 2mm, crushed											
				43			Some 2-3 mm, mostly whole @ 43', less shells and more to											
							mostly fine gray sands											
				47			* mostly f gray sands w/shell											
				48			mostly shells											
	50						* as above gray sands with silt with depth											

* When rock coring, enter rock brokenness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: _____

Drilling Area Background (ppm): 0

Converted to Well: Yes _____ No X Well I.D. #: _____



BORING LOG

PROJECT NAME: NASA PRAS
 PROJECT NUMBER: 112609237
 DRILLING COMPANY: Dave Longino
 DRILLING RIG: Geoprobe 8146LS

BORING No.: FS3-SB0001
 DATE: 12-9-2021
 GEOLOGIST: Anderson, Rogers
 DRILLER: Grandwater Protection

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change Depth (ft.) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)									
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**						
	0																		
										Gray silty clay with mud shells.									
										very clayey to clay @ 78									
	80									EOB									

* When rock coring, enter rock brokenness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: _____

Drilling Area
 Background (ppm): 0

Converted to Well: Yes _____ No X Well I.D. #: _____



Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 01/24/2022

Sample ID: FS3-DPT0001
Location: 2
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:

Handwritten signature



Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 01/25/2022

Sample ID: FS3-DPT0002
Location: 5
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:
FS3-FD-20220125-01 - DUP of DPT0002-025.0

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Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 01/25/2022

Sample ID: FS3-DPT0003
Location: 8
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:
Yes FS3-FD-20220125-02 - DUP of DPT0003-005.0

Handwritten signature



Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 01/26/2022

Sample ID: FS3-DPT0004
Location: 4
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:

Handwritten signature



Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 01/26/2022

Sample ID: FS3-DPT0005
Location: 3
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:
Yes FS3-FD-20220126-01 - DUP of FS3-DPT0005-012.0

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Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 02/07/2022

Sample ID: FS3-DPT0006
Location: 11
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:

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Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 02/08/2022

Sample ID: FS3-DPT0007
Location: 12
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 7 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:
FS3-FD-20220208-01 - DUP of FS3-DPT0007-035.0

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Tetra Tech, Inc.

DPT GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3)
Project No.: 112G09581
Date: 02/08/2022

Sample ID: FS3-DPT0008
Location: 12
Sampled By: Chuck Sorden

DPT SAMPLING DATA

Table with 8 columns: LOCATION ID, LOCATION, DATE, TIME, DEPTH, ODOR, COLOR, COMMENTS. Contains 6 rows of sampling data.

SAMPLE COLLECTION INFORMATION

Table with 4 columns: Analysis, Preservative, Container Requirements, Collected. Row 1: PFAS QSM Table B-15, None, 2 250mL HDPE Bottles, X.

OBSERVATIONS / NOTES

All intervals purged a minimum of five (5) screen volumes (1.5 L) prior to sample collection.
Hand auger five feet to clear utilities
Borehole abandoned via pressure grouting through boring rods
Rig, Rods, and associated tooling decon'd with pressurized steam

Circle if Applicable:

MS/MSD Duplicate ID No.:

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01/24/2022

FS3

112G09581

Personnel:	Chuck Sorden	(CS)	Geologist	Tt
	Mickey Ritter	(MR)	Driller	GPI
	Brandon Black-Godfrey	(BBG)	Tech	GPI

Weather: Sunny – 36 degrees F

PPE: Level D

Health and Safety (HAS): Topics – PPE; SSHASP; IDW

Objective: Continue DPT GW Investigation

0830: Tt/GPI on site at 516S; MR repairing rig

0845: Geoprobe sent wrong part. Attempting to field fix rig

0930: Rig temporarily functional; begin mob to FS3

1030: Depart 516S for FS3

1045: Arrive at FS3; HAS meeting begin setup

1130: Set up on FS3-DPT0001 (2); Hand clear 5'

1135: Drilling Commenced

1200: Sample Collected	FS3-DPT0001-005.0-20220124	(02)	Clear; No Odor
------------------------	----------------------------	------	----------------

1225: Sample Collected	FS3-DPT0001-012.0-20220124	(02)	Brown; No Odor
------------------------	----------------------------	------	----------------

1255: Sample Collected	FS3-DPT0001-025.0-20220124	(02)	Brown; No Odor
------------------------	----------------------------	------	----------------

1400: Sample Collected	FS3-DPT0001-035.0-20220124	(02)	Gray; No Odor
------------------------	----------------------------	------	---------------

-Depth had to be recollected. Screen full of organic silt.

1500: Sample Collected	FS3-DPT0001-045.0-20220124	(02)	Gray; No Odor
------------------------	----------------------------	------	---------------

-Issues deploying screen. Tubing became filled with silt and had to be replaced.

1505: Sample Collected	FS3-FB-20220124-01		
------------------------	--------------------	--	--

-Sample collected in vicinity of drill rig and sampling area

1535: Sample Collected	FS3-DPT0001-054.0-20220124	(02)	Gray; No Odor
------------------------	----------------------------	------	---------------

1555: DPT0001 pressure grouted 56' to surface through rods

1615: Rig, Rods, and Tooling Decon'd with steam

1645: Offsite

NO ALTERATION BEYOND 01/24/2022

@ 1645

CS

01/25/2022

FS3

112G09581

Personnel: Chuck Sorden (CS) Geologist Tt
Mickey Ritter (MR) Driller GPI
Brandon Black-Godfrey (BBG) Tech GPI

Weather: Cloudy – 44 degrees F; very light rain/drizzle possible after 0900

PPE: Level D

Health and Safety (HAS): Topics – PPE; SSHASP; IDW

Objective: Continue DPT GW Investigation

0650: Tt/GPI onsite; HAS Meeting; Daily prep

0715: Set up on FS3-DPT0002(05); Hand clear 5'

0730: Drilling Commenced

0800: Sample Collected FS3-DPT0002-005.0-20220125 (05) Clear; No Odor

0825: Sample Collected FS3-DPT0002-012.0-20220125 (05) Brown; No Odor

0830: Sample Collected FS3-EB-20220125-01

-Blank collected by running PFAS free water over tubing while tubing is mounted to ring stand in Drilling area

0855: Sample Collected FS3-DPT0002-025.0-20220125 (05) Brown; No Odor

0000: Sample Collected FS3-FD-20220125-01 – DUP of DPT0002-025.0

0925: Sample Collected FS3-DPT0002-035.0-20220125 (05) Gray; No Odor

1015: Sample Collected FS3-DPT0002-045.0-20220125 (05) Gray; No Odor

-Very Poor Producing Formation; low recharge rate; very silty; unable to properly purge

1100: Sample Collected FS3-DPT0002-054.0-20220125 (05) Gray; No Odor

1115: DPT0002 pressure grouted 56' to surface through rods

1135: Rig, rods, and tooling decon'd with steam

1140: Sample Collected FS3-EB-20220125-02

-Blank collected by pouring PFAS free water through screen while CS held screen in hand

1150: Set up on FS3-DPT0003 (08); hand clear 5'

1155: Drilling Commenced

1220: Sample Collected FS3-DPT0003-005.0-20220125 (08) Clear; No Odor

-MS/MSD Collected

0000: Sample Collected FS3-FD-20220125-02 – DUP of DPT0003-005.0

1245: Sample Collected FS3-DPT0003-012.0-20220125 (08) Brown; Organic Odor

1310: Sample Collected FS3-DPT0003-025.0-20220125 (08) Brown; No Odor

1335: Sample Collected FS3-DPT0003-035.0-20220125 (08) Gray; No Odor

1410: Sample Collected FS3-DPT0003-045.0-20220125 (08) Gray; No Odor

1450: Sample Collected FS3-DPT0003-054.0-20220125 (08) Gray; No Odor

1500: Sample Collected FS3-FB-20220125-01

-Sample collected in vicinity of drill rig and sampling area

1520: DPT0003 pressure grouted 56' to surface through rods

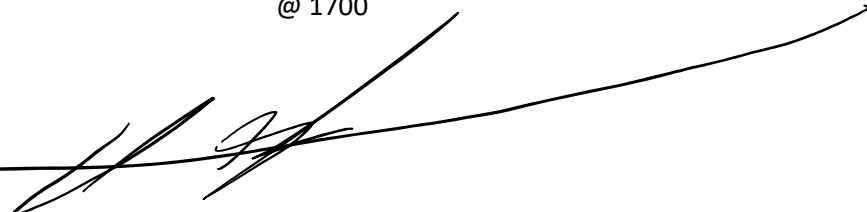
1545: Rig, rods, and tooling decon'd with steam; loading up for move to FS3-DPT0004 (Location 3)

1610: Inclement weather approaching; site secured; Tt/GPI offsite; CS prepping samples for FedEx drop

1700: Samples delivered to FedEx

NO ALTERATION BEYOND 01/25/2022

@ 1700



01/26/2022

FS3

112G09581

Personnel: Chuck Sorden (CS) Geologist Tt
Mickey Ritter (MR) Driller GPI
Brandon Black-Godfrey (BBG) Tech GPI

Weather: Light Rain – 54 degrees F

PPE: Level D

Health and Safety (HAS): Topics – PPE; SSHASP; IDW

Objective: Continue DPT GW Investigation

0645: Tt/ GPI onsite; HAS Meeting; Daily Prep; waiting out moderately heavy rain

0730: Rain slowed; depart for FS3-DPT0004 (04)

0745: Tt/GPI arrive at location 04; setting up; hand clear 5'

0755: Drilling Commenced

0820: Sample Collected FS3-DPT0004-005.0-20220126 (04) Clear; No Odor

0850: Sample Collected FS3-DPT0004-012.0-20220126 (04) Brown; Organic Odor

0920: Sample Collected FS3-DPT0004-025.0-20220126 (04) Gray; No Odor

0955: Sample Collected FS3-DPT0004-035.0-20220126 (04) Gray; No Odor

1030: Sample Collected FS3-DPT0004-045.0-20220126 (04) Gray; No Odor

1110: Sample Collected FS3-DPT0004-054.0-20220126 (04) Gray; No Odor

1125: DPT0004 pressure grouted 56' to surface through rods

1140; Rig, Rods, and tooling decon'd with steam; moving to location 3

1155: Set up on FS3-DPT0005 (03); hand clear 5'

1220: Drilling Commenced

1245: Sample Collected FS3-DPT0005-005.0-20220126 (03) Clear; No Odor

1315: Sample Collected FS3-DPT0005-012.0-20220126 (03) Gray; No Odor

-MS/MSD Collected

0000: Sample Collected FS3-FD-20220126-01 – DUP of FS3-DPT0005-012.0

1345: Sample Collected FS3-DPT0005-025.0-20220126 (03) Gray; No Odor

1350: Sample Collected FS3-FB-20220126-01

-Sample collected in vicinity of drill rig and sampling area; light mist/very light rain occurring while Sample was collected

1420: Sample Collected FS3-DPT0005-035.0-20220126 (03) Gray; No Odor

1450: Sample Collected FS3-DPT0005-045.0-20220126 (03) Gray; No Odor

1530: Sample Collected FS3-DPT0005-054.0-20220126 (03) Gray; No Odor

1540: Sample Collected FS3-EB-20220126-01

-Sample collected by pouring PFAS free water over HDPE tubing mounted in ring stand

1555: DPT0005 pressure grouted 56' to surface through rods

1615: Rig, rods, and tooling decon'd with steam

02/07/2022

FS3

112G09581

Personnel: Chuck Sorden (CS) Geologist Tt
Mickey Ritter (MR) Driller GPI
Brandon Black-Godfrey (BBG) Tech GPI

Weather: Cloudy/Fog – 52 degrees F

PPE: Level D

Health and Safety (HAS): Topics – PPE; Inclement Weather; IDW

Objective: Continue DPT GW Investigation

0800: TT/GPI Onsite; HAS Meeting; Daily prep; begin mobilizing to FS3-DPT0006 (Location 11)

0840: Arrive at Location 11 (FS3-DPT0006); Hand Clear 5'

0855: Drilling Commenced

0920: Sample Collected FS3-DPT0006-005.0-20220207 (11) Dark Brown; Organic Odor

1000: Sample Collected FS3-DPT0006-012.0-20220207 (11) Brown; Organic Odor

1030: Sample Collected FS3-DPT0006-025.0-20220207 (11) Brown; Organic Odor

1100: Sample Collected FS3-DPT0006-035.0-20220207 (11) Gray; No Odor

1130: Sample Collected FS3-DPT0006-045.0-20220207 (11) Gray; No Odor

1215: Sample Collected FS3-DPT0006-054.0-20220207 (11) Gray; No Odor

-Rig Down; blown fuel injector line. No Fuel spilled. MR calling GPI mechanic Claude Harriel.

1345: CH at KSC badging, but no KSC badging is present; he should have a CCDFS Badge. Spoke with PM, CH is to head to CCSFS badging to get badge and proceed to site.

1415: GPI offsite to get part from CH at KSC badging

1500: GPI in site

1545: Rig repaired; grouting borehole


1605: FS3-DPT0006 Pressure Grouted 56' to surface through rods; moving rods back to decon pit staging Area

1630: Rods and tooling Decon'd with steam

1700: Site Secured; Tt/GPI Offsite

NO ALTERATION BEYOND 02/08/2022

@ 1700



02/08/2022

FS3

112G09581

Personnel:	Chuck Sorden	(CS)	Geologist	Tt
	Mickey Ritter	(MR)	Driller	GPI
	Brandon Black-Godfrey	(BBG)	Tech	GPI

Weather: Cloudy/Fog – 52 degrees F

PPE: Level D

Health and Safety (HAS): Topics – PPE; Inclement Weather; IDW

Objective: Continue DPT GW Investigation

GrayFS3

0645: Tt/GPI onsite; HAS meeting; Daily Prep; mobilizing vehicles to 12 and 13 area; setting up mats to Traverse wet area

0710: Begin moving to new location

0825: Arrive at FS3-DPT0007 (Location 12); hand clear 5'

0835: Drilling Commenced

0900: Sample Collected FS3-DPT0007-005.0-20220208 (12) Brown; Organic Odor

0930: Sample Collected FS3-DPT0007-012.0-20220208 (12) Brown; Organic Odor

1000: Sample Collected FS3-DPT0007-025.0-20220208 (12) Brown; Organic Odor

1030: Sample Collected FS3-DPT0007-035.0-20220208 (12) Brown; Organic Odor

0000: Sample Collected FS3-FD-20220208-01 – DUP of FS3-DPT0007-035.0

1100: Sample Collected FS3-DPT0007-045.0-20220208 (12) Gray; No Odor

1130: Sample Collected FS3-DPT0007-054.0-20220208 (12) Gray; No Odor

1150: FS3-DPT0007 Pressure Grouted 56' to surface through rods; begin to mobilize to Location 13

1200: Arrive at FS3-DPT0008 (Location 13); hand clear 5'

1210: Drilling Commenced

1235: Sample Collected FS3-DPT0008-005.0-20220208 (13) Brown; Organic Odor

-Very poor producing formation; dark brown highly organic

1255: Sample Collected FS3-FB-20220208-01 – Collected at Location in vicinity of sample area

1300: Sample Collected FS3-DPT0008-012.0-20220208 (13) Brown; Organic Odor

1330: Sample Collected FS3-DPT0008-025.0-20220208 (13) Gray; No Odor

1345: Sample Collected FS3-EB-20220208-01

-Blank Collected by pouring PFAS free water over screen

1400: Sample Collected FS3-DPT0008-035.0-20220208 (13) Gray; No Odor

1430: Sample Collected FS3-DPT0008-045.0-20220208 (13) Gray; No Odor

1500: Sample Collected FS3-DPT0008-054.0-20220208 (13) Gray; No Odor

1520: FS3-DPT0008 Pressure Grouted 56' to surface through rods; Heavy rain starting; will move rig in the AM

1600: Site Secured; Tt/GPI offsite

NO ALTERATION BEYOND 02/08/2022
@ 1600

02/09/2022

FS3

112G09581

Personnel:	Chuck Sorden	(CS)	Geologist	Tt
	Mickey Ritter	(MR)	Driller	GPI
	Brandon Black-Godfrey	(BBG)	Tech	GPI

Weather: Cloudy/Fog – 52 degrees F


PPE: Level D

Health and Safety (HAS): Topics – PPE; Inclement Weather; IDW

Objective: Demob equipment

0645: Tt/GPI Onsite; HAS Meeting; Daily Prep; begin Demob

1000: Demob Complete; site secured; Tt/GPI offsite



NO ALTERATION BEYOND 02/09/2022
@ 1000

03/08/2022

FS3

112G09581

Personnel: Chuck Sorden (CS) Geologist Tt
Kyle Hoard (KH) Tech Tt

Weather: Light Rain 72 degrees F

PPE: Level D

Health and Safety (HAS): Topics – PPE; SSHASP; Inclement Weather

Objective: Complete Surface Water Sampling at FS3

0730: Tt on site at POL; gathering equipment and supplies; calibration of equipment

1000: Arrive at FS3 Location 1; begin moving equipment to collect sample

1030: Depart for location 1

1055: Sample Collected FS3-SW0001-000.5-20220308 (01) PFAS Table B15

0000: Sample Collected FS3-FD-20220308-01 – DUP of FS3-SW0001-000.5 PFAS Table B15

1115: Depart for FS3-SW0002 (Location 6)

1150: Sample Collected FS3-SW0002-000.5-20220308 (06) PFAS Table B15

1215: Moving to FS3-0SW0003 (Location 05)

1245: Sample Collected FS3-SW0003-000.5-20220308 (05) PFAS Table B15

1300: Arrive at FS3-SW0004 (Location 03)

1315: Sample Collected FS3-SW0004-000.5-20220308 (03) PFAS Table B15

1325: Arrive at FS3-SW0005 (Location 2)

1340: Sample Collected FS3-SW0005-000.5-20220308 (02) PFAS Table B15

-MS/MSD Collected

1400: Arrive at FS3-SW0006 (Location 7)

1420: Sample Collected FS3-SW0006-000.5-20220308 (07) PFAS Table B15

1435: Arrive at FS3-SW0007 (Location 8)

1455: Sample Collected FS3-SW0007-000.5-20220308 (08) PFAS Table B15

1505: Sample Collected FS3-EB-20220308-01 – Sample Collected by decanting PFAS free water into two sample bottle ware and then using the peristaltic pump and tubing to pump water into sample containers

1510: Sample Collected FS3-FB-20220308-01 – Collected in the vicinity of Location 7 sampling area

1535: Offsite to STP1

03/11/2022

FS3

112G09581

Personnel:	Chuck Sorden	(CS)	Geologist	Tt
	Kyle Hoard	(KH)	Tech	Tt

Weather: Partly Cloudy 75 degrees F

PPE: Level D

Health and Safety (HAS): Topics – PPE; SSHASP; Inclement Weather

Objective: Complete Surface Water Sampling at FS3

0650: CS/KH at POL. Gathering equipment/supplies; loading canoe; calibrating

0715: Depart for FS3

0730: Arrive at drop in point to collect FS3-SW0008 (Location 4 in "Gator Hole"); KSC Security and Mark Jonnet Notified

0745: Depart for Location

0820: Arrive at Location 3

0835: Sample Collected FS3-SW0008-000.5-20220311 (04) PFAS Table B15

0845: Depart for launch point

0920: Arrive at launch point; loading up

0935: Canoe and equipment loaded; MJ and KSC security notified; CS/KH GPSing FS3 locations

1000: KH offsite;

1045: CS departs KSC to take Canoe back to house



Project Site Name: Fire Station Number 3 (FS3) Sample ID No.: FS3-SW0001-000.5-20220308
Project No.: 112G09581 Sample Location: Location
Sampled By: Chuck Sorden and Kyle Hoard
C.O.C. No.: _____

Stream
 Spring
 Pond
 Lake
 Other: _____
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	3/8/2022	Color	pH	Cond.	Temp.	Turbidity	DO	ORP	Salinity
Time:	1055	(Visual)	(S.U.)	(µS/cm)	(°C)	(NTU)	(mg/l)	(mV)	(ppt)
Depth:	0-0.5	Yellow	7.7	5880.7	24.13	10.47	4.15	199.2	3.25
Method:	Grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottlesw	X

OBSERVATIONS / NOTES:	MAP:
	See figure

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.: FS3-FD-20220308-01	



Project Site Name: Fire Station Number 3 (FS3) Sample ID No.: FS3-SW0002-000.5-20220308
Project No.: 112G09581 Sample Location: Location
Sampled By: Chuck Sorden and Kyle Hoard
C.O.C. No.: _____
 Stream
 Spring
 Pond
 Lake
 Other: _____
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	3/8/2022	Color (Visual)	pH (S.U.)	Cond. (µS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	ORP (mV)	Salinity (ppt)
Time:	1150								
Depth:	0-0.5								
Method:	Grab								
		Yellow	7.69	4856.7	24.38	4.52	3.63	176.1	2.68

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottlesw	X

OBSERVATIONS / NOTES: **MAP:**

See figure

Circle if Applicable:		Signature(s):
<input type="checkbox"/> MS/MSD	Duplicate ID No.:	



Project Site Name:	<u>Fire Station Number 3 (FS3)</u>	Sample ID No.:	<u>FS3-SW0003-000.5-20220308</u>
Project No.:	<u>112G09581</u>	Sample Location:	<u>Location</u>
<input type="checkbox"/> Stream <input type="checkbox"/> Spring <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Other: <u>Canal</u> <input type="checkbox"/> QA Sample Type: _____		Sampled By:	<u>Chuck Sorden and Kyle Hoard</u>
		C.O.C. No.:	_____
		Type of Sample:	<input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration

SAMPLING DATA:											
Date:	Time:	Depth:	Method:	Color (Visual)	pH (S.U.)	Cond. (μS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	ORP (mV)	Salinity (ppt)
<u>3/8/2022</u>	<u>1245</u>	<u>0-0.5</u>	<u>Grab</u>	<u>Yellow</u>	<u>7.28</u>	<u>2509.3</u>	<u>25.95</u>	<u>4.19</u>	<u>3.99</u>	<u>159.1</u>	<u>1.25</u>

SAMPLE COLLECTION INFORMATION:			
Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottlesw	X

OBSERVATIONS / NOTES:	MAP:
	See figure

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	



Project Site Name: Fire Station Number 3 (FS3) Sample ID No.: FS3-SW0004-000.5-20220308
 Project No.: 112G09581 Sample Location: Location
 Sampled By: Chuck Sorden and Kyle Hoard
 C.O.C. No.: _____

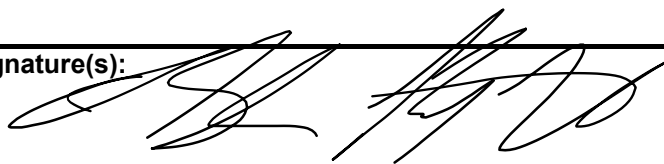
Stream
 Spring
 Pond
 Lake
 Other: Canal
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:									
Date:	<u>3/8/2022</u>	Color (Visual) <u>Yellow</u>	pH (S.U.) <u>7.98</u>	Cond. (µS/cm) <u>1757.3</u>	Temp. (°C) <u>29.64</u>	Turbidity (NTU) <u>13.1</u>	DO (mg/l) <u>8.4</u>	ORP (mV) <u>153.5</u>	Salinity (ppt) <u>0.82</u>
Time:	<u>1315</u>								
Depth:	<u>0-0.5</u>								
Method:	<u>Grab</u>								

SAMPLE COLLECTION INFORMATION:			
Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottlesw	X

OBSERVATIONS / NOTES:	MAP:
	See figure

Circle if Applicable:		Signature(s): 
MS/MSD	Duplicate ID No.:	



SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3) Sample ID No.: FS3-SW0005-000.5-20220308
Project No.: 112G09581 Sample Location: Location 2
Sampled By: Chuck Sorden and Kyle Hoard
C.O.C. No.: _____

Stream
 Spring
 Pond
 Lake
 Other: Piping Access
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

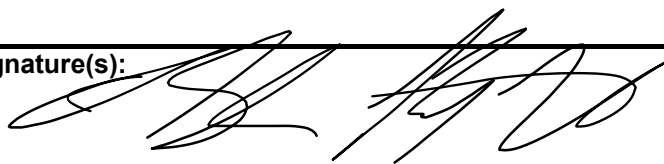
Date:	3/8/2022	Color	pH	Cond.	Temp.	Turbidity	DO	ORP	Salinity
Time:	1315	(Visual)	(S.U.)	(µS/cm)	(°C)	(NTU)	(mg/l)	(mV)	(ppt)
Depth:	0-0.5	Clear	8.9	348.42	25.9	7.99	9.87	135.5	0.17
Method:	Grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottlesw	X

OBSERVATIONS / NOTES:	MAP:
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<p> </p>	<p>See figure</p>
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Circle if Applicable:		Signature(s): 
MS/MSD YES	Duplicate ID No.:	



SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Fire Station Number 3 (FS3) Sample ID No.: FS3-SW0006-000.5-20220308
 Project No.: 112G09581 Sample Location: Location 7
 Sampled By: Chuck Sorden and Kyle Hoard
 C.O.C. No.: _____
 Stream
 Spring
 Pond
 Lake
 Other: Canal
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:									
Date:	3/8/2022	Color	pH	Cond.	Temp.	Turbidity	DO	ORP	Salinity
Time:	1420	(Visual)	(S.U.)	(µS/cm)	(°C)	(NTU)	(mg/l)	(mV)	(ppt)
Depth:	0-0.5	Clear	8.44	5972.9	27.48	1.79	10.02	158	3.13
Method:	Grab								

SAMPLE COLLECTION INFORMATION:			
Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottles	X

OBSERVATIONS / NOTES:	MAP:
	See figure

Circle if Applicable:		Signature(s):
MS/MSD YES	Duplicate ID No.:	



Project Site Name:	Fire Station Number 3 (FS3)	Sample ID No.:	FS3-SW0008-000.5-20220311
Project No.:	112G09581	Sample Location:	Location 8
		Sampled By:	Chuck Sorden and Kyle Hoard
<input type="checkbox"/> Stream <input type="checkbox"/> Spring <input checked="" type="checkbox"/> Pond <input type="checkbox"/> Lake <input type="checkbox"/> Other: Canal <input type="checkbox"/> QA Sample Type: 		C.O.C. No.: Type of Sample: <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

SAMPLING DATA:

Date:	3/11/2022	Color (Visual)	pH (S.U.)	Cond. (μ S/cm)	Temp. ($^{\circ}$ C)	Turbidity (NTU)	DO (mg/l)	ORP (mV)	Salinity (ppt)
Time:	835	Clear	8.11	20,422	24.04	1.65	7.47	194.9	12.63
Depth:	0-0.5								
Method:	Grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PFAS QSM Table B-15	None/4 deg C	2 - 250 mL HDPE Bottles	X

OBSERVATIONS / NOTES:

MAP:

[Empty area for Observations / Notes]	See figure
---------------------------------------	------------

Circle if Applicable:

MS/MSD YES	Duplicate ID No.:
---------------	-------------------

Signature(s):

[Handwritten signatures]

APPENDIX C
LABORATORY ANALYTICAL REPORTS



National Aeronautics and
Space Administration

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A handwritten signature in cursive script that reads "Felicia Grogan".

Signature

Date

5/13/2022

Company Name: Pace Analytical Services
Company Representative Name: Felicia Grogan
Company Representative Title: Director Laboratory Operations
Company Address: 106 Vantage Point Dr. Cayce SC 29172
Company Representative Phone: 704-572-1652
Company Representative E-Mail: felicia.grogan@pacelab.com



Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Chuck Sorden

Project Name: KSC PFAS
Project Number: 112G09237
Lot Number: **WL14016**
Date Completed: 01/07/2022

Kathy Smith

01/07/2022 12:45 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Tetra Tech Lot Number: WL14016

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

$$CF = DF * FV / V_0$$

FV is volume of extract (mL)

V₀ is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:

Concentration (ng/L) = C_s*CF,

$$C_s = \frac{\left(\frac{A_s \times C_{is}}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

For solid samples:

$$CF = DF * FV / Ws/S/1000$$

FV is volume of extract (mL)

Ws is initial sample weight (gram)

S is %Solids

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

$$\text{Concentration (ug/kg)} = C_s * CF,$$

$$C_s = \frac{\left(\frac{A_s \times C_{is}}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform Colilert-18, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-

2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS

The method blank associated with batch 25957 had 6:2 FTS detected at a concentration that was above the MDL but below ½ the PQL. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "B".

The method blank for prep batch 25999 contained analyte: PFOS greater than the acceptance criteria. The associated samples, WL14016-015, WL14016-016, WL14016-017, WL14016-018, WL14016-025, WL14016-026, did not contain detections for the target analyte; therefore, re-extraction and/or re-analysis of samples was not performed. The data has been reported.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

The method blank for prep batch 25999 contained analyte: PFOS greater than the acceptance criteria. The associated samples, WL14016-022, WL14016-023, WL14016-024, contained detections for this analyte at concentrations greater than 10X the value found in the method blank; therefore sample results are not impacted. The data has been reported.

TOC

The MS/MSD associated with sample WL14016-024 had TOC recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: WL14016

Project Name: KSC PFAS

Project Number: 112G09237

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3-RB01-20211209	Aqueous	12/09/2021 0930	12/14/2021
002	FS3-SB0001-011.5-20211209	Solid	12/09/2021 1155	12/14/2021
003	FS3-SB0001-025.5-20211209	Solid	12/09/2021 1200	12/14/2021
004	FS3-SB0001-038.5-20211209	Solid	12/09/2021 1205	12/14/2021
005	FS3-SB0001-055.5-20211209	Solid	12/09/2021 1210	12/14/2021
006	FS3-SB0001-059.5-20211209	Solid	12/09/2021 1215	12/14/2021
007	FS3-SB0001-070.5-20211209	Solid	12/09/2021 1220	12/14/2021
008	FS3-FB01-20211209	Aqueous	12/09/2021 1230	12/14/2021
009	SWB01-20211209	Aqueous	12/09/2021 1235	12/14/2021
010	SWB02-20211209	Aqueous	12/09/2021 1240	12/14/2021
011	STP1-RB02-20211209	Aqueous	12/09/2021 1630	12/14/2021
012	STP1-SB0001-009.5-20211209	Solid	12/09/2021 1730	12/14/2021
013	STP1-SB0001-021.5-20211209	Solid	12/09/2021 1735	12/14/2021
014	STP1-SB0001-029.5-20211209	Solid	12/09/2021 1740	12/14/2021
015	STP1-SB0001-043.5-20211210	Solid	12/10/2021 0810	12/14/2021
016	STP1-SB0001-045.5-20211210	Solid	12/10/2021 0815	12/14/2021
017	STP1-SB0001-049.5-20211210	Solid	12/10/2021 0820	12/14/2021
018	STP1-SB0001-053.5-20211210	Solid	12/10/2021 0830	12/14/2021
019	STP1-FB02-20211210	Aqueous	12/10/2021 0835	12/14/2021
020	FS1-RB03-20211210	Aqueous	12/10/2021 1000	12/14/2021
021	FS1-SB0001-013.5-20211210	Solid	12/10/2021 1200	12/14/2021
022	FS1-SB0001-019.5-20211210	Solid	12/10/2021 1205	12/14/2021
023	FS1-SB0001-033.5-20211210	Solid	12/10/2021 1210	12/14/2021
024	FS1-SB0001-046.5-20211210	Solid	12/10/2021 1215	12/14/2021
025	FS1-SB0001-052.5-20211210	Solid	12/10/2021 1220	12/14/2021
026	FS1-SB0001-059.5-20211210	Solid	12/10/2021 1225	12/14/2021
027	FS1-FB03-20211210	Aqueous	12/10/2021 1230	12/14/2021

(27 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: WL14016

Project Name: KSC PFAS

Project Number: 112G09237

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	FS3-SB0001-011.5-20211209	Solid	TOC	Walkley-Black	20000		mg/kg	9
002	FS3-SB0001-011.5-20211209	Solid	PFHxS	PFAS by ID	1.1	I	ug/kg	10
002	FS3-SB0001-011.5-20211209	Solid	PFPeA	PFAS by ID	0.30	I	ug/kg	10
002	FS3-SB0001-011.5-20211209	Solid	PFOS	PFAS by ID	3.2		ug/kg	10
003	FS3-SB0001-025.5-20211209	Solid	TOC	Walkley-Black	4200		mg/kg	12
003	FS3-SB0001-025.5-20211209	Solid	6:2 FTS	PFAS by ID	5.4	V	ug/kg	13
003	FS3-SB0001-025.5-20211209	Solid	PFHxS	PFAS by ID	0.38	I	ug/kg	13
003	FS3-SB0001-025.5-20211209	Solid	PFOS	PFAS by ID	4.7		ug/kg	13
004	FS3-SB0001-038.5-20211209	Solid	TOC	Walkley-Black	1500		mg/kg	15
004	FS3-SB0001-038.5-20211209	Solid	6:2 FTS	PFAS by ID	3.8	V	ug/kg	16
004	FS3-SB0001-038.5-20211209	Solid	PFHxS	PFAS by ID	0.58	I	ug/kg	16
004	FS3-SB0001-038.5-20211209	Solid	PFOS	PFAS by ID	4.3		ug/kg	16
005	FS3-SB0001-055.5-20211209	Solid	TOC	Walkley-Black	2400		mg/kg	18
005	FS3-SB0001-055.5-20211209	Solid	6:2 FTS	PFAS by ID	3.4	V	ug/kg	19
005	FS3-SB0001-055.5-20211209	Solid	PFOS	PFAS by ID	0.30	I	ug/kg	19
006	FS3-SB0001-059.5-20211209	Solid	TOC	Walkley-Black	18000		mg/kg	21
006	FS3-SB0001-059.5-20211209	Solid	6:2 FTS	PFAS by ID	1.7	VI	ug/kg	22
007	FS3-SB0001-070.5-20211209	Solid	TOC	Walkley-Black	1900		mg/kg	24
007	FS3-SB0001-070.5-20211209	Solid	6:2 FTS	PFAS by ID	1.6	VI	ug/kg	25
012	STP1-SB0001-009.5-20211209	Solid	TOC	Walkley-Black	18000		mg/kg	35
012	STP1-SB0001-009.5-20211209	Solid	6:2 FTS	PFAS by ID	1.2	VI	ug/kg	36
012	STP1-SB0001-009.5-20211209	Solid	PFOS	PFAS by ID	1.9		ug/kg	36
013	STP1-SB0001-021.5-20211209	Solid	TOC	Walkley-Black	4600		mg/kg	38
013	STP1-SB0001-021.5-20211209	Solid	6:2 FTS	PFAS by ID	1.0	VI	ug/kg	39
013	STP1-SB0001-021.5-20211209	Solid	PFOS	PFAS by ID	0.76	I	ug/kg	39
014	STP1-SB0001-029.5-20211209	Solid	TOC	Walkley-Black	880		mg/kg	41
014	STP1-SB0001-029.5-20211209	Solid	PFOS	PFAS by ID	0.55	I	ug/kg	42
015	STP1-SB0001-043.5-20211210	Solid	TOC	Walkley-Black	1500		mg/kg	44
016	STP1-SB0001-045.5-20211210	Solid	TOC	Walkley-Black	3400		mg/kg	47
017	STP1-SB0001-049.5-20211210	Solid	TOC	Walkley-Black	3000		mg/kg	50
018	STP1-SB0001-053.5-20211210	Solid	TOC	Walkley-Black	3700		mg/kg	53
021	FS1-SB0001-013.5-20211210	Solid	TOC	Walkley-Black	7400		mg/kg	60
021	FS1-SB0001-013.5-20211210	Solid	8:2 FTS	PFAS by ID	2.6		ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFHxS	PFAS by ID	0.53	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFHpA	PFAS by ID	0.37	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFHxA	PFAS by ID	0.58	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFOA	PFAS by ID	0.28	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFPeA	PFAS by ID	0.57	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFOS	PFAS by ID	4.6	V	ug/kg	61
022	FS1-SB0001-019.5-20211210	Solid	TOC	Walkley-Black	4200		mg/kg	63
022	FS1-SB0001-019.5-20211210	Solid	8:2 FTS	PFAS by ID	4.4		ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	6:2 FTS	PFAS by ID	1.5	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFHxS	PFAS by ID	2.2		ug/kg	64

Detection Summary (Continued)

