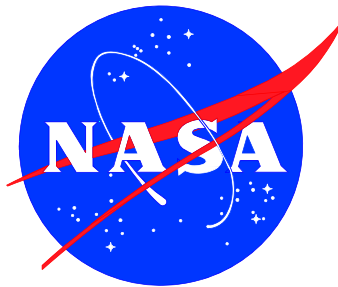


**INTERIM MEASURES REPORT  
FOR THE HEADQUARTERS BUILDING AREA LOCATION OF  
CONCERN (LOC) 2E EAST  
SWMU 104  
JOHN F. KENNEDY SPACE CENTER, FLORIDA**

**Prepared for:**



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

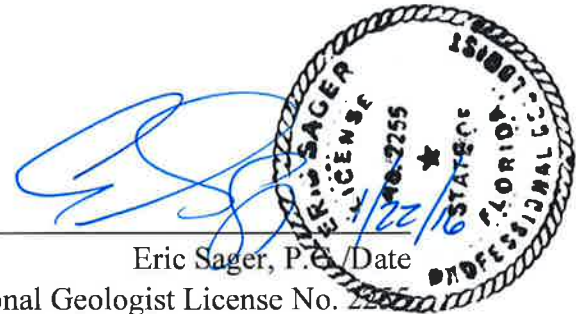
**January 2016  
Revision 0**

**Prepared by:**

**Geosyntec Consultants  
50 South Belcher Road, Suite 116  
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## CERTIFICATION AND APPROVAL

I hereby certify that in my professional judgment this document entitled: *Interim Measures Report for the Headquarters Building Area LOC 2E East SWMU 104, John F. Kennedy Space Center, Florida*, dated January 2016, was performed in accordance with appropriate standards of practice and other rules and regulations of the State of Florida. I have completed and/or have been in responsible charge of work completed by qualified professionals working directly under my supervision.



Eric Sager, P.E. / Date  
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## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
I	INTRODUCTION .....	1-1
1.1	Overview.....	1-1
1.2	Facility Location .....	1-1
1.3	Interim Measure Objective .....	1-1
1.4	Interim Measure Team.....	1-2
1.5	Interim Measure Report Organization .....	1-2
II	SITE BACKGROUND.....	2-1
2.1	Overview.....	2-1
2.2	General Site Description and History .....	2-1
III	IM Implementation .....	3-1
3.1	IM Implementation .....	3-1
3.2	Site-Specific Health and Safety Plan .....	3-1
3.3	IDW Waste Characterization Soil Sampling .....	3-1
3.4	Pre-construction Meeting and Project Coordination.....	3-1
3.5	Site Preparation.....	3-1
3.6	Media Mitigation .....	3-2
3.7	Media Disposal .....	3-2
3.8	Backfilling and Restoration .....	3-2
3.9	Decontamination .....	3-3/3-4
IV	SUMMARY AND RECOMMENDATIONS.....	4-1/4-2
4.1	IM Summary .....	4-1/4-2
4.2	Recommendations.....	4-1/4-2
V	REFERENCES .....	R-1/R-2

TABLE OF CONTENTS (continued)

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
3-1	Summary of Excavation Boundary Coordinates Interim Measure Activities .....	3-5/3-6

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1-1	KHQA Site Location Map .....	1-3/1-4
1-2	Site Map .....	1-5/1-6
3-1	Ingress/Egress and Work Zones.....	3-7/3-8
3-2	LOC 2E Eastern Interim Measure Areas .....	3-9/3-10

LIST OF APPENDICES

Appendix A	MEETING MINUTES
Appendix B	FIELD FORMS (FURNISHED ON CD)
Appendix C	LABORATORY ANALYTICAL REPORTS (FURNISHED ON CD)
Appendix D	KEDD COMPLETION TICKET (FURNISHED ON CD)
Appendix E	PHOTOGRAPHIC LOG (FURNISHED ON CD)
Appendix F	WEIGHT TICKETS AND MANIFESTS (FURNISHED ON CD)
Appendix G	BACKFILL AND DENSITY TESTING REPORTS (FURNISHED ON CD)

## ABBREVIATIONS AND ACRONYMS

FDEP	Florida Department of Environmental Protection
FECC	Florida Environmental Compliance Corporation
ft BLS	feet below land surface
Geosyntec	Geosyntec Consultants
HASP	Health and Safety Plan
IDW	Investigation derived waste
IGM	interim groundwater monitoring
IM	interim measure
IMWP	IM Work Plan
KEDD	KSC Electronic Data Deliverable
KHQA	KSC Headquarters Building Area
KSC	John F. Kennedy Space Center
KSCRT	KSC Remediation Team
LOC	Location of Concern
LUCIP	Land Use Control Implementation Plan
NASA	National Aeronautics and Space Administration
NFA	no further action
mg/m <sup>3</sup>	Milligrams per cubic meter
mg/kg	Milligram per kilogram
PCB	Polychlorinated biphenyl
psi	Pounds per square inch
RCRA	Resource Conservation and Recovery Act
R-	Residential Direct-Exposure
SCTL	Soil Cleanup Target Level
SWMU	Solid Waste Management Unit
TRPH	Total recoverable petroleum hydrocarbons
TSCA	Toxic Substances Control Act
VOC	Volatile organic compound

## SECTION I

### INTRODUCTION

#### 1.1 OVERVIEW

The Hazardous and Solid Waste Amendment portion of the National Aeronautics and Space Administration (NASA) Resource Conservation and Recovery Act (RCRA) Permit issued by the Florida Department of Environmental Protection (FDEP), requires identification and evaluation of all known Solid Waste Management Units (SWMUs) and Locations of Concern (LOCs) located on Kennedy Space Center (KSC) property. The KSC Headquarters Building Area (KHQA) has been identified as SWMU 104 under KSC's RCRA Program. This report summarizes the Interim Measure (IM) conducted by Geosyntec Consultants (Geosyntec) for NASA under Indefinite Delivery Indefinite Quantity Contract NNK12CA13B at the KHQA to mitigate potential exposure to polychlorinated biphenyl (PCB)-affected media at the eastern side of LOC 2E.

The IM activities were conducted in June and July 2015 to remediate PCBs above the FDEP Residential Direct-Exposure (R-) Soil Cleanup Target Level (SCTL) of 0.5 milligram per kilogram (mg/kg) established by Chapter 62-777, Florida Administrative Code. The IM was performed in accordance with the IM Work Plan (IMWP) approved by the FDEP, dated August 2012.

IM activities were conducted in accordance with the KSC Generic PCB Work Plan (NASA 2007).

#### 1.2 FACILITY LOCATION

The KHQA is located in the KSC Industrial Area. The Site is bordered by NASA Parkway to the north, D Avenue Southeast to the east, 3rd Street Southeast to the south, and C Avenue Southeast to the west. The Site is bisected by two east-west streets, 1st Street Southeast located between NASA Parkway and the north side of the Headquarters Building and 2nd Street Southeast located between the south side of the Headquarters Building and the asphalt parking area. Figure 1-1 shows the site location. Figure 1-2 is a map of the site and immediate vicinity.

#### 1.3 INTERIM MEASURE OBJECTIVE

The objective of this IM at the KHQA was to mitigate human health risks associated with PCBs exceeding the FDEP R-SCTL at the eastern side of LOC 2E, not included in the preliminary IM conducted in January 2011. LOC 2E is shown on Figure 1-2.

#### 1.4 INTERIM MEASURE TEAM

The IM was implemented by Geosyntec with support from Florida Environmental Compliance Corporation (FECC). The IM included the following activities:

- excavation of affected media
- transportation and disposal of non-hazardous concrete and soil
- placement and compaction of backfill materials
- site restoration

#### 1.5 INTERIM MEASURE REPORT ORGANIZATION

The remainder of this IM Report is organized as follows:

Section 2: Site Background – provides a general summary of the historical site operations and facilities;

Section 3: IM Implementation – summarizes the IM activities including pre-IM, IM implementation, and Site restoration; and

Section 4: Summary and Recommendations – summarizes the IM activities and findings and provides recommendations for the Site based upon the results.

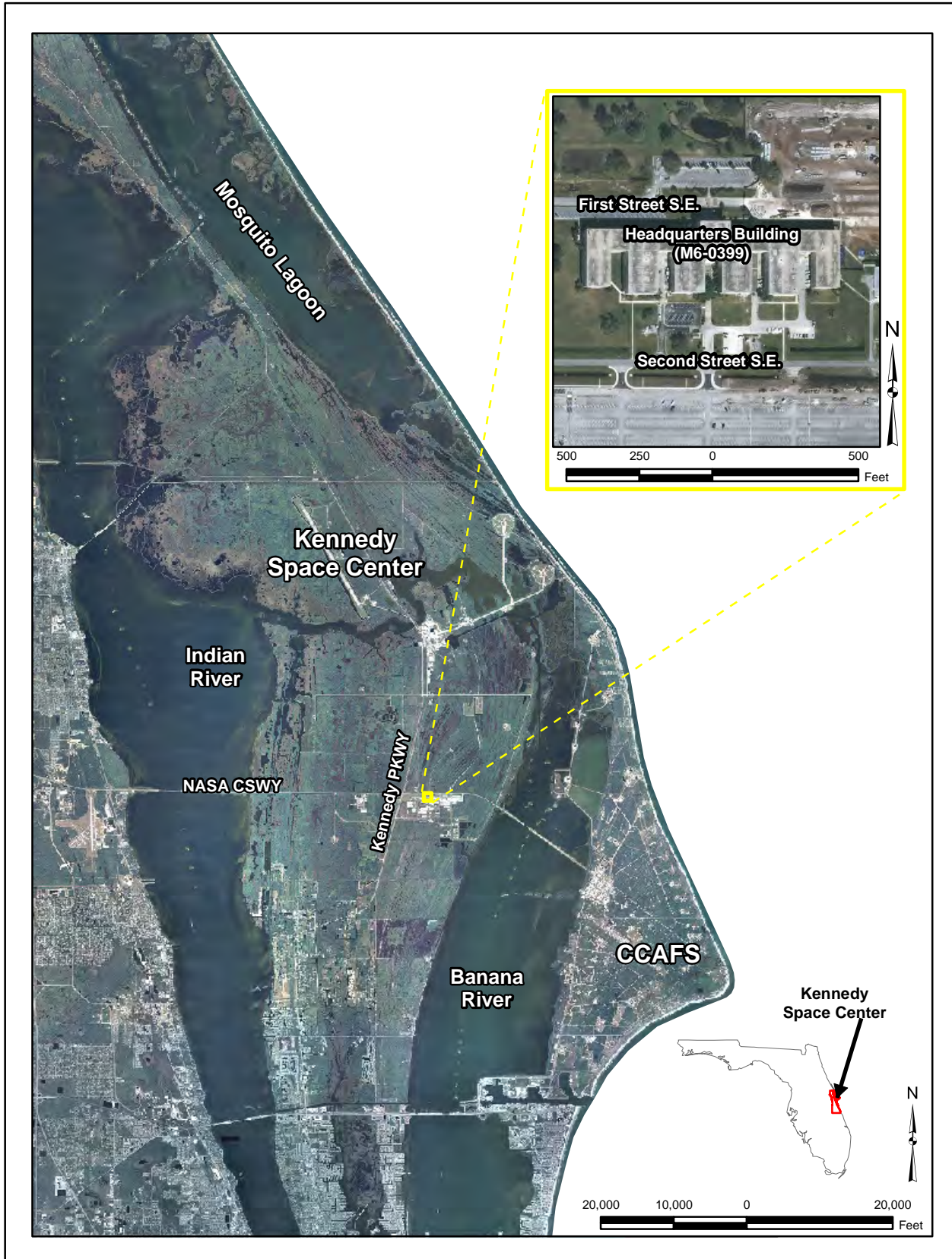


Figure 1-1  
KHQA Site Location Map



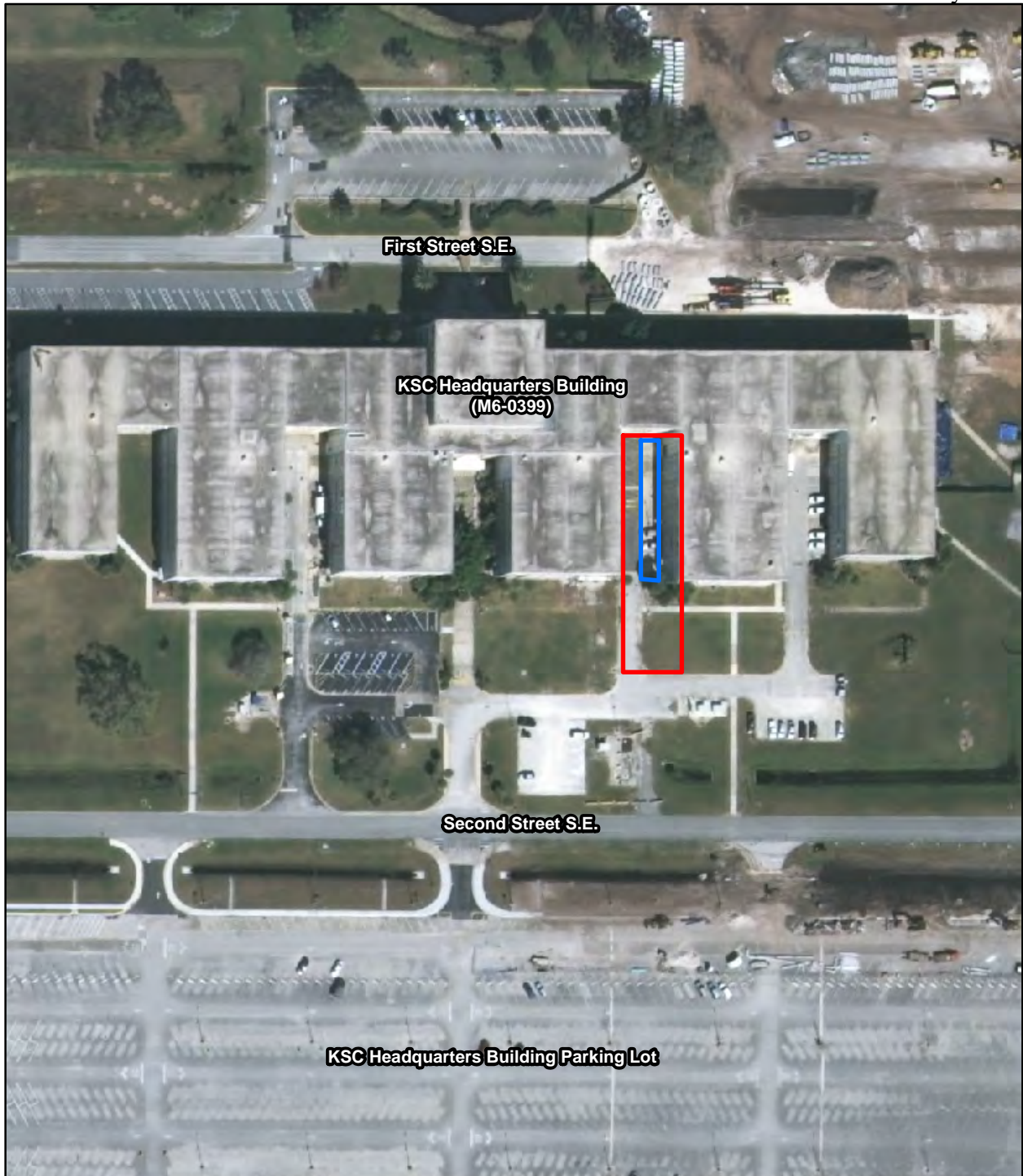




Figure 1-2  
Site Map

**Legend**

-  General Area of Excavation (LOC 2E)
-  General Project Area

150 75 0 150 Feet



## SECTION II

### SITE BACKGROUND

#### 2.1 OVERVIEW

This section describes the physical setting of the KHQA along with an overview of the surrounding areas. The historical operations and a summary of the previous environmental investigations conducted at the Site are also provided in this section.

#### 2.2 GENERAL SITE DESCRIPTION AND HISTORY

The Site is within the KSC Headquarters Building (M6-0399). The Headquarters Building houses the KSC Center Director, NASA staff and management, and contractor and support personnel. The Headquarters Building also includes a cafeteria, library, travel office, film and photo archive, photo processing shop, print shop, barber shop, bank, sundry store, and post office.

A RCRA Facility Investigation conducted at KHQA identified LOCs with PCBs above FDEP SCTLs and Toxic Substance Control Act (TSCA) screening criteria of 50 mg/kg (NASA 2009). An IMWP to excavate PCB-affected media at LOC 2C, LOC 2D, LOC 2E, and LOC 2F was prepared in November 2010 (NASA 2010) and implemented in January 2011. Delineation of affected media was ongoing in the eastern side of LOC 2E; therefore, the IM only addressed the western portion of this LOC. The IM included removal of the PCB-affected media from the following LOCs:

- LOC 2C: 18 tons of non-TSCA media (PCB concentrations less than 50 mg/kg);
- LOC 2D: 5.5 tons of TSCA (PCB concentrations greater than 50 mg/kg) and 40.2 tons of non-TSCA media. PCB-affected media remained under the transformer pad and between the pad and building;
- LOC 2E (western side only): 14.9 tons of TSCA and 46.5 tons of non-TSCA media. The transformer pad was encapsulated per 40 Code of Federal Regulations (CFR) 761 because concentrations of PCBs in concrete samples were above TSCA screening criteria. PCB-affected media remained under the transformer pad between the pad and building; and
- LOC 2F: 1.1 tons of TSCA and 47.2 tons of non-TSCA media (NASA 2011).

During the May 2011 KSC Remediation Team (KSCRT) meeting, team consensus was reached for No Further Action (NFA) for LOCs 2C and 2F, to implement a Land Use Control

Implementation Plan (LUCIP) for LOC 2D and western side of LOC 2E, and to continue delineation of PCB-affected media in the eastern side of LOC 2E (Decision items 1105-D21 and D23).

Additional soil and concrete samples collected in the eastern area of LOC 2E were presented to the KSCRT in August 2012. Team consensus was reached on the delineation of impacts in the eastern side of LOC 2E and an IMWP (NASA 2012) for this area (Decision item 1208-D21).

## SECTION III

### IM IMPLEMENTATION

#### 3.1 IM IMPLEMENTATION

The IM activities were implemented in accordance with the FDEP-approved IMWP dated August 2012. An Advanced Data Package summarizing the IM activities was presented at the September 2014 KSCRT meeting. The minutes from the September 2014 team meeting are provided in Appendix A.

#### 3.2 SITE-SPECIFIC HEALTH AND SAFETY PLAN

Geosyntec prepared a Health and Safety Plan (HASP) for use during excavation activities to remove media affected with PCBs at the KHQA. The HASP addressed the potential hazards associated with planned field activities at the Site and presented the minimum health and safety requirements for establishing and maintaining a safe working environment during the course of work. A copy of the HASP was kept on site during field activities.

#### 3.3 IDW WASTE CHARACTERIZATION SOIL SAMPLING

Geosyntec mobilized to Site on 22 June 2015 and completed soil borings and collected soil samples at two locations in area 2E-3 to 2 feet below land surface (ft BLS) and one location in area 2E-5 to 0.5 ft BLS. The soil samples were composited into a single sample for investigation derived waste (IDW) characterization. Field forms are provided in Appendix B. The laboratory analytical results and KSC Electronic Data Deliverable (KEDD) completion tickets are provided in Appendix C and Appendix D, respectively.

#### 3.4 PRE-CONSTRUCTION MEETING AND PROJECT COORDINATION

A pre-construction and “Nuts and Bolts” safety meeting was conducted on 6 July 2015 to coordinate project activities. During the meetings, Geosyntec discussed the construction activities and logistics, schedule of activities, utility clearance, work area exclusion zones, site restoration, and health and safety monitoring of construction workers. The meetings were attended by Geosyntec, FECC, and NASA (Remediation Project Manager, Safety, the KHQA facility manager, the Fire Inspector, and Protective Services).

#### 3.5 SITE PREPARATION

The boundaries of the excavation areas were established based on the clean sampling locations (i.e. results less than the FDEP R-SCTLs) and physical boundaries (i.e. building wall), as depicted in the FDEP-approved IMWP (NASA 2012). The sampling locations were

physically identified and marked in the field prior to excavation. The locations of underground utilities within and adjacent to each excavation were marked by KSC utility locators and potholed, to physically verify depth, by FECC personnel. Barricades, cones, construction caution tape, and construction fencing were positioned and placed around work zones to limit entry into the excavation areas for site safety and security purposes. Fire escape routes and contact information signs were posted at building doorways exiting into the work zones. Construction and work safety signs, with contact information, were posted at work zone entrances. Facility personnel ingress/egress routes and work zones are shown on Figure 3-1.

### 3.6 MEDIA MITIGATION

During the IM, soil, gravel, and concrete with PCB concentrations above screening criteria were excavated in accordance with the FDEP-approved IMWP. An excavator and hand-digging methods were used to excavate material to the established clean sample lines (horizontal and vertical); therefore, confirmatory sampling was not warranted. Final excavation depths were measured to document that the total depth of each excavation area was achieved. Material was loaded into a front-end loader and transported directly to on-site roll-off containers for removal and disposal. During excavation activities, dust monitoring was conducted in the work zone to ensure dust levels remained below action levels (2.5 milligrams per cubic meter [ $\text{mg}/\text{m}^3$ ] total dust for 15 minute time weighted average). Dust concentration remained below action levels during excavation activities.

The excavation areas and depths are shown on Figure 3-2, and the excavation boundary coordinates are summarized in Table 3-1. Field notes completed during the IM are provided in Appendix B. Photographs of the excavation activities are provided in Appendix E.

### 3.7 MEDIA DISPOSAL

A total of 161.5 tons of non-TSCA PCB-affected media was excavated from the Site from 17 to 20 July 2015 and transported off site to the Omni Waste in Osceola County, Florida, for disposal. The weight tickets and disposal manifests for the trucks are provided in Appendix F.

### 3.8 BACKFILLING AND RESTORATION

Prior to being delivered to Site, the backfill material was sampled and laboratory analyzed for total recoverable petroleum hydrocarbons (TRPHs), volatile organic compounds (VOCs), semi-VOCs, pesticides and polychlorinated biphenyls (PCBs), and metals. The laboratory results indicated that the concentrations of analyzed constituents in the backfill was within applicable acceptance criteria. Areas 2E-1 East, 2E-2 East, 2E-3 East, and 2E-5 East were backfilled with clean fill, graded, and compacted to appropriate depths. Area 2E-4 was not backfilled with clean fill because only concrete was removed from this area. However, Area 2E-4 was graded and

compacted prior to site restoration. Density testing was performed at four locations within areas 2E-1 East, 2E-2 East, 2E-3 East, and 2E-4 East prior to final restoration to ensure proper compaction was achieved. Compaction results were greater than 98 percent of the proctor. Backfill laboratory analytical reports are included in Appendix C, and density testing reports are included in Appendix G.

Areas 2E-1 East, 2E-2 East, and 2E-4 East were restored with approximately 6-inch thick, 4,000 pounds per square inch (psi) fiber-reinforced concrete. Expansion joints were cut into area 2E-2 East, and parking lot lines were repainted in area 2E-4 East to match existing. Areas 2E-3 East and 2E-5 East were restored with approximately 2 to 4 inches of #57 stone, spread evenly over the areas to match existing.

Field notes of the IM activities have been included in Appendix B. Photographs of the backfilling/restoration activities and the restored areas are provided in Appendix E.

### 3.9 DECONTAMINATION

A decontamination area was constructed to clean equipment used during IM implementation activities. Equipment used to excavate soil was decontaminated with brushes/brooms and water. IDW generated during the decontamination of equipment was placed in an approved 55-gallon drum and staged on a NASA provided spill pallet.

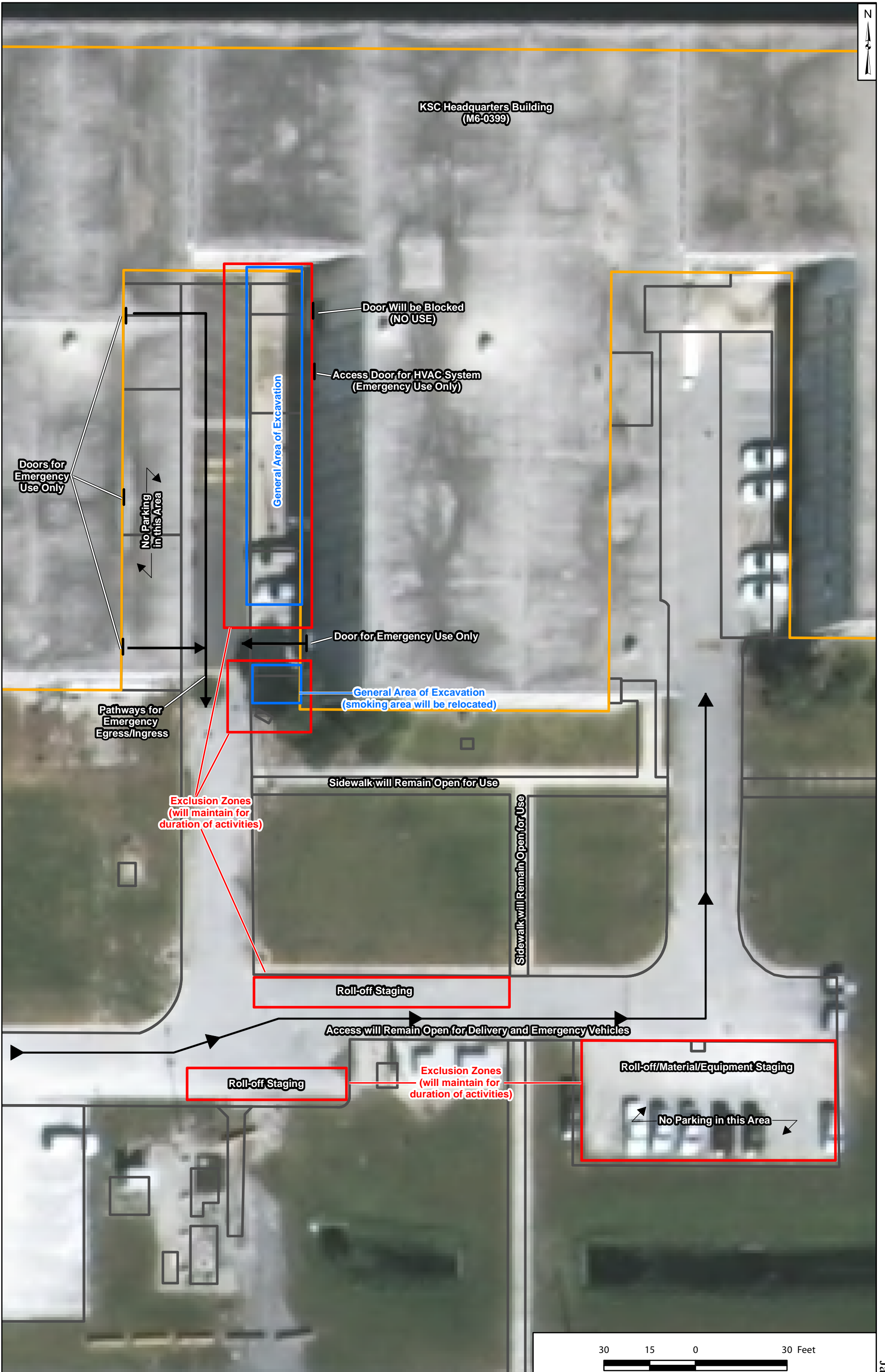
A wipe sample was obtained from the decontaminated equipment. The wipe sample was analyzed for PCBs. Laboratory results indicated that PCB concentrations in the wipe sample were below the laboratory method detection limit. Laboratory analytical reports and KEDD completion tickets of liquid IDW samples are included in Appendix C and Appendix D, respectively.