Lot Number: WL14016

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
022	FS1-SB0001-019.5-20211210	Solid	PFHpA	PFAS by ID	0.45	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFHxA	PFAS by ID	0.61	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFNA	PFAS by ID	0.39	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFOA	PFAS by ID	0.86	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFPeA	PFAS by ID	0.64	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFOS	PFAS by ID	29	V	ug/kg	64
023	FS1-SB0001-033.5-20211210	Solid	TOC	Walkley-Black	1200		mg/kg	66
023	FS1-SB0001-033.5-20211210	Solid	8:2 FTS	PFAS by ID	2.2	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	6:2 FTS	PFAS by ID	4.6		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFBS	PFAS by ID	0.55	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHpS	PFAS by ID	0.91	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFPeS	PFAS by ID	0.64	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHxS	PFAS by ID	9.4		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFBA	PFAS by ID	0.34	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHpA	PFAS by ID	0.48	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHxA	PFAS by ID	2.1		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFOA	PFAS by ID	1.5		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFPeA	PFAS by ID	1.2		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFOS	PFAS by ID	110	V	ug/kg	67
024	FS1-SB0001-046.5-20211210	Solid	TOC	Walkley-Black	590	S	mg/kg	69
024	FS1-SB0001-046.5-20211210	Solid	PFBS	PFAS by ID	0.31	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFHpS	PFAS by ID	0.29	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFPeS	PFAS by ID	0.33	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFHxS	PFAS by ID	3.2		ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFHxA	PFAS by ID	0.64	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFOA	PFAS by ID	0.54	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFPeA	PFAS by ID	0.32	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFOS	PFAS by ID	8.4	V	ug/kg	70
025	FS1-SB0001-052.5-20211210	Solid	TOC	Walkley-Black	1300		mg/kg	72
026	FS1-SB0001-059.5-20211210	Solid	TOC	Walkley-Black	1300		mg/kg	75

(73 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-001
Description: FS3-RB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 0930	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1605	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		112	50-150
13C2_PFDa		87	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-001
Description: FS3-RB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 0930	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		101	50-150
13C9_PFNA		104	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-002
Description: FS3-SB0001-011.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1155	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 80.9 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	20000		2000	1000	980	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-002
Description: FS3-SB0001-011.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1155	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 80.9 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1329	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.1	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.30	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.2		1.2	0.60	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		92	50-150
13C2_PFDaA		82	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		72	50-150
13C3-HFPO-DA		69	50-150
13C4_PFBA		68	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		74	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		77	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-002
Description: FS3-SB0001-011.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1155	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 80.9 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		79	50-150
13C9_PFNA		73	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-003
Description: FS3-SB0001-025.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1200	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.0 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	4200		200	100	99	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-003
Description: FS3-SB0001-025.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1200	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.0 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1340	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.4	V	2.5	1.3	0.63	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.6	U	5.1	2.6	1.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.38	I	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.7		1.3	0.65	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		78	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		87	50-150
13C2_PFDa		80	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		74	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA		74	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		70	50-150
13C5_PFPeA		83	50-150
13C6_PFDA		72	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-003
Description: FS3-SB0001-025.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1200	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.0 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	50-150
13C8_PFOS		84	50-150
13C9_PFNA		73	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		52	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-004
Description: FS3-SB0001-038.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1205	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 78.0 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1500		200	100	99	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-004
Description: FS3-SB0001-038.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1205	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 78.0 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1350	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	V	2.4	1.2	0.61	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.4	U	4.8	2.4	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.58	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.3		1.2	0.60	0.24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		87	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		92	50-150
13C2_PFDa		85	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		74	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA		77	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		73	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-004
Description: FS3-SB0001-038.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1205	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 78.0 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		81	50-150
13C9_PFNA		76	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-005
Description: FS3-SB0001-055.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1210	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 83.7 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	2400		190	95	97	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-005
Description: FS3-SB0001-055.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1210	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 83.7 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1422	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.4	V	2.3	1.2	0.57	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.30	I	1.1	0.55	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		93	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		104	50-150
13C2_PFDa		85	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		80	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		83	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		92	50-150
13C6_PFDA		77	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-005	
Description: FS3-SB0001-055.5-20211209	Matrix: Solid	
Date Sampled: 12/09/2021 1210	Project Name: KSC PFAS	% Solids: 83.7 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	50-150
13C8_PFOS		85	50-150
13C9_PFNA		82	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-006
Description: FS3-SB0001-059.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1215	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 59.1 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	18000		1800	900	920	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-006
Description: FS3-SB0001-059.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1215	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 59.1 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1433	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.7	VI	2.9	1.5	0.72	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.9	U	5.8	2.9	1.4	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		72	50-150
13C2_6:2FTS		88	50-150
13C2_8:2FTS		78	50-150
13C2_PFDa		69	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		64	50-150
13C3_PFHxS		58	50-150
13C3-HFPO-DA		58	50-150
13C4_PFBA		62	50-150
13C4_PFHpA		62	50-150
13C5_PFHxA		62	50-150
13C5_PFPeA		68	50-150
13C6_PFDA		61	50-150
13C7_PFUdA		75	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-006	
Description: FS3-SB0001-059.5-20211209	Matrix: Solid	
Date Sampled: 12/09/2021 1215	Project Name: KSC PFAS	% Solids: 59.1 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		61	50-150
13C8_PFOS		68	50-150
13C9_PFNA		64	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		71	50-150
d3-MeFOSAA		73	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-007
Description: FS3-SB0001-070.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1220	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 76.2 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1900		200	100	98	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-007
Description: FS3-SB0001-070.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1220	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 76.2 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1444	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.6	VI	2.3	1.2	0.58	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150
13C2_6:2FTS		108	50-150
13C2_8:2FTS		87	50-150
13C2_PFDa		81	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		73	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA		72	50-150
13C4_PFHpA		73	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		75	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-007	
Description: FS3-SB0001-070.5-20211209	Matrix: Solid	
Date Sampled: 12/09/2021 1220	Project Name: KSC PFAS	% Solids: 76.2 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	50-150
13C8_PFOS		76	50-150
13C9_PFNA		71	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-008
Description: FS3-FB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1230	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1616	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		105	50-150
13C2_PFDa		84	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-008
Description: FS3-FB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1230	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		95	50-150
13C9_PFNA		101	50-150
d-EtFOSA		91	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-009
Description: SWB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1235	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1626	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		148	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		109	50-150
13C2_PFDa		76	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		115	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		113	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		105	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-009
Description: SWB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1235	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	50-150
13C8_PFOS		108	50-150
13C9_PFNA		107	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-010
Description: SWB02-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1240	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1637	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		145	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		97	50-150
13C2_PFDa		71	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-010
Description: SWB02-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1240	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		96	50-150
13C9_PFNA		102	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-011
Description: STP1-RB02-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1630	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1647	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		112	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		119	50-150
13C2_PFDa		98	50-150
13C2_PFTeDA		77	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		106	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-011
Description: STP1-RB02-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1630	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		107	50-150
13C9_PFNA		104	50-150
d-EtFOSA		99	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-012
Description: STP1-SB0001-009.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1730	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.7 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	18000		1800	900	890	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-012
Description: STP1-SB0001-009.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1730	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 79.7 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1454	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	VI	2.3	1.2	0.58	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9		1.2	0.60	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		86	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		88	50-150
13C2_PFDaA		69	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		76	50-150
13C3_PFHxS		69	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA		70	50-150
13C4_PFHpA		69	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		69	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-012
Description: STP1-SB0001-009.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1730	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.7 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		71	50-150
13C8_PFOS		77	50-150
13C9_PFNA		73	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		76	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-013
Description: STP1-SB0001-021.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1735	% Solids: 82.6 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	4600		200	100	99	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-013
Description: STP1-SB0001-021.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1735	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 82.6 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1505	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.0	VI	2.3	1.2	0.57	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.76	I	1.1	0.55	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		92	50-150
13C2_6:2FTS		130	50-150
13C2_8:2FTS		98	50-150
13C2_PFDa		76	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		80	50-150
13C3_PFHxS		78	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA		78	50-150
13C4_PFHpA		78	50-150
13C5_PFHxA		78	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		69	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-013
Description: STP1-SB0001-021.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1735	% Solids: 82.6 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		80	50-150
13C9_PFNA		78	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		83	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-014
Description: STP1-SB0001-029.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1740	% Solids: 85.6 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	880		200	100	99	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-014
Description: STP1-SB0001-029.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1740	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 85.6 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1515	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.55	I	1.0	0.50	0.20	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		81	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		83	50-150
13C2_PFDaA		65	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		68	50-150
13C3_PFHxS		65	50-150
13C3-HFPO-DA		61	50-150
13C4_PFBA		66	50-150
13C4_PFHpA		66	50-150
13C5_PFHxA		62	50-150
13C5_PFPeA		70	50-150
13C6_PFDA		61	50-150
13C7_PFUdA		69	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-014
Description: STP1-SB0001-029.5-20211209	Matrix: Solid
Date Sampled: 12/09/2021 1740	% Solids: 85.6 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		64	50-150
13C8_PFOS		69	50-150
13C9_PFNA		66	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		70	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-015
Description: STP1-SB0001-043.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0810	% Solids: 76.4 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1500		200	100	99	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-015
Description: STP1-SB0001-043.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0810	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 76.4 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/19/2021 2342	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0240	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.4	U	4.8	2.4	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
Perfluoro-1-butanefluoro-1-octanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		87	50-150		103	50-150
13C2_6:2FTS		89	50-150		102	50-150
13C2_8:2FTS		94	50-150		101	50-150
13C2_PFDa		88	50-150		90	50-150
13C2_PFTeDA		92	50-150		93	50-150
13C3_PFBs		92	50-150		99	50-150
13C3_PFHxS		92	50-150		101	50-150
13C3-HFPO-DA		88	50-150		98	50-150
13C4_PFBa		87	50-150		98	50-150
13C4_PFHpA		89	50-150		97	50-150
13C5_PFHxA		87	50-150		101	50-150
13C5_PFPeA		92	50-150		95	50-150
13C6_PFDa		84	50-150		97	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-015
Description: STP1-SB0001-043.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0810	% Solids: 76.4 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		100	50-150
13C8_PFOA		86	50-150		94	50-150
13C8_PFOS		87	50-150		95	50-150
13C9_PFNA		84	50-150		95	50-150
d-EtFOSA		91	50-150		95	50-150
d5-EtFOSAA		85	50-150		98	50-150
d3-MeFOSAA		91	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-016
Description: STP1-SB0001-045.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0815	% Solids: 74.5 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	3400		200	100	98	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-016
Description: STP1-SB0001-045.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0815	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 74.5 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/19/2021 2353	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0253	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.3	U	2.6	1.3	0.65	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.6	U	5.1	2.6	1.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		84	50-150		105	50-150
13C2_6:2FTS		85	50-150		102	50-150
13C2_8:2FTS		88	50-150		105	50-150
13C2_PFDa		84	50-150		92	50-150
13C2_PFTeDA		86	50-150		97	50-150
13C3_PFBFS		85	50-150		99	50-150
13C3_PFHxS		89	50-150		102	50-150
13C3-HFPO-DA		82	50-150		102	50-150
13C4_PFBFA		83	50-150		102	50-150
13C4_PFHpA		82	50-150		99	50-150
13C5_PFHxA		86	50-150		101	50-150
13C5_PFPeA		83	50-150		97	50-150
13C6_PFDA		87	50-150		101	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-016
Description: STP1-SB0001-045.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0815	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 74.5 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		100	50-150
13C8_PFOA		85	50-150		100	50-150
13C8_PFOS		80	50-150		100	50-150
13C9_PFNA		78	50-150		98	50-150
d-EtFOSA		88	50-150		99	50-150
d5-EtFOSAA		82	50-150		102	50-150
d3-MeFOSAA		87	50-150		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-017
Description: STP1-SB0001-049.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0820	% Solids: 77.0 12/16/2021 0210
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	3000		200	100	100	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-017
Description: STP1-SB0001-049.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0820	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 77.0 12/16/2021 0210

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0004	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0331	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		66	50-150		109	50-150
13C2_6:2FTS		72	50-150		107	50-150
13C2_8:2FTS		72	50-150		106	50-150
13C2_PFDa		77	50-150		104	50-150
13C2_PFTeDA		77	50-150		104	50-150
13C3_PFBS		67	50-150		105	50-150
13C3_PFHxS		72	50-150		105	50-150
13C3-HFPO-DA		69	50-150		104	50-150
13C4_PFBA		69	50-150		103	50-150
13C4_PFHpA		67	50-150		104	50-150
13C5_PFHxA		68	50-150		104	50-150
13C5_PFPeA		70	50-150		99	50-150
13C6_PFDA		77	50-150		104	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-017
Description: STP1-SB0001-049.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0820	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 77.0 12/16/2021 0210

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		70	50-150		107	50-150
13C8_PFOA		71	50-150		102	50-150
13C8_PFOS		71	50-150		102	50-150
13C9_PFNA		68	50-150		102	50-150
d-EtFOSA		73	50-150		103	50-150
d5-EtFOSAA		72	50-150		105	50-150
d3-MeFOSAA		75	50-150		102	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-018
Description: STP1-SB0001-053.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0830	% Solids: 76.2 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	3700		200	100	99	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-018
Description: STP1-SB0001-053.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0830	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 76.2 12/15/2021 0111
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0014	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0343	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Perfluoro-1-butanefluoro-1-octanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150		113	50-150
13C2_6:2FTS		103	50-150		95	50-150
13C2_8:2FTS		104	50-150		99	50-150
13C2_PFDa		92	50-150		95	50-150
13C2_PFTeDA		97	50-150		94	50-150
13C3_PFBFS		89	50-150		100	50-150
13C3_PFHxS		95	50-150		97	50-150
13C3-HFPO-DA		88	50-150		99	50-150
13C4_PFBFA		89	50-150		98	50-150
13C4_PFHpA		95	50-150		100	50-150
13C5_PFHxA		89	50-150		101	50-150
13C5_PFPeA		91	50-150		96	50-150
13C6_PFDA		87	50-150		98	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-018
Description: STP1-SB0001-053.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 0830	% Solids: 76.2 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		96	50-150
13C8_PFOA		95	50-150		96	50-150
13C8_PFOS		88	50-150		96	50-150
13C9_PFNA		92	50-150		96	50-150
d-EtFOSA		98	50-150		98	50-150
d5-EtFOSAA		87	50-150		97	50-150
d3-MeFOSAA		91	50-150		96	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-019
Description: STP1-FB02-20211210	Matrix: Aqueous
Date Sampled: 12/10/2021 0835	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1658	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		96	50-150
13C2_PFDa		80	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-019
Description: STP1-FB02-20211210	Matrix: Aqueous
Date Sampled: 12/10/2021 0835	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		100	50-150
13C9_PFNA		103	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-020
Description: FS1-RB03-20211210	Matrix: Aqueous
Date Sampled: 12/10/2021 1000	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1708	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		96	50-150
13C2_PFDa		82	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-020
Description: FS1-RB03-20211210	Matrix: Aqueous
Date Sampled: 12/10/2021 1000	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		100	50-150
13C9_PFNA		100	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-021
Description: FS1-SB0001-013.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1200	% Solids: 77.0 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	7400		400	200	200	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-021
Description: FS1-SB0001-013.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1200	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 77.0 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0025	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0356	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.6		2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.53	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.37	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.58	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.28	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.57	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.6	V	1.1	0.55	0.22	ug/kg	1

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150		123	50-150
13C2_6:2FTS		96	50-150		119	50-150
13C2_8:2FTS		94	50-150		124	50-150
13C2_PFDa		90	50-150		114	50-150
13C2_PFTeDA		89	50-150		116	50-150
13C3_PFBS		86	50-150		124	50-150
13C3_PFHxS		93	50-150		120	50-150
13C3-HFPO-DA		86	50-150		122	50-150
13C4_PFBA		86	50-150		117	50-150
13C4_PFHpA		91	50-150		118	50-150
13C5_PFHxA		89	50-150		119	50-150
13C5_PFPeA		87	50-150		118	50-150
13C6_PFDA		91	50-150		119	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-021	
Description: FS1-SB0001-013.5-20211210	Matrix: Solid	
Date Sampled: 12/10/2021 1200	Project Name: KSC PFAS	% Solids: 77.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	50-150		120	50-150
13C8_PFOA		93	50-150		116	50-150
13C8_PFOS		89	50-150		119	50-150
13C9_PFNA		86	50-150		116	50-150
d-EtFOSA		89	50-150		115	50-150
d5-EtFOSAA		85	50-150		119	50-150
d3-MeFOSAA		91	50-150		120	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-022
Description: FS1-SB0001-019.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1205	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 78.8 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	4200		190	95	97	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-022
Description: FS1-SB0001-019.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1205	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 78.8 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0036	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0409	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.4		2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.5	I	2.4	1.2	0.59	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	5.0	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.2		1.2	0.60	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.45	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.61	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.39	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.86	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.64	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	29	V	1.2	0.60	0.25	ug/kg	1

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
13C2_4:2FTS		88	50-150		96	50-150
13C2_6:2FTS		94	50-150		91	50-150
13C2_8:2FTS		87	50-150		96	50-150
13C2_PFDa		90	50-150		89	50-150
13C2_PFTeDA		93	50-150		91	50-150
13C3_PFBs		90	50-150		99	50-150
13C3_PFHxS		91	50-150		95	50-150
13C3-HFPO-DA		90	50-150		97	50-150
13C4_PFBa		87	50-150		95	50-150
13C4_PFHpA		87	50-150		95	50-150
13C5_PFHxA		93	50-150		96	50-150
13C5_PFPeA		93	50-150		96	50-150
13C6_PFDa		89	50-150		94	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-022
Description: FS1-SB0001-019.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1205	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 78.8 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		87	50-150		97	50-150
13C8_PFOA		90	50-150		93	50-150
13C8_PFOS		90	50-150		92	50-150
13C9_PFNA		85	50-150		94	50-150
d-EtFOSA		93	50-150		97	50-150
d5-EtFOSAA		88	50-150		95	50-150
d3-MeFOSAA		88	50-150		96	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-023
Description: FS1-SB0001-033.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1210	Project Name: KSC PFAS
Date Received: 12/14/2021	% Solids: 79.6 12/15/2021 0111
Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1200		200	100	98	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-023
Description: FS1-SB0001-033.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1210	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.6 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0046	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0421	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.2	I	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.6		2.5	1.3	0.62	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.91	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.64	I	1.2	0.60	0.24	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	9.4		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.34	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.48	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.5		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.2		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110	V	1.2	0.60	0.24	ug/kg	1

Surrogate	Run 1		Acceptance Limits	Run 2		
	Q	% Recovery		Q	% Recovery	
13C2_4:2FTS		86	50-150		96	50-150
13C2_6:2FTS		82	50-150		93	50-150
13C2_8:2FTS		89	50-150		100	50-150
13C2_PFDa		90	50-150		96	50-150
13C2_PFTeDA		89	50-150		94	50-150
13C3_PFBs		85	50-150		100	50-150
13C3_PFHxS		84	50-150		96	50-150
13C3-HFPO-DA		82	50-150		98	50-150
13C4_PFBa		83	50-150		98	50-150
13C4_PFHpA		86	50-150		98	50-150
13C5_PFHxA		86	50-150		98	50-150
13C5_PFPeA		86	50-150		98	50-150
13C6_PFDa		80	50-150		96	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-023
Description: FS1-SB0001-033.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1210	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 79.6 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	50-150		98	50-150
13C8_PFOA		88	50-150		95	50-150
13C8_PFOS		81	50-150		93	50-150
13C9_PFNA		82	50-150		94	50-150
d-EtFOSA		79	50-150		93	50-150
d5-EtFOSAA		83	50-150		98	50-150
d3-MeFOSAA		87	50-150		96	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-024
Description: FS1-SB0001-046.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1215	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 82.9 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	590	S	200	100	100	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-024
Description: FS1-SB0001-046.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1215	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 82.9 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0057	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0434	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.31	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.29	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.33	I	1.1	0.55	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3.2		1.1	0.55	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.64	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.54	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.32	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.4	V	1.1	0.55	0.23	ug/kg	1

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
13C2_4:2FTS		79	50-150		97	50-150
13C2_6:2FTS		91	50-150		95	50-150
13C2_8:2FTS		81	50-150		98	50-150
13C2_PFDa		86	50-150		88	50-150
13C2_PFTeDA		90	50-150		91	50-150
13C3_PFBS		87	50-150		100	50-150
13C3_PFHxS		89	50-150		96	50-150
13C3-HFPO-DA		83	50-150		99	50-150
13C4_PFBA		84	50-150		97	50-150
13C4_PFHpA		83	50-150		98	50-150
13C5_PFHxA		82	50-150		97	50-150
13C5_PFPeA		90	50-150		97	50-150
13C6_PFDA		80	50-150		99	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-024
Description: FS1-SB0001-046.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1215	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 82.9 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		98	50-150
13C8_PFOA		86	50-150		95	50-150
13C8_PFOS		80	50-150		92	50-150
13C9_PFNA		81	50-150		93	50-150
d-EtFOSA		90	50-150		94	50-150
d5-EtFOSAA		84	50-150		98	50-150
d3-MeFOSAA		87	50-150		97	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-025
Description: FS1-SB0001-052.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1220	% Solids: 80.6 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1300		200	100	98	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-025
Description: FS1-SB0001-052.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1220	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 80.6 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0107	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/29/2021 1224	MMM	12/28/2021 1304	26872

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		76	50-150		107	50-150
13C2_6:2FTS		80	50-150		114	50-150
13C2_8:2FTS		79	50-150		114	50-150
13C2_PFDaA		87	50-150		89	50-150
13C2_PFTeDA		83	50-150		95	50-150
13C3_PFBFS		83	50-150		93	50-150
13C3_PFHxS		82	50-150		92	50-150
13C3-HFPO-DA		80	50-150		98	50-150
13C4_PFBFA		80	50-150		94	50-150
13C4_PFHpA		85	50-150		93	50-150
13C5_PFHxA		79	50-150		93	50-150
13C5_PFPeA		84	50-150		89	50-150
13C6_PFDA		82	50-150		87	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-025
Description: FS1-SB0001-052.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1220	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 80.6 12/15/2021 0111

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		96	50-150
13C8_PFOA		84	50-150		96	50-150
13C8_PFOS		78	50-150		93	50-150
13C9_PFNA		80	50-150		91	50-150
d-EtFOSA		86	50-150		98	50-150
d5-EtFOSAA		87	50-150		109	50-150
d3-MeFOSAA		84	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech	Laboratory ID: WL14016-026
Description: FS1-SB0001-059.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1225	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 85.2 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1300		200	100	100	mg/kg	1

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-026
Description: FS1-SB0001-059.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1225	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237
	% Solids: 85.2 12/15/2021 0111

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0118	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/29/2021 1234	MMM	12/28/2021 1304	26872

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
Perfluoro-1-butanefluoro-1-octanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTTrDA)	72629-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		81	50-150		115	50-150
13C2_6:2FTS		92	50-150		118	50-150
13C2_8:2FTS		84	50-150		111	50-150
13C2_PFDa		91	50-150		97	50-150
13C2_PFTeDA		88	50-150		95	50-150
13C3_PFBs		87	50-150		91	50-150
13C3_PFHxS		85	50-150		104	50-150
13C3-HFPO-DA		83	50-150		99	50-150
13C4_PFBa		82	50-150		95	50-150
13C4_PFHpA		84	50-150		92	50-150
13C5_PFHxA		84	50-150		89	50-150
13C5_PFPeA		86	50-150		88	50-150
13C6_PFDa		80	50-150		90	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-026
Description: FS1-SB0001-059.5-20211210	Matrix: Solid
Date Sampled: 12/10/2021 1225	% Solids: 85.2 12/15/2021 0111
Date Received: 12/14/2021	Project Name: KSC PFAS
	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		93	50-150
13C8_PFOA		85	50-150		98	50-150
13C8_PFOS		84	50-150		91	50-150
13C9_PFNA		86	50-150		96	50-150
d-EtFOSA		83	50-150		99	50-150
d5-EtFOSAA		80	50-150		108	50-150
d3-MeFOSAA		90	50-150		100	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-027
Description: FS1-FB03-20211210	Matrix: Aqueous
Date Sampled: 12/10/2021 1230	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1719	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		102	50-150
13C2_PFDa		81	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		100	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-027
Description: FS1-FB03-20211210	Matrix: Aqueous
Date Sampled: 12/10/2021 1230	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		102	50-150
13C9_PFNA		106	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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QC Summary

Inorganic non-metals - MB

Sample ID: XQ27188-001

Matrix: Solid

Batch: 27188

Analytical Method: Walkley-Black

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
TOC	100	U	1	200	100	100	mg/kg	01/06/2022 1550

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ27188-002

Matrix: Solid

Batch: 27188

Analytical Method: Walkley-Black

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1000	1100		1	110	80-120	01/06/2022 1550

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WL14016-024MS

Matrix: Solid

Batch: 27188

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	590	1000	1800		1	125	70-130	01/06/2022 1550

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WL14016-024MD

Matrix: Solid

Batch: 27188

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	590	990	1900	N	1	133	3.8	70-130	20	01/06/2022 1550

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ27195-001

Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
TOC	100	U	1	200	100	100	mg/kg	01/05/2022 1700

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ27195-002

Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1000	1100		1	113	80-120	01/05/2022 1700

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WL14016-004MS

Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1500	960	2500		1	106	70-130	01/05/2022 1700

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WL14016-004MD

Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	1500	990	2600		1	114	4.7	70-130	20	01/05/2022 1700

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WL14016-015MS

Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1500	1000	2600		1	114	70-130	01/05/2022 1700

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WL14016-015MD

Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	1500	970	2600		1	114	1.1	70-130	20	01/05/2022 1700

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ25957-001

Matrix: Solid

Batch: 25957

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/16/2021 1855

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
11CI-PF3OUdS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
8:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
6:2 FTS	0.91	I	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
4:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
GenX	2.0	U	1	4.0	2.0	1.0	ug/kg	12/17/2021 1008
ADONA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
EtFOSA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
EtFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
MeFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
PFBS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFDS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHpS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFNS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFPeS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHxS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFBA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFDoA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHpA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHxA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFNA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFOA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFPeA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFTeDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFTrDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFUdA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFOS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		89	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		94	50-150
13C2_PFDaA		85	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		73	50-150
13C3-HFPO-DA		85	50-150
13C4_PFBA		78	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		78	50-150
13C5_PFPeA		88	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ25957-001

Matrix: Solid

Batch: 25957

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/16/2021 1855

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		70	50-150
13C7_PFUdA		83	50-150
13C8_PFOA		79	50-150
13C8_PFOS		86	50-150
13C9_PFNA		78	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ25957-002

Matrix: Solid

Batch: 25957

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/16/2021 1855

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	1.9	1.7		1	91	70-130	12/17/2021 1019
11CI-PF3OUdS	1.9	1.8		1	94	70-130	12/17/2021 1019
8:2 FTS	1.9	1.5		1	76	65-137	12/17/2021 1019
6:2 FTS	1.9	2.6		1	139	64-140	12/17/2021 1019
4:2 FTS	1.9	1.8		1	97	62-145	12/17/2021 1019
GenX	4.0	4.3		1	108	70-150	12/17/2021 1019
ADONA	1.9	2.0		1	105	70-130	12/17/2021 1019
EtFOSA	2.0	2.1		1	107	70-150	12/17/2021 1019
EtFOSAA	2.0	2.0		1	102	61-139	12/17/2021 1019
MeFOSAA	2.0	1.8		1	92	63-144	12/17/2021 1019
PFBS	1.8	1.6		1	90	72-128	12/17/2021 1019
PFDS	1.9	1.8		1	96	59-134	12/17/2021 1019
PFHpS	1.9	2.4		1	125	70-132	12/17/2021 1019
PFNS	1.9	1.7		1	87	69-125	12/17/2021 1019
PFPeS	1.9	1.9		1	102	73-123	12/17/2021 1019
PFHxS	1.8	2.0		1	112	67-130	12/17/2021 1019
PFBA	2.0	1.9		1	96	71-135	12/17/2021 1019
PFDA	2.0	1.9		1	97	69-133	12/17/2021 1019
PFDaA	2.0	1.9		1	97	69-135	12/17/2021 1019
PFHpA	2.0	1.8		1	92	71-131	12/17/2021 1019
PFHxA	2.0	1.8		1	90	70-132	12/17/2021 1019
PFNA	2.0	2.1		1	106	72-129	12/17/2021 1019
PFOA	2.0	2.0		1	101	69-133	12/17/2021 1019
PFPeA	2.0	2.1		1	106	69-132	12/17/2021 1019
PFTeDA	2.0	1.9		1	96	69-133	12/17/2021 1019
PFTTrDA	2.0	1.8		1	90	66-139	12/17/2021 1019
PFUdA	2.0	1.9		1	95	64-136	12/17/2021 1019
PFOS	1.9	1.7		1	91	68-136	12/17/2021 1019

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		93	50-150
13C2_PFDaA		86	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		71	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		82	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		87	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ25957-002

Matrix: Solid

Batch: 25957

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/16/2021 1855

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		78	50-150
13C8_PFOS		85	50-150
13C9_PFNA		80	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ25999-001

Matrix: Solid

Batch: 25999

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/17/2021 1218

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
11CI-PF3OUdS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
8:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
4:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
GenX	2.0	U	1	4.0	2.0	1.0	ug/kg	12/19/2021 2321
ADONA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
EtFOSA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
EtFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
MeFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
PFBS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFDS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHpS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFNS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFPeS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHxS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFBA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFDoA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHpA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHxA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFNA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFOA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFPeA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFTeDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFTTrDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFUdA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFOS	0.57	I	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		82	50-150
13C2_6:2FTS		95	50-150
13C2_8:2FTS		88	50-150
13C2_PFDaA		92	50-150
13C2_PFTeDA		91	50-150
13C3_PFBs		87	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBa		86	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		92	50-150
13C6_PFDa		92	50-150

LOQ = Limit of Quantitation

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DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

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LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ25999-001

Matrix: Solid

Batch: 25999

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/17/2021 1218

Surrogate	Q	% Rec	Acceptance Limit
13C7_PFUdA		83	50-150
13C8_PFOA		90	50-150
13C8_PFOS		86	50-150
13C9_PFNA		84	50-150
d-EtFOSA		93	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation

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DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ25999-002

Matrix: Solid

Batch: 25999

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/17/2021 1218

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	1.9	1.7		1	93	70-130	12/19/2021 2332
11CI-PF3OUdS	1.9	1.9		1	102	70-130	12/19/2021 2332
8:2 FTS	1.9	1.7		1	89	65-137	12/19/2021 2332
4:2 FTS	1.9	1.7		1	94	62-145	12/19/2021 2332
GenX	4.0	4.0		1	101	70-150	12/19/2021 2332
ADONA	1.9	1.8		1	94	70-130	12/19/2021 2332
EtFOSA	2.0	2.4		1	118	70-150	12/19/2021 2332
EtFOSAA	2.0	1.8		1	90	61-139	12/19/2021 2332
MeFOSAA	2.0	1.6		1	79	63-144	12/19/2021 2332
PFBS	1.8	1.6		1	88	72-128	12/19/2021 2332
PFDS	1.9	1.9		1	98	59-134	12/19/2021 2332
PFHpS	1.9	1.9		1	100	70-132	12/19/2021 2332
PFNS	1.9	1.8		1	91	69-125	12/19/2021 2332
PFPeS	1.9	1.6		1	84	73-123	12/19/2021 2332
PFHxS	1.8	1.7		1	94	67-130	12/19/2021 2332
PFBA	2.0	1.8		1	89	71-135	12/19/2021 2332
PFDA	2.0	1.7		1	86	69-133	12/19/2021 2332
PFDaA	2.0	1.7		1	84	69-135	12/19/2021 2332
PFHpA	2.0	1.9		1	94	71-131	12/19/2021 2332
PFHxA	2.0	1.9		1	95	70-132	12/19/2021 2332
PFNA	2.0	1.9		1	94	72-129	12/19/2021 2332
PFOA	2.0	1.7		1	87	69-133	12/19/2021 2332
PFPeA	2.0	2.0		1	99	69-132	12/19/2021 2332
PFTeDA	2.0	1.9		1	94	69-133	12/19/2021 2332
PFTTrDA	2.0	1.9		1	93	66-139	12/19/2021 2332
PFUdA	2.0	1.7		1	87	64-136	12/19/2021 2332
PFOS	1.9	1.7		1	93	68-136	12/19/2021 2332

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		93	50-150
13C2_PFDaA		91	50-150
13C2_PFTeDA		95	50-150
13C3_PFBs		89	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBa		88	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		88	50-150
13C6_PFDa		96	50-150

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I = Estimated result < LOQ and ≥ DL

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LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ25999-002

Matrix: Solid

Batch: 25999

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/17/2021 1218

Surrogate	Q	% Rec	Acceptance Limit
13C7_PFUdA		81	50-150
13C8_PFOA		90	50-150
13C8_PFOS		84	50-150
13C9_PFNA		83	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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PFAS by LC/MS/MS - MB

Sample ID: WQ26214-001

Matrix: Aqueous

Batch: 26214

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/20/2021 1123

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		101	50-150
13C2_PFDaA		93	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		102	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		101	50-150

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LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ26214-001

Matrix: Aqueous

Batch: 26214

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/20/2021 1123

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		108	50-150
13C8_PFOS		106	50-150
13C9_PFNA		112	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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PFAS by LC/MS/MS - LCS

Sample ID: WQ26214-002

Matrix: Aqueous

Batch: 26214

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/20/2021 1123

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	13		1	90	70-150	12/21/2021 1544
11CI-PF3OUdS	15	12		1	83	70-150	12/21/2021 1544
8:2 FTS	15	15		1	100	67-138	12/21/2021 1544
6:2 FTS	15	15		1	99	64-140	12/21/2021 1544
4:2 FTS	15	14		1	96	63-143	12/21/2021 1544
GenX	32	34		1	107	70-150	12/21/2021 1544
ADONA	15	15		1	103	70-150	12/21/2021 1544
EtFOSA	16	16		1	100	70-150	12/21/2021 1544
EtFOSAA	16	15		1	96	61-135	12/21/2021 1544
MeFOSAA	16	17		1	107	65-136	12/21/2021 1544
PFBS	14	12		1	87	72-130	12/21/2021 1544
PFDS	15	14		1	91	53-142	12/21/2021 1544
PFHpS	15	15		1	100	69-134	12/21/2021 1544
PFNS	15	14		1	89	69-127	12/21/2021 1544
PFPeS	15	14		1	91	71-127	12/21/2021 1544
PFHxS	15	14		1	100	68-131	12/21/2021 1544
PFBA	16	15		1	94	73-129	12/21/2021 1544
PFDA	16	14		1	90	71-129	12/21/2021 1544
PFDaA	16	16		1	97	72-134	12/21/2021 1544
PFHpA	16	15		1	93	72-130	12/21/2021 1544
PFHxA	16	15		1	96	72-129	12/21/2021 1544
PFNA	16	16		1	97	69-130	12/21/2021 1544
PFOA	16	14		1	88	71-133	12/21/2021 1544
PFPeA	16	15		1	96	72-129	12/21/2021 1544
PFTeDA	16	15		1	94	71-132	12/21/2021 1544
PFTTrDA	16	14		1	91	65-144	12/21/2021 1544
PFUdA	16	15		1	91	69-133	12/21/2021 1544
PFOS	15	14		1	97	65-140	12/21/2021 1544

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		100	50-150
13C2_PFDaA		93	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ26214-002

Matrix: Aqueous

Batch: 26214

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/20/2021 1123

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		109	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C9_PFNA		107	50-150
d-EtFOSA		92	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ26623-001

Matrix: Solid

Batch: 26623

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/23/2021 0934

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/27/2021 0214
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS	108		50-150					
13C2_6:2FTS	105		50-150					
13C2_8:2FTS	108		50-150					
13C2_PFDaA	97		50-150					
13C2_PFTeDA	101		50-150					
13C3_PFBs	107		50-150					
13C3_PFHxS	108		50-150					
13C3-HFPO-DA	106		50-150					
13C4_PFBa	104		50-150					
13C4_PFHpA	106		50-150					
13C5_PFHxA	104		50-150					
13C5_PFPeA	102		50-150					
13C6_PFDa	104		50-150					
13C7_PFUdA	103		50-150					
13C8_PFOA	101		50-150					
13C8_PFOs	103		50-150					
13C9_PFNa	101		50-150					
d-EtFOSA	100		50-150					
d5-EtFOSAA	104		50-150					
d3-MeFOSAA	102		50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ26623-002

Matrix: Solid

Batch: 26623

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/23/2021 0934

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	1.9	2.0		1	104	64-140	12/27/2021 0227
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		99	50-150				
13C2_6:2FTS		95	50-150				
13C2_8:2FTS		96	50-150				
13C2_PFDaA		88	50-150				
13C2_PFTeDA		84	50-150				
13C3_PFBs		95	50-150				
13C3_PFHxS		95	50-150				
13C3-HFPO-DA		95	50-150				
13C4_PFBa		96	50-150				
13C4_PFHpA		93	50-150				
13C5_PFHxA		94	50-150				
13C5_PFPeA		92	50-150				
13C6_PFDa		91	50-150				
13C7_PFUdA		90	50-150				
13C8_PFOA		91	50-150				
13C8_PFOS		90	50-150				
13C9_PFNA		90	50-150				
d-EtFOSA		91	50-150				
d5-EtFOSAA		94	50-150				
d3-MeFOSAA		93	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: WL14016-016MS

Matrix: Solid

Batch: 26623

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/23/2021 0934

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	ND	2.2	2.3		1	103	64-140	12/27/2021 0305
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		102	50-150					
13C2_6:2FTS		100	50-150					
13C2_8:2FTS		98	50-150					
13C2_PFDaA		91	50-150					
13C2_PFTeDA		91	50-150					
13C3_PFBS		95	50-150					
13C3_PFHxS		99	50-150					
13C3-HFPO-DA		98	50-150					
13C4_PFBA		97	50-150					
13C4_PFHpA		96	50-150					
13C5_PFHxA		97	50-150					
13C5_PFPeA		95	50-150					
13C6_PFDA		95	50-150					
13C7_PFUdA		95	50-150					
13C8_PFOA		96	50-150					
13C8_PFOS		95	50-150					
13C9_PFNA		94	50-150					
d-EtFOSA		95	50-150					
d5-EtFOSAA		97	50-150					
d3-MeFOSAA		95	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MSD

Sample ID: WL14016-016MD

Matrix: Solid

Batch: 26623

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/23/2021 0934

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date	
6:2 FTS	ND	2.4	2.6		1	110	15	64-140	30	12/27/2021 0318	
Surrogate	Q	% Rec	Acceptance Limit								
13C2_4:2FTS		106	50-150								
13C2_6:2FTS		100	50-150								
13C2_8:2FTS		99	50-150								
13C2_PFDaA		96	50-150								
13C2_PFTeDA		94	50-150								
13C3_PFBs		101	50-150								
13C3_PFHxS		103	50-150								
13C3-HFPO-DA		101	50-150								
13C4_PFBa		101	50-150								
13C4_PFHpA		99	50-150								
13C5_PFHxA		98	50-150								
13C5_PFPeA		97	50-150								
13C6_PFDa		99	50-150								
13C7_PFUdA		98	50-150								
13C8_PFOA		96	50-150								
13C8_PFOS		95	50-150								
13C9_PFNA		96	50-150								
d-EtFOSA		98	50-150								
d5-EtFOSAA		98	50-150								
d3-MeFOSAA		97	50-150								

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: WQ26872-001

Matrix: Solid

Batch: 26872

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/28/2021 1304

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/29/2021 1152
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		103	50-150					
13C2_6:2FTS		116	50-150					
13C2_8:2FTS		112	50-150					
13C2_PFDaA		89	50-150					
13C2_PFTeDA		90	50-150					
13C3_PFBs		87	50-150					
13C3_PFHxS		92	50-150					
13C3-HFPO-DA		99	50-150					
13C4_PFBa		92	50-150					
13C4_PFHpA		91	50-150					
13C5_PFHxA		92	50-150					
13C5_PFPeA		87	50-150					
13C6_PFDa		91	50-150					
13C7_PFUdA		88	50-150					
13C8_PFOA		95	50-150					
13C8_PFOS		84	50-150					
13C9_PFNA		93	50-150					
d-EtFOSA		103	50-150					
d5-EtFOSAA		109	50-150					
d3-MeFOSAA		100	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: WQ26872-002

Matrix: Solid

Batch: 26872

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/28/2021 1304

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	1.9	2.2		1	117	64-140	12/29/2021 1202
Surrogate	Q	% Rec			Acceptance Limit		
13C2_4:2FTS		108			50-150		
13C2_6:2FTS		117			50-150		
13C2_8:2FTS		118			50-150		
13C2_PFDaA		85			50-150		
13C2_PFTeDA		90			50-150		
13C3_PFBS		92			50-150		
13C3_PFHxS		98			50-150		
13C3-HFPO-DA		100			50-150		
13C4_PFBA		94			50-150		
13C4_PFHpA		90			50-150		
13C5_PFHxA		93			50-150		
13C5_PFPeA		90			50-150		
13C6_PFDA		91			50-150		
13C7_PFUdA		90			50-150		
13C8_PFOA		94			50-150		
13C8_PFOS		90			50-150		
13C9_PFNA		91			50-150		
d-EtFOSA		89			50-150		
d5-EtFOSAA		107			50-150		
d3-MeFOSAA		95			50-150		

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCSD

Sample ID: WQ26872-003

Matrix: Solid

Batch: 26872

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 12/28/2021 1304

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
6:2 FTS	1.9	1.9		1	100	16	64-140	30	12/29/2021 1213
Surrogate	Q	% Rec	Acceptance Limit						
13C2_4:2FTS		114	50-150						
13C2_6:2FTS		115	50-150						
13C2_8:2FTS		109	50-150						
13C2_PFDaA		91	50-150						
13C2_PFTeDA		96	50-150						
13C3_PFBs		91	50-150						
13C3_PFHxS		94	50-150						
13C3-HFPO-DA		100	50-150						
13C4_PFBa		95	50-150						
13C4_PFHpA		94	50-150						
13C5_PFHxA		92	50-150						
13C5_PFPeA		91	50-150						
13C6_PFDa		89	50-150						
13C7_PFUdA		94	50-150						
13C8_PFOA		98	50-150						
13C8_PFOS		90	50-150						
13C9_PFNA		92	50-150						
d-EtFOSA		108	50-150						
d5-EtFOSAA		107	50-150						
d3-MeFOSAA		109	50-150						

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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**Chain of Custody
and
Miscellaneous Documents**

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Number 128114

Client: Tetra Tech	Report to Contact: Chuck Sorden	Telephone: 591-7580	Quote No. _____
Address: 1353 N Courteney Pkwy Ste S	Signature: <i>[Signature]</i>	Analysis (Attach list if extra space is needed)	Page 1 of _____
City: Merritt Island FL 32953	Printed Name: Scott Anderson / Sue Rogers		
Project Name: KSC PFA's Suppl'y			
Project No.: 112C-09237			
Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Time (Military)	Collection Date	No. of Containers by Preservative Type
			None <input type="checkbox"/> 5000 <input type="checkbox"/> 1000 <input type="checkbox"/> 2000 <input type="checkbox"/> 3000 <input type="checkbox"/> 4000 <input type="checkbox"/> 5000 <input type="checkbox"/> 6000 <input type="checkbox"/> 7000 <input type="checkbox"/> 8000 <input type="checkbox"/> 9000 <input type="checkbox"/> 10000
PS3-RB01-20211209	930	12/9/21	X
PS3-SB001-0115-20211209	1155	12/9/21	X
PS3-SB001-0255-20211209	1200	12/9/21	X
PS3-SB001-0385-20211209	1205	12/9/21	X
PS3-SB001-0558-20211209	1210	12/9/21	X
PS3-SB001-0595-20211209	1215	12/9/21	X
PS3-SB001-0705-20211209	1220	12/9/21	X
PS3-FB01-20211209	1230	12/9/21	X
SwB01-20211209	1235	12/9/21	X
SwB02-20211209	1240	12/9/21	X

Turn Around Time Required (prior lab approval required for expedited lab.)	Sample Disposition	Possible Hazard Identification	QC Requirements (Specify)
<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Dispose by Lab	<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown	
1. Relinquished by: <i>[Signature]</i>	Date: 12/10/21 Time: 1800	1. Received by: <i>[Signature]</i>	Date: 12/10/21 Time: 1800
2. Relinquished by: <i>[Signature]</i>	Date: 12/13/21 Time: 3:30	2. Received by: to Fed X	Date: _____ Time: _____
3. Relinquished by: _____	Date: _____ Time: _____	3. Received by: _____	Date: _____ Time: _____
4. Relinquished by: Fedex	Date: 12/14/21 Time: 1040	4. Laboratory received by: Greg Burkman	Date: 12/14/21 Time: 1040

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
 Received on ice (Circle) Yes No
 Receipt Temp. **2.4** °C

Document Number: AEC0302-01

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Samples; PINK-Facility Copy

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Number 128113

Client Tetra Tech	Report to Contact Chuck Sorden	Telephone No. / Email (321) 591-7560	Order No. _____
Address 1353 N. Courtenay Pkwy Ste S	Sampler's Signature 	Analysis (Allow only if more space is needed)	
City Merritt Island	Printer Name Scott Anderson / Sue Rogers	Page 2 of _____	
State FL	Zip Code 32953	Barcode 	
Project Name KSC PFAS Sampling	Project No. 112609237	Remarks / Cooler I.D. _____	
Sample ID / Description STP1 - R082 - 2021209	Collection Date(s) 12/9/21	Collection Time (Military) 1630	Identify
STP1 - S8001 - 0095 - 2021209	12/9/21	1735	GC
STP1 - S8001 - 0215 - 2021209	12/9/21	1740	GC
STP1 - S8001 - 0435 - 2021210	12/10/21	810	GC
STP1 - S8001 - 0455 - 2021210	12/10/21	815	GC
STP1 - S8001 - 0495 - 2021210	12/10/21	820	GC
STP1 - S8001 - 0535 - 2021210	12/10/21	830	GC
STP1 - FB02 - 20211210	12/10/21	835	GC
ES1 - R003 - 20211210	12/10/21	1000	GC

Turn Around Time Required (Prior lab approval required for expedited TAT) <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)	Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by (Lab)	Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Poison <input type="checkbox"/> Irritant <input type="checkbox"/> Unknown	OC Requirements (Specify)
1. Received by 	Date 12/10/21	1. Received by 	Date 12/10/21
2. Requisitioned by 	Date 12/13/21	2. Received by to FedEx	Date _____
3. Requisitioned by 	Date _____	3. Received by _____	Date _____
4. Requisitioned by Fedex	Date 12/14/21	4. Laboratory received by Grand Jordanman	Date 1040

Note: All samples are retained for four weeks from receipt unless other arrangements are made.


Document Number: AEC0002-07



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Number 128115

PACE ANALYTICAL SERVICES, LLC

Client: Tetra Tech	Project No. / Contract: 1353 N-Courthouse Pkwy Ste S	Telephone No. / Email: (521) 591-7580	Quote No. _____
Address: Merritt-Island FL 32953	Sample Signature: <i>[Signature]</i>	Analysis (Attach list if more space is needed)	Page _____ of _____
City: FL 32953	Printed Name: Scott Allison / Soz Rojas	TOC	 VML14016
Project Name: KSC PFA Sampling	Matrix: Soil	TOC	Remarks / Order I.D.
Project No. 112G09237	Conversion Time (M:SS)	TOC	
Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Sample	TOC	
FST-SB001-013.5-20211210	12/10/21	X	
FST-SB001-013.5-20211210	12/10/21	X	
FST-SB001-033.5-20211210	12/10/21	X	
FST-SB001-046.5-20211210	12/10/21	X	
FST-SB001-052.5-20211210	12/10/21	X	
FST-SB001-058.5-20211210	12/10/21	X	
FST-FB03-20211210	12/10/21	X	

Turn Around Time Required (Prior lab approval required for expedited AT): Standard Rush (Specify)

1. Requested by: *[Signature]* Date: **12/10/21** Time: **1800**

2. Requested by: *[Signature]* Date: **12/13/21** Time: **1530**

3. Requested by: _____ Date: _____ Time: _____

4. Requested by: **Fedex** Date: **12/14/21** Time: **1040**

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

Received on site: (Circle) Yes No No for Pack Receipt Temp. **2.4** °C

QC Requirements (Specify): _____

Possible Hazard Identification: **PFA**

1. Received by: *[Signature]* Date: **12/10/21** Time: **1800**

2. Received by: **Yo Felix** Date: _____ Time: _____

3. Received by: _____ Date: _____ Time: _____

4. Laboratory received by: **Soz Rojas** Date: **12/14/21** Time: **1040**

LAB USE ONLY: Received on site: (Circle) Yes No No for Pack Receipt Temp. _____ °C

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech

Cooler Inspected by/date: JRG2 / 12/14/2021

Lot #: WL14016

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-2661 2.4 / 2.4 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	14. Were all samples received within ¼ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pca-size" (½" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # 24582
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Sacaly ID: NA	
SR barcode labels applied by: CBP Date: 12/14/2021	
Comments:	



Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-FS3
Project Number: 112G09581
Lot Number: **XA28029**
Date Completed: 02/18/2022

Kathy Smith

02/18/2022 4:03 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**



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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Tetra Tech Lot Number: XA28029

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

$$CF = DF * FV / Vo$$

FV is volume of extract (mL)

Vo is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:

Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{A_s \times C_{is}}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

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Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Despite centrifugation, for samples XA28029-003, XA28029-004, and XA28029-006, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

For samples XA28029-001 sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Samples XA28029-002, XA28029-003, XA28029-004, XA28029-005, XA28029-006, XA28029-008, XA28029-009, XA28029-011, XA28029-012, XA28029-013, XA28029-015 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: XA28029-001, XA28029-003, XA28029-004, XA28029-005, XA28029-006, XA28029-008, XA28029-012, XA28029-013. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The MS/MSD associated with sample XA28029-007 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XA28029

Project Name: KSC-FS3

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3-DPT0004-005.0-20220126	Aqueous	01/26/2022 0820	01/28/2022
002	FS3-DPT0004-012.0-20220126	Aqueous	01/26/2022 0850	01/28/2022
003	FS3-DPT0004-025.0-20220126	Aqueous	01/26/2022 0920	01/28/2022
004	FS3-DPT0004-035.0-20220126	Aqueous	01/26/2022 0955	01/28/2022
005	FS3-DPT0004-045.0-20220126	Aqueous	01/26/2022 1030	01/28/2022
006	FS3-DPT0004-054.0-20220126	Aqueous	01/26/2022 1110	01/28/2022
007	FS3-DPT0005-005.0-20220126	Aqueous	01/26/2022 1245	01/28/2022
008	FS3-DPT0005-012.0-20220126	Aqueous	01/26/2022 1315	01/28/2022
009	FS3-DPT0005-025.0-20220126	Aqueous	01/26/2022 1345	01/28/2022
010	FS3-FB-20220126-01	Aqueous	01/26/2022 1350	01/28/2022
011	FS3-DPT0005-035.0-20220126	Aqueous	01/26/2022 1420	01/28/2022
012	FS3-DPT0005-045.0-20220126	Aqueous	01/26/2022 1450	01/28/2022
013	FS3-DPT0005-054.0-20220126	Aqueous	01/26/2022 1530	01/28/2022
014	FS3-EB-20220126-01	Aqueous	01/26/2022 1540	01/28/2022
015	FS3-FD-20220126-01	Aqueous	01/26/2022	01/28/2022

(15 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: XA28029

Project Name: KSC-FS3

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	FS3-DPT0004-005.0-20220126	Aqueous	PFHxS	PFAS by ID	1.9	I	ng/L	7
001	FS3-DPT0004-005.0-20220126	Aqueous	PFBA	PFAS by ID	4.6		ng/L	7
001	FS3-DPT0004-005.0-20220126	Aqueous	PFOS	PFAS by ID	17		ng/L	7
002	FS3-DPT0004-012.0-20220126	Aqueous	PFHxS	PFAS by ID	1.3	I	ng/L	9
002	FS3-DPT0004-012.0-20220126	Aqueous	PFBA	PFAS by ID	6.1		ng/L	9
002	FS3-DPT0004-012.0-20220126	Aqueous	PFOA	PFAS by ID	1.3	I	ng/L	9
002	FS3-DPT0004-012.0-20220126	Aqueous	PFPeA	PFAS by ID	1.1	I	ng/L	9
002	FS3-DPT0004-012.0-20220126	Aqueous	PFOS	PFAS by ID	3.4	I	ng/L	9
003	FS3-DPT0004-025.0-20220126	Aqueous	PFHxS	PFAS by ID	1.8	I	ng/L	11
003	FS3-DPT0004-025.0-20220126	Aqueous	PFBA	PFAS by ID	11		ng/L	11
003	FS3-DPT0004-025.0-20220126	Aqueous	PFOS	PFAS by ID	2.1	I	ng/L	11
004	FS3-DPT0004-035.0-20220126	Aqueous	PFOS	PFAS by ID	1.7	I	ng/L	13
007	FS3-DPT0005-005.0-20220126	Aqueous	PFHxS	PFAS by ID	1.6	I	ng/L	19
007	FS3-DPT0005-005.0-20220126	Aqueous	PFBA	PFAS by ID	11		ng/L	19
007	FS3-DPT0005-005.0-20220126	Aqueous	PFHpA	PFAS by ID	0.99	I	ng/L	19
007	FS3-DPT0005-005.0-20220126	Aqueous	PFHxA	PFAS by ID	1.3	I	ng/L	19
007	FS3-DPT0005-005.0-20220126	Aqueous	PFOA	PFAS by ID	1.9	I	ng/L	19
007	FS3-DPT0005-005.0-20220126	Aqueous	PFPeA	PFAS by ID	1.4	I	ng/L	19
007	FS3-DPT0005-005.0-20220126	Aqueous	PFOS	PFAS by ID	3.7		ng/L	19
008	FS3-DPT0005-012.0-20220126	Aqueous	PFBA	PFAS by ID	3.1	I	ng/L	21
008	FS3-DPT0005-012.0-20220126	Aqueous	PFOS	PFAS by ID	2.1	I	ng/L	21
009	FS3-DPT0005-025.0-20220126	Aqueous	PFHxS	PFAS by ID	5.4		ng/L	23
009	FS3-DPT0005-025.0-20220126	Aqueous	PFBA	PFAS by ID	5.9		ng/L	23
009	FS3-DPT0005-025.0-20220126	Aqueous	PFHpA	PFAS by ID	1.3	I	ng/L	23
009	FS3-DPT0005-025.0-20220126	Aqueous	PFHxA	PFAS by ID	2.1	I	ng/L	23
009	FS3-DPT0005-025.0-20220126	Aqueous	PFPeA	PFAS by ID	2.0	I	ng/L	23
009	FS3-DPT0005-025.0-20220126	Aqueous	PFOS	PFAS by ID	3.3	I	ng/L	23
011	FS3-DPT0005-035.0-20220126	Aqueous	PFBS	PFAS by ID	7.1		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFHpS	PFAS by ID	1.2	I	ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFPeS	PFAS by ID	9.3		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFHxS	PFAS by ID	120		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFBA	PFAS by ID	11		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFHpA	PFAS by ID	16		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFHxA	PFAS by ID	31		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFOA	PFAS by ID	11		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFPeA	PFAS by ID	25		ng/L	27
011	FS3-DPT0005-035.0-20220126	Aqueous	PFOS	PFAS by ID	23		ng/L	27
015	FS3-FD-20220126-01	Aqueous	PFBA	PFAS by ID	3.1	I	ng/L	35
015	FS3-FD-20220126-01	Aqueous	PFOS	PFAS by ID	2.4	I	ng/L	35

(39 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-001
Description: FS3-DPT0004-005.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0820	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1436	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.5	UQ	9.0	4.5	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	I	4.5	2.3	1.1	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	4.6		4.5	2.3	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.3	UQ	4.5	2.3	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	17		4.5	2.3	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		92	50-150
13C2_6:2FTS		89	50-150
13C2_8:2FTS		79	50-150
13C2_PFDaA		51	50-150
13C2_PFTeDA	N	46	50-150
13C3_PFBs		75	50-150
13C3_PFHxS		76	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBa		71	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		73	50-150
13C6_PFDa		69	50-150
13C7_PFUdA		60	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-001
Description: FS3-DPT0004-005.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0820	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		69	50-150
13C9_PFNA		77	50-150
d-EtFOSA	N	44	50-150
d5-EtFOSAA		60	50-150
d3-MeFOSAA		72	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-002
Description: FS3-DPT0004-012.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0850	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1501	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.3	I	3.8	1.9	0.95	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.1		3.8	1.9	0.95	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.3	I	3.8	1.9	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.1	I	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.4	I	3.8	1.9	0.95	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		127	50-150
13C2_6:2FTS		98	50-150
13C2_8:2FTS		98	50-150
13C2_PFDa		75	50-150
13C2_PFTeDA		59	50-150
13C3_PFBs		81	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBa		68	50-150
13C4_PFHpA		81	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		79	50-150
13C6_PFDa		85	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-002
Description: FS3-DPT0004-012.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0850	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		81	50-150
13C8_PFOS		79	50-150
13C9_PFNA		84	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-003
Description: FS3-DPT0004-025.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0920	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1514	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.7	UQ	9.3	4.7	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.7	U	9.3	4.7	2.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	I	4.6	2.3	1.2	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	11		4.6	2.3	1.2	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.2	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.2	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	I	4.6	2.3	1.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		76	50-150
13C2_6:2FTS		72	50-150
13C2_8:2FTS		69	50-150
13C2_PFDaA	N	44	50-150
13C2_PFTeDA	N	29	50-150
13C3_PFBs		60	50-150
13C3_PFHxS		61	50-150
13C3-HFPO-DA		66	50-150
13C4_PFBa		61	50-150
13C4_PFHpA		60	50-150
13C5_PFHxA		63	50-150
13C5_PFPeA		61	50-150
13C6_PFDa		61	50-150
13C7_PFUdA		55	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-003
Description: FS3-DPT0004-025.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0920	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		62	50-150
13C8_PFOS		58	50-150
13C9_PFNA		62	50-150
d-EtFOSA	N	36	50-150
d5-EtFOSAA		59	50-150
d3-MeFOSAA		67	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-004
Description: FS3-DPT0004-035.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0955	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1526	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	UQ	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.7	I	4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		149	50-150
13C2_6:2FTS		122	50-150
13C2_8:2FTS		108	50-150
13C2_PFDaA		65	50-150
13C2_PFTeDA	N	44	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		73	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		77	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		70	50-150
13C6_PFDA		79	50-150
13C7_PFUdA		74	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-004
Description: FS3-DPT0004-035.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 0955	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		72	50-150
13C9_PFNA		77	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-005
Description: FS3-DPT0004-045.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1030	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1604	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	151	50-150
13C2_6:2FTS		86	50-150
13C2_8:2FTS		77	50-150
13C2_PFDaA		52	50-150
13C2_PFTeDA	N	31	50-150
13C3_PFBS		70	50-150
13C3_PFHxS		72	50-150
13C3-HFPO-DA		76	50-150
13C4_PFBA	N	23	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		55	50-150
13C6_PFDA		71	50-150
13C7_PFUdA		61	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-005
Description: FS3-DPT0004-045.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1030	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		69	50-150
13C9_PFNA		72	50-150
d-EtFOSA	N	35	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		76	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-006
Description: FS3-DPT0004-054.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1110	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1617	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	UQ	8.1	4.1	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	UQ	4.0	2.0	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	165	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		79	50-150
13C2_PFDa		56	50-150
13C2_PFTeDA		55	50-150
13C3_PFBs		73	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBa	N	26	50-150
13C4_PFHpA		79	50-150
13C5_PFHxA		77	50-150
13C5_PFPeA		58	50-150
13C6_PFDa		73	50-150
13C7_PFUdA		65	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-006
Description: FS3-DPT0004-054.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1110	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	50-150
13C8_PFOS		74	50-150
13C9_PFNA		76	50-150
d-EtFOSA		57	50-150
d5-EtFOSAA		67	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-007
Description: FS3-DPT0005-005.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1245	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/12/2022 1630	ASD	02/10/2022 1419	31362

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	US	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.6	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	11		3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.99	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.3	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.4	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.7		3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		94	50-150
13C2_6:2FTS		84	50-150
13C2_8:2FTS		88	50-150
13C2_PFDaA		72	50-150
13C2_PFTeDA		72	50-150
13C3_PFBs		81	50-150
13C3_PFHxS		81	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBa		84	50-150
13C4_PFHpA		80	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		82	50-150
13C6_PFDa		81	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-007
Description: FS3-DPT0005-005.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1245	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	50-150
13C8_PFOS		78	50-150
13C9_PFNA		80	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-008
Description: FS3-DPT0005-012.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1315	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 1845	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	3.1	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	I	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		117	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		97	50-150
13C2_PFDaA		93	50-150
13C2_PFTeDA		86	50-150
13C3_PFBs		94	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBa		85	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		94	50-150
13C6_PFDa		94	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-008
Description: FS3-DPT0005-012.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1315	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		88	50-150
13C9_PFNA		93	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-009
Description: FS3-DPT0005-025.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1345	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 1923	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	5.4		3.8	1.9	0.96	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	5.9		3.8	1.9	0.96	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.3	I	3.8	1.9	0.96	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	I	3.8	1.9	0.96	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	I	3.8	1.9	0.96	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.3	I	3.8	1.9	0.96	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		129	50-150
13C2_6:2FTS		98	50-150
13C2_8:2FTS		96	50-150
13C2_PFDaA		91	50-150
13C2_PFTeDA		85	50-150
13C3_PFBs		95	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBa		84	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		94	50-150
13C6_PFDa		92	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-009
Description: FS3-DPT0005-025.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1345	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	50-150
13C8_PFOS		90	50-150
13C9_PFNA		93	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-010
Description: FS3-FB-20220126-01	Matrix: Aqueous
Date Sampled: 01/26/2022 1350	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 2001	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		120	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		105	50-150
13C2_PFDa		108	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		110	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		109	50-150
13C4_PFBA		107	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		108	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		105	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-010
Description: FS3-FB-20220126-01	Matrix: Aqueous
Date Sampled: 01/26/2022 1350	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		102	50-150
13C9_PFNA		104	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-011
Description: FS3-DPT0005-035.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1420	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 2014	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	7.1		3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.2	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	9.3		3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	11		3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	16		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	31		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	11		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	25		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	23		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		121	50-150
13C2_6:2FTS		89	50-150
13C2_8:2FTS		87	50-150
13C2_PFDaA		83	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		71	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		84	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-011
Description: FS3-DPT0005-035.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1420	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		84	50-150
13C8_PFOS		81	50-150
13C9_PFNA		84	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-012
Description: FS3-DPT0005-045.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1450	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 2026	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		137	50-150
13C2_6:2FTS		75	50-150
13C2_8:2FTS		66	50-150
13C2_PFDaA		56	50-150
13C2_PFTeDA	N	43	50-150
13C3_PFBS		68	50-150
13C3_PFHxS		64	50-150
13C3-HFPO-DA		67	50-150
13C4_PFBA	N	26	50-150
13C4_PFHpA		70	50-150
13C5_PFHxA		72	50-150
13C5_PFPeA		58	50-150
13C6_PFDA		63	50-150
13C7_PFUdA		58	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-012
Description: FS3-DPT0005-045.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1450	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		68	50-150
13C8_PFOS		61	50-150
13C9_PFNA		65	50-150
d-EtFOSA	N	38	50-150
d5-EtFOSAA		64	50-150
d3-MeFOSAA		62	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-013
Description: FS3-DPT0005-054.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1530	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 2039	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	192	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		88	50-150
13C2_PFDa		81	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA	N	33	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		73	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		82	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-013
Description: FS3-DPT0005-054.0-20220126	Matrix: Aqueous
Date Sampled: 01/26/2022 1530	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		85	50-150
13C9_PFNA		87	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-014
Description: FS3-EB-20220126-01	Matrix: Aqueous
Date Sampled: 01/26/2022 1540	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 2052	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150
13C2_6:2FTS		95	50-150
13C2_8:2FTS		99	50-150
13C2_PFDa		100	50-150
13C2_PFTeDA		93	50-150
13C3_PFBs		104	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBa		105	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		105	50-150
13C6_PFDa		100	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-014
Description: FS3-EB-20220126-01	Matrix: Aqueous
Date Sampled: 01/26/2022 1540	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		96	50-150
13C9_PFNA		98	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-015
Description: FS3-FD-20220126-01	Matrix: Aqueous
Date Sampled: 01/26/2022	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 2104	ASD	02/10/2022 1609	31401

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	3.1	I	3.8	1.9	0.95	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.4	I	3.8	1.9	0.95	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		114	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		93	50-150
13C2_PFDa		88	50-150
13C2_PFTeDA		80	50-150
13C3_PFBs		93	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBa		85	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		94	50-150
13C6_PFDa		91	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA28029-015
Description: FS3-FD-20220126-01	Matrix: Aqueous
Date Sampled: 01/26/2022	Project Name: KSC-FS3
Date Received: 01/28/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		86	50-150
13C9_PFNA		90	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ31362-001

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/12/2022 1358
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	02/12/2022 1358
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		99	50-150					
13C2_6:2FTS		91	50-150					
13C2_8:2FTS		93	50-150					
13C2_PFDoA		80	50-150					
13C2_PFTeDA		80	50-150					
13C3_PFBs		83	50-150					
13C3_PFHxS		87	50-150					
13C3-HFPO-DA		95	50-150					
13C4_PFBA		86	50-150					
13C4_PFHpA		86	50-150					
13C5_PFHxA		88	50-150					
13C5_PFPeA		85	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ31362-001

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		86	50-150
13C7_PFUdA		84	50-150
13C8_PFOA		86	50-150
13C8_PFOS		84	50-150
13C9_PFNA		83	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ31362-002

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	16		1	106	70-150	02/12/2022 1410
11CI-PF3OUdS	15	15		1	101	70-150	02/12/2022 1410
8:2 FTS	15	16		1	102	67-138	02/12/2022 1410
6:2 FTS	15	15		1	98	64-140	02/12/2022 1410
4:2 FTS	15	15		1	98	63-143	02/12/2022 1410
GenX	32	31		1	96	70-150	02/12/2022 1410
ADONA	15	16		1	105	70-150	02/12/2022 1410
EtFOSA	16	16		1	97	70-150	02/12/2022 1410
EtFOSAA	16	17		1	104	61-135	02/12/2022 1410
MeFOSAA	16	15		1	92	65-136	02/12/2022 1410
PFBS	14	14		1	100	72-130	02/12/2022 1410
PFDS	15	16		1	105	53-142	02/12/2022 1410
PFHpS	15	15		1	99	69-134	02/12/2022 1410
PFNS	15	16		1	103	69-127	02/12/2022 1410
PFPeS	15	15		1	102	71-127	02/12/2022 1410
PFHxS	15	15		1	106	68-131	02/12/2022 1410
PFBA	16	16		1	100	73-129	02/12/2022 1410
PFDA	16	16		1	100	71-129	02/12/2022 1410
PFDaA	16	17		1	108	72-134	02/12/2022 1410
PFHpA	16	17		1	104	72-130	02/12/2022 1410
PFHxA	16	16		1	103	72-129	02/12/2022 1410
PFNA	16	16		1	103	69-130	02/12/2022 1410
PFOA	16	16		1	100	71-133	02/12/2022 1410
PFPeA	16	17		1	106	72-129	02/12/2022 1410
PFTeDA	16	17		1	104	71-132	02/12/2022 1410
PFTTrDA	16	18		1	111	65-144	02/12/2022 1410
PFUdA	16	17		1	104	69-133	02/12/2022 1410
PFOS	15	15		1	101	65-140	02/12/2022 1410
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		96	50-150				
13C2_6:2FTS		90	50-150				
13C2_8:2FTS		93	50-150				
13C2_PFDaA		81	50-150				
13C2_PFTeDA		77	50-150				
13C3_PFBs		85	50-150				
13C3_PFHxS		86	50-150				
13C3-HFPO-DA		93	50-150				
13C4_PFBa		87	50-150				
13C4_PFHpA		87	50-150				
13C5_PFHxA		87	50-150				
13C5_PFPeA		86	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ31362-002

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		88	50-150
13C7_PFUdA		85	50-150
13C8_PFOA		85	50-150
13C8_PFOS		84	50-150
13C9_PFNA		85	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID: XA28029-001DU

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9CI-PF3ONS	ND		U	1	0.00	20	02/12/2022 1448
11CI-PF3OUdS	ND		U	1	0.00	20	02/12/2022 1448
8:2 FTS	ND		U	1	0.00	20	02/12/2022 1448
6:2 FTS	ND		U	1	0.00	20	02/12/2022 1448
4:2 FTS	ND		U	1	0.00	20	02/12/2022 1448
GenX	ND		U	1	0.00	20	02/12/2022 1448
ADONA	ND		U	1	0.00	20	02/12/2022 1448
EtFOSA	ND		U	1	0.00	20	02/12/2022 1448
EtFOSAA	ND		U	1	0.00	20	02/12/2022 1448
MeFOSAA	ND		U	1	0.00	20	02/12/2022 1448
PFBS	ND		U	1	0.00	20	02/12/2022 1448
PFDS	ND		U	1	0.00	20	02/12/2022 1448
PFHpS	ND		U	1	0.00	20	02/12/2022 1448
PFNS	ND		U	1	0.00	20	02/12/2022 1448
PFPeS	ND		U	1	0.00	20	02/12/2022 1448
PFHxS	1.9	1.5	+	1	24	20	02/12/2022 1448
PFBA	4.6	3.6	+	1	25	20	02/12/2022 1448
PFDA	ND		U	1	0.00	20	02/12/2022 1448
PFDoA	ND		U	1	0.00	20	02/12/2022 1448
PFHpA	ND		U	1	0.00	20	02/12/2022 1448
PFHxA	ND		U	1	0.00	20	02/12/2022 1448
PFNA	ND		U	1	0.00	20	02/12/2022 1448
PFOA	ND		U	1	0.00	20	02/12/2022 1448
PFPeA	ND		U	1	0.00	20	02/12/2022 1448
PFTeDA	ND		U	1	0.00	20	02/12/2022 1448
PFTTrDA	ND		U	1	0.00	20	02/12/2022 1448
PFUdA	ND		U	1	0.00	20	02/12/2022 1448
PFOS	17	13	+	1	25	20	02/12/2022 1448
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		94	50-150				
13C2_6:2FTS		81	50-150				
13C2_8:2FTS		82	50-150				
13C2_PFDoA		62	50-150				
13C2_PFTeDA		60	50-150				
13C3_PFBS		73	50-150				
13C3_PFHxS		76	50-150				
13C3-HFPO-DA		79	50-150				
13C4_PFBA		71	50-150				
13C4_PFHpA		72	50-150				
13C5_PFHxA		76	50-150				
13C5_PFPeA		73	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID: XA28029-001DU

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		71	50-150
13C7_PFUdA		66	50-150
13C8_PFOA		74	50-150
13C8_PFOS		70	50-150
13C9_PFNA		74	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		70	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MS

Sample ID: XA28029-007MS

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	15	15		1	104	70-150	02/12/2022 1642
11CI-PF3OUdS	ND	15	15		1	99	70-150	02/12/2022 1642
8:2 FTS	ND	15	14		1	93	67-138	02/12/2022 1642
6:2 FTS	ND	15	25	N	1	169	64-140	02/12/2022 1642
4:2 FTS	ND	15	14		1	96	63-143	02/12/2022 1642
GenX	ND	32	30		1	96	70-150	02/12/2022 1642
ADONA	ND	15	16		1	105	70-150	02/12/2022 1642
EtFOSA	ND	16	14		1	91	70-150	02/12/2022 1642
EtFOSAA	ND	16	17		1	105	61-135	02/12/2022 1642
MeFOSAA	ND	16	14		1	91	65-136	02/12/2022 1642
PFBS	ND	14	14		1	99	72-130	02/12/2022 1642
PFDS	ND	15	15		1	102	53-142	02/12/2022 1642
PFHpS	ND	15	15		1	97	69-134	02/12/2022 1642
PFNS	ND	15	15		1	100	69-127	02/12/2022 1642
PFPeS	ND	15	15		1	99	71-127	02/12/2022 1642
PFHxS	1.6	14	16		1	102	68-131	02/12/2022 1642
PFBA	11	16	27		1	98	73-129	02/12/2022 1642
PFDA	ND	16	15		1	96	71-129	02/12/2022 1642
PFDoA	ND	16	17		1	107	72-134	02/12/2022 1642
PFHpA	0.99	16	18		1	111	72-130	02/12/2022 1642
PFHxA	1.3	16	17		1	100	72-129	02/12/2022 1642
PFNA	ND	16	17		1	106	69-130	02/12/2022 1642
PFOA	1.9	16	18		1	100	71-133	02/12/2022 1642
PFPeA	1.4	16	17		1	101	72-129	02/12/2022 1642
PFTeDA	ND	16	16		1	104	71-132	02/12/2022 1642
PFTrDA	ND	16	16		1	104	65-144	02/12/2022 1642
PFUdA	ND	16	17		1	106	69-133	02/12/2022 1642
PFOS	3.7	15	19		1	105	65-140	02/12/2022 1642
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		96	50-150					
13C2_6:2FTS		88	50-150					
13C2_8:2FTS		92	50-150					
13C2_PFDoA		79	50-150					
13C2_PFTeDA		75	50-150					
13C3_PFBS		83	50-150					
13C3_PFHxS		86	50-150					
13C3-HFPO-DA		91	50-150					
13C4_PFBA		85	50-150					
13C4_PFHpA		82	50-150					
13C5_PFHxA		84	50-150					
13C5_PFPeA		84	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XA28029-007MS

Matrix: Aqueous

Batch: 31362

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1419

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	50-150
13C7_PFUdA		79	50-150
13C8_PFOA		81	50-150
13C8_PFOS		80	50-150
13C9_PFNA		81	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ31401-001

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1819
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFDaA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1819
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		121	50-150					
13C2_6:2FTS		100	50-150					
13C2_8:2FTS		109	50-150					
13C2_PFDaA		105	50-150					
13C2_PFTeDA		105	50-150					
13C3_PFBs		100	50-150					
13C3_PFHxS		94	50-150					
13C3-HFPO-DA		100	50-150					
13C4_PFBa		102	50-150					
13C4_PFHpA		95	50-150					
13C5_PFHxA		103	50-150					
13C5_PFPeA		102	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ31401-001

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		99	50-150
13C8_PFOS		97	50-150
13C9_PFNA		101	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		107	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ31401-002