**Table 3-1**  
**Summary of Excavation Boundary Coordinates**  
**Interim Measure Activities**  
**KSC Headquarters Building Area**  
**Kennedy Space Center, FL**

Excavation Area	Sample Location ID	Easting	Northing
2E-1 East	Point 1	234229.076	464349.434
	Point 2	234234.152	464349.443
	Point 3	234229.039	464345.752
	CT0026	234228.881	464349.271
2E-2 East	Point 2	234234.152	464349.443
	Point 3	234229.039	464345.752
	Point 4	234229.468	464336.593
	Point 5	234234.188	464336.602
	Point 6	234229.367	464336.565
2E-3 East	Point 4	234229.468	464336.59
	Point 5	234234.188	464336.602
	Point 6	234229.367	464336.565
	Point 7	234229.367	464323.260
	Point 8	234234.188	464323.251
2E-4 East	CT0041/SB0154	234232.846	464322.740
	CT0042	234232.770	464319.366
	Point 10	234233.696	464322.754
	Point 11	234229.021	464319.337
	Point 12	234233.696	464319.346
	Point 9	234229.012	464322.763
	PV0017/RB0017/SB0125	234229.052	464321.359
2E-5 East	CT0033/SB0148	234229.158	464310.033
	CT0036	234229.178	464307.529
	CT0037	234233.467	464310.013
	Point 13	234229.404	464309.758
	Point 14	234234.106	464309.777
	Point 15	234229.349	464304.864
	Point 16	234234.161	464304.864
	SB0149	234229.768	464309.557
	SB0150	234230.034	464304.817
SB0163	234233.190	464304.810	

**Notes:**

1. Eastings and Northings are referenced to the North American Vertical Datum of 1983 State Plane Coordinate System Florida East meters.
2. KSC = Kennedy Space Center.
3. PV = pavement sample.
4. RB = road base sample.
5. SB = soil boring.
6. CT = concrete sample.



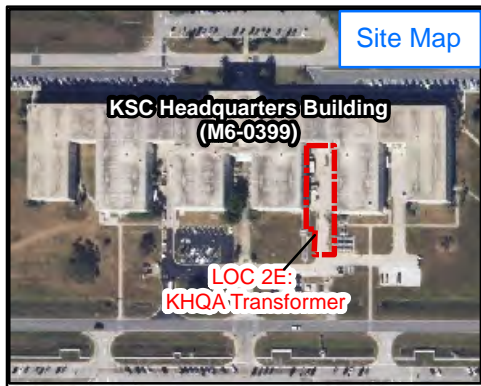
Legend	
	Building Outline
	Street/Pavement Outline

		Figure <b>3-1</b>
<b>Ingress/Egress and Work Zones</b>		
Titusville, FL	January 2016	

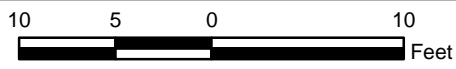
3-7/3-8

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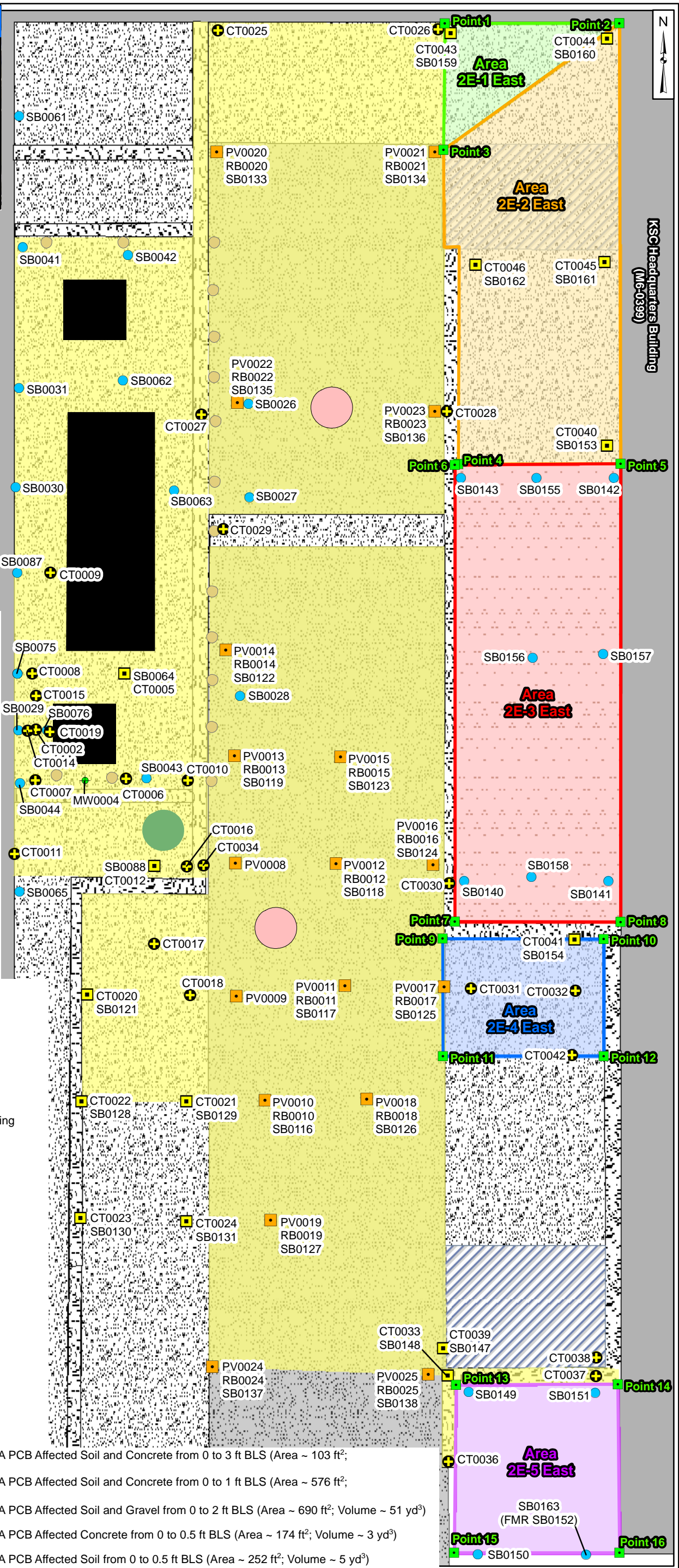
Point ID	X	Y
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Point 2	234234.152	464349.443
Point 3	234229.039	464345.752
Point 4	234229.468	464336.593
Point 5	234234.188	464336.602
Point 6	234229.367	464336.565
Point 7	234229.367	464323.260
Point 8	234234.188	464323.251
Point 9	234229.012	464322.763
Point 10	234233.696	464322.754
Point 11	234229.021	464319.337
Point 12	234233.696	464319.346
Point 13	234229.404	464309.758
Point 14	234234.106	464309.777
Point 15	234229.349	464304.864
Point 16	234234.161	464304.864
CT0026	234228.881	464349.271
CT0033/SB0148	234229.158	464310.033
CT0036	234229.178	464307.529
CT0037	234233.467	464310.013
CT0041/SB0154	234232.846	464322.740
CT0042	234242.770	464319.366
PV0017/RB0017/SB0125	234229.052	464321.359
SB0163 (FMR SB0152)	234233.190	464304.810



Notes:  
 ft - feet  
 BLS - below land surface  
 CT - concrete  
 FMR - also known as; there was a sample with this number on 1/5/11 so the name was changed to SB0163  
 ft<sup>2</sup> - square feet  
 IMWP - Interim Measure Work Plan  
 KHQA - KSC Headquarters Building Area  
 KSC - Kennedy Space Center  
 LOC - location of concern  
 MW - monitoring well  
 NASA - National Aeronautics and Space Administration  
 PCBs - Polychlorinated Biphenyls  
 PV - pavement  
 RB - road base  
 SB - soil boring  
 TSCA - Toxic Substance Control Act  
 yd<sup>3</sup> - cubic yards  
 X and Y coordinates are provided in United States Plane North American Datum of 1983, Florida East, meters.

**Legend**

- Coordinate Location
- ⊕ Concrete Sample
- Soil Boring
- ◆ Pavement Sample
- Pavement, Road Base, and Soil Boring
- Concrete Sample and Soil Boring
- + Monitoring Well
- Bollard
- Electric Manhole
- Storm Sewer Manhole
- Electrical Equipment
- Concrete Ramp
- 2011 Interim Measure Area
- Concrete
- Curb
- Gravel
- Building
- Asphalt
- Area 2E-1 East: Excavate Non-TSCA PCB Affected Soil and Concrete from 0 to 3 ft BLS (Area ~ 103 ft<sup>2</sup>; Volume ~ 11 yd<sup>3</sup>)
- Area 2E-2 East: Excavate Non-TSCA PCB Affected Soil and Concrete from 0 to 1 ft BLS (Area ~ 576 ft<sup>2</sup>; Volume ~ 21 yd<sup>3</sup>)
- Area 2E-3 East: Excavate Non-TSCA PCB Affected Soil and Gravel from 0 to 2 ft BLS (Area ~ 690 ft<sup>2</sup>; Volume ~ 51 yd<sup>3</sup>)
- Area 2E-4 East: Excavate Non-TSCA PCB Affected Concrete from 0 to 0.5 ft BLS (Area ~ 174 ft<sup>2</sup>; Volume ~ 3 yd<sup>3</sup>)
- Area 2E-5 East: Excavate Non-TSCA PCB Affected Soil from 0 to 0.5 ft BLS (Area ~ 252 ft<sup>2</sup>; Volume ~ 5 yd<sup>3</sup>)



3-9/3-10

Path: [Titusville-01\DATA] P:\068\VR2576\_KSC\_HQ\MXD\LOC2E\_East\LOC2E\_East\_Excav\_areas.mxd 21 January 2016 MAH

Figure 3-2  
 LOC 2E Eastern Interim Measure Areas

KHQA IM Report - Section III  
 Revision: 0  
 January 2016

## SECTION IV

### IM SUMMARY AND RECOMMENDATIONS

#### 4.1 IM SUMMARY

IM activities were conducted in accordance with the FDEP-approved IMWP (NASA 2012). During the IM, the eastern side of LOC 2E containing soil, gravel, and concrete with PCB concentrations greater than the FDEP R-SCTL were excavated to the established clean sample lines (horizontal and vertical); therefore, confirmatory sampling was not warranted. A total of 161.5 tons of non-TSCA PCB-affected media was transported off site for proper disposal at the Omni Landfill. Areas 2E-1 East, 2E-2 East, and 2E-4 East were restored with approximately 6 inches of concrete, and areas 2E-3 East and 2E-5 East were restored with approximately 2 to 4 inches of #57 stone to match existing.

#### 4.2 RECOMMENDATIONS

Based upon the implementation of the IM, NFA was recommended for soil on the eastern side of LOC 2E at the September 2015 meeting, and the KSCRT reached consensus on the NFA recommendation. PCB-affected soil and concrete in LOC 2D and the western side of LOC 2E will continued to be managed under the current LUCIP. An IMWP will be prepared to remove these media during the building demolition.

## SECTION V

### REFERENCES

National Aeronautics and Space Administration, 2009. *Headquarters Building Area (SWMU 104) Resource Conservation and Recovery Act Facility Investigation Work Plan*, Kennedy Space Center, Florida (Revision 0), prepared by ARCADIS U.S. Inc., Tampa, Florida, May.

National Aeronautics and Space Administration, 2010. *Headquarters Building Area (SWMU 104) Interim Measure Work Plan*, Kennedy Space Center, Florida, KSC-TA-11385 (Revision 0), prepared by ARCADIS U.S. Inc., Tampa, Florida, November.

National Aeronautics and Space Administration, 2011. *Headquarters Building Area (SWMU 104) Interim Measure Report*, Kennedy Space Center, Florida, KSC-TA-11497 (Revision 0), prepared by ARCADIS U.S. Inc., Tampa, Florida, June.

National Aeronautics and Space Administration, 2012. *Headquarters Building Area (SWMU 104) Interim Measure Work Plan – LOC 2E*, Kennedy Space Center, Florida, KSC-TA-12207 (Revision 0), prepared by ARCADIS U.S. Inc., Tampa, Florida, August.

**APPENDIX A**

**MEETING MINUTES**

## Meeting Minutes Report

**Attendees:**

(Tetra Tech) Steve Ruffing, (FDEP) John Armstrong, (NASA) Mike Deliz, (Geosyntec) Melissa Hensley, (IHA) Tim Mrdjenovich, (NASA) Rosaly Santos-Ebaugh, (Tetra Tech) Mark Speranza, (Jacobs Engineering) Guy Fazzio, (NASA) Dinh Vo, (Tetra Tech) Mark Jonnet, (Tetra Tech) Matt Shelton, (IHA) Michele Cielukowski, (NASA) Anne Chrest, (Tetra Tech) Deborah Wilson, (Tetra Tech) Chris Hook, (Geosyntec) Joseph Bartlett, (Geosyntec) Eric Sager, (CORE Engineering and Construction) Harlan Faircloth, (Geosyntec) Crystal Towns, (Geosyntec) Whitney Morrison

**September 10, 2015 Team Meeting**

**Meeting Date From: 9/10/2015 To: 9/10/2015**

**Meeting ID: 1509**

**Location Description: Kennedy Space Center-FL**

**Meeting Type: Full Partnering Team Meeting**

Meeting Topic: Minutes			
Minute: 1509-M1	Site:	Goal:	Discussion:
Presenter: TEAM, TEAM	CENTERWIDE		<p>Team consensus reached that July 2015 revision 1 meeting minutes are final.</p> <p>Bob Kline is not coming back to the remediation team after his source board commitment. Bob is now the permitting and compliance lead. For projects that were Bob's, the remediation project manager that has been covering for him will remain the site's project manager.</p>
Decision:1	Team consensus reached that July 2015 revision 1 meeting minutes are final.		