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	102	70-150	02/11/2022 1832
11CI-PF3OUdS	15	15		1	99	70-150	02/11/2022 1832
8:2 FTS	15	13		1	88	67-138	02/11/2022 1832
6:2 FTS	15	14		1	93	64-140	02/11/2022 1832
4:2 FTS	15	14		1	92	63-143	02/11/2022 1832
GenX	32	31		1	97	70-150	02/11/2022 1832
ADONA	15	16		1	107	70-150	02/11/2022 1832
EtFOSA	16	15		1	95	70-150	02/11/2022 1832
EtFOSAA	16	16		1	97	61-135	02/11/2022 1832
MeFOSAA	16	14		1	86	65-136	02/11/2022 1832
PFBS	14	14		1	96	72-130	02/11/2022 1832
PFDS	15	15		1	100	53-142	02/11/2022 1832
PFHpS	15	15		1	101	69-134	02/11/2022 1832
PFNS	15	15		1	100	69-127	02/11/2022 1832
PFPeS	15	15		1	98	71-127	02/11/2022 1832
PFHxS	15	15		1	105	68-131	02/11/2022 1832
PFBA	16	16		1	100	73-129	02/11/2022 1832
PFDA	16	16		1	97	71-129	02/11/2022 1832
PFDoA	16	17		1	103	72-134	02/11/2022 1832
PFHpA	16	16		1	101	72-130	02/11/2022 1832
PFHxA	16	16		1	98	72-129	02/11/2022 1832
PFNA	16	16		1	102	69-130	02/11/2022 1832
PFOA	16	16		1	99	71-133	02/11/2022 1832
PFPeA	16	16		1	103	72-129	02/11/2022 1832
PFTeDA	16	16		1	99	71-132	02/11/2022 1832
PFTTrDA	16	17		1	104	65-144	02/11/2022 1832
PFUdA	16	17		1	107	69-133	02/11/2022 1832
PFOS	15	15		1	103	65-140	02/11/2022 1832
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		109	50-150				
13C2_6:2FTS		99	50-150				
13C2_8:2FTS		103	50-150				
13C2_PFDoA		100	50-150				
13C2_PFTeDA		100	50-150				
13C3_PFBS		99	50-150				
13C3_PFHxS		91	50-150				
13C3-HFPO-DA		99	50-150				
13C4_PFBA		97	50-150				
13C4_PFHpA		94	50-150				
13C5_PFHxA		97	50-150				
13C5_PFPeA		98	50-150				

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ31401-002

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		96	50-150
13C8_PFOS		95	50-150
13C9_PFNA		97	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MS

Sample ID: XA28029-008MS

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	14	14		1	102	70-150	02/11/2022 1857
11CI-PF3OUdS	ND	14	13		1	95	70-150	02/11/2022 1857
8:2 FTS	ND	14	14		1	98	67-138	02/11/2022 1857
6:2 FTS	ND	14	13		1	94	64-140	02/11/2022 1857
4:2 FTS	ND	14	13		1	94	63-143	02/11/2022 1857
GenX	ND	30	29		1	98	70-150	02/11/2022 1857
ADONA	ND	14	15		1	108	70-150	02/11/2022 1857
EtFOSA	ND	15	14		1	98	70-150	02/11/2022 1857
EtFOSAA	ND	15	15		1	101	61-135	02/11/2022 1857
MeFOSAA	ND	15	14		1	93	65-136	02/11/2022 1857
PFBS	ND	13	13		1	98	72-130	02/11/2022 1857
PFDS	ND	14	14		1	96	53-142	02/11/2022 1857
PFHpS	ND	14	14		1	99	69-134	02/11/2022 1857
PFNS	ND	14	14		1	98	69-127	02/11/2022 1857
PFPeS	ND	14	14		1	101	71-127	02/11/2022 1857
PFHxS	ND	13	15		1	109	68-131	02/11/2022 1857
PFBA	3.1	15	18		1	99	73-129	02/11/2022 1857
PFDA	ND	15	15		1	99	71-129	02/11/2022 1857
PFDoA	ND	15	16		1	106	72-134	02/11/2022 1857
PFHpA	ND	15	15		1	104	72-130	02/11/2022 1857
PFHxA	ND	15	15		1	99	72-129	02/11/2022 1857
PFNA	ND	15	15		1	104	69-130	02/11/2022 1857
PFOA	ND	15	15		1	102	71-133	02/11/2022 1857
PFPeA	ND	15	15		1	102	72-129	02/11/2022 1857
PFTeDA	ND	15	16		1	105	71-132	02/11/2022 1857
PFTTrDA	ND	15	15		1	102	65-144	02/11/2022 1857
PFUdA	ND	15	15		1	104	69-133	02/11/2022 1857
PFOS	2.1	14	16		1	102	65-140	02/11/2022 1857

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		92	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		82	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XA28029-008MS

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		86	50-150
13C7_PFUdA		82	50-150
13C8_PFOA		85	50-150
13C8_PFOS		81	50-150
13C9_PFNA		86	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MSD

Sample ID: XA28029-008MD

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9CI-PF3ONS	ND	13	14	1		102	3.2	70-150	30	02/11/2022 1910
11CI-PF3OUdS	ND	14	13	1		97	1.0	70-150	30	02/11/2022 1910
8:2 FTS	ND	14	14	1		101	0.082	67-138	30	02/11/2022 1910
6:2 FTS	ND	14	13	1		97	0.66	64-140	30	02/11/2022 1910
4:2 FTS	ND	13	14	1		101	3.5	63-143	30	02/11/2022 1910
GenX	ND	29	29	1		100	0.99	70-150	30	02/11/2022 1910
ADONA	ND	14	15	1		108	3.2	70-150	30	02/11/2022 1910
EtFOSA	ND	14	13	1		94	7.5	70-150	30	02/11/2022 1910
EtFOSAA	ND	14	14	1		96	8.3	61-135	30	02/11/2022 1910
MeFOSAA	ND	14	12	1		87	10	65-136	30	02/11/2022 1910
PFBS	ND	13	13	1		99	1.8	72-130	30	02/11/2022 1910
PFDS	ND	14	14	1		99	0.62	53-142	30	02/11/2022 1910
PFHpS	ND	14	14	1		100	1.8	69-134	30	02/11/2022 1910
PFNS	ND	14	14	1		100	0.51	69-127	30	02/11/2022 1910
PFPeS	ND	13	14	1		101	2.7	71-127	30	02/11/2022 1910
PFHxS	ND	13	14	1		108	3.6	68-131	30	02/11/2022 1910
PFBA	3.1	14	18	1		101	0.84	73-129	30	02/11/2022 1910
PFDA	ND	14	14	1		100	1.3	71-129	30	02/11/2022 1910
PFDoA	ND	14	15	1		102	6.8	72-134	30	02/11/2022 1910
PFHpA	ND	14	15	1		105	2.0	72-130	30	02/11/2022 1910
PFHxA	ND	14	15	1		102	0.13	72-129	30	02/11/2022 1910
PFNA	ND	14	15	1		103	4.4	69-130	30	02/11/2022 1910
PFOA	ND	14	15	1		101	3.0	71-133	30	02/11/2022 1910
PFPeA	ND	14	14	1		100	4.4	72-129	30	02/11/2022 1910
PFTeDA	ND	14	15	1		104	4.0	71-132	30	02/11/2022 1910
PFTrDA	ND	14	14	1		97	8.1	65-144	30	02/11/2022 1910
PFUdA	ND	14	15	1		102	5.0	69-133	30	02/11/2022 1910
PFOS	2.1	13	16	1		103	1.5	65-140	30	02/11/2022 1910
Surrogate	Q	% Rec	Acceptance Limit							
13C2_4:2FTS		123	50-150							
13C2_6:2FTS		100	50-150							
13C2_8:2FTS		98	50-150							
13C2_PFDoA		95	50-150							
13C2_PFTeDA		87	50-150							
13C3_PFBS		98	50-150							
13C3_PFHxS		90	50-150							
13C3-HFPO-DA		96	50-150							
13C4_PFBA		87	50-150							
13C4_PFHpA		94	50-150							
13C5_PFHxA		98	50-150							
13C5_PFPeA		97	50-150							

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XA28029-008MD

Matrix: Aqueous

Batch: 31401

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/10/2022 1609

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		97	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		95	50-150
13C8_PFOS		91	50-150
13C9_PFNA		93	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Chain of Custody
and
Miscellaneous Documents

PROJECT NO: 12609581

NUMBER No. 2562

CHAIN OF CUSTODY

PAGE 1 OF 2

Tetra Tech, Inc.

PROJECT NO: 12609581
 FACILITY: KSC-FS3
 CHUCK SARDEN
 PROJECT MANAGER: Chuck Sarden
 FIELD OPERATIONS LEADER: Chuck Sarden
 CARRIERWAYBILL NUMBER: [Blank]

PHONE NUMBER: (412) 421-8622
 LABORATORY NAME AND CONTACT: Pace Analytical - Kathy Smith
 ADDRESS: 106 Vantage Point Dr.
 CITY, STATE: West Columbia, SC

CONTAINER TYPE: PLASTIC (P) OR GLASS (G) [Blank]
 PRESERVATIVE USED: [Blank]

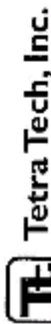
STANDARD TAT RUSH TAT 24 hr. 48 hr. 72 hr. 7 day 14 day

DATE	YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SQ, SW, SD, GC, ETC)	COLLECTION METHOD	GRAB (G) COMP (G)	No. OF CONTAINERS	RECEIVED BY	DATE	TIME	RECEIVED BY	DATE	TIME	RECEIVED BY	DATE	TIME
01/26	2022	0630	FS3-DPT0004-055.0-20220126	04	3	7	GW	G	1	2	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	0650	FS3-DPT0004-012.0-20220126	04	10	14	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	0720	FS3-DPT0004-015.0-20220126	04	23	27	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	0755	FS3-DPT0004-035.0-20220126	04	33	37	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1030	FS3-DPT0004-015.0-20220126	04	43	47	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1110	FS3-DPT0004-054.0-20220126	04	53	56	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1245	FS3-DPT0005-005.0-20220126	03	3	7	GW	G	1	2	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1315	FS3-DPT0005-012.0-20220126	03	10	14	GW	G	1	6	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1345	FS3-DPT0005-025.0-20220126	03	23	27	GW	G	1	2	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1350	FS3-FB-20220126-01	-	-	-	GC	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1420	FS3-DPT0005-035.0-20220126	03	33	37	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1450	FS3-DPT0005-045.0-20220126	03	43	47	GW	G	1	1	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015
01/26	2022	1530	FS3-DPT0005-054.0-20220126	03	53	56	GW	G	1	2	1. RECEIVED BY	01/27/22	1530	2. RECEIVED BY	01/27/22	1530	3. RECEIVED BY	01/28/22	1015

COMMENTS: MS/MSD Collected

THE OF ANALYSIS: PACE ANALYTICAL, INC. 8-15
 XA28029
 KESZ
 COMMENTS

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



Tetra Tech, Inc.

CHAIN OF CUSTODY

NUMBER No. 2563

1

PAGE 2 OF 2

PROJECT NO: 112,609,561
 FACILITY: KSC-F53
 LABORATORY NAME AND CONTACT: Pace Analytical - Kathy Smith
 ADDRESS: 106 Vantage Point Dr.
 CITY, STATE: West Columbia, SC

SAMPLERS (SIGNATURE): *[Signature]* Chuck Sorden
 PROJECT MANAGER: Mark Sargent
 FIELD OPERATIONS LEADER: Chuck Sorden
 PHONE NUMBER: (412) 921-8622
 PHONE NUMBER: (803) 541-7580

CARRIERWAYBILL NUMBER

DATE	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SQ, SW, SD, QC, ETC)	COLLECTION METHOD	GRAB (G) COMP (G)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	COMMENTS
11/28/22	1540	F53-F0-20220126-01		-	-	GC	G	G	2	P	None	
11/28/22	1600	F53-F0-20220126-01		-	-	GC	G	G	2	P	None	



TYPE OF ANALYSIS
 REAS-GSM-T-116-B-15

1. RELINQUISHED BY: *[Signature]* DATE: 11/27/22 TIME: 1530

2. RELINQUISHED BY: *[Signature]* DATE: 11/27/22 TIME: 1530

3. RELINQUISHED BY: *[Signature]* DATE: 11/28/22 TIME: 1015

COMMENTS: 1.40C

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

FORM NO. TINUS-001 402R

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech

Cooler Inspected by/date: CBP 1/28/22

Lot #: 1A2802A

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>NA</u> Chlorine Strip ID: <u>NA</u> Tested by: <u>NA</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: <u>NA</u> <u>1.4 / 1.4 °C NA / NA °C NA / NA °C NA / NA °C</u>	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # <u>24792</u>
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H ₂ SO ₄ , HNO ₃ , HCl, NaOH using SR # <u>NA</u> .	
Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.	
Sample(s) <u>NA</u> were received with bubbles >6 mm in diameter.	
Sample(s) <u>NA</u> were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: <u>NA</u>	
SR barcode labels applied by: <u>CBP</u> Date: <u>1/28/22</u>	

Comments:



Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-FS3
Project Number: 112G09581
Lot Number: **XB09052**
Date Completed: 03/04/2022

Kathy Smith

12/07/2022 9:55 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**



The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Tetra Tech Lot Number: XB09052

This report supersedes and replaces any prior reports issued under this lot number.

This report was revised December 7, 2022 to report data with FL flags.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

$$CF = DF * FV / Vo$$

FV is volume of extract (mL)

Vo is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:

Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{A_s \times C_{is}}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Samples XB09052-003, XB09052-004, XB09052-005, XB09052-006, XB09052-008, XB09052-009, XB09052-010, XB09052-011, XB09052-012, XB09052-015, XB09052-016, XB09052-018, XB09052-019, XB09052-020, XB09052-021 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

For sample XB09052-001, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Surrogate recovery for the following samples was outside control limits: XB09052-001, XB09052-003, XB09052-004, XB09052-005, XB09052-006, XB09052-008, XB09052-009, XB09052-010, XB09052-011, XB09052-012, XB09052-015, XB09052-016, XB09052-018, XB09052-019, XB09052-020, XB09052-021. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XB09052

Project Name: KSC-FS3

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3-DPT0006-005.0-20220207	Aqueous	02/07/2022 0920	02/09/2022
002	FS3-DPT0006-012.0-20220207	Aqueous	02/07/2022 1000	02/09/2022
003	FS3-DPT0006-025.0-20220207	Aqueous	02/07/2022 1030	02/09/2022
004	FS3-DPT0006-035.0-20220207	Aqueous	02/07/2022 1100	02/09/2022
005	FS3-DPT0006-045.0-20220207	Aqueous	02/07/2022 1130	02/09/2022
006	FS3-DPT0006-054.0-20220207	Aqueous	02/07/2022 1215	02/09/2022
007	FS3-DPT0007-005.0-20220208	Aqueous	02/08/2022 0900	02/09/2022
008	FS3-DPT0007-012.0-20220208	Aqueous	02/08/2022 0930	02/09/2022
009	FS3-DPT0007-025.0-20220208	Aqueous	02/08/2022 1000	02/09/2022
010	FS3-DPT0007-035.0-20220208	Aqueous	02/08/2022 1030	02/09/2022
011	FS3-DPT0007-045.0-20220208	Aqueous	02/08/2022 1100	02/09/2022
012	FS3-DPT0007-054.0-20220208	Aqueous	02/08/2022 1130	02/09/2022
013	FS3-DPT0008-005.0-20220208	Aqueous	02/08/2022 1235	02/09/2022
014	FS3-FB-20220208-01	Aqueous	02/08/2022 1255	02/09/2022
015	FS3-DPT0008-012.0-20220208	Aqueous	02/08/2022 1300	02/09/2022
016	FS3-DPT0008-025.0-20220208	Aqueous	02/08/2022 1330	02/09/2022
017	FS3-EB-20220208-01	Aqueous	02/08/2022 1345	02/09/2022
018	FS3-DPT0008-035.0-20220208	Aqueous	02/08/2022 1400	02/09/2022
019	FS3-DPT0008-045.0-20220208	Aqueous	02/08/2022 1430	02/09/2022
020	FS3-DPT0008-054.0-20220208	Aqueous	02/08/2022 1500	02/09/2022
021	FS3-FD-20220208-01	Aqueous	02/08/2022	02/09/2022

(21 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: XB09052

Project Name: KSC-FS3

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	FS3-DPT0007-005.0-20220208	Aqueous	PFOS	PFAS by ID	20	I	ng/L	17
008	FS3-DPT0007-012.0-20220208	Aqueous	PFBA	PFAS by ID	5.9	Q	ng/L	19

(2 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-001
Description: FS3-DPT0006-005.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 0920	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 2217	JJG	02/23/2022 1011	32773

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	UQ	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	UQ	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	UQ	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		73	50-150
13C2_6:2FTS		72	50-150
13C2_8:2FTS		55	50-150
13C2_PFDa	N	47	50-150
13C2_PFTeDA	N	42	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		69	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBa		66	50-150
13C4_PFHpA		62	50-150
13C5_PFHxA		63	50-150
13C5_PFPeA		64	50-150
13C6_PFDa		54	50-150
13C7_PFUdA		50	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-001
Description: FS3-DPT0006-005.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 0920	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		63	50-150
13C8_PFOS		66	50-150
13C9_PFNA		62	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		50	50-150
d3-MeFOSAA		64	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-002
Description: FS3-DPT0006-012.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1000	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 2228	JJG	02/23/2022 1011	32773

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		113	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		99	50-150
13C2_PFDa		87	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		91	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-002
Description: FS3-DPT0006-012.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1000	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	50-150
13C8_PFOS		102	50-150
13C9_PFNA		96	50-150
d-EtFOSA		95	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-003
Description: FS3-DPT0006-025.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1030	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 1417	JJG	02/24/2022 1719	32887

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	228	50-150
13C2_6:2FTS	N	162	50-150
13C2_8:2FTS		130	50-150
13C2_PFDa		73	50-150
13C2_PFTeDA		53	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA	N	45	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-003
Description: FS3-DPT0006-025.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1030	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		89	50-150
13C8_PFOS		95	50-150
13C9_PFNA		95	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-004
Description: FS3-DPT0006-035.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1100	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 1438	JJG	02/24/2022 1719	32887

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	204	50-150
13C2_6:2FTS		123	50-150
13C2_8:2FTS		95	50-150
13C2_PFDa		72	50-150
13C2_PFTeDA		58	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		73	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-004
Description: FS3-DPT0006-035.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1100	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	50-150
13C8_PFOS		96	50-150
13C9_PFNA		90	50-150
d-EtFOSA		57	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-005
Description: FS3-DPT0006-045.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1130	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 1449	JJG	02/24/2022 1719	32887

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	203	50-150
13C2_6:2FTS		128	50-150
13C2_8:2FTS		99	50-150
13C2_PFDa		87	50-150
13C2_PFTeDA		74	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA	N	45	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		75	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-005
Description: FS3-DPT0006-045.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1130	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		103	50-150
13C9_PFNA		96	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-006
Description: FS3-DPT0006-054.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1215	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 1511	JJG	02/24/2022 1719	32887

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	205	50-150
13C2_6:2FTS		128	50-150
13C2_8:2FTS		97	50-150
13C2_PFDa		78	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA	N	45	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		90	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-006
Description: FS3-DPT0006-054.0-20220207	Matrix: Aqueous
Date Sampled: 02/07/2022 1215	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		96	50-150
13C9_PFNA		89	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-007
Description: FS3-DPT0007-005.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 0900	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/25/2022 1733	JJG	02/24/2022 1719	32887

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		104	50-150
13C2_6:2FTS		115	50-150
13C2_8:2FTS		99	50-150
13C2_PFDa		89	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		108	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		93	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		92	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-007
Description: FS3-DPT0007-005.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 0900	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		102	50-150
13C9_PFNA		94	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-008
Description: FS3-DPT0007-012.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 0930	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1815	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.9	Q	3.8	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	173	50-150
13C2_6:2FTS		94	50-150
13C2_8:2FTS		85	50-150
13C2_PFDaA		62	50-150
13C2_PFTeDA		53	50-150
13C3_PFBs		73	50-150
13C3_PFHxS		81	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBa	N	44	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		64	50-150
13C6_PFDa		73	50-150
13C7_PFUdA		69	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-008
Description: FS3-DPT0007-012.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 0930	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		72	50-150
13C8_PFOS		74	50-150
13C9_PFNA		75	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		64	50-150
d3-MeFOSAA		70	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-009
Description: FS3-DPT0007-025.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1000	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1826	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	155	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		87	50-150
13C2_PFDaA		63	50-150
13C2_PFTeDA	N	47	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		78	50-150
13C3-HFPO-DA		82	50-150
13C4_PFBA		50	50-150
13C4_PFHpA		72	50-150
13C5_PFHxA		77	50-150
13C5_PFPeA		68	50-150
13C6_PFDA		75	50-150
13C7_PFUdA		69	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-009
Description: FS3-DPT0007-025.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1000	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		76	50-150
13C9_PFNA		73	50-150
d-EtFOSA	N	47	50-150
d5-EtFOSAA		64	50-150
d3-MeFOSAA		72	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-010
Description: FS3-DPT0007-035.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1030	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1836	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	197	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		98	50-150
13C2_PFDaA		72	50-150
13C2_PFTeDA		62	50-150
13C3_PFBS		77	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA	N	38	50-150
13C4_PFHpA		77	50-150
13C5_PFHxA		77	50-150
13C5_PFPeA		62	50-150
13C6_PFDA		81	50-150
13C7_PFUdA		74	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-010
Description: FS3-DPT0007-035.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1030	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	50-150
13C8_PFOS		81	50-150
13C9_PFNA		76	50-150
d-EtFOSA		55	50-150
d5-EtFOSAA		80	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-011
Description: FS3-DPT0007-045.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1100	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1909	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.8	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	194	50-150
13C2_6:2FTS		94	50-150
13C2_8:2FTS		87	50-150
13C2_PFDaA		61	50-150
13C2_PFTeDA		51	50-150
13C3_PFBS		75	50-150
13C3_PFHxS		81	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBA	N	37	50-150
13C4_PFHpA		77	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		63	50-150
13C6_PFDA		72	50-150
13C7_PFUdA		66	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-011
Description: FS3-DPT0007-045.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1100	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		72	50-150
13C8_PFOS		75	50-150
13C9_PFNA		73	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		70	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-012
Description: FS3-DPT0007-054.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1130	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1920	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	192	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		93	50-150
13C2_PFDa		67	50-150
13C2_PFTeDA		58	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		81	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		81	50-150
13C5_PFHxA		77	50-150
13C5_PFPeA		68	50-150
13C6_PFDA		82	50-150
13C7_PFUdA		72	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-012
Description: FS3-DPT0007-054.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1130	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		76	50-150
13C8_PFOS		78	50-150
13C9_PFNA		74	50-150
d-EtFOSA		55	50-150
d5-EtFOSAA		73	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-013
Description: FS3-DPT0008-005.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1235	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1931	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		104	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		97	50-150
13C2_PFDa		75	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		83	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBa		72	50-150
13C4_PFHpA		80	50-150
13C5_PFHxA		77	50-150
13C5_PFPeA		81	50-150
13C6_PFDa		84	50-150
13C7_PFUdA		75	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-013
Description: FS3-DPT0008-005.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1235	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		81	50-150
13C8_PFOS		85	50-150
13C9_PFNA		76	50-150
d-EtFOSA		64	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-014
Description: FS3-FB-20220208-01	Matrix: Aqueous
Date Sampled: 02/08/2022 1255	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1942	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		107	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		105	50-150
13C2_PFDa		78	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		84	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		84	50-150
13C6_PFDA		90	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-014
Description: FS3-FB-20220208-01	Matrix: Aqueous
Date Sampled: 02/08/2022 1255	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	50-150
13C8_PFOS		91	50-150
13C9_PFNA		86	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-015
Description: FS3-DPT0008-012.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1300	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 1953	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	187	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		90	50-150
13C2_PFDaA		67	50-150
13C2_PFTeDA		64	50-150
13C3_PFBS		73	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA	N	36	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		78	50-150
13C5_PFPeA		60	50-150
13C6_PFDA		73	50-150
13C7_PFUdA		71	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-015
Description: FS3-DPT0008-012.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1300	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	50-150
13C8_PFOS		74	50-150
13C9_PFNA		74	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		71	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-016
Description: FS3-DPT0008-025.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1330	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 2004	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	181	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		85	50-150
13C2_PFDaA		65	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		70	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		73	50-150
13C5_PFHxA		72	50-150
13C5_PFPeA		62	50-150
13C6_PFDA		71	50-150
13C7_PFUdA		68	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-016
Description: FS3-DPT0008-025.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1330	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		74	50-150
13C8_PFOS		77	50-150
13C9_PFNA		70	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		70	50-150
d3-MeFOSAA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-017
Description: FS3-EB-20220208-01	Matrix: Aqueous
Date Sampled: 02/08/2022 1345	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 2015	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150
13C2_6:2FTS		97	50-150
13C2_8:2FTS		99	50-150
13C2_PFDaA		78	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBA		82	50-150
13C4_PFHpA		81	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		82	50-150
13C6_PFDA		83	50-150
13C7_PFUdA		82	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-017
Description: FS3-EB-20220208-01	Matrix: Aqueous
Date Sampled: 02/08/2022 1345	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	50-150
13C8_PFOS		84	50-150
13C9_PFNA		81	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-018
Description: FS3-DPT0008-035.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1400	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 2026	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	204	50-150
13C2_6:2FTS		115	50-150
13C2_8:2FTS		87	50-150
13C2_PFDa		64	50-150
13C2_PFTeDA		54	50-150
13C3_PFBS		71	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA	N	34	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		59	50-150
13C6_PFDA		76	50-150
13C7_PFUdA		70	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-018
Description: FS3-DPT0008-035.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1400	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		71	50-150
13C8_PFOS		76	50-150
13C9_PFNA		75	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		74	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-019
Description: FS3-DPT0008-045.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1430	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/02/2022 2037	JJG	03/01/2022 1721	33371

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	205	50-150
13C2_6:2FTS		112	50-150
13C2_8:2FTS		90	50-150
13C2_PFDaA		62	50-150
13C2_PFTeDA	N	47	50-150
13C3_PFBS		71	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA	N	35	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		62	50-150
13C6_PFDA		73	50-150
13C7_PFUdA		68	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-019
Description: FS3-DPT0008-045.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1430	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		80	50-150
13C9_PFNA		73	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-020
Description: FS3-DPT0008-054.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1500	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/03/2022 1313	ASD	03/02/2022 1700	33521

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	186	50-150
13C2_6:2FTS		130	50-150
13C2_8:2FTS		103	50-150
13C2_PFDa		77	50-150
13C2_PFTeDA		65	50-150
13C3_PFBS		73	50-150
13C3_PFHxS		78	50-150
13C3-HFPO-DA		74	50-150
13C4_PFBA		51	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		75	50-150
13C6_PFDA		88	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-020
Description: FS3-DPT0008-054.0-20220208	Matrix: Aqueous
Date Sampled: 02/08/2022 1500	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		84	50-150
13C8_PFOS		89	50-150
13C9_PFNA		80	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-021
Description: FS3-FD-20220208-01	Matrix: Aqueous
Date Sampled: 02/08/2022	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/03/2022 1323	ASD	03/02/2022 1700	33521

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	181	50-150
13C2_6:2FTS		132	50-150
13C2_8:2FTS		96	50-150
13C2_PFDa		72	50-150
13C2_PFTeDA		65	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		79	50-150
13C4_PFBA	N	45	50-150
13C4_PFHpA		85	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		86	50-150
13C7_PFUdA		77	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOD N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB09052-021
Description: FS3-FD-20220208-01	Matrix: Aqueous
Date Sampled: 02/08/2022	Project Name: KSC-FS3
Date Received: 02/09/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	50-150
13C8_PFOS		90	50-150
13C9_PFNA		84	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOD	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ32773-001

Matrix: Aqueous

Batch: 32773

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/23/2022 1011

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1936
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFDaA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
PFOS	1.8	I	1	4.0	2.0	1.0	ng/L	02/25/2022 1936
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		108	50-150					
13C2_6:2FTS		105	50-150					
13C2_8:2FTS		91	50-150					
13C2_PFDaA		90	50-150					
13C2_PFTeDA		79	50-150					
13C3_PFBs		100	50-150					
13C3_PFHxS		94	50-150					
13C3-HFPO-DA		105	50-150					
13C4_PFBa		92	50-150					
13C4_PFHpA		91	50-150					
13C5_PFHxA		89	50-150					
13C5_PFPeA		94	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ32773-001

Matrix: Aqueous

Batch: 32773

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/23/2022 1011

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		98	50-150
13C8_PFOS		97	50-150
13C9_PFNA		89	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		127	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ32773-002

Matrix: Aqueous

Batch: 32773

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/23/2022 1011

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	14		1	95	70-150	02/25/2022 1946
11CI-PF3OUdS	15	13		1	84	70-150	02/25/2022 1946
8:2 FTS	15	14		1	90	67-138	02/25/2022 1946
6:2 FTS	15	13		1	87	64-140	02/25/2022 1946
4:2 FTS	15	13		1	88	63-143	02/25/2022 1946
GenX	32	25		1	77	70-150	02/25/2022 1946
ADONA	15	14		1	94	70-150	02/25/2022 1946
EtFOSA	16	17		1	103	70-150	02/25/2022 1946
EtFOSAA	16	14		1	89	61-135	02/25/2022 1946
MeFOSAA	16	14		1	87	65-136	02/25/2022 1946
PFBS	14	13		1	94	72-130	02/25/2022 1946
PFDS	15	15		1	94	53-142	02/25/2022 1946
PFHpS	15	15		1	97	69-134	02/25/2022 1946
PFNS	15	14		1	89	69-127	02/25/2022 1946
PFPeS	15	16		1	104	71-127	02/25/2022 1946
PFHxS	15	14		1	98	68-131	02/25/2022 1946
PFBA	16	15		1	93	73-129	02/25/2022 1946
PFDA	16	16		1	97	71-129	02/25/2022 1946
PFDoA	16	16		1	100	72-134	02/25/2022 1946
PFHpA	16	16		1	102	72-130	02/25/2022 1946
PFHxA	16	16		1	97	72-129	02/25/2022 1946
PFNA	16	15		1	95	69-130	02/25/2022 1946
PFOA	16	15		1	95	71-133	02/25/2022 1946
PFPeA	16	16		1	100	72-129	02/25/2022 1946
PFTeDA	16	15		1	95	71-132	02/25/2022 1946
PFTTrDA	16	17		1	106	65-144	02/25/2022 1946
PFUdA	16	16		1	98	69-133	02/25/2022 1946
PFOS	15	15		1	102	65-140	02/25/2022 1946
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		104	50-150				
13C2_6:2FTS		90	50-150				
13C2_8:2FTS		98	50-150				
13C2_PFDoA		84	50-150				
13C2_PFTeDA		89	50-150				
13C3_PFBS		98	50-150				
13C3_PFHxS		93	50-150				
13C3-HFPO-DA		105	50-150				
13C4_PFBA		93	50-150				
13C4_PFHpA		94	50-150				
13C5_PFHxA		93	50-150				
13C5_PFPeA		93	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ32773-002

Matrix: Aqueous

Batch: 32773

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/23/2022 1011

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		101	50-150
13C8_PFOS		97	50-150
13C9_PFNA		96	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		129	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ32887-001

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/25/2022 1355
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFDaA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	02/25/2022 1355
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		117	50-150					
13C2_6:2FTS		149	50-150					
13C2_8:2FTS		116	50-150					
13C2_PFDaA		94	50-150					
13C2_PFTeDA		95	50-150					
13C3_PFBs		96	50-150					
13C3_PFHxS		95	50-150					
13C3-HFPO-DA		118	50-150					
13C4_PFBa		109	50-150					
13C4_PFHpA		108	50-150					
13C5_PFHxA		101	50-150					
13C5_PFPeA		102	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ32887-001

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		110	50-150
13C8_PFOS		104	50-150
13C9_PFNA		107	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		117	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ32887-002

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	14		1	96	70-150	02/25/2022 1406
11CI-PF3OUdS	15	13		1	84	70-150	02/25/2022 1406
8:2 FTS	15	13		1	87	67-138	02/25/2022 1406
6:2 FTS	15	14		1	92	64-140	02/25/2022 1406
4:2 FTS	15	13		1	84	63-143	02/25/2022 1406
GenX	32	30		1	95	70-150	02/25/2022 1406
ADONA	15	17		1	110	70-150	02/25/2022 1406
EtFOSA	16	16		1	98	70-150	02/25/2022 1406
EtFOSAA	16	15		1	93	61-135	02/25/2022 1406
MeFOSAA	16	12		1	75	65-136	02/25/2022 1406
PFBS	14	14		1	99	72-130	02/25/2022 1406
PFDS	15	15		1	96	53-142	02/25/2022 1406
PFHpS	15	16		1	105	69-134	02/25/2022 1406
PFNS	15	14		1	94	69-127	02/25/2022 1406
PFPeS	15	14		1	94	71-127	02/25/2022 1406
PFHxS	15	14		1	96	68-131	02/25/2022 1406
PFBA	16	15		1	96	73-129	02/25/2022 1406
PFDA	16	15		1	95	71-129	02/25/2022 1406
PFDoA	16	15		1	93	72-134	02/25/2022 1406
PFHpA	16	16		1	97	72-130	02/25/2022 1406
PFHxA	16	15		1	92	72-129	02/25/2022 1406
PFNA	16	15		1	92	69-130	02/25/2022 1406
PFOA	16	15		1	91	71-133	02/25/2022 1406
PFPeA	16	15		1	93	72-129	02/25/2022 1406
PFTeDA	16	15		1	95	71-132	02/25/2022 1406
PFTTrDA	16	14		1	90	65-144	02/25/2022 1406
PFUdA	16	15		1	91	69-133	02/25/2022 1406
PFOS	15	13		1	86	65-140	02/25/2022 1406
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		100	50-150				
13C2_6:2FTS		114	50-150				
13C2_8:2FTS		99	50-150				
13C2_PFDoA		86	50-150				
13C2_PFTeDA		82	50-150				
13C3_PFBs		90	50-150				
13C3_PFHxS		91	50-150				
13C3-HFPO-DA		113	50-150				
13C4_PFBa		98	50-150				
13C4_PFHpA		97	50-150				
13C5_PFHxA		93	50-150				
13C5_PFPeA		96	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ32887-002

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		99	50-150
13C8_PFOS		99	50-150
13C9_PFNA		96	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XB09052-003MS

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	14	13		1	93	70-150	02/25/2022 1427
11CI-PF3OUdS	ND	14	10		1	73	70-150	02/25/2022 1427
8:2 FTS	ND	14	13		1	95	67-138	02/25/2022 1427
6:2 FTS	ND	14	13		1	94	64-140	02/25/2022 1427
4:2 FTS	ND	14	12		1	85	63-143	02/25/2022 1427
GenX	ND	29	29		1	99	70-150	02/25/2022 1427
ADONA	ND	14	14		1	102	70-150	02/25/2022 1427
EtFOSA	ND	15	12		1	83	70-150	02/25/2022 1427
EtFOSAA	ND	15	13		1	89	61-135	02/25/2022 1427
MeFOSAA	ND	15	11		1	76	65-136	02/25/2022 1427
PFBS	ND	13	12		1	90	72-130	02/25/2022 1427
PFDS	ND	14	11		1	78	53-142	02/25/2022 1427
PFHpS	ND	14	14		1	102	69-134	02/25/2022 1427
PFNS	ND	14	12		1	89	69-127	02/25/2022 1427
PFPeS	ND	14	14		1	102	71-127	02/25/2022 1427
PFHxS	ND	13	13		1	94	68-131	02/25/2022 1427
PFBA	ND	15	13		1	92	73-129	02/25/2022 1427
PFDA	ND	15	14		1	93	71-129	02/25/2022 1427
PFDaA	ND	15	14		1	97	72-134	02/25/2022 1427
PFHpA	ND	15	13		1	89	72-130	02/25/2022 1427
PFHxA	ND	15	15		1	103	72-129	02/25/2022 1427
PFNA	ND	15	14		1	97	69-130	02/25/2022 1427
PFOA	ND	15	13		1	91	71-133	02/25/2022 1427
PFPeA	ND	15	14		1	98	72-129	02/25/2022 1427
PFTeDA	ND	15	13		1	92	71-132	02/25/2022 1427
PFTrDA	ND	15	11		1	75	65-144	02/25/2022 1427
PFUdA	ND	15	14		1	95	69-133	02/25/2022 1427
PFOS	ND	14	12		1	88	65-140	02/25/2022 1427
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS	N	234	50-150					
13C2_6:2FTS	N	174	50-150					
13C2_8:2FTS		133	50-150					
13C2_PFDaA		75	50-150					
13C2_PFTeDA		58	50-150					
13C3_PFBs		83	50-150					
13C3_PFHxS		90	50-150					
13C3-HFPO-DA		97	50-150					
13C4_PFBa	N	44	50-150					
13C4_PFHpA		95	50-150					
13C5_PFHxA		85	50-150					
13C5_PFPeA		74	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XB09052-003MS

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		101	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		94	50-150
13C8_PFOS		97	50-150
13C9_PFNA		95	50-150
d-EtFOSA		56	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		123	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID: XB09052-005DU

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9CI-PF3ONS	ND		U	1	0.00	20	02/25/2022 1500
11CI-PF3OUdS	ND		U	1	0.00	20	02/25/2022 1500
8:2 FTS	ND		U	1	0.00	20	02/25/2022 1500
6:2 FTS	ND		U	1	0.00	20	02/25/2022 1500
4:2 FTS	ND		U	1	0.00	20	02/25/2022 1500
GenX	ND		U	1	0.00	20	02/25/2022 1500
ADONA	ND		U	1	0.00	20	02/25/2022 1500
EtFOSA	ND		U	1	0.00	20	02/25/2022 1500
EtFOSAA	ND		U	1	0.00	20	02/25/2022 1500
MeFOSAA	ND		U	1	0.00	20	02/25/2022 1500
PFBS	ND		U	1	0.00	20	02/25/2022 1500
PFDS	ND		U	1	0.00	20	02/25/2022 1500
PFHpS	ND		U	1	0.00	20	02/25/2022 1500
PFNS	ND		U	1	0.00	20	02/25/2022 1500
PFPeS	ND		U	1	0.00	20	02/25/2022 1500
PFHxS	ND		U	1	0.00	20	02/25/2022 1500
PFBA	ND		U	1	0.00	20	02/25/2022 1500
PFDA	ND		U	1	0.00	20	02/25/2022 1500
PFDaA	ND		U	1	0.00	20	02/25/2022 1500
PFHpA	ND		U	1	0.00	20	02/25/2022 1500
PFHxA	ND		U	1	0.00	20	02/25/2022 1500
PFNA	ND		U	1	0.00	20	02/25/2022 1500
PFOA	ND		U	1	0.00	20	02/25/2022 1500
PFPeA	ND		U	1	0.00	20	02/25/2022 1500
PFTeDA	ND		U	1	0.00	20	02/25/2022 1500
PFTTrDA	ND		U	1	0.00	20	02/25/2022 1500
PFUdA	ND		U	1	0.00	20	02/25/2022 1500
PFOS	ND		U	1	0.00	20	02/25/2022 1500
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS	N	205	50-150				
13C2_6:2FTS		123	50-150				
13C2_8:2FTS		95	50-150				
13C2_PFDaA		84	50-150				
13C2_PFTeDA		67	50-150				
13C3_PFBs		85	50-150				
13C3_PFHxS		92	50-150				
13C3-HFPO-DA		101	50-150				
13C4_PFBa	N	45	50-150				
13C4_PFHpA		93	50-150				
13C5_PFHxA		92	50-150				
13C5_PFPeA		74	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID: XB09052-005DU

Matrix: Aqueous

Batch: 32887

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/24/2022 1719

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		92	50-150
13C8_PFOS		101	50-150
13C9_PFNA		94	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		107	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ33371-001

Matrix: Aqueous

Batch: 33371

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/01/2022 1721

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/02/2022 1614
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/02/2022 1614
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		85	50-150					
13C2_6:2FTS		84	50-150					
13C2_8:2FTS		78	50-150					
13C2_PFDoA		66	50-150					
13C2_PFTeDA		67	50-150					
13C3_PFBs		74	50-150					
13C3_PFHxS		80	50-150					
13C3-HFPO-DA		88	50-150					
13C4_PFBA		71	50-150					
13C4_PFHpA		71	50-150					
13C5_PFHxA		73	50-150					
13C5_PFPeA		75	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOD

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: XQ33371-001

Matrix: Aqueous

Batch: 33371

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/01/2022 1721

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		75	50-150
13C7_PFUdA		68	50-150
13C8_PFOA		73	50-150
13C8_PFOS		74	50-150
13C9_PFNA		70	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		71	50-150
d3-MeFOSAA		76	50-150

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I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: XQ33371-002

Matrix: Aqueous

Batch: 33371

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/01/2022 1721

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	16		1	108	70-150	03/02/2022 1625
11CI-PF3OUdS	15	14		1	95	70-150	03/02/2022 1625
8:2 FTS	15	14		1	91	67-138	03/02/2022 1625
6:2 FTS	15	18		1	116	64-140	03/02/2022 1625
4:2 FTS	15	14		1	91	63-143	03/02/2022 1625
GenX	32	35		1	108	70-150	03/02/2022 1625
ADONA	15	15		1	99	70-150	03/02/2022 1625
EtFOSA	16	16		1	97	70-150	03/02/2022 1625
EtFOSAA	16	16		1	97	61-135	03/02/2022 1625
MeFOSAA	16	16		1	98	65-136	03/02/2022 1625
PFBS	14	15		1	106	72-130	03/02/2022 1625
PFDS	15	15		1	99	53-142	03/02/2022 1625
PFHpS	15	16		1	107	69-134	03/02/2022 1625
PFNS	15	18		1	116	69-127	03/02/2022 1625
PFPeS	15	18		1	122	71-127	03/02/2022 1625
PFHxS	15	15		1	106	68-131	03/02/2022 1625
PFBA	16	18		1	111	73-129	03/02/2022 1625
PFDA	16	16		1	103	71-129	03/02/2022 1625
PFDoA	16	18		1	111	72-134	03/02/2022 1625
PFHpA	16	18		1	111	72-130	03/02/2022 1625
PFHxA	16	17		1	107	72-129	03/02/2022 1625
PFNA	16	18		1	109	69-130	03/02/2022 1625
PFOA	16	16		1	101	71-133	03/02/2022 1625
PFPeA	16	18		1	110	72-129	03/02/2022 1625
PFTeDA	16	18		1	110	71-132	03/02/2022 1625
PFTTrDA	16	17		1	107	65-144	03/02/2022 1625
PFUdA	16	17		1	107	69-133	03/02/2022 1625
PFOS	15	17		1	113	65-140	03/02/2022 1625
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		92	50-150				
13C2_6:2FTS		87	50-150				
13C2_8:2FTS		82	50-150				
13C2_PFDoA		68	50-150				
13C2_PFTeDA		69	50-150				
13C3_PFBS		74	50-150				
13C3_PFHxS		77	50-150				
13C3-HFPO-DA		83	50-150				
13C4_PFBA		70	50-150				
13C4_PFHpA		74	50-150				
13C5_PFHxA		75	50-150				
13C5_PFPeA		71	50-150				

LOQ = Limit of Quantitation

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DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ33371-002

Matrix: Aqueous

Batch: 33371

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/01/2022 1721

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		74	50-150
13C7_PFUdA		72	50-150
13C8_PFOA		75	50-150
13C8_PFOS		77	50-150
13C9_PFNA		73	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		76	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation

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DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: XQ33521-001

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		99	50-150					
13C2_6:2FTS		97	50-150					
13C2_8:2FTS		98	50-150					
13C2_PFDoA		81	50-150					
13C2_PFTeDA		71	50-150					
13C3_PFBS		78	50-150					
13C3_PFHxS		79	50-150					
13C3-HFPO-DA		91	50-150					
13C4_PFBA		86	50-150					
13C4_PFHpA		83	50-150					
13C5_PFHxA		86	50-150					
13C5_PFPeA		87	50-150					

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ33521-001

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		90	50-150
13C7_PFUdA		81	50-150
13C8_PFOA		86	50-150
13C8_PFOS		87	50-150
13C9_PFNA		82	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		91	50-150

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I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS - LCS

Sample ID: XQ33521-002

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	103	70-150	03/03/2022 0951
11CI-PF3OUdS	15	14		1	91	70-150	03/03/2022 0951
8:2 FTS	15	12		1	76	67-138	03/03/2022 0951
6:2 FTS	15	14		1	95	64-140	03/03/2022 0951
4:2 FTS	15	15		1	103	63-143	03/03/2022 0951
GenX	32	29		1	91	70-150	03/03/2022 0951
ADONA	15	16		1	104	70-150	03/03/2022 0951
EtFOSA	16	17		1	107	70-150	03/03/2022 0951
EtFOSAA	16	15		1	91	61-135	03/03/2022 0951
MeFOSAA	16	14		1	89	65-136	03/03/2022 0951
PFBS	14	14		1	98	72-130	03/03/2022 0951
PFDS	15	16		1	101	53-142	03/03/2022 0951
PFHpS	15	16		1	106	69-134	03/03/2022 0951
PFNS	15	14		1	89	69-127	03/03/2022 0951
PFPeS	15	15		1	103	71-127	03/03/2022 0951
PFHxS	15	16		1	107	68-131	03/03/2022 0951
PFBA	16	15		1	95	73-129	03/03/2022 0951
PFDA	16	15		1	93	71-129	03/03/2022 0951
PFDaA	16	14		1	86	72-134	03/03/2022 0951
PFHpA	16	16		1	97	72-130	03/03/2022 0951
PFHxA	16	16		1	100	72-129	03/03/2022 0951
PFNA	16	15		1	97	69-130	03/03/2022 0951
PFOA	16	16		1	102	71-133	03/03/2022 0951
PFPeA	16	17		1	105	72-129	03/03/2022 0951
PFTeDA	16	16		1	99	71-132	03/03/2022 0951
PFTTrDA	16	14		1	86	65-144	03/03/2022 0951
PFUdA	16	17		1	105	69-133	03/03/2022 0951
PFOS	15	16		1	105	65-140	03/03/2022 0951
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		97	50-150				
13C2_6:2FTS		103	50-150				
13C2_8:2FTS		107	50-150				
13C2_PFDaA		94	50-150				
13C2_PFTeDA		78	50-150				
13C3_PFBs		76	50-150				
13C3_PFHxS		77	50-150				
13C3-HFPO-DA		83	50-150				
13C4_PFBa		84	50-150				
13C4_PFHpA		93	50-150				
13C5_PFHxA		82	50-150				
13C5_PFPeA		83	50-150				

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PFAS by LC/MS/MS - LCS

Sample ID: XQ33521-002

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		79	50-150
13C8_PFOA		85	50-150
13C8_PFOS		88	50-150
13C9_PFNA		78	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		92	50-150

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Chain of Custody
and
Miscellaneous Documents

NUMBER No. 2570 | PAGE 1 OF 2

CHAIN OF CUSTODY

Tetra Tech, Inc.

PROJECT NO: 112609581
 FACILITY: KSL-F33
 PROJECT MANAGER: Mark Sontek
 FIELD OPERATIONS LEADER: Chuck Sontek
 LABORATORY NAME AND CONTACT: Pace Analytical - Hixley Station
 ADDRESS: 106 Vantage Point Dr.
 CITY, STATE: West Columbia, SC

PHONE NUMBER: (412) 921-8632
 PHONE NUMBER: (331) 591-7580
 CONTAINER TYPE: PLASTIC (P) or GLASS (G) [P]
 PRESERVATIVE USED: [None]

DATE	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, OC, ETC)	COLLECTION METHOD	GRAB (G) COMP (C)	NO. OF CONTAINERS	COMMENTS
08/07	0920	F33-DPT005-055.0-2022-07	11	3	7	GW	G	G	2	
	1000	F33-DPT006-012.0-2022-07	11	10	14					
	1030	F33-DPT006-025.0-2022-07	11	23	27					
	1100	F33-DPT006-035.0-2022-07	11	33	37					
	1130	F33-DPT006-045.0-2022-07	11	43	47					
08/07	1215	F33-DPT006-054.0-2022-07	11	52	54					
08/07	0900	F33-DPT007-005.0-2022-08	12	3	7					
	0930	F33-DPT007-012.0-2022-08	12	10	14					
	1000	F33-DPT007-025.0-2022-08	12	23	27					
	1030	F33-DPT007-035.0-2022-08	12	33	37					
	1100	F33-DPT007-045.0-2022-08	12	43	47					
	1130	F33-DPT007-054.0-2022-08	12	52	54					
08/07	1235	F33-DPT008-005.0-2022-08	13	3	7	GW	G	G	2	

STANDARD TAT [X] RUSH TAT []
 24 hr. 48 hr. 72 hr. 7 day 14 day

DATE: 08/07
 TIME: 1600
 RECEIVED BY: FULER
 DATE: 08/22
 TIME: 1600

DATE: 08/22
 TIME: 1335
 RECEIVED BY: [Signature]

DATE: 08/22
 TIME: 1335
 RECEIVED BY: [Signature]

COMMENTS: TYPE OF ANALYSIS: PYS-GSM (44.8-15)

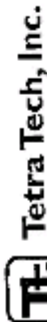
FORM NO. TUNUS-001

PINK (FILE COPY)

YELLOW (FIELD COPY)

WHITE (ACCOMPANIES SAMPLE)

PACE ANALYTICAL SERVICES, LLC



Tetra Tech, Inc.

CHAIN OF CUSTODY

NUMBER **No. 2571** | PAGE **2** OF **2**

PROJECT NO: 18G-0958	FACILITY: KSL-F33	PHONE NUMBER: (410) 231-8222	LABORATORY NAME AND CONTACT: Pace Analytical - Ricky Smith
SAMPLERS (SIGNATURE):	CHUCK SARDEN	PHONE NUMBER: (321) 591-7580	ADDRESS: 106 Vantage Point Dr.
		CITY, STATE: West Columbia, SC	

DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, DQ, ETC.)	COLLECTION METHOD	GRAB (G)	COMB (G)	NO. OF CONTAINERS	CONTAINER TYPE		PRESERVATIVE USED	COMMENTS
											PLASTIC (P)	GLASS (G)		
02/08	1255	F33-FD-20220208-01		-	-	GC	GC			2	X	P		
1	1300	F33-DP2028-02202208	13	10	14	GW								
	1330	F33-DP2028-0250220208	13	23	27	GW								
	1345	F33-EB-20220208-01	-	-	-	GC								
	1400	F33-DP2028-02550220208	13	33	37	GW								
	1430	F33-DP2028-0450220208	13	43	47	GW								
	1500	F33-DP2028-0540220208	13	53	56	GW								
02/08	0000	F33-FD-20220208-01	-	-	-	GC				2	X			

Type of Analytes: PCBs, PAHs, HPLC, D-15, Metals

1. RELINQUISHED BY		DATE		TIME		1. RECEIVED BY		DATE		TIME	
		02/08/22		1600		FedEx		02/08/22		1600	
2. RELINQUISHED BY		DATE		TIME		2. RECEIVED BY		DATE		TIME	
3. RELINQUISHED BY		DATE		TIME		3. RECEIVED BY		DATE		TIME	
		02/08/22		1535		K. Coyner		02/08/22		1335	

COMMENTS: T=22°C

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

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)
 Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
 Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH Cooler Inspected by/date: MEH / 02/09/2022 Lot #: XB09052

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt: %Solid Snap-Cup ID: NA	
2.2 / 2.2 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	14. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/pheno/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote #
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is NA) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA	
SR barcode labels applied by: KDRW Date: 02/09/2022	

Comments:



Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC - FS3
Project Number: 112G09581
Lot Number: **XA26026**
Date Completed: 03/04/2022
Revision Date: 03/02/2022

Kathy Smith

03/07/2022 11:56 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Tetra Tech Lot Number: XA26026

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

$$CF = DF * FV / V_0$$

FV is volume of extract (mL)

V₀ is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:

Concentration (ng/L) = C_s*CF,

$$C_s = \frac{\left(\frac{(A_s \times C_{is})}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

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Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Samples XA26026-004, XA26026-005, XA26026-007, XA26026-008, XA26026-009, XA26026-014, XA26026-015 (parent, MS, and MSD), XA26026-016, XA26026-017, XA26026-018, XA26026-019, and XA26026-020, XA26026-022, XA26026-023, required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

For samples XA26026-001, XA26026-012, XA26026-013, XA26026-018, XA26026-022, XA26026-023, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

The method blank associated with batch 30706 had PFOS detected at a concentration that was above the MDL but below ½ the PQL. All samples associated with this method blank that have detections for PFOS have been flagged with a "B".

The following samples were diluted due to the nature of the sample matrix: XA14008-007, XA26026-002, XA26026-003. The LOQ has been elevated to reflect the dilution.

Surrogate recovery for the following samples was outside control limits: XA26026-005, XA26026-007, XA26026-009, XA26026-011, XA26026-012, XA26026-013, XA26026-014, XA26026-015, XA26026-016, XA26026-017, XA26026-018, XA26026-019, XA26026-020, XA26026-021, XA26026-022, XA26026-023. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The MS/MSD associated with samples XA26026-013, XA26026-015 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Samples XA26026-002 and XA26026-003 were re-prepped outside of holding time per client request and all data has been reported.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XA26026

Project Name: KSC - FS3

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3-DPT0001-005.0-20220124	Aqueous	01/24/2022 1200	01/26/2022
002	FS3-DPT0001-012.0-20220124	Aqueous	01/24/2022 1225	01/26/2022
003	FS3-DPT0001-025.0-20220124	Aqueous	01/24/2022 1255	01/26/2022
004	FS3-DPT0001-035.0-20220124	Aqueous	01/24/2022 1400	01/26/2022
005	FS3-DPT0001-045.0-20220124	Aqueous	01/24/2022 1500	01/26/2022
006	FS3-FB-20220124-01	Aqueous	01/24/2022 1505	01/26/2022
007	FS3-DPT0001-054.0-20220124	Aqueous	01/24/2022 1535	01/26/2022
008	FS3-DPT0002-005.0-20220125	Aqueous	01/25/2022 0800	01/26/2022
009	FS3-DPT0002-012.0-20220125	Aqueous	01/25/2022 0825	01/26/2022
010	FS3-EB-20220125-01	Aqueous	01/25/2022 0830	01/26/2022
011	FS3-DPT0002-025.0-20220125	Aqueous	01/25/2022 0855	01/26/2022
012	FS3-DPT0002-035.0-20220125	Aqueous	01/25/2022 0925	01/26/2022
013	FS3-DPT0002-045.0-20220125	Aqueous	01/25/2022 1015	01/26/2022
014	FS3-DPT0002-054.0-20220125	Aqueous	01/25/2022 1100	01/26/2022
015	FS3-DPT0003-005.0-20220125	Aqueous	01/25/2022 1220	01/26/2022
016	FS3-DPT0003-012.0-20220125	Aqueous	01/25/2022 1245	01/26/2022
017	FS3-DPT0003-025.0-20220125	Aqueous	01/25/2022 1310	01/26/2022
018	FS3-DPT0003-035.0-20220125	Aqueous	01/25/2022 1335	01/26/2022
019	FS3-DPT0003-045.0-20220125	Aqueous	01/25/2022 1410	01/26/2022
020	FS3-DPT0003-054.0-20220125	Aqueous	01/25/2022 1450	01/26/2022
021	FS3-FB-20220125-01	Aqueous	01/25/2022 1500	01/26/2022
022	FS3-FD-20220125-01	Aqueous	01/25/2022	01/26/2022
023	FS3-FD-20220125-02	Aqueous	01/25/2022	01/26/2022
024	FS3-EB-20220125-02	Aqueous	01/25/2022 1140	01/26/2022

(24 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: XA26026

Project Name: KSC - FS3

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	FS3-DPT0001-005.0-20220124	Aqueous	PFHxS	PFAS by ID	1.4	J	ng/L	18
001	FS3-DPT0001-005.0-20220124	Aqueous	PFNA	PFAS by ID	1.9	J	ng/L	18
001	FS3-DPT0001-005.0-20220124	Aqueous	PFOA	PFAS by ID	1.2	J	ng/L	18
001	FS3-DPT0001-005.0-20220124	Aqueous	PFOS	PFAS by ID	110		ng/L	18
002	FS3-DPT0001-012.0-20220124	Aqueous	PFHpS	PFAS by ID	1.5	HJ	ng/L	22
002	FS3-DPT0001-012.0-20220124	Aqueous	PFHxS	PFAS by ID	17	H	ng/L	22
002	FS3-DPT0001-012.0-20220124	Aqueous	PFBA	PFAS by ID	2.9	HJQ	ng/L	22
002	FS3-DPT0001-012.0-20220124	Aqueous	PFHpA	PFAS by ID	2.0	HJ	ng/L	22
002	FS3-DPT0001-012.0-20220124	Aqueous	PFHxA	PFAS by ID	2.5	HJ	ng/L	22
002	FS3-DPT0001-012.0-20220124	Aqueous	PFOA	PFAS by ID	2.8	HJ	ng/L	22
002	FS3-DPT0001-012.0-20220124	Aqueous	PFOS	PFAS by ID	18	H	ng/L	22
003	FS3-DPT0001-025.0-20220124	Aqueous	6:2 FTS	PFAS by ID	76	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFBS	PFAS by ID	8.7	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFHpS	PFAS by ID	4.5	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFPeS	PFAS by ID	15	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFHxS	PFAS by ID	340	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFBA	PFAS by ID	31	HQ	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFHpA	PFAS by ID	25	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFHxA	PFAS by ID	69	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFOA	PFAS by ID	18	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFPeA	PFAS by ID	93	H	ng/L	26
003	FS3-DPT0001-025.0-20220124	Aqueous	PFOS	PFAS by ID	24	H	ng/L	26
004	FS3-DPT0001-035.0-20220124	Aqueous	PFBS	PFAS by ID	1.5	J	ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFHxS	PFAS by ID	29		ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFBA	PFAS by ID	7.3		ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFHpA	PFAS by ID	3.9		ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFHxA	PFAS by ID	4.5		ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFOA	PFAS by ID	3.0	J	ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFPeA	PFAS by ID	4.9		ng/L	28
004	FS3-DPT0001-035.0-20220124	Aqueous	PFOS	PFAS by ID	9.8	B	ng/L	28
005	FS3-DPT0001-045.0-20220124	Aqueous	6:2 FTS	PFAS by ID	4.2	JQ	ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFBS	PFAS by ID	14		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFHpS	PFAS by ID	2.6	J	ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFPeS	PFAS by ID	15		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFHxS	PFAS by ID	190		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFBA	PFAS by ID	14		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFHpA	PFAS by ID	16		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFHxA	PFAS by ID	37		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFOA	PFAS by ID	16		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFPeA	PFAS by ID	28		ng/L	30
005	FS3-DPT0001-045.0-20220124	Aqueous	PFOS	PFAS by ID	23	B	ng/L	30
007	FS3-DPT0001-054.0-20220124	Aqueous	PFHxS	PFAS by ID	1.5	J	ng/L	34
008	FS3-DPT0002-005.0-20220125	Aqueous	PFHxS	PFAS by ID	3.7	J	ng/L	36

Detection Summary (Continued)

Lot Number: XA26026

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	FS3-DPT0002-005.0-20220125	Aqueous	PFBA	PFAS by ID	5.4		ng/L	36
008	FS3-DPT0002-005.0-20220125	Aqueous	PFHpA	PFAS by ID	2.8	J	ng/L	36
008	FS3-DPT0002-005.0-20220125	Aqueous	PFHxA	PFAS by ID	2.0	J	ng/L	36
008	FS3-DPT0002-005.0-20220125	Aqueous	PFOA	PFAS by ID	1.9	J	ng/L	36
008	FS3-DPT0002-005.0-20220125	Aqueous	PFPeA	PFAS by ID	1.9	J	ng/L	36
008	FS3-DPT0002-005.0-20220125	Aqueous	PFOS	PFAS by ID	15	B	ng/L	36
009	FS3-DPT0002-012.0-20220125	Aqueous	PFHxS	PFAS by ID	11		ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFBA	PFAS by ID	8.3	Q	ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFHpA	PFAS by ID	3.0	J	ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFHxA	PFAS by ID	3.1	J	ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFOA	PFAS by ID	2.8	J	ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFPeA	PFAS by ID	4.2		ng/L	38
009	FS3-DPT0002-012.0-20220125	Aqueous	PFOS	PFAS by ID	48	B	ng/L	38
011	FS3-DPT0002-025.0-20220125	Aqueous	PFHxS	PFAS by ID	5.5		ng/L	42
011	FS3-DPT0002-025.0-20220125	Aqueous	PFBA	PFAS by ID	8.9		ng/L	42
011	FS3-DPT0002-025.0-20220125	Aqueous	PFHxA	PFAS by ID	1.4	J	ng/L	42
011	FS3-DPT0002-025.0-20220125	Aqueous	PFOA	PFAS by ID	2.1	J	ng/L	42
011	FS3-DPT0002-025.0-20220125	Aqueous	PFPeA	PFAS by ID	1.7	J	ng/L	42
011	FS3-DPT0002-025.0-20220125	Aqueous	PFOS	PFAS by ID	8.3		ng/L	42
012	FS3-DPT0002-035.0-20220125	Aqueous	6:2 FTS	PFAS by ID	30	Q	ng/L	44
013	FS3-DPT0002-045.0-20220125	Aqueous	6:2 FTS	PFAS by ID	100	S	ng/L	46
013	FS3-DPT0002-045.0-20220125	Aqueous	PFPeA	PFAS by ID	1.1	J	ng/L	46
013	FS3-DPT0002-045.0-20220125	Aqueous	PFOS	PFAS by ID	1.9	J	ng/L	46
015	FS3-DPT0003-005.0-20220125	Aqueous	PFBS	PFAS by ID	18		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFHpS	PFAS by ID	3.2	J	ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFPeS	PFAS by ID	19		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFHxS	PFAS by ID	140		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFBA	PFAS by ID	34	Q	ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFHpA	PFAS by ID	11		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFHxA	PFAS by ID	23		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFOA	PFAS by ID	16		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFPeA	PFAS by ID	20		ng/L	50
015	FS3-DPT0003-005.0-20220125	Aqueous	PFOS	PFAS by ID	15		ng/L	50
016	FS3-DPT0003-012.0-20220125	Aqueous	PFBS	PFAS by ID	18		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFHpS	PFAS by ID	2.9	J	ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFPeS	PFAS by ID	19		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFHxS	PFAS by ID	130		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFBA	PFAS by ID	31	Q	ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFHpA	PFAS by ID	12		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFHxA	PFAS by ID	22		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFNA	PFAS by ID	1.7	J	ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFOA	PFAS by ID	14		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFPeA	PFAS by ID	20		ng/L	52
016	FS3-DPT0003-012.0-20220125	Aqueous	PFOS	PFAS by ID	33		ng/L	52
022	FS3-FD-20220125-01	Aqueous	6:2 FTS	PFAS by ID	2.9	JQ	ng/L	64
022	FS3-FD-20220125-01	Aqueous	PFHxS	PFAS by ID	5.0		ng/L	64
022	FS3-FD-20220125-01	Aqueous	PFBA	PFAS by ID	9.2		ng/L	64

Detection Summary (Continued)

Lot Number: XA26026

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
022	FS3-FD-20220125-01	Aqueous	PFHpA	PFAS by ID	1.1	J	ng/L	64
022	FS3-FD-20220125-01	Aqueous	PFHxA	PFAS by ID	1.5	J	ng/L	64
022	FS3-FD-20220125-01	Aqueous	PFOA	PFAS by ID	2.7	J	ng/L	64
022	FS3-FD-20220125-01	Aqueous	PFPeA	PFAS by ID	1.9	J	ng/L	64
022	FS3-FD-20220125-01	Aqueous	PFOS	PFAS by ID	8.5		ng/L	64
023	FS3-FD-20220125-02	Aqueous	6:2 FTS	PFAS by ID	3.5	JQ	ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFBS	PFAS by ID	19		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFHpS	PFAS by ID	3.5	J	ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFPeS	PFAS by ID	19		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFHxS	PFAS by ID	160		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFBA	PFAS by ID	35	Q	ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFHpA	PFAS by ID	11		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFHxA	PFAS by ID	23		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFOA	PFAS by ID	14		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFPeA	PFAS by ID	20		ng/L	66
023	FS3-FD-20220125-02	Aqueous	PFOS	PFAS by ID	15		ng/L	66

(107 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-001
Description: FS3-DPT0001-005.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1200	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/01/2022 1323	MMM	01/28/2022 1240	30008

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.4	J	4.3	2.2	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	J	4.3	2.2	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.2	J	4.3	2.2	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.2	U	4.3	2.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110		4.3	2.2	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		122	50-150
13C2_6:2FTS		88	50-150
13C2_8:2FTS		84	50-150
13C2_PFDa		58	50-150
13C2_PFTeDA		60	50-150
13C3_PFBs		91	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		102	50-150
13C4_PFBa		80	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		91	50-150
13C6_PFDa		80	50-150
13C7_PFUdA		64	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-001
Description: FS3-DPT0001-005.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1200	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	50-150
13C8_PFOS		86	50-150
13C9_PFNA		88	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-002
Description: FS3-DPT0001-012.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1225	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/01/2022 1334	MMM	01/28/2022 1240	30008
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/03/2022 1252	ASD	03/02/2022 1700	33521

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150	HN	201	50-150
13C2_6:2FTS		88	50-150	HN	162	50-150
13C2_8:2FTS		99	50-150	H	108	50-150
13C2_PFDaA		96	50-150	H	63	50-150
13C2_PFTeDA		97	50-150	HN	39	50-150
13C3_PFBs		97	50-150	H	70	50-150
13C3_PFHxS		94	50-150	H	76	50-150
13C3-HFPO-DA		106	50-150	H	74	50-150
13C4_PFBa		94	50-150	HN	45	50-150
13C4_PFHpA		97	50-150	H	86	50-150
13C5_PFHxA		90	50-150	H	75	50-150
13C5_PFPeA		93	50-150	H	73	50-150
13C6_PFDa		100	50-150	H	87	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-002
Description: FS3-DPT0001-012.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1225	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		90	50-150	H	75	50-150
13C8_PFOA		94	50-150	H	82	50-150
13C8_PFOS		99	50-150	H	83	50-150
13C9_PFNA		98	50-150	H	82	50-150
d-EtFOSA		80	50-150	HN	49	50-150
d5-EtFOSAA		103	50-150	H	84	50-150
d3-MeFOSAA		105	50-150	H	88	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-002
Description: FS3-DPT0001-012.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1225	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/01/2022 1334	MMM	01/28/2022 1240	30008
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/03/2022 1252	ASD	03/02/2022 1700	33521

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	UHQ	7.8	3.9	1.9	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	UHQ	7.8	3.9	1.9	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	UHQ	7.8	3.9	1.9	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	UH	7.8	3.9	1.9	ng/L	2
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.5	HJ	3.9	2.0	0.97	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	17	H	3.9	2.0	0.97	ng/L	2
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.9	HJQ	3.9	2.0	0.97	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	HJ	3.9	2.0	0.97	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.5	HJ	3.9	2.0	0.97	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.8	HJ	3.9	2.0	0.97	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	UHQ	3.9	2.0	0.97	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	UH	3.9	2.0	0.97	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	18	H	3.9	2.0	0.97	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150	HN	201	50-150
13C2_6:2FTS		88	50-150	HN	162	50-150
13C2_8:2FTS		99	50-150	H	108	50-150
13C2_PFDaA		96	50-150	H	63	50-150
13C2_PFTeDA		97	50-150	HN	39	50-150
13C3_PFBs		97	50-150	H	70	50-150
13C3_PFHxS		94	50-150	H	76	50-150
13C3-HFPO-DA		106	50-150	H	74	50-150
13C4_PFBa		94	50-150	HN	45	50-150
13C4_PFHpA		97	50-150	H	86	50-150
13C5_PFHxA		90	50-150	H	75	50-150
13C5_PFPeA		93	50-150	H	73	50-150
13C6_PFDa		100	50-150	H	87	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-002
Description: FS3-DPT0001-012.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1225	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		90	50-150	H	75	50-150
13C8_PFOA		94	50-150	H	82	50-150
13C8_PFOS		99	50-150	H	83	50-150
13C9_PFNA		98	50-150	H	82	50-150
d-EtFOSA		80	50-150	HN	49	50-150
d5-EtFOSAA		103	50-150	H	84	50-150
d3-MeFOSAA		105	50-150	H	88	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-003
Description: FS3-DPT0001-025.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1255	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/01/2022 1427	MMM	01/28/2022 1240	30008
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/03/2022 1302	ASD	03/02/2022 1700	33521

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	500	U	1000	500	250	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	400	J	500	250	130	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	250	U	500	250	130	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	250	U	500	250	130	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		109	50-150	HN	195	50-150
13C2_6:2FTS		88	50-150	H	146	50-150
13C2_8:2FTS		99	50-150	H	117	50-150
13C2_PFDaA		88	50-150	H	68	50-150
13C2_PFTeDA		93	50-150	H	53	50-150
13C3_PFBs		95	50-150	H	72	50-150
13C3_PFHxS		90	50-150	H	79	50-150
13C3-HFPO-DA		111	50-150	H	80	50-150
13C4_PFBa		95	50-150	HN	47	50-150
13C4_PFHpA		90	50-150	H	89	50-150
13C5_PFHxA		98	50-150	H	80	50-150
13C5_PFPeA		93	50-150	H	74	50-150
13C6_PFDa		95	50-150	H	90	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-003
Description: FS3-DPT0001-025.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1255	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		82	50-150	H	81	50-150
13C8_PFOA		91	50-150	H	80	50-150
13C8_PFOS		94	50-150	H	87	50-150
13C9_PFNA		95	50-150	H	83	50-150
d-EtFOSA		79	50-150	H	65	50-150
d5-EtFOSAA		102	50-150	H	88	50-150
d3-MeFOSAA		106	50-150	H	96	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-003
Description: FS3-DPT0001-025.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1255	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/01/2022 1427	MMM	01/28/2022 1240	30008
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/03/2022 1302	ASD	03/02/2022 1700	33521

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	76	H	7.7	3.9	1.9	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	UHQ	7.7	3.9	1.9	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	UH	7.7	3.9	1.9	ng/L	2
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	8.7	H	3.8	1.9	0.96	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	4.5	H	3.8	1.9	0.96	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	15	H	3.8	1.9	0.96	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	340	H	3.8	1.9	0.96	ng/L	2
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	31	HQ	3.8	1.9	0.96	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	25	H	3.8	1.9	0.96	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	69	H	3.8	1.9	0.96	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	18	H	3.8	1.9	0.96	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	93	H	3.8	1.9	0.96	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	1.9	UH	3.8	1.9	0.96	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	24	H	3.8	1.9	0.96	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		109	50-150	HN	195	50-150
13C2_6:2FTS		88	50-150	H	146	50-150
13C2_8:2FTS		99	50-150	H	117	50-150
13C2_PFDaA		88	50-150	H	68	50-150
13C2_PFTeDA		93	50-150	H	53	50-150
13C3_PFBS		95	50-150	H	72	50-150
13C3_PFHxS		90	50-150	H	79	50-150
13C3-HFPO-DA		111	50-150	H	80	50-150
13C4_PFBA		95	50-150	HN	47	50-150
13C4_PFHpA		90	50-150	H	89	50-150
13C5_PFHxA		98	50-150	H	80	50-150
13C5_PFPeA		93	50-150	H	74	50-150
13C6_PFDA		95	50-150	H	90	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-003
Description: FS3-DPT0001-025.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1255	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		82	50-150	H	81	50-150
13C8_PFOA		91	50-150	H	80	50-150
13C8_PFOS		94	50-150	H	87	50-150
13C9_PFNA		95	50-150	H	83	50-150
d-EtFOSA		79	50-150	H	65	50-150
d5-EtFOSAA		102	50-150	H	88	50-150
d3-MeFOSAA		106	50-150	H	96	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-004
Description: FS3-DPT0001-035.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1400	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/05/2022 0348	MMM	02/03/2022 1722	30706

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.5	J	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	29		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	7.3		3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.9		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.5		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.0	J	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.9		3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	9.8	B	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		139	50-150
13C2_6:2FTS		127	50-150
13C2_8:2FTS		96	50-150
13C2_PFDaA		83	50-150
13C2_PFTeDA		70	50-150
13C3_PFBS		80	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		75	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		83	50-150
13C6_PFDA		77	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-004
Description: FS3-DPT0001-035.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1400	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		84	50-150
13C8_PFOS		86	50-150
13C9_PFNA		82	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		78	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-005
Description: FS3-DPT0001-045.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1500	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/05/2022 0359	MMM	02/03/2022 1722	30706

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	JQ	8.0	4.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	UQ	8.0	4.0	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.0	U	8.0	4.0	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	14		4.0	2.0	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.6	J	4.0	2.0	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	15		4.0	2.0	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	190		4.0	2.0	1.0	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	14		4.0	2.0	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	16		4.0	2.0	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	37		4.0	2.0	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	16		4.0	2.0	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	28		4.0	2.0	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	23	B	4.0	2.0	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	182	50-150
13C2_6:2FTS	N	165	50-150
13C2_8:2FTS		131	50-150
13C2_PFDa		92	50-150
13C2_PFTeDA		58	50-150
13C3_PFBs		77	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		79	50-150
13C4_PFBa		63	50-150
13C4_PFHpA		79	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		74	50-150
13C6_PFDa		82	50-150
13C7_PFUdA		82	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-005
Description: FS3-DPT0001-045.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1500	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	50-150
13C8_PFOS		92	50-150
13C9_PFNA		77	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		80	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-006
Description: FS3-FB-20220124-01	Matrix: Aqueous
Date Sampled: 01/24/2022 1505	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/05/2022 0409	MMM	02/03/2022 1722	30706