Meeting Topic: F&W/NPS Write-Offs (PRL 235)			
Minute: 1509-M2	Site:	Goal:	Discussion:
Presenter: Mrdjenovich, Tim	F&W/NPS WRITE-OFFS (PRL 235)	Present SWMU assessment and obtain team consensus on path forward.	<p>The site consists of 33 facilities assigned a number by NASA following acquisition. There are no full-time occupants on any portion of the site with the exception of the US Fish and Wildlife Headquarters and Visitors Center. The structures are primarily comfort stations, observation platforms, shelters, kiosks, marquees, and visitor complexes. No ecological site visits were conducted or planned. All locations are mowed and maintained and therefore not considered ecological habitat. Site was divided into five areas: Playalinda Beach Area, Dummit Cove Area, Beach Road Area, Black Point Wildlife Area, and North Area.</p> <p>Playalinda Beach Area – Comfort stations are concrete block structures consisting of men's and women's restroom facilities with paved parking areas. Comfort stations are connected to buried secondary electrical line segment. Comfort stations have a buried septic holding tank and no potable water distribution line service. Comfort stations and parking areas are owned by the US National Park Service. There is also a wood pavilion shelter and a first aid station (concrete block with concrete foundation) in the Playalinda Beach Area. No locations of concerns were identified during the Solid Waste Management Unit (SWMU) assessment.</p>

# Meeting Minutes Report

September 10, 2015 Team Meeting

Meeting Date From: 9/10/2015 To: 9/10/2015

Meeting ID: 1509

Location Description: Kennedy Space Center-FL

Meeting Type: Full Partnering Team Meeting

Decision:37	Team consensus reached to continue semi-annual sampling of six wells (MW0001, MW0002, MW0004, MW0005, MW0007, and MW0009) for VOCs with the next sampling events tentatively scheduled for November 2015 and May 2016.
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<b>Meeting Topic:</b>	<b>Headquarters Building Area (SWMU104)</b>		
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<b>Minute:</b> 1509-M10	<b>Site:</b>	<b>Goal:</b>	<b>Discussion:</b>
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<p><b>Presenter:</b> Bartlett, Joseph</p>	<p>KSC HEADQUARTERS BUILDING AREA, M6-0399 (SWMU 104)</p>	<p>Present interim measures soil excavation from LOC 2E.</p>	<p>The RFI identified LOC 2C, 2E, 2D, and 2F with areas of PCBs above FDEP SCTLs and Toxic Substance Control Act (TSCA) screening criteria. An interim measures was conducted in January 2011 which removed PCB contaminated soil from LOC 2C (18 tons non-TSCA), LOC 2F (1.1 tons TSCA and 47.2 tons non-TSCA), LOC 2D (5.5 tons TSCA and 40.2 tons non-TSCA with PCB-affected media remaining under transformer pad and in between pad and building), and LOC 2E [14.9 tons TSCA and 46.5 tons non-TSCA with PCB-affected media remaining in transformer pad (encapsulated per 40CFR761) and in between pad and building]. No further action was achieved for LOC 2C and 3F. The remaining impacts in LOC 2D and western side of LOC 2E will be managed with a LUCIP and will be removed after the building has been vacated and prior to building demolition (approximately 2017). Additional soil and concrete samples were collected resulting in the delineation of impacts in the eastern side of LOC 2E. IMWP was approved for eastern side of LOC 2E at the August 2012 team meeting.</p> <p>The interim measures objective for LOC 2E is to Remove PCB-affected media to below residential SCTLs from the eastern side of LOC 2E. Coordination with facility manager, protective services, fire inspector, and NASA Safety resulted in the following:</p> <ul style="list-style-type: none"> <li>• Pre-construction meeting to discuss schedule, specifications/requests due to construction, and site restoration</li> <li>• Placement of signs at exits in and around excavation area to maintain ingress/egress in case of emergency</li> <li>• Most intrusive activities completed on weekend to minimize disruption</li> <li>• Video taken to document pre-IM conditions</li> <li>• Successful coordinated planning and execution to complete work between "no dig days" (July 14-15 and July 21-22).</li> </ul> <p>A site-specific health and safety plan (HASP) for soil excavation was created. Health safety considerations: dust monitoring was conducted, travel lanes for emergency vehicles were maintained,</p>
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## Meeting Minutes Report

<b>Presenter: Bartlett, Joseph</b>	KSC HEADQUARTERS BUILDING AREA, M6-0399 (SWMU 104)	Present interim measures soil excavation from LOC 2E.	<p>access of facility workers to IM areas restricted/limited, and NASA Safety on-site most days (including weekends) which provided positive feedback with no safety issues documented.</p> <p>A total of 10 roll-offs of excavated material weighing 161.5 tons was transported to Omni Landfill in St. Cloud, Florida. Excavation extended horizontally and vertically to samples below FDEP RSCTLs. Areas were backfilled, compacted, graded, and finished to match existing prior to IM. Density testing was performed at four locations prior to final restoration with all results greater than 98% compaction. LOC areas 2E-1, 2E-2, and 2E-4 received approximately 6 inch thick 4,000-psi fiber-reinforced concrete. LOC areas 2E-3 and 2E-5 received approximately 2 to 4 inches of #57 stone. Upon completion equipment was decontaminated, rinseate collected and containerized, select equipment was sampled using PCB wipe. There were no impacts detected.</p> <p><b>Lessons Learned:</b></p> <ul style="list-style-type: none"> <li>• Pre-construction meeting/"Nuts and Bolts" meeting, with all parties involved, necessary for successful implementation</li> <li>• Placing signage and maintaining ingress/egress routes for facility personnel greatly reduced pedestrian traffic in and around work area</li> <li>• Intrusive activities completed on weekend greatly reduced exposure and interaction of facility personnel</li> <li>• Waste characterization sampling and profile approval pre-IM allowed for immediate removal of filled roll-offs</li> </ul> <p>Team consensus reached for no further action for eastern side of LOC 2E.</p>
<b>Decision:38</b>	Team consensus reached for no further action for eastern side of LOC 2E.		

<b>Meeting Topic: Spaceflight Tracking and Data Networking Station (SWMU 086)</b>			
<b>Minute: 1509-M11</b>	<b>Site:</b>	<b>Goal:</b>	<b>Discussion:</b>
<b>Presenter: Chrest, Anne</b>	SPACEFLIGHT TRACKING AND DATA NETWORK STATION (SWMU 086)	Present site rehabilitation completion order (SRCO)	Please provide Anne any edits by Friday, September 18th. Anne provided a high level overview of the package. FDEP request a map showing groundwater decrease (tag map will be better to show the decrease than a table).

<b>Meeting Topic: Stand-alone electrical equipment (PRL 227)</b>			
<b>Minute: 1509-M12</b>	<b>Site:</b>	<b>Goal:</b>	<b>Discussion:</b>
<b>Presenter: Mrdjenovich, Tim</b>	STAND ALONE ELECTRICAL EQUIPMENT (PRL 227)	Present SWMU assessment and obtain consensus on path forward.	Site consists of electric transformers pad-mounted, electrical load break switches, electrical vacuum fault interrupters, and electrical transformers pole-mounted. This assessment is divided into three areas, since the KSC Phase 1 Site Assessments were also grouped into the three areas as follows:

**APPENDIX B**

**FIELD FORMS**  
**(FURNISHED ON CD)**



JUNE 2015


IDW WASTE CHARACTERIZATION SOIL SAMPLING  
FIELD FORMS

Project: <u>KSC HQ Bldg.</u>	Date: <u>06/22/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>01</u>
Contractors: _____	

Work Performed	
Well Installation: _____	Sampling Soil: <u>IDW Waste Characterization</u>
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: _____	Sampling Drums: _____
_____	_____
_____	_____

Observations/Issues of Concern
0930: J. Bartlett at office. Load vehicle, travel to site
1030: JB onsite w/ utility locators - Begin locate.
1045: Utility locate complete. Ann Christ (NASA KSC RPM) and Intern onsite to observe activities. Discuss utility locate activities and scope of work of AC and intern.
1100: Begin collecting waste characterization soil samples. Composite sample from 2 locations in Area 2E-3 to 2 ft BLS and 1 location in Area 2E-5 to 0.5 ft BLS.
1120: KHQA-IDW001-000.0-20150622 sample collected. Excess soil poured back into bore holes and equipment deconned.
1145: Offsite. Travel back to office to prep samples for pickup at offic @ 2pm.

Plans/Future Activities


06/22/15.  
 \_\_\_\_\_  
 Signature/Date


JULY 2015  
IM IMPLEMENTATION  
FIELD FORMS

Project: <u>KHQA</u>	Date: <u>07/16/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0440</u>
Contractors: <u>F&amp;C</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <input checked="" type="checkbox"/> Pre-construction _____	Sampling Drums: _____

Observations/Issues of Concern
0900: J. Bartlett travel to site
0930: On site w/ F&C (Fritz and Angelo). Fire Marshall onsite as well discussing issues w/ other contractor. Unbeknownst to the group, there will be <del>work</del> utility work being performed <sup>east</sup> north of the gravel parking lot (proposed lay-down area) and we will need to maintain thoroughfare through the proposed lay-down area for them.
1030: JB and F&C place barricades / cones in <del>parking</del> available parking areas to begin blocking off proposed lay-down areas and excavation areas.
1130: F&C will return later in afternoon to barricade any addition available areas. JB offsite.

Plans/Future Activities

 07/16/15  
 Signature/Date

Project: <u>KHQA</u>	Date: <u>07/17/15</u>
Project No.: <u>FR1576</u>	Task No.: <u>0440</u>
Contractors: <u>FELC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>X IMWP Excavation</u>	Sampling Drums: _____

Observations/Issues of Concern
0645: J. Bartlett <del>at</del> <sup>at</sup> building station w/ FELC.
0700: Onsite w/ FELC and E. Sager (Geosyntec PM) - Tailgate safety meeting.
0730: FELC begins dropping roll offs in designated locations. (3 roll offs delivered)
0740: Anne Chrusl (NASA RPM) onsite.
0800: Utility locator onsite - Begins locate. JB and AC begin placing emergency exit signage and designated/approval locations.
0815: Romeo (NASA Safety) onsite. ES discusses scope of work w/ NASA Safety.
0845: JB and AC completed hanging signage. AC and utility locators offsite.
0900: FELC make work trailer; #57 stow delivery, front end loader delivery. FELC begin pot holing for marked utilities. Gordon Kirkland (FELC) onsite. Margo (Fire Marshall) onsite to inspect signage.
0940: ES and GK offsite.
1005: 2 loads of backfill material delivered to site. FELC continue pot holing.
1035: Load #3 of backfill material delivered to site. Roll-off #4 delivered to site. Pot holing complete. FELC cut down palm tree in Area <del>2E-5</del> 2E-5.
1105: Miniexcavator (308) and mini-excavator w/ hammer (304) delivered to site.

Plans/Future Activities <del>(JB)</del>
1125: Load #4 of backfill material delivered to site. Excavators staged w/in exclusion zone.
1130-1230: Lunch      1155: Phase I lightning condition.
1230: Load #4, 5, 6 of backfill material delivered to site. FELC begin excavating Area 2E-5. (6" BLS).
1300: AC and Ryan Ouma (NASA Intern) on site to observe activities.

AC signs all work manifests.  
Roll off #5 delivered.

[Signature] 07/17/15  
Signature/Date

Project: <u>KHQA</u>	Date: <u>07/17/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0440</u>
Contractors: <u>PECC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>1 MWP</u>	Sampling Drums: _____

Observations/Issues of Concern
1330: RO of site. PECC continue excavating area 2E-5
1400: Roll off #6 & 7 delivered to site
1445: Complete excavation in Area 2E-5. Roll off #8 delivered to site. JB attempted to retrieve spill pallet from POC, however facility had already closed. Will retrieve tomorrow. ES onsite.
1515: PECC begin setting up for concrete saw sections. JD calibrate dust monitor: PPR-1000AN : Calibration OK
1530: PECC begin saw concrete cutting and breaking up concrete areas. Dust Monitor: <del>0.007 mg/m<sup>3</sup></del> @JC: 0.002 mg/m <sup>3</sup> ; TWA: 0.007 mg/m <sup>3</sup>
1600: AC & RO of site. PECC continue concrete sawing.
1615: PECC complete concrete sawing. Begin removing concrete from areas <del>2E-1</del> and 2E-2. Concrete is 4" thick. (4" will be accounted for in total depth of excavation). PECC begin busting concrete in area 2E-4.
1635: Dust Monitor - @JC: 0.006 mg/m <sup>3</sup> ; TWA: 0.014 mg/m <sup>3</sup>
1730: PECC begin removing concrete in area 2E-4. Continue to bust up concrete in area 2E-1. Dust Monitor: @JC: 0.000 mg/m <sup>3</sup> . TWA: 0.007 mg/m <sup>3</sup>

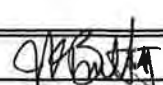
Plans/Future Activities (JB)
1803 PECC COMPLETE CONCRETE REMOVAL IN 2E-4. Conc. 0.006 mg/m <sup>3</sup> . TWA 0.005 mg/m <sup>3</sup> . <span style="float: right;">CONTINUE TO USE CONCRETE IN 2E-1 &amp; 2E-2.</span>
1811 BEGIN REMOVING CONCRETE IN 2E-1 AND 2E-2.
1849: 2 <sup>ND</sup> ROLL-OFF FULL. STOP REMOVING CONCRETE IN 2E-1 & 2E-2. BEGIN CLEANING SITE FOR MOUNTAIN Conc. 0.000 mg/m <sup>3</sup> , TWA 0.004 mg/m <sup>3</sup>
1902 OFF SITE

 07/17/15  
 Signature/Date

Project: <u>KHQA</u>	Date: <u>07/18/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0490</u>
Contractors: <u>FEC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>X 1 MW Excavation</u>	Sampling Drums: _____

Observations/Issues of Concern
0700: J. Bartlett onsite w/ E. Sager and FECC. Tailgate safety meeting.
0715: FECC remove Roll off #1 (53001).
FECC begin to correct saw remaining concrete in area 2E-1 and concrete slabs in front of doorways.
0730: Calibrate PDR-1000AN Dust Monitor. CONC: 0.008 mg/m <sup>3</sup> , TWA: 0.025 mg/m <sup>3</sup>
0745: Abacus onsite to perform work in <del>interior</del> area southwest of site. Discuss scope of work and safety concerns.
0815: FECC remove Roll-off #2 (53032).
0840: FECC <del>remove</del> removed concrete slab from area 2E-1. Put hole for utilities under slab. Begin excavating soil from areas 2E-1 and 2E-2.
Remove (NASA safety) onsite for inspection.
Dust Monitor: CONC: 0.006 mg/m <sup>3</sup> , TWA: 0.011 mg/m <sup>3</sup>
0940: FECC complete concrete sawing. Continue excavating soil from 2E-1 and 2E-2.
Dust Monitor - CONC: 0.054 mg/m <sup>3</sup> , TWA: 0.025 mg/m <sup>3</sup> . Remove (NASA Safety) offsite.
1000: Abacus completed activities. Offsite.