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		114	50-150
13C2_6:2FTS		134	50-150
13C2_8:2FTS		103	50-150
13C2_PFDa		88	50-150
13C2_PFTeDA		90	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-006
Description: FS3-FB-20220124-01	Matrix: Aqueous
Date Sampled: 01/24/2022 1505	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		99	50-150
13C9_PFNA		88	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-007
Description: FS3-DPT0001-054.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1535	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/05/2022 0420	MMM	02/03/2022 1722	30706

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	UQ	8.1	4.1	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	UQ	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.5	J	4.0	2.0	1.0	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	UQ	4.0	2.0	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	UQ	4.0	2.0	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	173	50-150
13C2_6:2FTS		118	50-150
13C2_8:2FTS		83	50-150
13C2_PFDa		58	50-150
13C2_PFTeDA	N	45	50-150
13C3_PFBS		71	50-150
13C3_PFHxS		84	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA	N	39	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		80	50-150
13C5_PFPeA		65	50-150
13C6_PFDA		76	50-150
13C7_PFUdA		59	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-007
Description: FS3-DPT0001-054.0-20220124	Matrix: Aqueous
Date Sampled: 01/24/2022 1535	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		74	50-150
13C9_PFNA		75	50-150
d-EtFOSA	N	44	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		73	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-008
Description: FS3-DPT0002-005.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0800	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/05/2022 0452	MMM	02/03/2022 1722	30706

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3.7	J	3.8	1.9	0.95	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.4		3.8	1.9	0.95	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.8	J	3.8	1.9	0.95	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	J	3.8	1.9	0.95	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	J	3.8	1.9	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	J	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	15	B	3.8	1.9	0.95	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		117	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		90	50-150
13C2_PFDa		74	50-150
13C2_PFTeDA		65	50-150
13C3_PFBs		73	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBa		77	50-150
13C4_PFHpA		79	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		79	50-150
13C6_PFDa		82	50-150
13C7_PFUdA		75	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-008
Description: FS3-DPT0002-005.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0800	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		84	50-150
13C8_PFOS		74	50-150
13C9_PFNA		77	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-009
Description: FS3-DPT0002-012.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0825	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/05/2022 0502	MMM	02/03/2022 1722	30706

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	11		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	8.3	Q	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.0	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	3.1	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.1	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.8	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.2		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	48	B	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	198	50-150
13C2_6:2FTS		137	50-150
13C2_8:2FTS		105	50-150
13C2_PFDaA		61	50-150
13C2_PFTeDA	N	38	50-150
13C3_PFBs		65	50-150
13C3_PFHxS		80	50-150
13C3-HFPO-DA		67	50-150
13C4_PFBa	N	39	50-150
13C4_PFHpA		78	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		64	50-150
13C6_PFDa		81	50-150
13C7_PFUdA		77	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-009
Description: FS3-DPT0002-012.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0825	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		83	50-150
13C9_PFNA		81	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		73	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-010
Description: FS3-EB-20220125-01	Matrix: Aqueous
Date Sampled: 01/25/2022 0830	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1329	JJG	02/06/2022 1400	30884

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.3	4.2	2.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		98	50-150
13C2_6:2FTS		123	50-150
13C2_8:2FTS		118	50-150
13C2_PFDa		99	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		100	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-010
Description: FS3-EB-20220125-01	Matrix: Aqueous
Date Sampled: 01/25/2022 0830	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		97	50-150
13C9_PFNA		99	50-150
d-EtFOSA		113	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		114	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-011
Description: FS3-DPT0002-025.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0855	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1340	JJG	02/06/2022 1400	30884

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	5.5		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	8.9		3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.4	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.7	J	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.3		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		141	50-150
13C2_6:2FTS		141	50-150
13C2_8:2FTS		110	50-150
13C2_PFDa		87	50-150
13C2_PFTeDA		58	50-150
13C3_PFBs		96	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBa		93	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		96	50-150
13C6_PFDa		101	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-011
Description: FS3-DPT0002-025.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0855	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	50-150
13C8_PFOS		95	50-150
13C9_PFNA		98	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		113	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-012
Description: FS3-DPT0002-035.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0925	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1402	JJG	02/06/2022 1400	30884

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	30	Q	8.8	4.4	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.4	UQ	8.8	4.4	2.2	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.4	U	8.8	4.4	2.2	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.2	UQ	4.4	2.2	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.2	UQ	4.4	2.2	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.2	UQ	4.4	2.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	158	50-150
13C2_6:2FTS	N	179	50-150
13C2_8:2FTS		114	50-150
13C2_PFDa		73	50-150
13C2_PFTeDA	N	49	50-150
13C3_PFBs		52	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		67	50-150
13C4_PFBa	N	22	50-150
13C4_PFHpA		78	50-150
13C5_PFHxA		66	50-150
13C5_PFPeA	N	41	50-150
13C6_PFDa		93	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-012
Description: FS3-DPT0002-035.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 0925	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		83	50-150
13C8_PFOS		88	50-150
13C9_PFNA		88	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-013
Description: FS3-DPT0002-045.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1015	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1413	JJG	02/06/2022 1400	30884

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.6	US	9.1	4.6	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	100	S	9.1	4.6	2.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.6	UQ	9.1	4.6	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.6	UQ	9.1	4.6	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.6	UQ	9.1	4.6	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.1	J	4.6	2.3	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.3	UQS	4.6	2.3	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	J	4.6	2.3	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	174	50-150
13C2_6:2FTS		134	50-150
13C2_8:2FTS		85	50-150
13C2_PFDa	N	31	50-150
13C2_PFTeDA	N	12	50-150
13C3_PFBs		69	50-150
13C3_PFHxS		78	50-150
13C3-HFPO-DA		71	50-150
13C4_PFBa	N	34	50-150
13C4_PFHpA		80	50-150
13C5_PFHxA		74	50-150
13C5_PFPeA		56	50-150
13C6_PFDa		70	50-150
13C7_PFUdA		52	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-013
Description: FS3-DPT0002-045.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1015	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		74	50-150
13C8_PFOS		71	50-150
13C9_PFNA		76	50-150
d-EtFOSA	N	16	50-150
d5-EtFOSAA	N	45	50-150
d3-MeFOSAA		63	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-014
Description: FS3-DPT0002-054.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1100	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1738	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	204	50-150
13C2_6:2FTS		125	50-150
13C2_8:2FTS		106	50-150
13C2_PFDaA		59	50-150
13C2_PFTeDA	N	26	50-150
13C3_PFBS		72	50-150
13C3_PFHxS		71	50-150
13C3-HFPO-DA		64	50-150
13C4_PFBA	N	30	50-150
13C4_PFHpA		73	50-150
13C5_PFHxA		72	50-150
13C5_PFPeA		63	50-150
13C6_PFDA		81	50-150
13C7_PFUdA		75	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-014
Description: FS3-DPT0002-054.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1100	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	50-150
13C8_PFOS		82	50-150
13C9_PFNA		76	50-150
d-EtFOSA	N	36	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-015
Description: FS3-DPT0003-005.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1220	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1748	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	18		3.7	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.2	J	3.7	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	19		3.7	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	140		3.7	1.9	0.94	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	34	Q	3.7	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11		3.7	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	23		3.7	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	16		3.7	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20		3.7	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	15		3.7	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	157	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		100	50-150
13C2_PFDaA		69	50-150
13C2_PFTeDA		66	50-150
13C3_PFBs		77	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		74	50-150
13C4_PFBa	N	47	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		74	50-150
13C5_PFPeA		72	50-150
13C6_PFDa		91	50-150
13C7_PFUdA		76	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-015
Description: FS3-DPT0003-005.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1220	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		66	50-150
13C8_PFOS		80	50-150
13C9_PFNA		77	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-016
Description: FS3-DPT0003-012.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1245	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1820	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	18		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.9	J	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	19		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	130		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	31	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	12		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	22		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.7	J	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	14		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	33		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	196	50-150
13C2_6:2FTS		132	50-150
13C2_8:2FTS		105	50-150
13C2_PFDa		74	50-150
13C2_PFTeDA		50	50-150
13C3_PFBs		75	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		71	50-150
13C4_PFBa	N	38	50-150
13C4_PFHpA		77	50-150
13C5_PFHxA		77	50-150
13C5_PFPeA		65	50-150
13C6_PFDa		96	50-150
13C7_PFUdA		70	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-016
Description: FS3-DPT0003-012.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1245	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		74	50-150
13C8_PFOS		100	50-150
13C9_PFNA		78	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-017
Description: FS3-DPT0003-025.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1310	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1831	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	205	50-150
13C2_6:2FTS		122	50-150
13C2_8:2FTS		109	50-150
13C2_PFDaA		62	50-150
13C2_PFTeDA	N	40	50-150
13C3_PFBS		80	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA	N	27	50-150
13C4_PFHpA		85	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		61	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		74	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-017
Description: FS3-DPT0003-025.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1310	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		87	50-150
13C9_PFNA		77	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-018
Description: FS3-DPT0003-035.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1335	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1841	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.8	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	202	50-150
13C2_6:2FTS		126	50-150
13C2_8:2FTS		102	50-150
13C2_PFDa		53	50-150
13C2_PFTeDA	N	39	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		83	50-150
13C3-HFPO-DA		69	50-150
13C4_PFBA	N	35	50-150
13C4_PFHpA		85	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		66	50-150
13C6_PFDA		87	50-150
13C7_PFUdA		70	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-018
Description: FS3-DPT0003-035.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1335	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	50-150
13C8_PFOS		85	50-150
13C9_PFNA		89	50-150
d-EtFOSA	N	47	50-150
d5-EtFOSAA		79	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-019
Description: FS3-DPT0003-045.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1410	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1913	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		104	50-150
13C2_PFDaA		58	50-150
13C2_PFTeDA	N	42	50-150
13C3_PFBS		72	50-150
13C3_PFHxS		75	50-150
13C3-HFPO-DA		69	50-150
13C4_PFBA	N	30	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		74	50-150
13C5_PFPeA		58	50-150
13C6_PFDA		80	50-150
13C7_PFUdA		72	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-019
Description: FS3-DPT0003-045.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1410	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		83	50-150
13C9_PFNA		76	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-020
Description: FS3-DPT0003-054.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1450	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1924	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	194	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		91	50-150
13C2_PFDa		66	50-150
13C2_PFTeDA		54	50-150
13C3_PFBS		75	50-150
13C3_PFHxS		75	50-150
13C3-HFPO-DA		68	50-150
13C4_PFBA	N	30	50-150
13C4_PFHpA		72	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		62	50-150
13C6_PFDA		83	50-150
13C7_PFUdA		74	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-020
Description: FS3-DPT0003-054.0-20220125	Matrix: Aqueous
Date Sampled: 01/25/2022 1450	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		85	50-150
13C9_PFNA		80	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		83	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-021
Description: FS3-FB-20220125-01	Matrix: Aqueous
Date Sampled: 01/25/2022 1500	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/08/2022 1934	MMM	02/07/2022 1136	30886

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		94	50-150
13C2_6:2FTS		72	50-150
13C2_8:2FTS		78	50-150
13C2_PFDa		79	50-150
13C2_PFTeDA		69	50-150
13C3_PFBs		82	50-150
13C3_PFHxS		72	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBa		79	50-150
13C4_PFHpA		72	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		74	50-150
13C6_PFDa		78	50-150
13C7_PFUdA		72	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-021
Description: FS3-FB-20220125-01	Matrix: Aqueous
Date Sampled: 01/25/2022 1500	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		76	50-150
13C8_PFOS		83	50-150
13C9_PFNA		70	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-022
Description: FS3-FD-20220125-01	Matrix: Aqueous
Date Sampled: 01/25/2022	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 1233	JJG	02/09/2022 1035	31209

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2.9	JQ	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	5.0		3.7	1.9	0.94	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	9.2		3.7	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.1	J	3.7	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.5	J	3.7	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.7	J	3.7	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	J	3.7	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.5		3.7	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		139	50-150
13C2_6:2FTS	N	156	50-150
13C2_8:2FTS		110	50-150
13C2_PFDaA		83	50-150
13C2_PFTeDA		67	50-150
13C3_PFBs		95	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBa		87	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		96	50-150
13C6_PFDa		98	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-022
Description: FS3-FD-20220125-01	Matrix: Aqueous
Date Sampled: 01/25/2022	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		90	50-150
13C9_PFNA		99	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-023
Description: FS3-FD-20220125-02	Matrix: Aqueous
Date Sampled: 01/25/2022	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 1244	JJG	02/09/2022 1035	31209

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	JQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	19		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.5	J	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	19		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	160		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	35	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	23		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	14		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	15		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	199	50-150
13C2_6:2FTS	N	155	50-150
13C2_8:2FTS		107	50-150
13C2_PFDa		79	50-150
13C2_PFTeDA		85	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA	N	49	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-023
Description: FS3-FD-20220125-02	Matrix: Aqueous
Date Sampled: 01/25/2022	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	50-150
13C8_PFOS		84	50-150
13C9_PFNA		94	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-024
Description: FS3-EB-20220125-02	Matrix: Aqueous
Date Sampled: 01/25/2022 1140	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/11/2022 1255	JJG	02/09/2022 1035	31209

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.1	4.1	2.0	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		124	50-150
13C2_8:2FTS		112	50-150
13C2_PFDa		98	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		115	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XA26026-024
Description: FS3-EB-20220125-02	Matrix: Aqueous
Date Sampled: 01/25/2022 1140	Project Name: KSC - FS3
Date Received: 01/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		98	50-150
13C9_PFNA		105	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		113	50-150
d3-MeFOSAA		144	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ30008-001

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	01/29/2022 1748
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	01/29/2022 1748
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		110	50-150					
13C2_6:2FTS		88	50-150					
13C2_8:2FTS		104	50-150					
13C2_PFDoA		99	50-150					
13C2_PFTeDA		85	50-150					
13C3_PFBS		94	50-150					
13C3_PFHxS		98	50-150					
13C3-HFPO-DA		101	50-150					
13C4_PFBA		95	50-150					
13C4_PFHpA		92	50-150					
13C5_PFHxA		99	50-150					
13C5_PFPeA		97	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ30008-001

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		101	50-150
13C7_PFUdA		100	50-150
13C8_PFOA		97	50-150
13C8_PFOS		88	50-150
13C9_PFNA		91	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30008-002

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	17		1	112	70-150	01/29/2022 1758
11CI-PF3OUdS	15	15		1	103	70-150	01/29/2022 1758
8:2 FTS	15	15		1	99	67-138	01/29/2022 1758
6:2 FTS	15	17		1	111	64-140	01/29/2022 1758
4:2 FTS	15	18		1	118	63-143	01/29/2022 1758
GenX	32	30		1	94	70-150	01/29/2022 1758
ADONA	15	17		1	113	70-150	01/29/2022 1758
EtFOSA	16	14		1	88	70-150	01/29/2022 1758
EtFOSAA	16	16		1	99	61-135	01/29/2022 1758
MeFOSAA	16	17		1	105	65-136	01/29/2022 1758
PFBS	14	15		1	104	72-130	01/29/2022 1758
PFDS	15	16		1	101	53-142	01/29/2022 1758
PFHpS	15	16		1	105	69-134	01/29/2022 1758
PFNS	15	16		1	105	69-127	01/29/2022 1758
PFPeS	15	17		1	113	71-127	01/29/2022 1758
PFHxS	15	16		1	113	68-131	01/29/2022 1758
PFBA	16	17		1	105	73-129	01/29/2022 1758
PFDA	16	17		1	104	71-129	01/29/2022 1758
PFDaA	16	17		1	109	72-134	01/29/2022 1758
PFHpA	16	17		1	106	72-130	01/29/2022 1758
PFHxA	16	17		1	108	72-129	01/29/2022 1758
PFNA	16	18		1	110	69-130	01/29/2022 1758
PFOA	16	17		1	109	71-133	01/29/2022 1758
PFPeA	16	17		1	103	72-129	01/29/2022 1758
PFTeDA	16	18		1	115	71-132	01/29/2022 1758
PFTTrDA	16	15		1	95	65-144	01/29/2022 1758
PFUdA	16	17		1	109	69-133	01/29/2022 1758
PFOS	15	16		1	108	65-140	01/29/2022 1758
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		103	50-150				
13C2_6:2FTS		89	50-150				
13C2_8:2FTS		106	50-150				
13C2_PFDaA		102	50-150				
13C2_PFTeDA		84	50-150				
13C3_PFBs		98	50-150				
13C3_PFHxS		99	50-150				
13C3-HFPO-DA		109	50-150				
13C4_PFBa		99	50-150				
13C4_PFHpA		101	50-150				
13C5_PFHxA		99	50-150				
13C5_PFPeA		101	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30008-002

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		98	50-150
13C8_PFOS		94	50-150
13C9_PFNA		98	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XA26026-002MS

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	1900	1800		1	95	70-150	02/01/2022 1344
11CI-PF3OUdS	ND	1900	1800		1	94	70-150	02/01/2022 1344
8:2 FTS	ND	1900	2000		1	102	67-138	02/01/2022 1344
6:2 FTS	ND	1900	1800		1	97	64-140	02/01/2022 1344
4:2 FTS	ND	1900	2000		1	107	63-143	02/01/2022 1344
GenX	ND	4000	3700		1	93	70-150	02/01/2022 1344
ADONA	ND	1900	2100		1	109	70-150	02/01/2022 1344
EtFOSA	ND	2000	1800		1	92	70-150	02/01/2022 1344
EtFOSAA	ND	2000	1700		1	87	61-135	02/01/2022 1344
MeFOSAA	ND	2000	1900		1	97	65-136	02/01/2022 1344
PFBS	ND	1800	1800		1	100	72-130	02/01/2022 1344
PFDS	ND	1900	1800		1	93	53-142	02/01/2022 1344
PFHpS	ND	1900	2100		1	112	69-134	02/01/2022 1344
PFNS	ND	1900	2300		1	122	69-127	02/01/2022 1344
PFPeS	ND	1900	1900		1	101	71-127	02/01/2022 1344
PFHxS	ND	1800	2100		1	113	68-131	02/01/2022 1344
PFBA	ND	2000	2000		1	100	73-129	02/01/2022 1344
PFDA	ND	2000	2100		1	107	71-129	02/01/2022 1344
PFDoA	ND	2000	2300		1	113	72-134	02/01/2022 1344
PFHpA	ND	2000	2200		1	109	72-130	02/01/2022 1344
PFHxA	ND	2000	1900		1	95	72-129	02/01/2022 1344
PFNA	ND	2000	2200		1	110	69-130	02/01/2022 1344
PFOA	ND	2000	2000		1	98	71-133	02/01/2022 1344
PFPeA	ND	2000	2200		1	108	72-129	02/01/2022 1344
PFTeDA	ND	2000	2200		1	109	71-132	02/01/2022 1344
PFTrDA	ND	2000	2000		1	98	65-144	02/01/2022 1344
PFUdA	ND	2000	2000		1	101	69-133	02/01/2022 1344
PFOS	ND	1900	1800		1	96	65-140	02/01/2022 1344
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		102	50-150					
13C2_6:2FTS		91	50-150					
13C2_8:2FTS		89	50-150					
13C2_PFDoA		87	50-150					
13C2_PFTeDA		93	50-150					
13C3_PFBs		98	50-150					
13C3_PFHxS		91	50-150					
13C3-HFPO-DA		106	50-150					
13C4_PFBA		99	50-150					
13C4_PFHpA		97	50-150					
13C5_PFHxA		96	50-150					
13C5_PFPeA		94	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XA26026-002MS

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		102	50-150
13C8_PFOS		106	50-150
13C9_PFNA		96	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		107	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MSD

Sample ID: XA26026-002MD

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9CI-PF3ONS	ND	1900	2000	1		105	9.4	70-150	30	02/01/2022 1355
11CI-PF3OUdS	ND	1900	1700	1		89	5.4	70-150	30	02/01/2022 1355
8:2 FTS	ND	1900	1700	1		90	13	67-138	30	02/01/2022 1355
6:2 FTS	ND	1900	1800	1		97	0.055	64-140	30	02/01/2022 1355
4:2 FTS	ND	1900	1900	1		104	2.1	63-143	30	02/01/2022 1355
GenX	ND	4000	3700	1		93	0.73	70-150	30	02/01/2022 1355
ADONA	ND	1900	2000	1		105	3.7	70-150	30	02/01/2022 1355
EtFOSA	ND	2000	2400	1		119	25	70-150	30	02/01/2022 1355
EtFOSAA	ND	2000	1900	1		96	10	61-135	30	02/01/2022 1355
MeFOSAA	ND	2000	1900	1		94	3.0	65-136	30	02/01/2022 1355
PFBS	ND	1800	1800	1		100	0.51	72-130	30	02/01/2022 1355
PFDS	ND	1900	1800	1		93	0.046	53-142	30	02/01/2022 1355
PFHpS	ND	1900	1900	1		97	14	69-134	30	02/01/2022 1355
PFNS	ND	1900	1900	1		97	22	69-127	30	02/01/2022 1355
PFPeS	ND	1900	1900	1		103	1.9	71-127	30	02/01/2022 1355
PFHxS	ND	1800	1900	1		105	7.4	68-131	30	02/01/2022 1355
PFBA	ND	2000	2000	1		101	1.8	73-129	30	02/01/2022 1355
PFDA	ND	2000	1900	1		97	9.7	71-129	30	02/01/2022 1355
PFDaA	ND	2000	2200	1		108	5.4	72-134	30	02/01/2022 1355
PFHpA	ND	2000	1900	1		96	13	72-130	30	02/01/2022 1355
PFHxA	ND	2000	2000	1		100	5.0	72-129	30	02/01/2022 1355
PFNA	ND	2000	2500	1		126	13	69-130	30	02/01/2022 1355
PFOA	ND	2000	2300	1		116	17	71-133	30	02/01/2022 1355
PFPeA	ND	2000	2000	1		99	8.2	72-129	30	02/01/2022 1355
PFTeDA	ND	2000	2100	1		107	2.1	71-132	30	02/01/2022 1355
PFTrDA	ND	2000	2100	1		105	7.5	65-144	30	02/01/2022 1355
PFUdA	ND	2000	2000	1		100	0.93	69-133	30	02/01/2022 1355
PFOS	ND	1900	1900	1		100	3.4	65-140	30	02/01/2022 1355
Surrogate	Q	% Rec	Acceptance Limit							
13C2_4:2FTS		104	50-150							
13C2_6:2FTS		93	50-150							
13C2_8:2FTS		100	50-150							
13C2_PFDaA		90	50-150							
13C2_PFTeDA		97	50-150							
13C3_PFBs		101	50-150							
13C3_PFHxS		100	50-150							
13C3-HFPO-DA		109	50-150							
13C4_PFBa		99	50-150							
13C4_PFHpA		97	50-150							
13C5_PFHxA		100	50-150							
13C5_PFPeA		105	50-150							

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MSD

Sample ID: XA26026-002MD

Matrix: Aqueous

Batch: 30008

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 01/28/2022 1240

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		101	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		86	50-150
13C8_PFOS		106	50-150
13C9_PFNA		94	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ30706-001

Matrix: Aqueous

Batch: 30706

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/03/2022 1722

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/05/2022 0016
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/05/2022 0016
PFOS	1.1	J	1	4.0	2.0	1.0	ng/L	02/05/2022 0016

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		79	50-150
13C2_6:2FTS		73	50-150
13C2_8:2FTS		82	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA		69	50-150
13C3_PFBs		67	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBa		72	50-150
13C4_PFHpA		72	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		69	50-150

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ30706-001

Matrix: Aqueous

Batch: 30706

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/03/2022 1722

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		71	50-150
13C7_PFUdA		76	50-150
13C8_PFOA		69	50-150
13C8_PFOS		67	50-150
13C9_PFNA		67	50-150
d-EtFOSA		55	50-150
d5-EtFOSAA		68	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30706-002

Matrix: Aqueous

Batch: 30706

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/03/2022 1722

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	17		1	111	70-150	02/05/2022 0027
11CI-PF3OUdS	15	14		1	91	70-150	02/05/2022 0027
8:2 FTS	15	13		1	83	67-138	02/05/2022 0027
6:2 FTS	15	16		1	105	64-140	02/05/2022 0027
4:2 FTS	15	15		1	103	63-143	02/05/2022 0027
GenX	32	31		1	96	70-150	02/05/2022 0027
ADONA	15	17		1	109	70-150	02/05/2022 0027
EtFOSA	16	18		1	112	70-150	02/05/2022 0027
EtFOSAA	16	17		1	109	61-135	02/05/2022 0027
MeFOSAA	16	16		1	100	65-136	02/05/2022 0027
PFBS	14	14		1	102	72-130	02/05/2022 0027
PFDS	15	16		1	103	53-142	02/05/2022 0027
PFHpS	15	16		1	103	69-134	02/05/2022 0027
PFNS	15	16		1	104	69-127	02/05/2022 0027
PFPeS	15	17		1	110	71-127	02/05/2022 0027
PFHxS	15	16		1	109	68-131	02/05/2022 0027
PFBA	16	17		1	108	73-129	02/05/2022 0027
PFDA	16	16		1	102	71-129	02/05/2022 0027
PFDoA	16	19		1	118	72-134	02/05/2022 0027
PFHpA	16	19		1	120	72-130	02/05/2022 0027
PFHxA	16	17		1	109	72-129	02/05/2022 0027
PFNA	16	18		1	109	69-130	02/05/2022 0027
PFOA	16	17		1	105	71-133	02/05/2022 0027
PFPeA	16	18		1	110	72-129	02/05/2022 0027
PFTeDA	16	18		1	109	71-132	02/05/2022 0027
PFTTrDA	16	17		1	106	65-144	02/05/2022 0027
PFUdA	16	17		1	107	69-133	02/05/2022 0027
PFOS	15	16		1	107	65-140	02/05/2022 0027
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		88	50-150				
13C2_6:2FTS		78	50-150				
13C2_8:2FTS		90	50-150				
13C2_PFDoA		73	50-150				
13C2_PFTeDA		72	50-150				
13C3_PFBs		77	50-150				
13C3_PFHxS		86	50-150				
13C3-HFPO-DA		84	50-150				
13C4_PFBa		81	50-150				
13C4_PFHpA		78	50-150				
13C5_PFHxA		77	50-150				
13C5_PFPeA		77	50-150				

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30706-002

Matrix: Aqueous

Batch: 30706

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/03/2022 1722

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		81	50-150
13C7_PFUdA		82	50-150
13C8_PFOA		77	50-150
13C8_PFOS		78	50-150
13C9_PFNA		74	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

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PFAS by LC/MS/MS - MB

Sample ID: XQ30884-001

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1224
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1224
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		102	50-150					
13C2_6:2FTS		137	50-150					
13C2_8:2FTS		113	50-150					
13C2_PFDoA		95	50-150					
13C2_PFTeDA		87	50-150					
13C3_PFBS		100	50-150					
13C3_PFHxS		96	50-150					
13C3-HFPO-DA		102	50-150					
13C4_PFBA		96	50-150					
13C4_PFHpA		101	50-150					
13C5_PFHxA		100	50-150					
13C5_PFPeA		96	50-150					

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MB

Sample ID: XQ30884-001

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		100	50-150
13C8_PFOS		96	50-150
13C9_PFNA		95	50-150
d-EtFOSA		105	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		112	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30884-002

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	102	70-150	02/08/2022 1235
11CI-PF3OUdS	15	14		1	96	70-150	02/08/2022 1235
8:2 FTS	15	14		1	93	67-138	02/08/2022 1235
6:2 FTS	15	14		1	90	64-140	02/08/2022 1235
4:2 FTS	15	14		1	94	63-143	02/08/2022 1235
GenX	32	32		1	100	70-150	02/08/2022 1235
ADONA	15	16		1	107	70-150	02/08/2022 1235
EtFOSA	16	14		1	89	70-150	02/08/2022 1235
EtFOSAA	16	15		1	93	61-135	02/08/2022 1235
MeFOSAA	16	13		1	82	65-136	02/08/2022 1235
PFBS	14	13		1	93	72-130	02/08/2022 1235
PFDS	15	15		1	98	53-142	02/08/2022 1235
PFHpS	15	17		1	114	69-134	02/08/2022 1235
PFNS	15	16		1	103	69-127	02/08/2022 1235
PFPeS	15	14		1	92	71-127	02/08/2022 1235
PFHxS	15	17		1	116	68-131	02/08/2022 1235
PFBA	16	16		1	100	73-129	02/08/2022 1235
PFDA	16	16		1	102	71-129	02/08/2022 1235
PFDaA	16	16		1	102	72-134	02/08/2022 1235
PFHpA	16	16		1	99	72-130	02/08/2022 1235
PFHxA	16	16		1	98	72-129	02/08/2022 1235
PFNA	16	16		1	101	69-130	02/08/2022 1235
PFOA	16	16		1	100	71-133	02/08/2022 1235
PFPeA	16	16		1	99	72-129	02/08/2022 1235
PFTeDA	16	16		1	103	71-132	02/08/2022 1235
PFTTrDA	16	15		1	94	65-144	02/08/2022 1235
PFUdA	16	17		1	107	69-133	02/08/2022 1235
PFOS	15	15		1	103	65-140	02/08/2022 1235
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		98	50-150				
13C2_6:2FTS		133	50-150				
13C2_8:2FTS		110	50-150				
13C2_PFDaA		92	50-150				
13C2_PFTeDA		77	50-150				
13C3_PFBS		104	50-150				
13C3_PFHxS		96	50-150				
13C3-HFPO-DA		105	50-150				
13C4_PFBA		98	50-150				
13C4_PFHpA		103	50-150				
13C5_PFHxA		98	50-150				
13C5_PFPeA		98	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30884-002

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		101	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		102	50-150
13C8_PFOS		96	50-150
13C9_PFNA		98	50-150
d-EtFOSA		111	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		111	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - Duplicate

Sample ID: XA26026-011DU

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9CI-PF3ONS	ND	ND		1	0.00	20	02/08/2022 1351
11CI-PF3OUdS	ND	ND		1	0.00	20	02/08/2022 1351
8:2 FTS	ND	ND		1	0.00	20	02/08/2022 1351
6:2 FTS	ND	ND		1	0.00	20	02/08/2022 1351
4:2 FTS	ND	ND		1	0.00	20	02/08/2022 1351
GenX	ND	ND		1	0.00	20	02/08/2022 1351
ADONA	ND	ND		1	0.00	20	02/08/2022 1351
EtFOSA	ND	ND		1	0.00	20	02/08/2022 1351
EtFOSAA	ND	ND		1	0.00	20	02/08/2022 1351
MeFOSAA	ND	ND		1	0.00	20	02/08/2022 1351
PFBS	ND	ND		1	0.00	20	02/08/2022 1351
PFDS	ND	ND		1	0.00	20	02/08/2022 1351
PFHpS	ND	ND		1	0.00	20	02/08/2022 1351
PFNS	ND	ND		1	0.00	20	02/08/2022 1351
PFPeS	ND	ND		1	0.00	20	02/08/2022 1351
PFHxS	5.5	5.6		1	0.48	20	02/08/2022 1351
PFBA	8.9	9.1		1	2.2	20	02/08/2022 1351
PFDA	ND	ND		1	0.00	20	02/08/2022 1351
PFDaA	ND	ND		1	0.00	20	02/08/2022 1351
PFHpA	ND	0.94	J	1	6.6	20	02/08/2022 1351
PFHxA	1.4	1.7	J	1	15	20	02/08/2022 1351
PFNA	ND	ND		1	0.00	20	02/08/2022 1351
PFOA	2.1	2.0	J	1	5.2	20	02/08/2022 1351
PFPeA	1.7	1.8	J	1	6.5	20	02/08/2022 1351
PFTeDA	ND	ND		1	0.00	20	02/08/2022 1351
PFTTrDA	ND	ND		1	0.00	20	02/08/2022 1351
PFUdA	ND	ND		1	0.00	20	02/08/2022 1351
PFOS	8.3	8.4		1	0.78	20	02/08/2022 1351
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		132	50-150				
13C2_6:2FTS	N	156	50-150				
13C2_8:2FTS		116	50-150				
13C2_PFDaA		86	50-150				
13C2_PFTeDA		63	50-150				
13C3_PFBs		104	50-150				
13C3_PFHxS		95	50-150				
13C3-HFPO-DA		105	50-150				
13C4_PFBa		93	50-150				
13C4_PFHpA		99	50-150				
13C5_PFHxA		97	50-150				
13C5_PFPeA		97	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID: XA26026-011DU

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		98	50-150
13C8_PFOS		97	50-150
13C9_PFNA		96	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XA26026-013MS

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	14	13		1	87	70-150	02/08/2022 1424
11CI-PF3OUdS	ND	15	6.6	N	1	45	70-150	02/08/2022 1424
8:2 FTS	ND	15	15		1	102	67-138	02/08/2022 1424
6:2 FTS	100	15	15	N	1	-583	64-140	02/08/2022 1424
4:2 FTS	ND	14	13		1	88	63-143	02/08/2022 1424
GenX	ND	31	30		1	96	70-150	02/08/2022 1424
ADONA	ND	15	16		1	110	70-150	02/08/2022 1424
EtFOSA	ND	16	11		1	72	70-150	02/08/2022 1424
EtFOSAA	ND	16	16		1	104	61-135	02/08/2022 1424
MeFOSAA	ND	16	13		1	81	65-136	02/08/2022 1424
PFBS	ND	14	14		1	99	72-130	02/08/2022 1424
PFDS	ND	15	8.3		1	56	53-142	02/08/2022 1424
PFHpS	ND	15	17		1	118	69-134	02/08/2022 1424
PFNS	ND	15	11		1	76	69-127	02/08/2022 1424
PFPeS	ND	15	16		1	113	71-127	02/08/2022 1424
PFHxS	ND	14	15		1	108	68-131	02/08/2022 1424
PFBA	ND	16	16		1	101	73-129	02/08/2022 1424
PFDA	ND	16	16		1	102	71-129	02/08/2022 1424
PFDoA	ND	16	15		1	94	72-134	02/08/2022 1424
PFHpA	ND	16	14		1	93	72-130	02/08/2022 1424
PFHxA	ND	16	15		1	99	72-129	02/08/2022 1424
PFNA	ND	16	15		1	99	69-130	02/08/2022 1424
PFOA	ND	16	16		1	102	71-133	02/08/2022 1424
PFPeA	1.1	16	16		1	97	72-129	02/08/2022 1424
PFTeDA	ND	16	15		1	100	71-132	02/08/2022 1424
PFTTrDA	ND	16	8.5	N	1	55	65-144	02/08/2022 1424
PFUdA	ND	16	15		1	99	69-133	02/08/2022 1424
PFOS	1.9	14	14		1	85	65-140	02/08/2022 1424

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	204	50-150
13C2_6:2FTS		142	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA	N	40	50-150
13C2_PFTeDA	N	13	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA	N	36	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		67	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XA26026-013MS

Matrix: Aqueous

Batch: 30884

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/06/2022 1400

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		85	50-150
13C7_PFUdA		61	50-150
13C8_PFOA		93	50-150
13C8_PFOS		88	50-150
13C9_PFNA		93	50-150
d-EtFOSA	N	18	50-150
d5-EtFOSAA		55	50-150
d3-MeFOSAA		75	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MB

Sample ID: XQ30886-001

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/08/2022 1717
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	02/08/2022 1717

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		85	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		83	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		83	50-150
13C4_PFHpA		78	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		81	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ30886-001

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		81	50-150
13C8_PFOA		78	50-150
13C8_PFOS		92	50-150
13C9_PFNA		73	50-150
d-EtFOSA		89	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30886-002

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	14		1	94	70-150	02/08/2022 1727
11CI-PF3OUdS	15	12		1	78	70-150	02/08/2022 1727
8:2 FTS	15	11		1	74	67-138	02/08/2022 1727
6:2 FTS	15	13		1	89	64-140	02/08/2022 1727
4:2 FTS	15	14		1	94	63-143	02/08/2022 1727
GenX	32	28		1	89	70-150	02/08/2022 1727
ADONA	15	16		1	104	70-150	02/08/2022 1727
EtFOSA	16	16		1	99	70-150	02/08/2022 1727
EtFOSAA	16	17		1	107	61-135	02/08/2022 1727
MeFOSAA	16	13		1	84	65-136	02/08/2022 1727
PFBS	14	14		1	96	72-130	02/08/2022 1727
PFDS	15	12		1	78	53-142	02/08/2022 1727
PFHpS	15	15		1	100	69-134	02/08/2022 1727
PFNS	15	13		1	86	69-127	02/08/2022 1727
PFPeS	15	14		1	94	71-127	02/08/2022 1727
PFHxS	15	13		1	87	68-131	02/08/2022 1727
PFBA	16	15		1	96	73-129	02/08/2022 1727
PFDA	16	14		1	91	71-129	02/08/2022 1727
PFDoA	16	14		1	88	72-134	02/08/2022 1727
PFHpA	16	16		1	100	72-130	02/08/2022 1727
PFHxA	16	16		1	100	72-129	02/08/2022 1727
PFNA	16	15		1	95	69-130	02/08/2022 1727
PFOA	16	16		1	103	71-133	02/08/2022 1727
PFPeA	16	16		1	99	72-129	02/08/2022 1727
PFTeDA	16	16		1	103	71-132	02/08/2022 1727
PFTTrDA	16	14		1	85	65-144	02/08/2022 1727
PFUdA	16	14		1	87	69-133	02/08/2022 1727
PFOS	15	12		1	83	65-140	02/08/2022 1727
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		87	50-150				
13C2_6:2FTS		87	50-150				
13C2_8:2FTS		100	50-150				
13C2_PFDoA		85	50-150				
13C2_PFTeDA		69	50-150				
13C3_PFBS		82	50-150				
13C3_PFHxS		83	50-150				
13C3-HFPO-DA		91	50-150				
13C4_PFBA		84	50-150				
13C4_PFHpA		75	50-150				
13C5_PFHxA		81	50-150				
13C5_PFPeA		83	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: XQ30886-002