Plans/Future Activities <sup>JTS</sup>
1050: FECC complete excavating soil from area 2E-1 to 3 ft BLS. Continue excavating area 2E-2 to 1 ft BLS. Dust Monitor - CONC: 0.028 mg/m <sup>3</sup> , TWA: 0.035 mg/m <sup>3</sup>
1135: E. Sager offsite. FECC continue excavating soil from area 2E-2.
1200-1300: Lunch
1300: FECC backfill area 2E-1. Roll off #9 & #10 delivered to site. 1310-1330: Phase II Leaking condition. Stop work
1330: Continue excavating soil from area 2E-2.
Dust Monitor: CONC: 0.027 mg/m <sup>3</sup> TWA: 0.143 mg/m <sup>3</sup>
 07/18/15 Signature/Date

Project: <u>KHQA</u>	Date: <u>07/18/15</u>
Project No.: <u>FR2596</u>	Task No.: <u>0440</u>
Contractors: <u>FELL</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>MWP excavation.</u>	Sampling Drums: _____

Observations/Issues of Concern
1405: Complete excavating soil from area 2E-2. to 1 A BLS. FELL begin excavating soil from area 2E-3. to 2 A BLS.
1450: Dust Monitor - CONC: 0.010 mg/m <sup>3</sup> , TWA: 0.120 mg/m <sup>3</sup> FELL continue excavating area 2E-3.
1640: Area Monitor - CONC: 0.016 mg/m <sup>3</sup> , TWA: 0.100 mg/m <sup>3</sup> . FELL continue excavating area 2E-3. ~ half complete.
1700: No phase conditions, however very heavy rains. Stop work until rain passes.
1730: Rains end. Continue excavation in area 2E-3.
1815: Dust Monitor - CONC: 0.000 mg/m <sup>3</sup> , TWA: 0.002 mg/m <sup>3</sup> . FELL continue excavating in area 2E-3.
1830: Complete excavating for the day. ~ 15 ft of area 2E-3 remaining. total of 8 roll-off's filled. 2 remaining. Clean / secure site.
1846: off site

Plans/Future Activities


07/18/15  
 Signature/Date




Project: <u>KHAA</u>	Date: <u>07/19/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0440</u>
Contractors: <u>F&amp;L</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>X IMWP Excavation</u>	Sampling Drums: _____
_____	_____
_____	_____

Observations/Issues of Concern
0700: J. Bartlett onsite w/ F&L - Tailgate safety meeting.
0715: F&L begin mobilizing equipment into work zone - will focus on restoration activities (backfilling) areas that will receive concrete cap, then will complete excavation. Calibrate PDR-1000AS (Dust Monitor): Calibration OK.
0725: F&L begin backfilling activities in areas 2E-1 and 2E-2. Dust Monitoring - CONC: 0.011 $\text{mg}/\text{m}^3$ , TWA: 0.007 $\text{mg}/\text{m}^3$ .
0810: Complete backfilling to 4" BLS <del>to</del> ~ 3.5" BLS (pre-compaction) in area 2E-1. Continue backfilling in area 2E-2, begin backfilling in open area of 2E-3.
0840: Dust monitoring - CONC: 0.012 $\text{mg}/\text{m}^3$ , TWA: 0.012 $\text{mg}/\text{m}^3$ .
0930: <del>Survey</del> Complete backfilling area 2E-2. Surveyed in pre-compaction elevations of areas 2E-1 and 2E-2. Continue backfilling open area of area 2E-3. Dust Monitoring - CONC: 0.012 $\text{mg}/\text{m}^3$ , TWA: 0.012 $\text{mg}/\text{m}^3$ .
1030: Begin compacting (vibratory plate compactor) areas 2E-1 and 2E-2. Stop backfilling area 2E-3.

Plans/Future Activities <del>(S)</del>
Dust Monitoring - CONC: 0.006 $\text{mg}/\text{m}^3$ , TWA: 0.012 $\text{mg}/\text{m}^3$
1130: complete compacting area 2E-1 and 2E-2. F&L continue excavating area 2E-3 to 2" BLS. Dust Monitoring - CONC: 0.010 $\text{mg}/\text{m}^3$ , TWA: 0.011 $\text{mg}/\text{m}^3$ .
1200-1300: Lunch
1300: F&L continue excavating area 2E-3. Dust Monitoring - CONC: 0.009 $\text{mg}/\text{m}^3$ , TWA: 0.011 $\text{mg}/\text{m}^3$

 07/19/15  
 Signature/Date

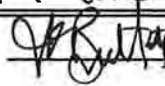


Project: <u>KHQA</u>	Date: <u>07/20/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0470</u>
Contractors: <u>F&amp;CC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>X IMWP Excavation</u>	Sampling Drums: _____

Observations/Issues of Concern
0700: J. Bartlett onsite w/ F&CC. Tailgate Safety meeting. Contact NASA Duty Office - confirmed today is OK to dig. No big delays on 21 and 22 July.
0715: F&CC begins compacting areas again in preparation of density testing. Conformed with E. Sager (Geosyntec PM), will be collecting 1 density per location (except area 2E-5 [6" BUS]) - total of 4 density test locations. Calibrate Dust Monitor (PDR-1000AN): Calibration ok.
0730: Dust Monitoring - CONC: 0.013 mg/m <sup>3</sup> , TWA: 0.015 mg/m <sup>3</sup> .
0800: Prep for density testing complete. F&CC continue excavating remaining area 2E-3. (area around light pole - will excavate and backfill in sections around the light pole to maintain structural integrity).
0830: Romo (NASA Safety) onsite for inspection.
0850: NASA Safety Office - no safety incidents reported. Dust Monitoring - CONC: 0.010 mg/m <sup>3</sup> , TWA: 0.012 mg/m <sup>3</sup> .
0915: Excavation complete. Footer of light pole discovered to be large/deep enough to be free standing w/ 2 ft BUS excavation. Roll off #3 (5300B) removed from site.

Plans/Future Activities (J&S)
0930: F&CC <del>will</del> continue adding backfill to area 2E-3.
1015: A. Christ, R. Ometz, As Vo, and H. Plaza (NASA KSCRT) onsite to conduct site inspection. - walk site, discuss scope of work.
1030: NASA KSCRT offsite. No incidents reported. F&CC continue backfilling.
1035: Margy (NASA Fire Marshall) onsite, expressed concerns about roll-offs that are staged along roadway - fire engine crew reported the area was too narrow for an engine. Since they will only be onsite through Wednesday Margy OK'd their location - no further action necessary.

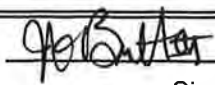
 07/20/15  
 Signature/Date

Project: <u>KHQA</u>	Date: <u>07/20/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0440</u>
Contractors: <u>FELC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>✓ IMWP Excavation.</u>	Sampling Drums: _____

Observations/Issues of Concern
1105: Universal onsite for perform density testing. 1 Density Test location will be performed in areas 2E-1, 2E-2, 2E-3, and 2E-4 (no pactor for native fill).
1125: Density tests complete. All results greater than 98%. Complete backfilling 2E-3 Dust monitoring — CONC: 0.000 $\mu\text{g}/\text{m}^3$ , TWA: 0.000 $\mu\text{g}/\text{m}^3$ .
1130-1230: Lunch.
1230: FELC continue compaction of backfill in area <del>2E-3</del> 2E-3. Dust Monitoring — CONC: 0.000 $\mu\text{g}/\text{m}^3$ , TWA: 0.000 $\mu\text{g}/\text{m}^3$ .
1300: Compaction of area 2E-3 complete. FELC begin backfilling area 2E-5 w/ backfill soil and finished w/ #57 stone. Will incorporate #57 stone with area that has never rock to make uniform back. Angelo T. offsite. to retrieve form boards and material for decon pit. Roll-off #4 (53014) removed from site.
1440: A. Ippolito back onsite w/ concrete form material. Heult gant <sup>(S)</sup> #57 stone application to complete form work. Dust Monitoring — CONC: 0.000 $\mu\text{g}/\text{m}^3$ , TWA: 0.000 $\mu\text{g}/\text{m}^3$ .

Plans/Future Activities <sup>(S)</sup>
1630: Complete form work. Phase 2 lightning warning. Clean/secure site. offsite.

 07/20/15  
 Signature/Date

Project: <u>KHQA</u>	Date: <u>07/21/15</u>
Project No.: <u>FA2576</u>	Task No.: <u>0400</u>
Contractors: <u>FECC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>X MWP Excavation</u>	Sampling Drums: _____
_____	_____
_____	_____

Observations/Issues of Concern
0700: J. Bartlett onsite w/ FECC. Tailgate safety meeting. FECC remove roll-off #5 (53053) and roll-off #6 (53019). Confirmed w/ NASA Duty Office -
0715: FECC continue #57 storm restoration in area 2E-5. Dust Monitor calibration: OK - conc: 0.003 mg/m <sup>3</sup> , TWA: 0.000 mg/m <sup>3</sup>
0735: Complete #57 storm restoration in area 2E-5 (w/ 2" #57 stone). Begin in area 2E-2
0745: Schoppe and McGuire (concrete contractor) onsite. Discuss scope of work and NASA protocols (no dig day). Begin mobilizing equipment and materials to pour areas 2E-1 and 2E-2 first.
0845: Romeo (NASA Safety) onsite for inspection. Walk site, discuss scope of work. — no incidents to report
0915: A. Christ onsite (NASA KSCRT PM) for site inspection. w/ Ryan O.
0930: Begin pouring concrete in areas 2E-1 and 2E-2.
0945: Romeo (NASA Safety) offsite.
1000: J. Langenbach (Geosyntec Project Director) onsite for site inspection. S&M continue pouring concrete in areas 2E-1 and 2E-2.

NO DIG TODAY

Plans/Future Activities
1015: AC and RO offsite. FECC build decou pit for loader and excavator buckets
1040: JL offsite. FECC decou loader and excavator
1100: FECC complete decontaminating (dry brush, soapy solution, clean water). All water contained in 55-gal drums, stayed on spill pallet onsite.
collect PCB wipe sample: KHQA - WIP2001-000.0-20150721. (outside of excavator bucket)
10W by: Pallet # 201469 grass lot south of HQ

Drum # 201468 next to VFI 14 transformer


*[Signature]* 07/21/15  
Signature/Date

Project: <u>KHQA</u>	Date: <u>07/21/15</u>
Project No.: <u>PR2576</u>	Task No.: <u>0440</u>
Contractors: <u>FGLL</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>✓ IMWP Excavation.</u>	Sampling Drums: _____

Observations/Issues of Concern
1130: Concrete pouring complete. Roll-off #7 (53032) and #8 (53039) removed from site. Confirmed w/ WASA safety, concrete sawing expansion joints will be allowed tomorrow during No Dig Day.
1130-1230: Lunch.
1230: Continue completing/finishing concrete. FGLL continue w/ #57 storm restoration in area 2E-2.
1400: Concrete and #57 storm restoration activities complete. S&M efforts. Confirmed w/ Kathy M. (Facility Manager) spread left over material in pothole in parking lot south of excavation area and in parking lot used to stage equipment. FGLL continue cleaning/securing equipment and site.
1500: Phase 2 lightning warning. Offsite. Travel back to office.
1545: At office. Prep sample for scheduled pickup tomorrow.
1600: End of day.

Plans/Future Activities


 07/21/15  
 Signature/Date

Project: <u>KHQA</u>	Date: <u>07/22/15</u>
Project No.: <u>FR2576</u>	Task No.: <u>0440</u>
Contractors: <u>FELC</u>	

Work Performed	
Well Installation: _____	Sampling Soil: _____
Soil Borings: _____	Sampling SW/Sediment: _____
DPT: _____	Sampling Monitor Wells: _____
Well Inventory: _____	Sampling Hazardous Waste: _____
Other: <u>X IMWP Excavation</u>	Sampling Drums: _____

Observations/Issues of Concern
0700: J. Bartlett onsite w/ FELC. Tailgate safety meeting. FELC begin removing and loading all barricades and removing concrete form boards.
0800: Romeo (NASA Safety) onsite for inspection. — no incidents to report.
0815: Romeo offsite. FELC complete concrete form boards and barricade removal.
0830: FELC. Saw cut expansion joint in concrete in area 2E-2. Prep to paint parking spot line in area 2E-4. Remove roll-off #9 (53017)
0900: Ryan O. (NASA Intern) onsite to assist removal of exit signage.
0925: Complete removing signs. RO offsite. FELC stage all equipment (loader, excavator, water truck) in parking lot for scheduled pickup.
1030: Begin painting parking spot line in area 2E-4.
1100: Complete painting parking lines.
1100-1200: Lunch
1200: Remove roll-off #10 (53058). Remove remaining barricades (around wet paint) housekeeping — pick up trash, sweeping.
1250: Site clean/secure. Offsite. Travel back to office.
1330: At office. Unload vehicle. Post-field wrap up.