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		87	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		79	50-150
13C8_PFOS		98	50-150
13C9_PFNA		77	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MS

Sample ID: XA26026-015MS

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	14	11		1	84	70-150	02/08/2022 1759
11CI-PF3OUdS	ND	14	10		1	76	70-150	02/08/2022 1759
8:2 FTS	ND	14	11		1	78	67-138	02/08/2022 1759
6:2 FTS	ND	14	15		1	112	64-140	02/08/2022 1759
4:2 FTS	ND	14	12		1	90	63-143	02/08/2022 1759
GenX	ND	29	28		1	95	70-150	02/08/2022 1759
ADONA	ND	14	14		1	100	70-150	02/08/2022 1759
EtFOSA	ND	15	16		1	110	70-150	02/08/2022 1759
EtFOSAA	ND	15	14		1	94	61-135	02/08/2022 1759
MeFOSAA	ND	15	12		1	86	65-136	02/08/2022 1759
PFBS	18	13	30		1	90	72-130	02/08/2022 1759
PFDS	ND	14	11		1	76	53-142	02/08/2022 1759
PFHpS	3.2	14	18		1	106	69-134	02/08/2022 1759
PFNS	ND	14	11		1	76	69-127	02/08/2022 1759
PFPeS	19	14	34		1	108	71-127	02/08/2022 1759
PFHxS	140	13	160		1	119	68-131	02/08/2022 1759
PFBA	34	15	49		1	101	73-129	02/08/2022 1759
PFDA	ND	15	15		1	106	71-129	02/08/2022 1759
PFDoA	ND	15	15		1	105	72-134	02/08/2022 1759
PFHpA	11	15	25		1	96	72-130	02/08/2022 1759
PFHxA	23	15	35		1	84	72-129	02/08/2022 1759
PFNA	ND	15	14		1	97	69-130	02/08/2022 1759
PFOA	16	15	27		1	80	71-133	02/08/2022 1759
PFPeA	20	15	37		1	120	72-129	02/08/2022 1759
PFTeDA	ND	15	15		1	102	71-132	02/08/2022 1759
PFTTrDA	ND	15	14		1	99	65-144	02/08/2022 1759
PFUdA	ND	15	13		1	88	69-133	02/08/2022 1759
PFOS	15	13	25		1	74	65-140	02/08/2022 1759
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS	N	165	50-150					
13C2_6:2FTS		118	50-150					
13C2_8:2FTS		98	50-150					
13C2_PFDoA		67	50-150					
13C2_PFTeDA		67	50-150					
13C3_PFBs		75	50-150					
13C3_PFHxS		79	50-150					
13C3-HFPO-DA		76	50-150					
13C4_PFBA	N	47	50-150					
13C4_PFHpA		74	50-150					
13C5_PFHxA		76	50-150					
13C5_PFPeA		69	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XA26026-015MS

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		85	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		78	50-150
13C8_PFOS		90	50-150
13C9_PFNA		80	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MSD

Sample ID: XA26026-015MD

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9CI-PF3ONS	ND	13	13		1	100	13	70-150	30	02/08/2022 1809
11CI-PF3OUdS	ND	13	12		1	89	12	70-150	30	02/08/2022 1809
8:2 FTS	ND	13	13		1	95	16	67-138	30	02/08/2022 1809
6:2 FTS	ND	13	12		1	92	23	64-140	30	02/08/2022 1809
4:2 FTS	ND	13	11		1	86	8.0	63-143	30	02/08/2022 1809
GenX	ND	28	29		1	103	4.2	70-150	30	02/08/2022 1809
ADONA	ND	13	14		1	105	0.86	70-150	30	02/08/2022 1809
EtFOSA	ND	14	16		1	112	2.3	70-150	30	02/08/2022 1809
EtFOSAA	ND	14	14		1	100	2.3	61-135	30	02/08/2022 1809
MeFOSAA	ND	14	11		1	81	9.4	65-136	30	02/08/2022 1809
PFBS	18	12	30		1	98	2.0	72-130	30	02/08/2022 1809
PFDS	ND	14	15	+	1	114	36	53-142	30	02/08/2022 1809
PFHpS	3.2	13	17		1	105	3.6	69-134	30	02/08/2022 1809
PFNS	ND	13	14		1	106	29	69-127	30	02/08/2022 1809
PFPeS	19	13	33		1	107	2.1	71-127	30	02/08/2022 1809
PFHxS	140	13	160		1	123	0.053	68-131	30	02/08/2022 1809
PFBA	34	14	49		1	105	0.11	73-129	30	02/08/2022 1809
PFDA	ND	14	14		1	99	10	71-129	30	02/08/2022 1809
PFDaA	ND	14	15		1	104	4.9	72-134	30	02/08/2022 1809
PFHpA	11	14	25		1	100	0.57	72-130	30	02/08/2022 1809
PFHxA	23	14	35		1	88	0.34	72-129	30	02/08/2022 1809
PFNA	ND	14	14		1	101	0.31	69-130	30	02/08/2022 1809
PFOA	16	14	28		1	90	3.8	71-133	30	02/08/2022 1809
PFPeA	20	14	35		1	110	5.6	72-129	30	02/08/2022 1809
PFTeDA	ND	14	15		1	109	3.7	71-132	30	02/08/2022 1809
PFTrDA	ND	14	13		1	93	9.9	65-144	30	02/08/2022 1809
PFUdA	ND	14	14		1	103	12	69-133	30	02/08/2022 1809
PFOS	15	13	27		1	93	7.9	65-140	30	02/08/2022 1809
Surrogate	Q	% Rec	Acceptance Limit							
13C2_4:2FTS	N	178	50-150							
13C2_6:2FTS		116	50-150							
13C2_8:2FTS		92	50-150							
13C2_PFDaA		70	50-150							
13C2_PFTeDA		65	50-150							
13C3_PFBs		73	50-150							
13C3_PFHxS		74	50-150							
13C3-HFPO-DA		71	50-150							
13C4_PFBa	N	46	50-150							
13C4_PFHpA		71	50-150							
13C5_PFHxA		79	50-150							
13C5_PFPeA		71	50-150							

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MSD

Sample ID: XA26026-015MD

Matrix: Aqueous

Batch: 30886

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/07/2022 1136

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		80	50-150
13C7_PFUdA		78	50-150
13C8_PFOA		75	50-150
13C8_PFOS		78	50-150
13C9_PFNA		72	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ31209-001

Matrix: Aqueous

Batch: 31209

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/09/2022 1035

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	02/11/2022 1201
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	02/11/2022 1201
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		102	50-150					
13C2_6:2FTS		131	50-150					
13C2_8:2FTS		108	50-150					
13C2_PFDoA		88	50-150					
13C2_PFTeDA		97	50-150					
13C3_PFBS		101	50-150					
13C3_PFHxS		99	50-150					
13C3-HFPO-DA		106	50-150					
13C4_PFBA		98	50-150					
13C4_PFHpA		92	50-150					
13C5_PFHxA		94	50-150					
13C5_PFPeA		94	50-150					

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ31209-001

Matrix: Aqueous

Batch: 31209

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/09/2022 1035

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		101	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		103	50-150
13C8_PFOS		98	50-150
13C9_PFNA		103	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		113	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: XQ31209-002

Matrix: Aqueous

Batch: 31209

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/09/2022 1035

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	98	70-150	02/11/2022 1211
11CI-PF3OUdS	15	14		1	96	70-150	02/11/2022 1211
8:2 FTS	15	16		1	105	67-138	02/11/2022 1211
6:2 FTS	15	15		1	97	64-140	02/11/2022 1211
4:2 FTS	15	14		1	95	63-143	02/11/2022 1211
GenX	32	33		1	102	70-150	02/11/2022 1211
ADONA	15	17		1	112	70-150	02/11/2022 1211
EtFOSA	16	16		1	100	70-150	02/11/2022 1211
EtFOSAA	16	15		1	96	61-135	02/11/2022 1211
MeFOSAA	16	13		1	83	65-136	02/11/2022 1211
PFBS	14	14		1	102	72-130	02/11/2022 1211
PFDS	15	15		1	98	53-142	02/11/2022 1211
PFHpS	15	17		1	109	69-134	02/11/2022 1211
PFNS	15	17		1	113	69-127	02/11/2022 1211
PFPeS	15	15		1	98	71-127	02/11/2022 1211
PFHxS	15	15		1	103	68-131	02/11/2022 1211
PFBA	16	16		1	98	73-129	02/11/2022 1211
PFDA	16	15		1	94	71-129	02/11/2022 1211
PFDaA	16	16		1	101	72-134	02/11/2022 1211
PFHpA	16	16		1	103	72-130	02/11/2022 1211
PFHxA	16	15		1	97	72-129	02/11/2022 1211
PFNA	16	15		1	94	69-130	02/11/2022 1211
PFOA	16	16		1	101	71-133	02/11/2022 1211
PFPeA	16	16		1	101	72-129	02/11/2022 1211
PFTeDA	16	16		1	97	71-132	02/11/2022 1211
PFTTrDA	16	15		1	91	65-144	02/11/2022 1211
PFUdA	16	16		1	103	69-133	02/11/2022 1211
PFOS	15	15		1	104	65-140	02/11/2022 1211
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		100	50-150				
13C2_6:2FTS		115	50-150				
13C2_8:2FTS		104	50-150				
13C2_PFDaA		86	50-150				
13C2_PFTeDA		90	50-150				
13C3_PFBS		95	50-150				
13C3_PFHxS		90	50-150				
13C3-HFPO-DA		105	50-150				
13C4_PFBA		93	50-150				
13C4_PFHpA		91	50-150				
13C5_PFHxA		95	50-150				
13C5_PFPeA		94	50-150				

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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PFAS by LC/MS/MS - LCS

Sample ID: XQ31209-002

Matrix: Aqueous

Batch: 31209

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 02/09/2022 1035

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		103	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		100	50-150
13C8_PFOS		91	50-150
13C9_PFNA		97	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		113	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ33521-001

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/03/2022 0941
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/03/2022 0941
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		99	50-150					
13C2_6:2FTS		97	50-150					
13C2_8:2FTS		98	50-150					
13C2_PFDoA		81	50-150					
13C2_PFTeDA		71	50-150					
13C3_PFBS		78	50-150					
13C3_PFHxS		79	50-150					
13C3-HFPO-DA		91	50-150					
13C4_PFBA		86	50-150					
13C4_PFHpA		83	50-150					
13C5_PFHxA		86	50-150					
13C5_PFPeA		87	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: XQ33521-001

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		90	50-150
13C7_PFUdA		81	50-150
13C8_PFOA		86	50-150
13C8_PFOS		87	50-150
13C9_PFNA		82	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: XQ33521-002

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	103	70-150	03/03/2022 0951
11CI-PF3OUdS	15	14		1	91	70-150	03/03/2022 0951
8:2 FTS	15	12		1	76	67-138	03/03/2022 0951
6:2 FTS	15	14		1	95	64-140	03/03/2022 0951
4:2 FTS	15	15		1	103	63-143	03/03/2022 0951
GenX	32	29		1	91	70-150	03/03/2022 0951
ADONA	15	16		1	104	70-150	03/03/2022 0951
EtFOSA	16	17		1	107	70-150	03/03/2022 0951
EtFOSAA	16	15		1	91	61-135	03/03/2022 0951
MeFOSAA	16	14		1	89	65-136	03/03/2022 0951
PFBS	14	14		1	98	72-130	03/03/2022 0951
PFDS	15	16		1	101	53-142	03/03/2022 0951
PFHpS	15	16		1	106	69-134	03/03/2022 0951
PFNS	15	14		1	89	69-127	03/03/2022 0951
PFPeS	15	15		1	103	71-127	03/03/2022 0951
PFHxS	15	16		1	107	68-131	03/03/2022 0951
PFBA	16	15		1	95	73-129	03/03/2022 0951
PFDA	16	15		1	93	71-129	03/03/2022 0951
PFDoA	16	14		1	86	72-134	03/03/2022 0951
PFHpA	16	16		1	97	72-130	03/03/2022 0951
PFHxA	16	16		1	100	72-129	03/03/2022 0951
PFNA	16	15		1	97	69-130	03/03/2022 0951
PFOA	16	16		1	102	71-133	03/03/2022 0951
PFPeA	16	17		1	105	72-129	03/03/2022 0951
PFTeDA	16	16		1	99	71-132	03/03/2022 0951
PFTTrDA	16	14		1	86	65-144	03/03/2022 0951
PFUdA	16	17		1	105	69-133	03/03/2022 0951
PFOS	15	16		1	105	65-140	03/03/2022 0951
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		97	50-150				
13C2_6:2FTS		103	50-150				
13C2_8:2FTS		107	50-150				
13C2_PFDoA		94	50-150				
13C2_PFTeDA		78	50-150				
13C3_PFBS		76	50-150				
13C3_PFHxS		77	50-150				
13C3-HFPO-DA		83	50-150				
13C4_PFBA		84	50-150				
13C4_PFHpA		93	50-150				
13C5_PFHxA		82	50-150				
13C5_PFPeA		83	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: XQ33521-002

Matrix: Aqueous

Batch: 33521

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/02/2022 1700

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		79	50-150
13C8_PFOA		85	50-150
13C8_PFOS		88	50-150
13C9_PFNA		78	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents

CHAIN OF CUSTODY

NUMBER No. 2560

PAGE 1 OF 2

PROJECT NO. 12709581

FACILITY: KSL-F53

LABORATORY NAME AND CONTACT: PACE Analytical - Kathy Smith

PROJECT MANAGER: Mark Somack
 FIELD OPERATIONS LEADER: Chuck Sorden
 CARRIER/WAYBILL NUMBER: 106 Vantage Point Dr. West Columbia, SC

PHONE NUMBER: (412) 421-8622
 PHONE NUMBER: (301) 591-7580

CONTAINER TYPE: PLASTIC (P) or GLASS (G)
 PRESERVATIVE USED: NONE

NO. OF CONTAINERS: 2
 COLLECTION METHOD: G
 MATRIX (GW, SO, SW, SD, QC, ETC): GW
 BOTTOM DEPTH (FT): 7
 TOP DEPTH (FT): 3

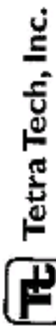
STANDARD TAT: 24 hr. 48 hr. 72 hr. 14 day

DATE	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC)	COLLECTION METHOD	GRAB (G) COMP (C)	NO. OF CONTAINERS	COMMENTS
01/24	12:00	F53-DPT001-015-0-20220124	02	3	GW	G	1	2	
01/25	12:25	F53-DPT001-012-0-20220124	02	10	GW	G	1	1	
01/25	12:55	F53-DPT001-025-0-20220124	02	23	GW	G	1	1	
01/25	14:00	F53-DPT001-035-0-20220124	02	33	GW	G	1	1	
01/25	15:00	F53-DPT001-045-0-20220124	02	43	GW	G	1	1	
01/25	15:05	F53-FB-20220124-01	-	-	QC				
01/25	15:35	F53-DPT001-054-0-20220124	02	52	GW	G	1	1	
01/25	08:00	F53-DPT002-005-0-20220125	05	3	GW	G	1	1	
01/25	08:25	F53-DPT002-012-0-20220125	05	10	GW	G	1	1	
01/25	08:50	F53-EG-20220125-01	-	-	QC				
01/25	08:55	F53-DPT002-025-0-20220125	05	23	GW	G	1	1	
01/25	09:25	F53-DPT002-035-0-20220125	05	33	GW	G	1	1	
01/25	10:15	F53-DPT002-045-0-20220125	05	43	GW	G	1	2	
1. RELINQUISHED BY: [Signature] DATE: 01/25/22 TIME: 1630									
2. RELINQUISHED BY: Fed Ex DATE: 01/25/22 TIME: 1630									
3. RELINQUISHED BY: Fed Ex DATE: 01/25/22 TIME: 1630									

COMMENTS: T=1.32, 2.90

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

FORM NO. TINUS-001



Tetra Tech, Inc.

CHAIN OF CUSTODY

NUMBER No. 2561

1

PAGE 2 OF 2

PROJECT NO: 122604581 SAMPLERS (SIGNATURE): <i>[Signature]</i> FACILITY: FSC-FS3 PROJECT MANAGER: Mark Sommer FIELD OPERATIONS LEADER: Chuck Sarden CARRIERWAYBILL NUMBER:		LABORATORY NAME AND CONTACT: PACE Analytical - Kathy Smith ADDRESS: 106 Vantage Point Dr CITY, STATE: West Columbia, SC										
PHONE NUMBER: (412) 921-8632 PHONE NUMBER: (321) 591-7580		NO. OF CONTAINERS: 2 CONTAINER TYPE: PLASTIC (P) or GLASS (G): P PRESERVATIVE USED: none										
STANDARD TAT: <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 14 day RUSH TAT: <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 14 day		THEOFANOUS XA26026 KES2										
DATE	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC)	COLLECTION METHOD	GRAB (G) COMP (G)	NO. OF CONTAINERS	RECEIVED BY	DATE	TIME	COMMENTS
12/26/2022	1100	F53-DP0003-054.0-20220125	05	52	GW	G	2	X		01/25/22	1630	
	1220	F53-DP0003-055.0-20220125	08	3			1	6				MS/PSO Collected
	1245	F53-DP0003-012.0-20220125	08	10			1	2				
	1310	F53-DP0003-045.0-20220125	08	23			1	1				
	1335	F53-DP0003-035.0-20220125	08	33			1	1				
	1410	F53-DP0003-015.0-20220125	08	43			1	1				
	1450	F53-DP0003-054.0-20220125	08	52	GW	G	1	1				
	1500	F53-FB-20220125-01			QC		1	1				
	0800	F53-FD-20220125-01					1	1				
	05000	F53-FD-20220125-02			QC	G	2	X				
1. RELINQUISHED BY: <i>[Signature]</i> 2. RELINQUISHED BY: FedEx 3. RELINQUISHED BY: FedEx										DATE	TIME	COMMENTS
										01/25/22	1630	
										01/25/22	1630	
										01/25/22	1630	

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

FORM NO. TNLUS-001



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech Cooler Inspected by/date: JS11 / 01/26/2022 Lot #: XA26026

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>NA</u> Chlorine Strip ID: <u>NA</u> Tested by: <u>NA</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: <u>NA</u>	
<u>1.3 / 1.3</u> °C <u>2.9 / 2.9</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # <u>34792</u>
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # <u>NA</u>	
Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.	
Sample(s) <u>NA</u> were received with bubbles >6 mm in diameter.	
Sample(s) <u>NA</u> were received with TRC > 0.5 mg/L (if #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: <u>NA</u>	
SR barcode labels applied by: <u>JS11</u> Date: <u>01/26/2022</u>	

Comments: Excess: FS3-EB-20220125-02 (2-250ml) 1/25 @ 1140



Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-FS3
Project Number: 112G09581
Lot Number: **XC11022**
Date Completed: 04/04/2022

Kathy Smith

04/05/2022 12:20 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**



The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Tetra Tech Lot Number: XC11022

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

$$CF = DF * FV / Vo$$

FV is volume of extract (mL)

Vo is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:

Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{A_s \times C_{is}}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

For samples XC11022-002, XC11022-004, XC11022-006, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Samples XC11022-010 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: XC11022-001, XC11022-002, XC11022-003, XC11022-004, XC11022-005, XC11022-006, XC11022-007, XC11022-008, XC11022-009, XC11022-010. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The method blank associated with batch 36434 had 6:2 FTS detected at a concentration that was above the MDL. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "B".

The MS/MSD associated with sample XC11022-005 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XC11022

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3-SW0001-000.5-20220308	Aqueous	03/08/2022 1055	03/11/2022
002	FS3-SW0002-000.5-20220308	Aqueous	03/08/2022 1150	03/11/2022
003	FS3-SW0003-000.5-20220308	Aqueous	03/08/2022 1245	03/11/2022
004	FS3-SW0004-000.5-20220308	Aqueous	03/08/2022 1315	03/11/2022
005	FS3-SW0005-000.5-20220308	Aqueous	03/08/2022 1340	03/11/2022
006	FS3-SW0006-000.5-20220308	Aqueous	03/08/2022 1420	03/11/2022
007	FS3-SW0007-000.5-20220308	Aqueous	03/08/2022 1455	03/11/2022
008	FS3-EB-20220308-01	Aqueous	03/08/2022 1505	03/11/2022
009	FS3-FB-20220308-01	Aqueous	03/08/2022 1510	03/11/2022
010	FS3-FD-20220308-01	Aqueous	03/08/2022	03/11/2022

(10 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: XC11022

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	FS3-SW0001-000.5-20220308	Aqueous	6:2 FTS	PFAS by ID	2.8	IQ	ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFBS	PFAS by ID	8.7		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFHpS	PFAS by ID	1.7	I	ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFPeS	PFAS by ID	11		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFHxS	PFAS by ID	100		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFBA	PFAS by ID	16	Q	ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFHpA	PFAS by ID	18		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFHxA	PFAS by ID	34		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFNA	PFAS by ID	1.6	I	ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFOA	PFAS by ID	9.3		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFPeA	PFAS by ID	31		ng/L	11
001	FS3-SW0001-000.5-20220308	Aqueous	PFOS	PFAS by ID	37		ng/L	11
002	FS3-SW0002-000.5-20220308	Aqueous	PFBS	PFAS by ID	3.8		ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFPeS	PFAS by ID	2.8	I	ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFHxS	PFAS by ID	23		ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFBA	PFAS by ID	27	Q	ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFHpA	PFAS by ID	9.6		ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFHxA	PFAS by ID	11		ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFNA	PFAS by ID	1.9	I	ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFOA	PFAS by ID	10		ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFPeA	PFAS by ID	11		ng/L	13
002	FS3-SW0002-000.5-20220308	Aqueous	PFOS	PFAS by ID	21		ng/L	13
003	FS3-SW0003-000.5-20220308	Aqueous	PFBS	PFAS by ID	4.6		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFHpS	PFAS by ID	2.5	I	ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFNS	PFAS by ID	0.89	I	ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFPeS	PFAS by ID	4.5		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFHxS	PFAS by ID	53		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFBA	PFAS by ID	13	Q	ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFDA	PFAS by ID	1.1	I	ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFHpA	PFAS by ID	6.2		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFHxA	PFAS by ID	9.1		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFNA	PFAS by ID	2.4	I	ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFOA	PFAS by ID	7.5		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFPeA	PFAS by ID	7.4		ng/L	15
003	FS3-SW0003-000.5-20220308	Aqueous	PFOS	PFAS by ID	220		ng/L	15
004	FS3-SW0004-000.5-20220308	Aqueous	6:2 FTS	PFAS by ID	13	Q	ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFBS	PFAS by ID	26		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFHpS	PFAS by ID	32		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFPeS	PFAS by ID	49		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFHxS	PFAS by ID	730	D	ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFBA	PFAS by ID	39	Q	ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFDA	PFAS by ID	1.8	I	ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFHpA	PFAS by ID	93		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFHxA	PFAS by ID	100		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFNA	PFAS by ID	17		ng/L	17

Detection Summary (Continued)

Lot Number: XC11022

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	FS3-SW0004-000.5-20220308	Aqueous	PFOA	PFAS by ID	64		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFPeA	PFAS by ID	110		ng/L	17
004	FS3-SW0004-000.5-20220308	Aqueous	PFOS	PFAS by ID	1800	D	ng/L	17
005	FS3-SW0005-000.5-20220308	Aqueous	8:2 FTS	PFAS by ID	5.6	I	ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	6:2 FTS	PFAS by ID	9.1	Q	ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFPeS	PFAS by ID	1.1	I	ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFHxS	PFAS by ID	13		ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFBA	PFAS by ID	5.1	S	ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFDA	PFAS by ID	0.89	I	ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFHpA	PFAS by ID	4.6		ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFHxA	PFAS by ID	9.6		ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFNA	PFAS by ID	1.5	I	ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFOA	PFAS by ID	4.5		ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFPeA	PFAS by ID	8.7		ng/L	19
005	FS3-SW0005-000.5-20220308	Aqueous	PFOS	PFAS by ID	40		ng/L	19
006	FS3-SW0006-000.5-20220308	Aqueous	PFBS	PFAS by ID	7.7	I	ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFPeS	PFAS by ID	6.0	I	ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFHxS	PFAS by ID	34		ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFBA	PFAS by ID	46	Q	ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFHpA	PFAS by ID	11		ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFHxA	PFAS by ID	13		ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFNA	PFAS by ID	2.9	I	ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFOA	PFAS by ID	14		ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFPeA	PFAS by ID	13		ng/L	21
006	FS3-SW0006-000.5-20220308	Aqueous	PFOS	PFAS by ID	40		ng/L	21
007	FS3-SW0007-000.5-20220308	Aqueous	PFBS	PFAS by ID	4.3		ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFPeS	PFAS by ID	3.1	I	ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFHxS	PFAS by ID	23		ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFBA	PFAS by ID	29	Q	ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFHpA	PFAS by ID	6.2		ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFHxA	PFAS by ID	9.0		ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFNA	PFAS by ID	1.4	I	ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFOA	PFAS by ID	7.8		ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFPeA	PFAS by ID	8.3		ng/L	23
007	FS3-SW0007-000.5-20220308	Aqueous	PFOS	PFAS by ID	20		ng/L	23
010	FS3-FD-20220308-01	Aqueous	6:2 FTS	PFAS by ID	2.9	IQ	ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFBS	PFAS by ID	8.7		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFHpS	PFAS by ID	1.6	I	ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFPeS	PFAS by ID	11		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFHxS	PFAS by ID	97		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFBA	PFAS by ID	16	Q	ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFHpA	PFAS by ID	17		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFHxA	PFAS by ID	32		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFNA	PFAS by ID	1.5	I	ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFOA	PFAS by ID	9.4		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFPeA	PFAS by ID	30		ng/L	29
010	FS3-FD-20220308-01	Aqueous	PFOS	PFAS by ID	36		ng/L	29

Detection Summary (Continued)

Lot Number: XC11022

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
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(92 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-001
Description: FS3-SW0001-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1055	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/23/2022 2255	ASD	03/22/2022 1344	35676

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2.8	IQ	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	8.7		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.7	I	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	100		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	16	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	18		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	34		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.6	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.3		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	31		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	37		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	245	50-150
13C2_6:2FTS	N	205	50-150
13C2_8:2FTS	N	156	50-150
13C2_PFDa		96	50-150
13C2_PFTeDA		51	50-150
13C3_PFBs		82	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		79	50-150
13C4_PFBa	N	33	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		63	50-150
13C6_PFDa		105	50-150
13C7_PFUdA		101	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-001
Description: FS3-SW0001-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1055	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		106	50-150
13C9_PFNA		109	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		113	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-002
Description: FS3-SW0002-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1150	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/23/2022 2306	ASD	03/22/2022 1344	35676

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	3.8		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	23		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	27	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	9.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	21		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	247	50-150
13C2_6:2FTS	N	238	50-150
13C2_8:2FTS	N	179	50-150
13C2_PFDa		104	50-150
13C2_PFTeDA		79	50-150
13C3_PFBs		87	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBa	N	31	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		63	50-150
13C6_PFDa		113	50-150
13C7_PFUdA		107	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-002
Description: FS3-SW0002-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1150	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	50-150
13C8_PFOS		110	50-150
13C9_PFNA		115	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		119	50-150
d3-MeFOSAA		118	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-003
Description: FS3-SW0003-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1245	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/23/2022 2317	ASD	03/22/2022 1344	35676

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	4.6		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.5	I	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.89	I	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	4.5		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	53		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	13	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.1	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.2		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.1		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.4	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.5		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	7.4		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	220		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	257	50-150
13C2_6:2FTS	N	206	50-150
13C2_8:2FTS	N	153	50-150
13C2_PFDa		101	50-150
13C2_PFTeDA		69	50-150
13C3_PFBs		94	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBa	N	42	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		74	50-150
13C6_PFDa		109	50-150
13C7_PFUdA		103	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-003
Description: FS3-SW0003-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1245	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		112	50-150
13C9_PFNA		112	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-004
Description: FS3-SW0004-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1315	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/23/2022 2328	ASD	03/22/2022 1344	35676
2	SOP SPE	PFAS by ID SOP QSM B-15	10	03/25/2022 1236	ASD	03/22/2022 1344	35676

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	13	Q	8.7	4.4	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.4	UQ	8.7	4.4	2.2	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.4	U	8.7	4.4	2.2	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	26		4.4	2.2	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	32		4.4	2.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	49		4.4	2.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	730	D	44	22	11	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	39	Q	4.4	2.2	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	I	4.4	2.2	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	93		4.4	2.2	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	100		4.4	2.2	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	17		4.4	2.2	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	64		4.4	2.2	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	110		4.4	2.2	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.2	UQ	4.4	2.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1800	D	44	22	11	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	230	50-150	N	159	50-150
13C2_6:2FTS	N	203	50-150		104	50-150
13C2_8:2FTS		149	50-150		91	50-150
13C2_PFDaA		81	50-150		76	50-150
13C2_PFTeDA	N	48	50-150	N	47	50-150
13C3_PFBFS		76	50-150		88	50-150
13C3_PFHxS		93	50-150		92	50-150
13C3-HFPO-DA		71	50-150		97	50-150
13C4_PFBFA	N	32	50-150		89	50-150
13C4_PFHpA		84	50-150		101	50-150
13C5_PFHxA		85	50-150		89	50-150
13C5_PFPeA		60	50-150		95	50-150
13C6_PFDA		94	50-150		83	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-004
Description: FS3-SW0004-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1315	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		85	50-150		76	50-150
13C8_PFOA		90	50-150		93	50-150
13C8_PFOS		90	50-150		89	50-150
13C9_PFNA		88	50-150		87	50-150
d-EtFOSA		65	50-150		74	50-150
d5-EtFOSAA		95	50-150		82	50-150
d3-MeFOSAA		97	50-150		85	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-005
Description: FS3-SW0005-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1340	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/23/2022 2339	ASD	03/22/2022 1344	35676

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.6	I	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	9.1	Q	7.0	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.1	I	3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	13		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.1	S	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.89	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	4.6		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.6		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.5	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.5		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	8.7		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	40		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	224	50-150
13C2_6:2FTS	N	157	50-150
13C2_8:2FTS		131	50-150
13C2_PFDa		106	50-150
13C2_PFTeDA		85	50-150
13C3_PFBs		102	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBa		76	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		95	50-150
13C6_PFDa		109	50-150
13C7_PFUdA		108	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-005
Description: FS3-SW0005-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1340	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	50-150
13C8_PFOS		111	50-150
13C9_PFNA		109	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-006
Description: FS3-SW0006-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1420	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/24/2022 0012	ASD	03/22/2022 1344	35676

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	11	UQ	21	11	5.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	11	U	21	11	5.3	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	7.7	I	11	5.5	2.7	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.0	I	11	5.5	2.7	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	34		11	5.5	2.7	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	46	Q	11	5.5	2.7	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11		11	5.5	2.7	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13		11	5.5	2.7	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.9	I	11	5.5	2.7	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	14		11	5.5	2.7	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	13		11	5.5	2.7	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	5.5	UQ	11	5.5	2.7	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	40		11	5.5	2.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		146	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		72	50-150
13C2_PFDaA		68	50-150
13C2_PFTeDA	N	48	50-150
13C3_PFBS		64	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		62	50-150
13C4_PFBA	N	41	50-150
13C4_PFHpA		67	50-150
13C5_PFHxA		69	50-150
13C5_PFPeA		58	50-150
13C6_PFDA		61	50-150
13C7_PFUdA		61	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-006
Description: FS3-SW0006-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1420	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		66	50-150
13C8_PFOS		65	50-150
13C9_PFNA		67	50-150
d-EtFOSA	N	42	50-150
d5-EtFOSAA		64	50-150
d3-MeFOSAA		63	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-007
Description: FS3-SW0007-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1455	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/24/2022 2316	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	4.3		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	3.1	I	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	23		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	29	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.2		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.0		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.4	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.8		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	8.3		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	264	50-150
13C2_6:2FTS	N	256	50-150
13C2_8:2FTS		149	50-150
13C2_PFDa		91	50-150
13C2_PFTeDA		51	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA	N	35	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-007
Description: FS3-SW0007-000.5-20220308	Matrix: Aqueous
Date Sampled: 03/08/2022 1455	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		109	50-150
13C9_PFNA		111	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-008
Description: FS3-EB-20220308-01	Matrix: Aqueous
Date Sampled: 03/08/2022 1505	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/24/2022 2327	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		131	50-150
13C2_6:2FTS	N	179	50-150
13C2_8:2FTS		114	50-150
13C2_PFDa		100	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		115	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		113	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-008
Description: FS3-EB-20220308-01	Matrix: Aqueous
Date Sampled: 03/08/2022 1505	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		103	50-150
13C9_PFNA		117	50-150
d-EtFOSA		58	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-009
Description: FS3-FB-20220308-01	Matrix: Aqueous
Date Sampled: 03/08/2022 1510	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/30/2022 2152	MMM	03/29/2022 1803	36434

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	2
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-butyanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		97	50-150
13C2_6:2FTS	N	151	50-150
13C2_8:2FTS		81	50-150
13C2_PFDa		84	50-150
13C2_PFTeDA	N	37	50-150
13C3_PFBs		95	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBa		95	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		95	50-150
13C6_PFDa		93	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-009
Description: FS3-FB-20220308-01	Matrix: Aqueous
Date Sampled: 03/08/2022 1510	
Date Received: 03/11/2022	

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		81	50-150
13C9_PFNA		94	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		76	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-010
Description: FS3-FD-20220308-01	Matrix: Aqueous
Date Sampled: 03/08/2022	
Date Received: 03/11/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/24/2022 2348	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2.9	IQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	8.7		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.6	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	97		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	16	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	17		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	32		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.5	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.4		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	30		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	36		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	279	50-150
13C2_6:2FTS	N	297	50-150
13C2_8:2FTS	N	180	50-150
13C2_PFDaA		103	50-150
13C2_PFTeDA	N	41	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA	N	38	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		81	50-150
13C6_PFDA		117	50-150
13C7_PFUdA		103	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11022-010
Description: FS3-FD-20220308-01	Matrix: Aqueous
Date Sampled: 03/08/2022	
Date Received: 03/11/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	50-150
13C8_PFOS		111	50-150
13C9_PFNA		117	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		124	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ35676-001

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/23/2022 2211
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/23/2022 2211
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		102	50-150					
13C2_6:2FTS		116	50-150					
13C2_8:2FTS		105	50-150					
13C2_PFDaA		104	50-150					
13C2_PFTeDA		94	50-150					
13C3_PFBs		106	50-150					
13C3_PFHxS		110	50-150					
13C3-HFPO-DA		101	50-150					
13C4_PFBa		106	50-150					
13C4_PFHpA		103	50-150					
13C5_PFHxA		105	50-150					
13C5_PFPeA		106	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ35676-001

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		103	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		108	50-150
13C8_PFOS		103	50-150
13C9_PFNA		107	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ35676-002

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	103	70-150	03/23/2022 2222
11CI-PF3OUdS	15	15		1	98	70-150	03/23/2022 2222
8:2 FTS	15	15		1	97	67-138	03/23/2022 2222
6:2 FTS	15	15		1	102	64-140	03/23/2022 2222
4:2 FTS	15	15		1	103	63-143	03/23/2022 2222
GenX	32	33		1	102	70-150	03/23/2022 2222
ADONA	15	15		1	101	70-150	03/23/2022 2222
EtFOSA	16	18		1	115	70-150	03/23/2022 2222
EtFOSAA	16	16		1	102	61-135	03/23/2022 2222
MeFOSAA	16	18		1	110	65-136	03/23/2022 2222
PFBS	14	15		1	105	72-130	03/23/2022 2222
PFDS	15	15		1	97	53-142	03/23/2022 2222
PFHpS	15	15		1	101	69-134	03/23/2022 2222
PFNS	15	17		1	108	69-127	03/23/2022 2222
PFPeS	15	15		1	102	71-127	03/23/2022 2222
PFHxS	15	15		1	101	68-131	03/23/2022 2222
PFBA	16	16		1	102	73-129	03/23/2022 2222
PFDA	16	16		1	101	71-129	03/23/2022 2222
PFDaA	16	17		1	107	72-134	03/23/2022 2222
PFHpA	16	17		1	109	72-130	03/23/2022 2222
PFHxA	16	17		1	103	72-129	03/23/2022 2222
PFNA	16	16		1	102	69-130	03/23/2022 2222
PFOA	16	16		1	99	71-133	03/23/2022 2222
PFPeA	16	16		1	102	72-129	03/23/2022 2222
PFTeDA	16	16		1	103	71-132	03/23/2022 2222
PFTTrDA	16	16		1	100	65-144	03/23/2022 2222
PFUdA	16	17		1	105	69-133	03/23/2022 2222
PFOS	15	15		1	103	65-140	03/23/2022 2222
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		104	50-150				
13C2_6:2FTS		114	50-150				
13C2_8:2FTS		104	50-150				
13C2_PFDaA		100	50-150				
13C2_PFTeDA		95	50-150				
13C3_PFBS		101	50-150				
13C3_PFHxS		109	50-150				
13C3-HFPO-DA		103	50-150				
13C4_PFBA		104	50-150				
13C4_PFHpA		95	50-150				
13C5_PFHxA		100	50-150				
13C5_PFPeA		100	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: XQ35676-002