Plans/Future Activities


07/22/15  
 Signature/Date

**APPENDIX C**  
**LABORATORY ANALYTICAL REPORTS**  
**(FURNISHED ON CD)**



JUNE 2015

IDW WASTE CHARACTERIZATION SOIL SAMPLING  
LABORATORY ANALYTICAL REPORT

**Technical Report for**

**Geosyntec Consultants**

NASA HQ (KHQA); KSC, FL

FR2576

Accutest Job Number: FA25397

Sampling Date: 06/22/15

**Report to:**

Geosyntec Consultants  
6770 S Washington Ave Suite 3  
Titusville, FL 32780  
Esager@GeoSyntec.com; mhensley@geosyntec.com  
ATTN: Eric Sager

Total number of pages in report: **152**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



**Norm Farmer**  
**Technical Director**

**Client Service contact: Andrea Colby 407-425-6700**

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001)  
DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177),  
AK, AR, GA, KY, MA, NV, OK, UT, WA

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Summary of Hits .....</b>	<b>6</b>
<b>Section 4: Sample Results .....</b>	<b>7</b>
<b>4.1: FA25397-1: KHQA-IDW001-000.0-20150622 .....</b>	<b>8</b>
<b>Section 5: Misc. Forms .....</b>	<b>16</b>
<b>5.1: Chain of Custody .....</b>	<b>17</b>
<b>Section 6: GC/MS Volatiles - QC Data Summaries .....</b>	<b>19</b>
<b>6.1: Method Blank Summary .....</b>	<b>20</b>
<b>6.2: Blank Spike Summary .....</b>	<b>23</b>
<b>6.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>26</b>
<b>6.4: Instrument Performance Checks (BFB) .....</b>	<b>29</b>
<b>6.5: Internal Standard Area Summaries .....</b>	<b>31</b>
<b>6.6: Surrogate Recovery Summaries .....</b>	<b>32</b>
<b>6.7: Initial and Continuing Calibration Summaries .....</b>	<b>33</b>
<b>Section 7: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>45</b>
<b>7.1: Method Blank Summary .....</b>	<b>46</b>
<b>7.2: Blank Spike Summary .....</b>	<b>49</b>
<b>7.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>52</b>
<b>7.4: Instrument Performance Checks (DFTPP) .....</b>	<b>55</b>
<b>7.5: Internal Standard Area Summaries .....</b>	<b>57</b>
<b>7.6: Surrogate Recovery Summaries .....</b>	<b>58</b>
<b>7.7: Initial and Continuing Calibration Summaries .....</b>	<b>59</b>
<b>Section 8: GC Semi-volatiles - QC Data Summaries .....</b>	<b>71</b>
<b>8.1: Method Blank Summary .....</b>	<b>72</b>
<b>8.2: Blank Spike Summary .....</b>	<b>73</b>
<b>8.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>74</b>
<b>8.4: Surrogate Recovery Summaries .....</b>	<b>75</b>
<b>8.5: GC Surrogate Retention Time Summaries .....</b>	<b>76</b>
<b>8.6: Initial and Continuing Calibration Summaries .....</b>	<b>77</b>
<b>Section 9: Metals Analysis - QC Data Summaries .....</b>	<b>113</b>
<b>9.1: Inst QC MA12481: As,Ba,Cd,Cr,Pb,Se,Ag .....</b>	<b>114</b>
<b>9.2: Inst QC MA12483: Hg .....</b>	<b>132</b>
<b>9.3: Prep QC MP29072: As,Ba,Cd,Cr,Pb,Se,Ag .....</b>	<b>140</b>
<b>9.4: Prep QC MP29074: Hg .....</b>	<b>146</b>
<b>Section 10: General Chemistry - QC Data Summaries .....</b>	<b>151</b>
<b>10.1: Percent Solids Raw Data Summary .....</b>	<b>152</b>



## Sample Summary

Geosyntec Consultants

Job No: FA25397

NASA HQ (KHQA); KSC, FL  
Project No: FR2576

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA25397-1	06/22/15	11:20 JB	06/23/15	SO	Soil	KHQA-IDW001-000.0-20150622

---

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Geosyntec Consultants

**Job No:** FA25397

**Site:** NASA HQ (KHQA); KSC, FL

**Report Date:** 6/25/2015 12:51:29

1 Sample(s) were collected on 06/22/2015 and were received at Accutest SE on 06/23/2015 properly preserved, at 3.4 Deg. C and intact. These Samples received an Accutest job number of FA25397. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix:** SO

**Batch ID:** VY896

All samples were analyzed within the recommended method holding time.

Sample(s) FA25397-1MS, FA25397-1MSD were used as the QC samples indicated.

Samples FA25397-1 has Methylene Chloride reported with a "V" qualifier, indicating analyte is found in the associated method blank.

Matrix Spike Recovery(s) for 1,1-Dichloroethylene, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, Carbon Tetrachloride, Dichlorodifluoromethane, Hexachlorobutadiene, Naphthalene, Vinyl Acetate are outside control limits. Probable cause is due to matrix interference. For method performance in a clean matrix, refer to Blank Spike.

Matrix Spike Duplicate Recovery(s) for 1,1-Dichloroethylene, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, Carbon Tetrachloride, Dichlorodifluoromethane, Hexachlorobutadiene, Isopropylbenzene, Naphthalene, sec-Butylbenzene, Tetrachloroethylene, Vinyl Acetate are outside control limits. Probable cause is due to matrix interference. For method performance in a clean matrix, refer to Blank Spike.

RPD(s) for MSD for Vinyl Acetate are outside control limits for sample FA25397-1MSD. Probable cause is due to sample non-homogeneity.

FA25397-1 for Methylene Chloride: Suspected laboratory contaminant.

### Extractables by GCMS By Method SW846 8270D

**Matrix:** SO

**Batch ID:** OP56559

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA25397-1MS, FA25397-1MSD were used as the QC samples indicated.

Samples FA25397-1 has bis(2-Ethylhexyl)phthalate reported with a "V" qualifier, indicating analyte is found in the associated method blank.

### Extractables by GC By Method SW846 8082A

**Matrix:** SO

**Batch ID:** OP56576

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA25397-1MS, FA25397-1MSD, OP56576-MS/MSD were used as the QC samples indicated.

Matrix Spike/ Matrix Spike Duplicate Recovery(s) for Aroclor 1016, Aroclor 1260 are outside control limits. Probable cause is due to matrix interference. % RPD was within control limits in MS/MSD.

Sample(s) OP56576-MS, OP56576-MSD, FA25397-1 have surrogates outside control limits.

FA25397-1: All hits confirmed by dual column analysis.

FA25397-1 for Tetrachloro-m-xylene: Outside control limits due to dilution.

FA25397-1 for Decachlorobiphenyl: Outside control limits due to dilution.

OP56576-MS and MSD for Tetrachloro-m-xylene: Outside control limits due to dilution.

OP56576-MS and MSD for Decachlorobiphenyl: Outside control limits due to dilution.

OP56576-MSD for Aroclor 1254: Reported for replicate purposes only.

Thursday, June 25, 2015

Page 1 of 2

### Metals By Method SW846 6010C

**Matrix:** SO

**Batch ID:** MP29072

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA25298-1DUP, FA25298-1MS, FA25298-1MSD, FA25298-1PS, FA25298-1SDL were used as the QC samples for metals.

RPD(s) for MSD for Arsenic, Barium, Cadmium, Lead, Selenium, Silver are outside control limits for sample MP29072-S2.

Probable cause is due to sample non-homogeneity.

RPD(s) for Serial Dilution for Arsenic are outside control limits for sample MP29072-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

MP29072-S2 for Barium: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

MP29072-S2 for Silver: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

MP29072-S2 for Selenium: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

MP29072-S2 for Cadmium: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

MP29072-S2 for Arsenic: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

MP29072-S2 for Lead: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

### Metals By Method SW846 7471B

**Matrix:** SO

**Batch ID:** MP29074

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA25397-1DUP, FA25397-1MS, FA25397-1MSD, FA25397-1SDL were used as the QC samples for metals.

RPD(s) for Serial Dilution for Mercury are outside control limits for sample MP29074-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

### Wet Chemistry By Method SM19 2540G

**Matrix:** SO

**Batch ID:** GN66841

Sample(s) FA25233-2DUP was used as the QC sample for Solids, Percent.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

\_\_\_\_\_  
Kim Benham, Client Services (signature on file)

Date: June 25, 2015

## Summary of Hits

**Job Number:** FA25397  
**Account:** Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL  
**Collected:** 06/22/15



Lab Sample ID	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
---------------	------------------	-----------------	-----	-----	-------	--------

**FA25397-1 KHQA-IDW001-000.0-20150622**

Methylene Chloride <sup>a</sup>	6.1 IV	10	4.0	ug/kg	SW846 8260B
Acenaphthylene	18.2 I	180	18	ug/kg	SW846 8270D
Anthracene	26.8 I	180	18	ug/kg	SW846 8270D
Benzo(a)anthracene	132 I	180	18	ug/kg	SW846 8270D
Benzo(a)pyrene	143 I	180	18	ug/kg	SW846 8270D
Benzo(b)fluoranthene	283	180	18	ug/kg	SW846 8270D
Benzo(g,h,i)perylene	98.4 I	180	18	ug/kg	SW846 8270D
Benzo(k)fluoranthene	89.8 I	180	18	ug/kg	SW846 8270D
Butyl benzyl phthalate	45.5 I	180	36	ug/kg	SW846 8270D
Chrysene	163 I	180	18	ug/kg	SW846 8270D
Dibenzo(a,h)anthracene	28.2 I	180	18	ug/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate	209 IV	360	36	ug/kg	SW846 8270D
Fluoranthene	172 I	180	18	ug/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	108 I	180	18	ug/kg	SW846 8270D
Phenanthrene	33.9 I	180	18	ug/kg	SW846 8270D
Pyrene	220	180	18	ug/kg	SW846 8270D
Aroclor 1254 <sup>b</sup>	14400	1800	720	ug/kg	SW846 8082A
Arsenic	0.46	0.44	0.087	mg/kg	SW846 6010C
Barium	8.9	8.7	0.044	mg/kg	SW846 6010C
Cadmium	0.15 I	0.17	0.022	mg/kg	SW846 6010C
Chromium	4.4	0.44	0.044	mg/kg	SW846 6010C
Lead	15.0	0.87	0.044	mg/kg	SW846 6010C
Mercury	0.064	0.043	0.0043	mg/kg	SW846 7471B
Selenium	0.25 I	0.87	0.10	mg/kg	SW846 6010C
Silver	0.29 I	0.44	0.036	mg/kg	SW846 6010C

(a) Suspected laboratory contaminant.

(b) All hits confirmed by dual column analysis.

Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b>	KHQA-IDW001-000.0-20150622		<b>Date Sampled:</b>	06/22/15
<b>Lab Sample ID:</b>	FA25397-1		<b>Date Received:</b>	06/23/15
<b>Matrix:</b>	SO - Soil		<b>Percent Solids:</b>	92.3
<b>Method:</b>	SW846 8260B			
<b>Project:</b>	NASA HQ (KHQA); KSC, FL			

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y20778.D	1	06/23/15	AD	n/a	n/a	VY896
Run #2							

Run #1	Initial Weight
Run #1	5.43 g
Run #2	

## VOA 8260 List

CAS No.	Compound	Result	PQL	MDL	Units	Q
67-64-1	Acetone	15 U	50	15	ug/kg	
107-02-8	Acrolein	13 U	25	13	ug/kg	
107-13-1	Acrylonitrile	7.0 U	25	7.0	ug/kg	
71-43-2	Benzene	1.0 U	5.0	1.0	ug/kg	
108-86-1	Bromobenzene	1.0 U	5.0	1.0	ug/kg	
74-97-5	Bromochloromethane	1.0 U	5.0	1.0	ug/kg	
75-27-4	Bromodichloromethane	1.0 U	5.0	1.0	ug/kg	
75-25-2	Bromoform	1.0 U	5.0	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	8.5 U	25	8.5	ug/kg	
104-51-8	n-Butylbenzene	1.0 U	5.0	1.0	ug/kg	
135-98-8	sec-Butylbenzene	1.0 U	5.0	1.0	ug/kg	
98-06-6	tert-Butylbenzene	1.0 U	5.0	1.0	ug/kg	
75-15-0	Carbon Disulfide	1.5 U	5.0	1.5	ug/kg	
56-23-5	Carbon Tetrachloride	1.0 U	5.0	1.0	ug/kg	
108-90-7	Chlorobenzene	1.0 U	5.0	1.0	ug/kg	
75-00-3	Chloroethane	2.0 U	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl Vinyl Ether	10 U	25	10	ug/kg	
67-66-3	Chloroform	1.0 U	5.0	1.0	ug/kg	
95-49-8	o-Chlorotoluene	1.0 U	5.0	1.0	ug/kg	
106-43-4	p-Chlorotoluene	1.0 U	5.0	1.0	ug/kg	
124-48-1	Dibromochloromethane	1.0 U	5.0	1.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	1.4 U	5.0	1.4	ug/kg	
106-93-4	1,2-Dibromoethane	1.0 U	5.0	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	1.4 U	5.0	1.4	ug/kg	
95-50-1	1,2-Dichlorobenzene	1.0 U	5.0	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	1.0 U	5.0	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	1.0 U	5.0	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	1.0 U	5.0	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	1.0 U	5.0	1.0	ug/kg	
75-35-4	1,1-Dichloroethylene	1.3 U	5.0	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	1.0 U	5.0	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	5.0	1.0	ug/kg	