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		101	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		105	50-150
13C8_PFOS		102	50-150
13C9_PFNA		106	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MS

Sample ID: XC11022-005MS

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	13	12		1	94	70-150	03/23/2022 2350
11CI-PF3OUdS	ND	14	12		1	89	70-150	03/23/2022 2350
8:2 FTS	5.6	14	20		1	108	67-138	03/23/2022 2350
6:2 FTS	9.1	14	23		1	105	64-140	03/23/2022 2350
4:2 FTS	ND	13	13		1	97	63-143	03/23/2022 2350
GenX	ND	29	30		1	104	70-150	03/23/2022 2350
ADONA	ND	14	13		1	97	70-150	03/23/2022 2350
EtFOSA	ND	14	12		1	84	70-150	03/23/2022 2350
EtFOSAA	ND	14	14		1	98	61-135	03/23/2022 2350
MeFOSAA	ND	14	15		1	108	65-136	03/23/2022 2350
PFBS	ND	13	13		1	102	72-130	03/23/2022 2350
PFDS	ND	14	13		1	97	53-142	03/23/2022 2350
PFHpS	ND	14	14		1	101	69-134	03/23/2022 2350
PFNS	ND	14	14		1	99	69-127	03/23/2022 2350
PFPeS	1.1	13	15		1	103	71-127	03/23/2022 2350
PFHxS	13	13	26		1	98	68-131	03/23/2022 2350
PFBA	5.1	14	19	N	1	134	73-129	03/23/2022 2350
PFDA	0.89	14	15		1	103	71-129	03/23/2022 2350
PFDoA	ND	14	15		1	107	72-134	03/23/2022 2350
PFHpA	4.6	14	19		1	101	72-130	03/23/2022 2350
PFHxA	9.6	14	23		1	97	72-129	03/23/2022 2350
PFNA	1.5	14	16		1	102	69-130	03/23/2022 2350
PFOA	4.5	14	19		1	101	71-133	03/23/2022 2350
PFPeA	8.7	14	23		1	100	72-129	03/23/2022 2350
PFTeDA	ND	14	15		1	103	71-132	03/23/2022 2350
PFTTrDA	ND	14	14		1	100	65-144	03/23/2022 2350
PFUdA	ND	14	15		1	106	69-133	03/23/2022 2350
PFOS	40	13	54		1	109	65-140	03/23/2022 2350
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS	N	225	50-150					
13C2_6:2FTS	N	158	50-150					
13C2_8:2FTS		133	50-150					
13C2_PFDoA		106	50-150					
13C2_PFTeDA		89	50-150					
13C3_PFBS		105	50-150					
13C3_PFHxS		117	50-150					
13C3-HFPO-DA		96	50-150					
13C4_PFBA		77	50-150					
13C4_PFHpA		105	50-150					
13C5_PFHxA		109	50-150					
13C5_PFPeA		97	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XC11022-005MS

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		112	50-150
13C7_PFUdA		107	50-150
13C8_PFOA		107	50-150
13C8_PFOS		111	50-150
13C9_PFNA		110	50-150
d-EtFOSA		83	50-150
d5-EtFOSAA		113	50-150
d3-MeFOSAA		108	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MSD

Sample ID: XC11022-005MD

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9CI-PF3ONS	ND	13	13		1	96	0.29	70-150	30	03/24/2022 0001
11CI-PF3OUdS	ND	13	13		1	95	4.7	70-150	30	03/24/2022 0001
8:2 FTS	5.6	13	19		1	97	8.5	67-138	30	03/24/2022 0001
6:2 FTS	9.1	13	25		1	121	7.8	64-140	30	03/24/2022 0001
4:2 FTS	ND	13	13		1	98	0.89	63-143	30	03/24/2022 0001
GenX	ND	28	28		1	100	5.1	70-150	30	03/24/2022 0001
ADONA	ND	13	13		1	100	1.3	70-150	30	03/24/2022 0001
EtFOSA	ND	14	14		1	100	16	70-150	30	03/24/2022 0001
EtFOSAA	ND	14	15		1	104	3.5	61-135	30	03/24/2022 0001
MeFOSAA	ND	14	15		1	106	4.0	65-136	30	03/24/2022 0001
PFBS	ND	12	13		1	108	3.6	72-130	30	03/24/2022 0001
PFDS	ND	14	13		1	95	3.6	53-142	30	03/24/2022 0001
PFHpS	ND	13	14		1	102	0.53	69-134	30	03/24/2022 0001
PFNS	ND	14	13		1	96	4.7	69-127	30	03/24/2022 0001
PFPeS	1.1	13	15		1	104	0.090	71-127	30	03/24/2022 0001
PFHxS	13	13	26		1	104	1.9	68-131	30	03/24/2022 0001
PFBA	5.1	14	19	N	1	136	0.24	73-129	30	03/24/2022 0001
PFDA	0.89	14	15		1	105	0.070	71-129	30	03/24/2022 0001
PFDoA	ND	14	15		1	103	5.0	72-134	30	03/24/2022 0001
PFHpA	4.6	14	19		1	99	2.6	72-130	30	03/24/2022 0001
PFHxA	9.6	14	24		1	99	0.44	72-129	30	03/24/2022 0001
PFNA	1.5	14	15		1	99	4.6	69-130	30	03/24/2022 0001
PFOA	4.5	14	18		1	96	5.3	71-133	30	03/24/2022 0001
PFPeA	8.7	14	24		1	110	4.6	72-129	30	03/24/2022 0001
PFTeDA	ND	14	15		1	103	2.0	71-132	30	03/24/2022 0001
PFTTrDA	ND	14	13		1	91	11	65-144	30	03/24/2022 0001
PFUdA	ND	14	15		1	106	1.7	69-133	30	03/24/2022 0001
PFOS	40	13	55		1	118	1.7	65-140	30	03/24/2022 0001
Surrogate	Q	% Rec	Acceptance Limit							
13C2_4:2FTS	N	244	50-150							
13C2_6:2FTS	N	154	50-150							
13C2_8:2FTS		139	50-150							
13C2_PFDoA		115	50-150							
13C2_PFTeDA		86	50-150							
13C3_PFBS		107	50-150							
13C3_PFHxS		119	50-150							
13C3-HFPO-DA		103	50-150							
13C4_PFBA		79	50-150							
13C4_PFHpA		108	50-150							
13C5_PFHxA		118	50-150							
13C5_PFPeA		99	50-150							

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MSD

Sample ID: XC11022-005MD

Matrix: Aqueous

Batch: 35676

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/22/2022 1344

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		116	50-150
13C7_PFUdA		110	50-150
13C8_PFOA		106	50-150
13C8_PFOS		115	50-150
13C9_PFNA		117	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		116	50-150
d3-MeFOSAA		117	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ35849-001

Matrix: Aqueous

Batch: 35849

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/23/2022 1615

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		113	50-150					
13C2_6:2FTS	N	190	50-150					
13C2_8:2FTS		112	50-150					
13C2_PFDoA		99	50-150					
13C2_PFTeDA		112	50-150					
13C3_PFBs		112	50-150					
13C3_PFHxS		108	50-150					
13C3-HFPO-DA		113	50-150					
13C4_PFBa		115	50-150					
13C4_PFHpA		116	50-150					
13C5_PFHxA		109	50-150					
13C5_PFPeA		114	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ35849-001

Matrix: Aqueous

Batch: 35849

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/23/2022 1615

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		109	50-150
13C8_PFOA		131	50-150
13C8_PFOS		107	50-150
13C9_PFNA		119	50-150
d-EtFOSA		89	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		119	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ35849-002

Matrix: Aqueous

Batch: 35849

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/23/2022 1615

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	100	70-150	03/24/2022 2047
11CI-PF3OUdS	15	12		1	80	70-150	03/24/2022 2047
8:2 FTS	15	14		1	93	67-138	03/24/2022 2047
6:2 FTS	15	15		1	102	64-140	03/24/2022 2047
4:2 FTS	15	15		1	98	63-143	03/24/2022 2047
GenX	32	33		1	104	70-150	03/24/2022 2047
ADONA	15	15		1	101	70-150	03/24/2022 2047
EtFOSA	16	18		1	112	70-150	03/24/2022 2047
EtFOSAA	16	17		1	105	61-135	03/24/2022 2047
MeFOSAA	16	16		1	100	65-136	03/24/2022 2047
PFBS	14	14		1	97	72-130	03/24/2022 2047
PFDS	15	13		1	87	53-142	03/24/2022 2047
PFHpS	15	16		1	102	69-134	03/24/2022 2047
PFNS	15	15		1	97	69-127	03/24/2022 2047
PFPeS	15	15		1	102	71-127	03/24/2022 2047
PFHxS	15	15		1	100	68-131	03/24/2022 2047
PFBA	16	17		1	103	73-129	03/24/2022 2047
PFDA	16	16		1	100	71-129	03/24/2022 2047
PFDaA	16	17		1	106	72-134	03/24/2022 2047
PFHpA	16	16		1	102	72-130	03/24/2022 2047
PFHxA	16	14		1	88	72-129	03/24/2022 2047
PFNA	16	16		1	98	69-130	03/24/2022 2047
PFOA	16	17		1	103	71-133	03/24/2022 2047
PFPeA	16	17		1	104	72-129	03/24/2022 2047
PFTeDA	16	16		1	98	71-132	03/24/2022 2047
PFTTrDA	16	15		1	94	65-144	03/24/2022 2047
PFUdA	16	15		1	91	69-133	03/24/2022 2047
PFOS	15	14		1	96	65-140	03/24/2022 2047
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		112	50-150				
13C2_6:2FTS	N	216	50-150				
13C2_8:2FTS		114	50-150				
13C2_PFDaA		98	50-150				
13C2_PFTeDA		89	50-150				
13C3_PFBs		108	50-150				
13C3_PFHxS		114	50-150				
13C3-HFPO-DA		108	50-150				
13C4_PFBa		112	50-150				
13C4_PFHpA		114	50-150				
13C5_PFHxA		121	50-150				
13C5_PFPeA		115	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: XQ35849-002

Matrix: Aqueous

Batch: 35849

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/23/2022 1615

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		107	50-150
13C7_PFUdA		115	50-150
13C8_PFOA		131	50-150
13C8_PFOS		106	50-150
13C9_PFNA		112	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		119	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: XQ36434-001

Matrix: Aqueous

Batch: 36434

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/29/2022 1803

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
6:2 FTS	41		1	8.0	4.0	2.0	ng/L	03/31/2022 2123
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/31/2022 2123
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		106	50-150					
13C2_6:2FTS	N	225	50-150					
13C2_8:2FTS		93	50-150					
13C2_PFDoA		88	50-150					
13C2_PFTeDA		88	50-150					
13C3_PFBS		99	50-150					
13C3_PFHxS		96	50-150					
13C3-HFPO-DA		98	50-150					
13C4_PFBA		95	50-150					
13C4_PFHpA		92	50-150					
13C5_PFHxA		103	50-150					
13C5_PFPeA		99	50-150					

LOQ = Limit of Quantitation

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P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ36434-001

Matrix: Aqueous

Batch: 36434

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/29/2022 1803

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		106	50-150
13C8_PFOS		98	50-150
13C9_PFNA		94	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		85	50-150

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P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ36434-002

Matrix: Aqueous

Batch: 36434

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/29/2022 1803

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	100	70-150	03/30/2022 2142
11CI-PF3OUdS	15	15		1	102	70-150	03/30/2022 2142
8:2 FTS	15	16		1	103	67-138	03/30/2022 2142
6:2 FTS	15	15		1	102	64-140	03/30/2022 2142
4:2 FTS	15	19		1	125	63-143	03/30/2022 2142
GenX	32	32		1	100	70-150	03/30/2022 2142
ADONA	15	16		1	103	70-150	03/30/2022 2142
EtFOSA	16	17		1	104	70-150	03/30/2022 2142
EtFOSAA	16	16		1	102	61-135	03/30/2022 2142
MeFOSAA	16	17		1	105	65-136	03/30/2022 2142
PFBS	14	14		1	98	72-130	03/30/2022 2142
PFDS	15	16		1	101	53-142	03/30/2022 2142
PFHpS	15	17		1	112	69-134	03/30/2022 2142
PFNS	15	16		1	104	69-127	03/30/2022 2142
PFPeS	15	17		1	114	71-127	03/30/2022 2142
PFHxS	15	16		1	112	68-131	03/30/2022 2142
PFBA	16	16		1	102	73-129	03/30/2022 2142
PFDA	16	18		1	111	71-129	03/30/2022 2142
PFDoA	16	18		1	111	72-134	03/30/2022 2142
PFHpA	16	16		1	102	72-130	03/30/2022 2142
PFHxA	16	17		1	104	72-129	03/30/2022 2142
PFNA	16	17		1	108	69-130	03/30/2022 2142
PFOA	16	16		1	99	71-133	03/30/2022 2142
PFPeA	16	17		1	104	72-129	03/30/2022 2142
PFTeDA	16	18		1	113	71-132	03/30/2022 2142
PFTTrDA	16	17		1	104	65-144	03/30/2022 2142
PFUdA	16	16		1	102	69-133	03/30/2022 2142
PFOS	15	15		1	102	65-140	03/30/2022 2142
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		87	50-150				
13C2_6:2FTS	N	227	50-150				
13C2_8:2FTS		95	50-150				
13C2_PFDoA		94	50-150				
13C2_PFTeDA		88	50-150				
13C3_PFBS		97	50-150				
13C3_PFHxS		98	50-150				
13C3-HFPO-DA		93	50-150				
13C4_PFBA		98	50-150				
13C4_PFHpA		97	50-150				
13C5_PFHxA		89	50-150				
13C5_PFPeA		97	50-150				

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I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ36434-002

Matrix: Aqueous

Batch: 36434

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/29/2022 1803

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		110	50-150
13C8_PFOS		90	50-150
13C9_PFNA		97	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

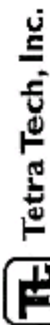
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents



Tetra Tech, Inc.

CHAIN OF CUSTODY

NUMBER No. 2592

1

PAGE 1 OF 1

PROJECT NO: 12-09581		FACILITY: KSC-F53		PROJECT MANAGER: Mark J. Jannet		PHONE NUMBER: (412) 921-8623		LABORATORY NAME AND CONTACT: Pace Analytical - Katar Smith	
SAMPLERS (SIGNATURE): [Signature]		- Chuck Sorden		FIELD OPERATIONS LEADER: Chuck Sorden		PHONE NUMBER: (321) 591-7580		ADDRESS: 106 Vantage Point Dr.	
STANDARD TAT: [Signature]		1416 HEAD		CARRIERWAYBILL NUMBER:		CITY, STATE: West Columbia, SC			
RUSH TAT: <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 14 day						CONTAINER TYPE: PLASTIC (P) or GLASS (G)		PRESERVATIVE USED: None/MLC	
DATE: 03/06/2018		TIME: 10:55		TOP DEPTH (FT): 0.0		BOTTOM DEPTH (FT): 0.5		MATRIX (GW, SQ, SW, SD, DC, ETC): SW	
YEAR: 2018		SAMPLE ID: F53-SW001-000.5-2018-03-08		LOCATION ID: 01		COLLECTION METHOD: G		NO. OF CONTAINERS: 2	
		F53-SW003-000.5-2018-03-08		02		1		1	
		F53-SW005-000.5-2018-03-08		03		1		1	
		F53-SW007-000.5-2018-03-08		04		2		2	
		F53-SW009-000.5-2018-03-08		05		1		1	
		F53-SW011-000.5-2018-03-08		06		1		1	
		F53-SW013-000.5-2018-03-08		07		1		1	
		F53-SW015-000.5-2018-03-08		08		1		1	
		F53-FB-2018-03-08-01		-		-		-	
		F53-FB-2018-03-08-01		-		-		-	
		F53-FD-2018-03-08-01		-		-		-	
1. RELINQUISHED BY: [Signature]		DATE: 03/10/2018		TIME: 16:00		1. RECEIVED BY: Fred Ex		DATE: 03/10/2018	
2. RELINQUISHED BY: [Signature]		DATE: 03/10/2018		TIME: 04:50		2. RECEIVED BY: [Signature]		DATE: 03/10/2018	
3. RELINQUISHED BY: [Signature]		DATE: 03/10/2018		TIME: 04:50		3. RECEIVED BY: [Signature]		DATE: 03/10/2018	
COMMENTS:									



DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 4/02R FORM NO. TUNUS-001



Samples Receipt Checklist (SRC) (ME0018C-15)

Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020

Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH

Cooler Inspected by/date: JSH / 03/11/2022

Lot #: XC11022

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt 3.1 / 3.1 °C NA / NA °C NA / NA °C NA / NA °C %Solid Snap-Cup ID: NA	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₄ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote #
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (if #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA	
SR barcode labels applied by: KNR Date: 03/11/2022	

Comments:



Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC - FS3
Project Number: 112G09581
Lot Number: **XC12010**
Date Completed: 04/04/2022

Kathy Smith

04/05/2022 12:01 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Tetra Tech Lot Number: XC12010

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

$$CF = DF * FV / Vo$$

FV is volume of extract (mL)

Vo is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:

Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{A_s \times C_{is}}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Surrogate recovery for the following sample was outside control limits: XC12010-001. Re-extraction and re-analysis was performed with concurring results. The original analysis has been reported.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XC12010

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3SW0008-000.5-20220311	Aqueous	03/11/2022 0835	03/12/2022

(1 sample)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: XC12010

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	FS3SW0008-000.5-20220311	Aqueous	PFBS	PFAS by ID	5.6		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFHpS	PFAS by ID	1.2	I	ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFPeS	PFAS by ID	4.8		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFHxS	PFAS by ID	43		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFBA	PFAS by ID	17	Q	ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFHpA	PFAS by ID	9.0		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFHxA	PFAS by ID	14		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFNA	PFAS by ID	1.3	I	ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFOA	PFAS by ID	9.1		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFPeA	PFAS by ID	12		ng/L	5
001	FS3SW0008-000.5-20220311	Aqueous	PFOS	PFAS by ID	30		ng/L	5

(11 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12010-001
Description: FS3SW0008-000.5-20220311	Matrix: Aqueous
Date Sampled: 03/11/2022 0835	
Date Received: 03/12/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2005	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	5.6		3.4	1.7	0.86	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.2	I	3.4	1.7	0.86	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	4.8		3.4	1.7	0.86	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	43		3.4	1.7	0.86	ng/L	1
Perfluoro-n-butyric acid (PFBA)	375-22-4	PFAS by ID SOP	17	Q	3.4	1.7	0.86	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	9.0		3.4	1.7	0.86	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	14		3.4	1.7	0.86	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.3	I	3.4	1.7	0.86	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.1		3.4	1.7	0.86	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	12		3.4	1.7	0.86	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	30		3.4	1.7	0.86	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	202	50-150
13C2_6:2FTS	N	157	50-150
13C2_8:2FTS		120	50-150
13C2_PFDa		93	50-150
13C2_PFTeDA		75	50-150
13C3_PFBs		77	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		76	50-150
13C4_PFBa	N	31	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		65	50-150
13C6_PFDa		93	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12010-001
Description: FS3SW0008-000.5-20220311	Matrix: Aqueous
Date Sampled: 03/11/2022 0835	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		101	50-150
13C9_PFNA		99	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ35925-001

Matrix: Aqueous

Batch: 35925

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/24/2022 1128

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9CI-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
11CI-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFTTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
Surrogate	Q	% Rec	Acceptance Limit					
13C2_4:2FTS		100	50-150					
13C2_6:2FTS		135	50-150					
13C2_8:2FTS		104	50-150					
13C2_PFDoA		98	50-150					
13C2_PFTeDA		97	50-150					
13C3_PFBs		97	50-150					
13C3_PFHxS		96	50-150					
13C3-HFPO-DA		98	50-150					
13C4_PFBA		103	50-150					
13C4_PFHpA		102	50-150					
13C5_PFHxA		101	50-150					
13C5_PFPeA		102	50-150					

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID: XQ35925-001

Matrix: Aqueous

Batch: 35925

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		105	50-150
13C8_PFOS		99	50-150
13C9_PFNA		99	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ35925-002

Matrix: Aqueous

Batch: 35925

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/24/2022 1128

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	15		1	99	70-150	03/26/2022 1721
11CI-PF3OUdS	15	14		1	94	70-150	03/26/2022 1721
8:2 FTS	15	16		1	102	67-138	03/26/2022 1721
6:2 FTS	15	15		1	97	64-140	03/26/2022 1721
4:2 FTS	15	16		1	105	63-143	03/26/2022 1721
GenX	32	31		1	98	70-150	03/26/2022 1721
ADONA	15	16		1	107	70-150	03/26/2022 1721
EtFOSA	16	17		1	103	70-150	03/26/2022 1721
EtFOSAA	16	16		1	97	61-135	03/26/2022 1721
MeFOSAA	16	17		1	107	65-136	03/26/2022 1721
PFBS	14	14		1	101	72-130	03/26/2022 1721
PFDS	15	15		1	96	53-142	03/26/2022 1721
PFHpS	15	16		1	107	69-134	03/26/2022 1721
PFNS	15	16		1	103	69-127	03/26/2022 1721
PFPeS	15	15		1	101	71-127	03/26/2022 1721
PFHxS	15	15		1	100	68-131	03/26/2022 1721
PFBA	16	17		1	105	73-129	03/26/2022 1721
PFDA	16	16		1	102	71-129	03/26/2022 1721
PFDaA	16	17		1	107	72-134	03/26/2022 1721
PFHpA	16	17		1	105	72-130	03/26/2022 1721
PFHxA	16	17		1	107	72-129	03/26/2022 1721
PFNA	16	17		1	103	69-130	03/26/2022 1721
PFOA	16	17		1	108	71-133	03/26/2022 1721
PFPeA	16	17		1	105	72-129	03/26/2022 1721
PFTeDA	16	17		1	105	71-132	03/26/2022 1721
PFTTrDA	16	16		1	98	65-144	03/26/2022 1721
PFUdA	16	16		1	101	69-133	03/26/2022 1721
PFOS	15	16		1	106	65-140	03/26/2022 1721
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		88	50-150				
13C2_6:2FTS		109	50-150				
13C2_8:2FTS		93	50-150				
13C2_PFDaA		94	50-150				
13C2_PFTeDA		87	50-150				
13C3_PFBs		91	50-150				
13C3_PFHxS		90	50-150				
13C3-HFPO-DA		93	50-150				
13C4_PFBa		96	50-150				
13C4_PFHpA		95	50-150				
13C5_PFHxA		96	50-150				
13C5_PFPeA		95	50-150				

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ35925-002

Matrix: Aqueous

Batch: 35925

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP QSM B-15

Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		94	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		94	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation

U = Not detected at or above the LOQ

N = Recovery is out of criteria

DL = Detection Limit

I = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents



Tetra Tech, Inc.

CHAIN OF CUSTODY

NUMBER No. 2594

1

PAGE 1 OF 1

PROJECT NO: 112-G-09581 SAMPLERS (SIGNATURE): <i>[Signature]</i> -Chuck Sorden -Mike Henson		FACILITY: KSC-653 -Chuck Sorden		PROJECT MANAGER: Mike Sorden FIELD OPERATIONS LEADER: Chuck Sorden CARRIERWAYBILL NUMBER:		PHONE NUMBER: (412) 421-8622 PHONE NUMBER: (320) 591-7580		LABORATORY NAME AND CONTACT: Pace Analytical Services - Kristy Smith ADDRESS: 106 Vantage Point Dr. CITY, STATE: West Columbia, SC															
STANDARD TAT: <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 14 day RUSH TAT: <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 14 day		LOCATION ID:		TOP DEPTH (FT):		BOTTOM DEPTH (FT):		MATRIX (GW, SO, SW, SD, DC, ETC.):		COLLECTION METHOD:		GRAB (G) COMP (C):		NO. OF CONTAINERS:		CONTAINER TYPE: PLASTIC (P) or GLASS (G) PRESERVATIVE USED:		TYPE OF ANALYSIS:		COMMENTS:			
DATE: 03/11/22 TIME: 0835		SAMPLE ID: F53-SW008-005-2022-03-11-04		TOP DEPTH (FT): 0.0		BOTTOM DEPTH (FT): 0.5		MATRIX (GW, SO, SW, SD, DC, ETC.): SW G		COLLECTION METHOD: G		GRAB (G) COMP (C): G		NO. OF CONTAINERS: 2		CONTAINER TYPE: PLASTIC (P) or GLASS (G): P		PRESERVATIVE USED: None		TYPE OF ANALYSIS:		COMMENTS:	
1. RELINQUISHED BY: <i>[Signature]</i> DATE: 03/11/22 TIME: 1500		2. RELINQUISHED BY: <i>[Signature]</i> DATE: 03/14/22 TIME: 1500		3. RELINQUISHED BY: <i>[Signature]</i> DATE: 03/12/22 TIME: 1100		1. RECEIVED BY: FedEx DATE: 03/11/22 TIME: 1500		2. RECEIVED BY:		3. RECEIVED BY: <i>[Signature]</i> DATE: 03/14/22 TIME: 1100		COMMENTS:		DISTRIBUTION:		FORM NO. TUNJS-001							

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCDC

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH Cooler Inspected by/date: MEH / 3/12/2022 Lot #: XC12010

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>NA</u> Chlorine Strip ID: <u>NA</u> Tested by: <u>NA</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap Cup ID: <u>NA</u>	
<u>1.6 / 1.6</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # _____
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H ₂ SO ₄ , HNO ₃ , HCl, NaOH using SR # <u>NA</u> .	
Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.	
Sample(s) <u>NA</u> were received with bubbles >6 mm in diameter.	
Samples(s) <u>NA</u> were received with TRC > 0.5 mg/L (If #19 is <i>no</i>) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: <u>NA</u> .	
SR barcode labels applied by: <u>MEH</u> Date: <u>3/12/2022</u>	

Comments:

APPENDIX D
PHOTOGRAPHIC LOG

Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 1

DATE:
12/09/2021

DIRECTION:
North

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of front
(south side) of Fire
Station #3



PHOTO 2

DATE:
12/09/2021

DIRECTION:
Northwest

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of front
(south side) of Fire
Station #3 with
trench drain along
outside of bay
doors



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 3

DATE:
12/09/2021

DIRECTION:
North

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of east side of building, facing north with hose bib along side of building



PHOTO 4

DATE:
12/09/2021

DIRECTION:
West

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of back (north side) of building with hose bib along side of building



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 5

DATE:
12/09/2021

DIRECTION:
Southeast

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of west side of building, facing southeast with hose bib along side of building



PHOTO 6

DATE:
12/09/2021

DIRECTION:
Southeast

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of lift station and back side of Fire Station #3



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 7

DATE:
12/09/2021

DIRECTION:
North

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of Engine 3
inside truck bay.
Engine 3 is a Pierce
Pumper equipped
with a 30-gallon
foam tank



PHOTO 8

DATE:
12/09/2021

DIRECTION:
Northwest

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of Engine 3



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 9

DATE:
12/09/2021

DIRECTION:
Southwest

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of Engine 3



PHOTO 10

DATE:
12/09/2021

DIRECTION:
N/A

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of Engine 3
control panel



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 11

DATE:
12/09/2021

DIRECTION:
N/A

TAKEN BY:
S. Damphousse

DESCRIPTION:
Janitor closet with floor drain



PHOTO 12

DATE:
12/09/2021

DIRECTION:
N/A

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of interior locker room with floor drains



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 13

DATE:
12/09/2021

DIRECTION:
South

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of pump station



PHOTO 14

DATE:
12/09/2021

DIRECTION:
East

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of drainage swale on east side of pump station



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 15

DATE:
12/09/2021

DIRECTION:
North

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of Fire Station #3
from the southeast
corner of the pump
station



PHOTO 16

DATE:
12/09/2021

DIRECTION:
Southeast

TAKEN BY:
S. Damphousse

DESCRIPTION:
Facing surface water
sample PFAS-SW40



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 17

DATE:
12/09/2021

DIRECTION:
South

TAKEN BY:
S. Damphousse

DESCRIPTION:
View of Pit No. 9 full of water

(Total of 9 pits on site, each approximately 20 feet deep. Only Pit No. 9 was full of water during site visit, the other pits had several feet of standing water.)



PHOTO 18

DATE:
3/08/2022

DIRECTION:
East

TAKEN BY:
C. Sorden

DESCRIPTION:
Surface water sampling Pit No. 9 (FS3-SW0005)



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 19

DATE:
1/26/2022

DIRECTION:
Northwest

TAKEN BY:
C. Sorden

DESCRIPTION:
View of FS3-DPT0005



PHOTO 20

DATE:
3/08/2022

DIRECTION:
N/A

TAKEN BY:
C. Sorden

DESCRIPTION:
Surface Water
Sampling FS3-
SW0001



Photographic Log
Fire Station #3 – LOC 4
NASA PFAS Assessments
Kennedy Space Center, Florida

PHOTO 21

DATE:
3/8/2022

DIRECTION:
NA

TAKEN BY:
C. Sorden

DESCRIPTION:
Collection of surface
water from Gator Pond
(FS3-SW0008)



PHOTO 22

DATE:

DIRECTION:

TAKEN BY:

DESCRIPTION:

APPENDIX E

KSCRT MEETING MINUTES AND ACTION ITEM – OCTOBER 2022

Revision 0 Meeting Minutes for October 5th and 6th, 2022

Attendees:

- | | |
|----------------------------|-------------------------------|
| 1. Bruce Moore/FDEP | 11. Alex Murphy/Tetra Tech |
| 2. Mike Deliz/NASA | 12. Chris Pike/ Tetra Tech |
| 3. Ryan O’Meara/NASA | 13. Mark Speranza/Tetra Tech |
| 4. Deda Johansen/NASA | 14. Andrew Walters/Tetra Tech |
| 5. Anne Chrest/NASA | 15. Jennifer Gootee/AECOM |
| 6. Natasha Darre/NASA | 16. Linnea King Clark/AECOM |
| 7. Chris Adkison/NASA | 17. Richard Smith/HGL |
| 8. Tim Appleman/NASA | 18. Howard Fowler/HGL |
| 9. Michelle Moore/NEMCON | 19. James (Jim) Montague/HGL |
| 10. Mark Jonnet/Tetra Tech | |

2210-M01 Bruce Moore/FDEP

Program Update

Discussion: The #1 issue at the Florida Department of Environmental Protection (FDEP) is the staffing situation. There are fourteen positions in the federal facilities program currently available. Some hires are imminent. Environmental Administrator Laura Barrett resigned. The goal is to fill the Environmental Administrator position by the end of October. Billy Hessman joined in May as a professional geologist (PG) II position. A variety of positions are open and need to be filled. If there is an urgent matter, please call Bruce directly and he can talk in the moment about it. The routine review process may take a while.

NASA inquired if funding was the issue or just not enough people were applying. FDEP stated it has been hard to attract and retain staff. FDEP is still using the three contractors for outside review and will lean heavily on them in the short term.

from MW0009 to the north and to the east, and to the northwest. Plan to start there and if we encounter contamination at those points, we will step out again as needed. FDEP agreed with this approach.

Monitoring wells MW0009, MW0010, and MW0011 were analyzed for PFAS. Eight PFAS compounds were detected between MW0010 and MW0011. Recommendation was made for PFAS analysis for MW0010 and MW0011. The Team reached consensus to include PFAS analyses for MWs 10 and 11 during the semi-annual sampling events **(2210-D07)**.

FDEP inquired if PFAS sampling was going to be an effort included under a larger investigation eventually? NASA observed that the two wells with detections are close to Pintail Creek, part of the lagoon system, and the results could be due to surface water/groundwater interaction. There is a PFAS source associated with a former STP at Pad A, but that is not nearby. A surface water sample to this area might be appropriate. NASA will consider the Center-wide PFAS investigation first and how this might tie in **(2210-A03)**. NASA noted the Remediation Project Managers are conducting monthly PFAS meetings internally to discuss sites with PFAS so as not to duplicate efforts where there is potential overlap such as this.

Tetra Tech noted the path forward for monitoring the VOC plume is to skip sampling this month (October 2022), and sample again in January 2023, as the next event. FDEP agreed with this.

Results: Decision Items 2210-D04 through D07
Action Item: 2210-A03

2210-M04 Mark Jonnet/Tetra Tech

Fire Station #3 PFAS Site Assessment Update, October 2022

Objective:

The briefing presents the overview of results from 2018-2021 confirmatory sampling for per- and polyfluorinated alkyl substances (PFAS) performed by Geosyntec and AECOM. It also presents data generated by Tetra Tech through the PFAS Soil Evaluation, PFAS Sediment Evaluation, and PFAS Groundwater Evaluation, as well as the path forward for the site.

Discussion:

Samples collected during the site assessment and results from earlier samples were screened against the 2022 EPA Regional Screening Levels (RSL). There are six PFAS with RSLs.

Surficial (0-0.5 feet below land surface [ft. bls] and 0.5-2 ft. bls) soil samples were collected from 7 locations, and 6 deeper samples were collected from a lithologic boring at one of those locations. No soil result exceeded its RSL. NASA noted that one of the deeper samples was collected from a gray clay layer to investigate whether PFAS is sorbing to clay. There was a high total organic carbon result but no PFAS were detected.

Sediment samples were collected from 4 locations. Perfluorooctane sulfonic acid (PFOS) was detected in all four samples. Four other PFAS were detected in one or more of the samples: perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorobutanesulfonic acid (PFBS), and perfluorohexanesulfonic acid (PFHxS). There are no State or Federal screening levels for PFAS in sediment.

The lithologic boring was used to select screen intervals for Tetra Tech's groundwater sampling by direct push technology (DPT). Out of 100 samples, the detected result was greater than the RSL for PFOS in 60 samples, for PFOA in 45 samples, for PFNA in 30 samples, for PFBS in 3 samples and for PFHxS in 43 samples. Fifty-two samples were analyzed for hexafluoropropylene oxide dimer acid (HFPO-DA; trade name GenX); there were no detections.

Results for 11 surface water samples were compared to the State of Florida Surface Water Screening Levels (SWSL), which are available for PFOA and PFOS. There were no results greater than the SWSL for PFOA, and all results exceeded the PFOS SWSL. Other PFAS were also detected in surface water samples.

Site assessment will proceed in phases. The next phase will continue delineation of PFAS in groundwater and look at surface water/groundwater interaction. Delineation is constrained by the wetlands and surface water surrounding Fire Station #3. Sixteen proposed DPT locations were shown. Deeper samples will be

collected at some prior DPT locations for vertical delineation purposes.

Monitoring wells will be installed adjacent to some surface water sample locations, and staff gauges installed in the surface water. Water levels will be measured and both surface water and groundwater samples collected periodically to determine if there is discharge from groundwater to surface water or vice versa. NASA noted there is a goal for the Remediation program is to perform quarterly sampling across the active PFAS assessment sites.

Rather than take measurements of surface water elevation and groundwater elevation, the suggestion was made to put transducers and water level recorders in wells and surface water to check whether groundwater is receiving stormwater runoff or discharging to surface waters. NASA mentioned this is done at the Hydrocarbon Burn Facility (SWMU #007) site, and HGL stated this was on the wish list to implement at the Fire Station #2 (SWMU #114) site.

First flush samples will be collected after a rain event. Once the monitoring well installation locations are determined, does FDEP want to know where those are? FDEP responded that they would like to know for information purposes. NASA will provide these locations to FDEP prior to installation (2210-A04).

Results: Action Item 2210-A04

2210-M05 Chris Pike/Tetra Tech

LC39B (SWMU 009) LOX Area DPT Investigations and Air Sparging

Objective:

The purpose of the briefing is to present the results of direct push technology (DPT) investigations conducted in the Liquid Oxygen (LOX) Area at Launch Complex 39B (LC39B) and to propose a system optimization.

Discussion:

Chlorinated volatile organic compounds (VOCs) are being treated by air sparging at LC39B. The presentation documented investigations conducted between November 2021 and January 2022, with some 2019 results also used in groundwater contouring. The

KSCRT Status of Open Action Items

Action Item No.	Minutes Reference	Responsible Team Member	Action item	Status
2210-A04	2210-M04	NASA	<p><u>Fire Station #3 PFAS Site Assessment Update, October 2022:</u> First flush rain evaluations and Nalgene samplers are planned to be used. Once the monitoring well installation locations are determined, does FDEP want to know where those are? FDEP responded that they would like to know for information purposes. NASA will provide these locations to FDEP prior to installation.</p>	Open