U = Not detected MDL = Method Detection Limit

PQL = Practical Quantitation Limit

L = Indicates value exceeds calibration range

I = Result &gt;= MDL but &lt; PQL J = Estimated value

V = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	KHQA-IDW001-000.0-20150622	
<b>Lab Sample ID:</b>	FA25397-1	<b>Date Sampled:</b> 06/22/15
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 06/23/15
<b>Method:</b>	SW846 8260B	<b>Percent Solids:</b> 92.3
<b>Project:</b>	NASA HQ (KHQA); KSC, FL	

## VOA 8260 List

CAS No.	Compound	Result	PQL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	1.0 U	5.0	1.0	ug/kg	
142-28-9	1,3-Dichloropropane	1.0 U	5.0	1.0	ug/kg	
594-20-7	2,2-Dichloropropane	1.1 U	5.0	1.1	ug/kg	
563-58-6	1,1-Dichloropropene	1.0 U	5.0	1.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	1.0 U	5.0	1.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	1.0 U	5.0	1.0	ug/kg	
100-41-4	Ethylbenzene	1.0 U	5.0	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	1.4 U	5.0	1.4	ug/kg	
591-78-6	2-Hexanone	8.1 U	25	8.1	ug/kg	
98-82-8	Isopropylbenzene	1.0 U	5.0	1.0	ug/kg	
99-87-6	p-Isopropyltoluene	1.0 U	5.0	1.0	ug/kg	
74-83-9	Methyl Bromide	2.2 U	5.0	2.2	ug/kg	
74-87-3	Methyl Chloride	2.0 U	5.0	2.0	ug/kg	
74-95-3	Methylene Bromide	1.0 U	5.0	1.0	ug/kg	
75-09-2	Methylene Chloride <sup>a</sup>	6.1	10	4.0	ug/kg	IV
108-10-1	4-Methyl-2-pentanone (MIBK)	5.3 U	25	5.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	1.2 U	5.0	1.2	ug/kg	
91-20-3	Naphthalene	2.0 U	5.0	2.0	ug/kg	
103-65-1	n-Propylbenzene	1.0 U	5.0	1.0	ug/kg	
100-42-5	Styrene	1.0 U	5.0	1.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	1.0 U	5.0	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	1.1 U	5.0	1.1	ug/kg	
127-18-4	Tetrachloroethylene	1.6 U	5.0	1.6	ug/kg	
108-88-3	Toluene	1.0 U	5.0	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	1.0 U	5.0	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	1.0 U	5.0	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	1.3 U	5.0	1.3	ug/kg	
79-00-5	1,1,2-Trichloroethane	1.3 U	5.0	1.3	ug/kg	
79-01-6	Trichloroethylene	1.0 U	5.0	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	1.7 U	5.0	1.7	ug/kg	
96-18-4	1,2,3-Trichloropropane	1.4 U	5.0	1.4	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	1.0 U	5.0	1.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	1.0 U	5.0	1.0	ug/kg	
108-05-4	Vinyl Acetate	12 U	25	12	ug/kg	
75-01-4	Vinyl Chloride	1.6 U	5.0	1.6	ug/kg	
	m,p-Xylene	1.1 U	10	1.1	ug/kg	
95-47-6	o-Xylene	1.0 U	5.0	1.0	ug/kg	

U = Not detected MDL = Method Detection Limit

PQL = Practical Quantitation Limit

L = Indicates value exceeds calibration range

I = Result &gt;= MDL but &lt; PQL J = Estimated value

V = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> KHQA-IDW001-000.0-20150622	<b>Date Sampled:</b> 06/22/15
<b>Lab Sample ID:</b> FA25397-1	<b>Date Received:</b> 06/23/15
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 92.3
<b>Method:</b> SW846 8260B	
<b>Project:</b> NASA HQ (KHQA); KSC, FL	

**VOA 8260 List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-124%
17060-07-0	1,2-Dichloroethane-D4	112%		72-135%
2037-26-5	Toluene-D8	105%		75-126%
460-00-4	4-Bromofluorobenzene	104%		71-133%

(a) Suspected laboratory contaminant.

U = Not detected      MDL = Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

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## Report of Analysis

<b>Client Sample ID:</b>	KHQA-IDW001-000.0-20150622		<b>Date Sampled:</b>	06/22/15
<b>Lab Sample ID:</b>	FA25397-1		<b>Date Received:</b>	06/23/15
<b>Matrix:</b>	SO - Soil		<b>Percent Solids:</b>	92.3
<b>Method:</b>	SW846 8270D SW846 3550C			
<b>Project:</b>	NASA HQ (KHQA); KSC, FL			

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U051559.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	29.8 g	1.0 ml
Run #2		

## ABN Full List

CAS No.	Compound	Result	PQL	MDL	Units	Q
65-85-0	Benzoic Acid	180 U	910	180	ug/kg	
59-50-7	4-Chloro-3-methyl Phenol	18 U	180	18	ug/kg	
95-57-8	2-Chlorophenol	18 U	180	18	ug/kg	
120-83-2	2,4-Dichlorophenol	18 U	180	18	ug/kg	
105-67-9	2,4-Dimethylphenol	18 U	180	18	ug/kg	
51-28-5	2,4-Dinitrophenol	180 U	910	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	73 U	360	73	ug/kg	
95-48-7	2-Methylphenol	18 U	180	18	ug/kg	
	3&4-Methylphenol	36 U	180	36	ug/kg	
88-75-5	2-Nitrophenol	18 U	180	18	ug/kg	
100-02-7	4-Nitrophenol	150 U	910	150	ug/kg	
87-86-5	Pentachlorophenol	150 U	910	150	ug/kg	
108-95-2	Phenol	18 U	180	18	ug/kg	
95-95-4	2,4,5-Trichlorophenol	18 U	180	18	ug/kg	
88-06-2	2,4,6-Trichlorophenol	18 U	180	18	ug/kg	
83-32-9	Acenaphthene	18 U	180	18	ug/kg	
208-96-8	Acenaphthylene	18.2	180	18	ug/kg	I
62-53-3	Aniline	29 U	180	29	ug/kg	
120-12-7	Anthracene	26.8	180	18	ug/kg	I
92-87-5	Benzidine	360 U	1800	360	ug/kg	
56-55-3	Benzo(a)anthracene	132	180	18	ug/kg	I
50-32-8	Benzo(a)pyrene	143	180	18	ug/kg	I
205-99-2	Benzo(b)fluoranthene	283	180	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	98.4	180	18	ug/kg	I
207-08-9	Benzo(k)fluoranthene	89.8	180	18	ug/kg	I
100-51-6	Benzyl Alcohol	19 U	180	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	18 U	180	18	ug/kg	
85-68-7	Butyl benzyl phthalate	45.5	180	36	ug/kg	I
86-74-8	Carbazole	18 U	180	18	ug/kg	
106-47-8	4-Chloroaniline	18 U	180	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	18 U	180	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	18 U	180	18	ug/kg	

U = Not detected MDL = Method Detection Limit

PQL = Practical Quantitation Limit

L = Indicates value exceeds calibration range

I = Result &gt;= MDL but &lt; PQL J = Estimated value

V = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	KHQA-IDW001-000.0-20150622		<b>Date Sampled:</b>	06/22/15
<b>Lab Sample ID:</b>	FA25397-1		<b>Date Received:</b>	06/23/15
<b>Matrix:</b>	SO - Soil		<b>Percent Solids:</b>	92.3
<b>Method:</b>	SW846 8270D SW846 3550C			
<b>Project:</b>	NASA HQ (KHQA); KSC, FL			

## ABN Full List

CAS No.	Compound	Result	PQL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	18 U	180	18	ug/kg	
91-58-7	2-Chloronaphthalene	21 U	180	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	18 U	180	18	ug/kg	
218-01-9	Chrysene	163	180	18	ug/kg	I
53-70-3	Dibenzo(a,h)anthracene	28.2	180	18	ug/kg	I
132-64-9	Dibenzofuran	18 U	180	18	ug/kg	
95-50-1	1,2-Dichlorobenzene	18 U	180	18	ug/kg	
541-73-1	1,3-Dichlorobenzene	18 U	180	18	ug/kg	
106-46-7	1,4-Dichlorobenzene	18 U	180	18	ug/kg	
91-94-1	3,3' -Dichlorobenzidine	18 U	180	18	ug/kg	
84-66-2	Diethyl Phthalate	36 U	360	36	ug/kg	
131-11-3	Dimethyl Phthalate	36 U	180	36	ug/kg	
117-84-0	Di-n-octyl Phthalate	36 U	180	36	ug/kg	
84-74-2	Di-n-butyl Phthalate	36 U	360	36	ug/kg	
121-14-2	2,4-Dinitrotoluene	18 U	180	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	18 U	180	18	ug/kg	
122-66-7	1,2-Diphenylhydrazine	18 U	180	18	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	209	360	36	ug/kg	IV
206-44-0	Fluoranthene	172	180	18	ug/kg	I
86-73-7	Fluorene	18 U	180	18	ug/kg	
118-74-1	Hexachlorobenzene	18 U	180	18	ug/kg	
87-68-3	Hexachlorobutadiene	18 U	180	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	36 U	180	36	ug/kg	
67-72-1	Hexachloroethane	18 U	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	108	180	18	ug/kg	I
78-59-1	Isophorone	18 U	180	18	ug/kg	
90-12-0	1-Methylnaphthalene	18 U	180	18	ug/kg	
91-57-6	2-Methylnaphthalene	18 U	180	18	ug/kg	
91-20-3	Naphthalene	18 U	180	18	ug/kg	
88-74-4	2-Nitroaniline	23 U	180	23	ug/kg	
99-09-2	3-Nitroaniline	20 U	180	20	ug/kg	
100-01-6	4-Nitroaniline	19 U	180	19	ug/kg	
98-95-3	Nitrobenzene	18 U	180	18	ug/kg	
62-75-9	N-Nitrosodimethylamine	19 U	180	19	ug/kg	
621-64-7	N-Nitrosodi-n-propylamine	18 U	180	18	ug/kg	
86-30-6	N-Nitrosodiphenylamine	18 U	180	18	ug/kg	
85-01-8	Phenanthrene	33.9	180	18	ug/kg	I
129-00-0	Pyrene	220	180	18	ug/kg	
110-86-1	Pyridine	36 U	360	36	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	19 U	180	19	ug/kg	

U = Not detected MDL = Method Detection Limit

PQL = Practical Quantitation Limit

L = Indicates value exceeds calibration range

I = Result &gt;= MDL but &lt; PQL J = Estimated value

V = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> KHQA-IDW001-000.0-20150622 <b>Lab Sample ID:</b> FA25397-1 <b>Matrix:</b> SO - Soil <b>Method:</b> SW846 8270D SW846 3550C <b>Project:</b> NASA HQ (KHQA); KSC, FL	<b>Date Sampled:</b> 06/22/15 <b>Date Received:</b> 06/23/15 <b>Percent Solids:</b> 92.3
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**ABN Full List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		40-102%
4165-62-2	Phenol-d5	78%		41-100%
118-79-6	2,4,6-Tribromophenol	93%		42-108%
4165-60-0	Nitrobenzene-d5	74%		40-105%
321-60-8	2-Fluorobiphenyl	77%		43-107%
1718-51-0	Terphenyl-d14	108%		45-119%

U = Not detected      MDL = Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

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## Report of Analysis

<b>Client Sample ID:</b> KHQA-IDW001-000.0-20150622	<b>Date Sampled:</b> 06/22/15
<b>Lab Sample ID:</b> FA25397-1	<b>Date Received:</b> 06/23/15
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 92.3
<b>Project:</b> NASA HQ (KHQA); KSC, FL	

### Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	0.46	0.44	0.087	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>
Barium	8.9	8.7	0.044	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.15 I	0.17	0.022	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>
Chromium	4.4	0.44	0.044	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>
Lead	15.0	0.87	0.044	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>
Mercury	0.064	0.043	0.0043	mg/kg	1	06/24/15	06/24/15 JL	SW846 7471B <sup>2</sup>	SW846 7471B <sup>4</sup>
Selenium	0.25 I	0.87	0.10	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>
Silver	0.29 I	0.44	0.036	mg/kg	1	06/23/15	06/23/15 LM	SW846 6010C <sup>1</sup>	SW846 3050B <sup>3</sup>

- (1) Instrument QC Batch: MA12481
- (2) Instrument QC Batch: MA12483
- (3) Prep QC Batch: MP29072
- (4) Prep QC Batch: MP29074

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

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## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



**ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION**

ACCUTEST'S JOB NUMBER: FA 25397 CLIENT: GEOSYNTEC PROJECT: NASA HQ  
 DATE/TIME RECEIVED: 6-23-15 08:00 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER: \_\_\_\_\_  
 AIRBILL NUMBERS: \_\_\_\_\_

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM \_\_\_\_\_ 5-GRAM \_\_\_\_\_  
 NUMBER OF 5035 FIELD KITS ? 1  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_

pH PAPER LOT#s WIDE RANGE A036122 NARROW RANGE HC421754 OTHER (specify) 405-230010

SUMMARY OF COMMENTS: \_\_\_\_\_

**TEMPERATURE INFORMATION**

- IR THERM ID 1 CORR. FACTOR -0.2
- OBSERVED TEMPS: 3.6
- CORRECTED TEMPS: 3.4

**SAMPLE INFORMATION**

- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- % SOLIDS JAR NOT RECEIVED
- RESIDUAL CHLORINE PRESENT LOT# \_\_\_\_\_

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

TECHNICIAN SIGNATURE/DATE Je 6-23-15 REVIEWER SIGNATURE/DATE [Signature] 6-23-15

NF 10/14

receipt confirmation 102914.xls

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## GC/MS Volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

## Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY896-MB	Y20777.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	15	ug/kg	
107-02-8	Acrolein	ND	25	13	ug/kg	
107-13-1	Acrylonitrile	ND	25	7.0	ug/kg	
71-43-2	Benzene	ND	5.0	1.0	ug/kg	
108-86-1	Bromobenzene	ND	5.0	1.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	1.0	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	1.0	ug/kg	
75-25-2	Bromoform	ND	5.0	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	25	8.5	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	1.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	1.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	1.0	ug/kg	
75-15-0	Carbon Disulfide	ND	5.0	1.5	ug/kg	
56-23-5	Carbon Tetrachloride	ND	5.0	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	1.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl Vinyl Ether	ND	25	10	ug/kg	
67-66-3	Chloroform	ND	5.0	1.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	1.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	1.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	1.4	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	1.4	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	1.0	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	1.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	1.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	1.1	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	1.0	ug/kg	

## Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY896-MB	Y20777.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	1.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	1.4	ug/kg	
591-78-6	2-Hexanone	ND	25	8.2	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	1.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	1.0	ug/kg	
74-83-9	Methyl Bromide	ND	5.0	2.2	ug/kg	
74-87-3	Methyl Chloride	ND	5.0	2.0	ug/kg	
74-95-3	Methylene Bromide	ND	5.0	1.0	ug/kg	
75-09-2	Methylene Chloride	6.8	10	4.0	ug/kg	J
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	25	5.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	1.2	ug/kg	
91-20-3	Naphthalene	ND	5.0	2.0	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	1.0	ug/kg	
100-42-5	Styrene	ND	5.0	1.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	1.1	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	1.6	ug/kg	
108-88-3	Toluene	ND	5.0	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	1.3	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	1.3	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	1.8	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	1.4	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	1.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.0	ug/kg	
108-05-4	Vinyl Acetate	ND	25	12	ug/kg	
75-01-4	Vinyl Chloride	ND	5.0	1.6	ug/kg	
	m,p-Xylene	ND	10	1.1	ug/kg	
95-47-6	o-Xylene	ND	5.0	1.0	ug/kg	

## Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY896-MB	Y20777.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	98% 75-124%
17060-07-0	1,2-Dichloroethane-D4	106% 72-135%
2037-26-5	Toluene-D8	105% 75-126%
460-00-4	4-Bromofluorobenzene	104% 71-133%

# Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY896-BS	Y20776.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	250	257	103	61-152
107-02-8	Acrolein	250	292	117	48-178
107-13-1	Acrylonitrile	250	252	101	66-134
71-43-2	Benzene	50	46.4	93	76-126
108-86-1	Bromobenzene	50	50.5	101	76-122
74-97-5	Bromochloromethane	50	47.3	95	77-120
75-27-4	Bromodichloromethane	50	47.9	96	74-130
75-25-2	Bromoform	50	52.7	105	76-127
78-93-3	2-Butanone (MEK)	250	256	102	75-137
104-51-8	n-Butylbenzene	50	51.0	102	71-128
135-98-8	sec-Butylbenzene	50	51.6	103	79-135
98-06-6	tert-Butylbenzene	50	50.9	102	77-133
75-15-0	Carbon Disulfide	50	45.5	91	72-122
56-23-5	Carbon Tetrachloride	50	47.9	96	78-133
108-90-7	Chlorobenzene	50	51.1	102	81-129
75-00-3	Chloroethane	50	56.3	113	68-133
110-75-8	2-Chloroethyl Vinyl Ether	250	263	105	45-159
67-66-3	Chloroform	50	47.1	94	72-123
95-49-8	o-Chlorotoluene	50	51.3	103	77-129
106-43-4	p-Chlorotoluene	50	50.8	102	80-134
124-48-1	Dibromochloromethane	50	52.6	105	76-127
96-12-8	1,2-Dibromo-3-chloropropane	50	51.8	104	70-137
106-93-4	1,2-Dibromoethane	50	50.2	100	77-126
75-71-8	Dichlorodifluoromethane	50	41.3	83	68-168
95-50-1	1,2-Dichlorobenzene	50	51.1	102	80-129
541-73-1	1,3-Dichlorobenzene	50	51.6	103	81-129
106-46-7	1,4-Dichlorobenzene	50	49.2	98	76-130
75-34-3	1,1-Dichloroethane	50	48.4	97	73-125
107-06-2	1,2-Dichloroethane	50	46.9	94	74-128
75-35-4	1,1-Dichloroethylene	50	45.8	92	81-136
156-59-2	cis-1,2-Dichloroethylene	50	44.5	89	74-126
156-60-5	trans-1,2-Dichloroethylene	50	49.9	100	70-127
78-87-5	1,2-Dichloropropane	50	48.2	96	74-125
142-28-9	1,3-Dichloropropane	50	50.0	100	76-122
594-20-7	2,2-Dichloropropane	50	51.4	103	77-133
563-58-6	1,1-Dichloropropene	50	46.5	93	75-130

\* = Outside of Control Limits.



# Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY896-BS	Y20776.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	48.3	97	80-123
10061-02-6	trans-1,3-Dichloropropene	50	55.8	112	75-131
100-41-4	Ethylbenzene	50	50.2	100	77-123
87-68-3	Hexachlorobutadiene	50	47.6	95	74-136
591-78-6	2-Hexanone	250	282	113	72-133
98-82-8	Isopropylbenzene	50	50.8	102	80-136
99-87-6	p-Isopropyltoluene	50	50.1	100	77-131
74-83-9	Methyl Bromide	50	49.0	98	65-139
74-87-3	Methyl Chloride	50	48.8	98	71-144
74-95-3	Methylene Bromide	50	48.0	96	74-124
75-09-2	Methylene Chloride	50	49.7	99	74-137
108-10-1	4-Methyl-2-pentanone (MIBK)	250	283	113	76-132
1634-04-4	Methyl Tert Butyl Ether	50	49.4	99	77-120
91-20-3	Naphthalene	50	55.4	111	79-129
103-65-1	n-Propylbenzene	50	51.9	104	80-135
100-42-5	Styrene	50	50.8	102	78-125
630-20-6	1,1,1,2-Tetrachloroethane	50	51.4	103	78-126
79-34-5	1,1,2,2-Tetrachloroethane	50	52.1	104	71-126
127-18-4	Tetrachloroethylene	50	48.5	97	79-130
108-88-3	Toluene	50	50.2	100	76-124
87-61-6	1,2,3-Trichlorobenzene	50	51.8	104	77-128
120-82-1	1,2,4-Trichlorobenzene	50	50.9	102	78-130
71-55-6	1,1,1-Trichloroethane	50	46.2	92	70-129
79-00-5	1,1,2-Trichloroethane	50	52.1	104	74-124
79-01-6	Trichloroethylene	50	44.7	89	75-128
75-69-4	Trichlorofluoromethane	50	48.2	96	73-145
96-18-4	1,2,3-Trichloropropane	50	51.8	104	74-127
95-63-6	1,2,4-Trimethylbenzene	50	50.9	102	74-123
108-67-8	1,3,5-Trimethylbenzene	50	49.7	99	73-122
108-05-4	Vinyl Acetate	250	225	90	48-164
75-01-4	Vinyl Chloride	50	47.9	96	76-141
	m,p-Xylene	100	101	101	80-128
95-47-6	o-Xylene	50	50.8	102	80-132

\* = Outside of Control Limits.

## Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY896-BS	Y20776.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	75-124%
17060-07-0	1,2-Dichloroethane-D4	100%	72-135%
2037-26-5	Toluene-D8	106%	75-126%
460-00-4	4-Bromofluorobenzene	100%	71-133%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA25397-1MS	Y20779.D	1	06/23/15	AD	n/a	n/a	VY896
FA25397-1MSD	Y20780.D	1	06/23/15	AD	n/a	n/a	VY896
FA25397-1	Y20778.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Compound	FA25397-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50 U	297	225	76	277	248	90	10	61-152/27
107-02-8	Acrolein	25 U	297	242	81	277	179	65	30	48-178/37
107-13-1	Acrylonitrile	25 U	297	259	87	277	254	92	2	66-134/26
71-43-2	Benzene	5.0 U	59.4	50.1	84	55.4	44.8	81	11	76-126/26
108-86-1	Bromobenzene	5.0 U	59.4	56.5	95	55.4	49.4	89	13	76-122/32
74-97-5	Bromochloromethane	5.0 U	59.4	52.3	88	55.4	47.1	85	10	77-120/24
75-27-4	Bromodichloromethane	5.0 U	59.4	52.3	88	55.4	47.1	85	10	74-130/25
75-25-2	Bromoform	5.0 U	59.4	54.5	92	55.4	49.1	89	10	76-127/26
78-93-3	2-Butanone (MEK)	25 U	297	275	93	277	269	97	2	75-137/25
104-51-8	n-Butylbenzene	5.0 U	59.4	45.1	76	55.4	39.6	71	13	71-128/35
135-98-8	sec-Butylbenzene	5.0 U	59.4	47.4	80	55.4	41.8	75*	13	79-135/34
98-06-6	tert-Butylbenzene	5.0 U	59.4	51.5	87	55.4	45.0	81	13	77-133/34
75-15-0	Carbon Disulfide	5.0 U	59.4	47.3	80	55.4	42.1	76	12	72-122/29
56-23-5	Carbon Tetrachloride	5.0 U	59.4	45.3	76*	55.4	41.2	74*	9	78-133/29
108-90-7	Chlorobenzene	5.0 U	59.4	53.7	90	55.4	47.3	85	13	81-129/29
75-00-3	Chloroethane	5.0 U	59.4	58.2	98	55.4	52.8	95	10	68-133/29
110-75-8	2-Chloroethyl Vinyl Ether	25 U	297	294	99	277	268	97	9	45-159/26
67-66-3	Chloroform	5.0 U	59.4	50.3	85	55.4	45.3	82	10	72-123/26
95-49-8	o-Chlorotoluene	5.0 U	59.4	55.3	93	55.4	48.5	88	13	77-129/33
106-43-4	p-Chlorotoluene	5.0 U	59.4	55.6	94	55.4	48.4	87	14	80-134/33
124-48-1	Dibromochloromethane	5.0 U	59.4	58.5	98	55.4	52.1	94	12	76-127/27
96-12-8	1,2-Dibromo-3-chloropropane	5.0 U	59.4	60.4	102	55.4	51.8	94	15	70-137/29
106-93-4	1,2-Dibromoethane	5.0 U	59.4	56.9	96	55.4	50.7	92	12	77-126/26
75-71-8	Dichlorodifluoromethane	5.0 U	59.4	37.7	63*	55.4	33.7	61*	11	68-168/29
95-50-1	1,2-Dichlorobenzene	5.0 U	59.4	49.1	83	55.4	43.7	79*	12	80-129/32
541-73-1	1,3-Dichlorobenzene	5.0 U	59.4	51.3	86	55.4	44.9	81	13	81-129/33
106-46-7	1,4-Dichlorobenzene	5.0 U	59.4	50.5	85	55.4	43.5	79	15	76-130/32
75-34-3	1,1-Dichloroethane	5.0 U	59.4	51.9	87	55.4	47.0	85	10	73-125/27
107-06-2	1,2-Dichloroethane	5.0 U	59.4	53.2	90	55.4	47.8	86	11	74-128/23
75-35-4	1,1-Dichloroethylene	5.0 U	59.4	46.9	79*	55.4	42.6	77*	10	81-136/28
156-59-2	cis-1,2-Dichloroethylene	5.0 U	59.4	48.6	82	55.4	44.8	81	8	74-126/26
156-60-5	trans-1,2-Dichloroethylene	5.0 U	59.4	52.5	88	55.4	47.5	86	10	70-127/27
78-87-5	1,2-Dichloropropane	5.0 U	59.4	52.7	89	55.4	47.3	85	11	74-125/25
142-28-9	1,3-Dichloropropane	5.0 U	59.4	57.7	97	55.4	51.4	93	12	76-122/26
594-20-7	2,2-Dichloropropane	5.0 U	59.4	50.9	86	55.4	46.3	84	9	77-133/28
563-58-6	1,1-Dichloropropene	5.0 U	59.4	46.7	79	55.4	41.9	76	11	75-130/28

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA25397-1MS	Y20779.D	1	06/23/15	AD	n/a	n/a	VY896
FA25397-1MSD	Y20780.D	1	06/23/15	AD	n/a	n/a	VY896
FA25397-1	Y20778.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Compound	FA25397-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
10061-01-5	cis-1,3-Dichloropropene	5.0 U		59.4	51.9	87	55.4	46.7	84	11	80-123/26
10061-02-6	trans-1,3-Dichloropropene	5.0 U		59.4	60.6	102	55.4	52.9	96	14	75-131/28
100-41-4	Ethylbenzene	5.0 U		59.4	51.8	87	55.4	46.0	83	12	77-123/31
87-68-3	Hexachlorobutadiene	5.0 U		59.4	27.3	46*	55.4	24.6	44*	10	74-136/38
591-78-6	2-Hexanone	25 U		297	328	110	277	297	107	10	72-133/26
98-82-8	Isopropylbenzene	5.0 U		59.4	48.4	81	55.4	42.9	77*	12	80-136/32
99-87-6	p-Isopropyltoluene	5.0 U		59.4	48.4	81	55.4	42.4	77	13	77-131/34
74-83-9	Methyl Bromide	5.0 U		59.4	50.4	85	55.4	45.9	83	9	65-139/31
74-87-3	Methyl Chloride	5.0 U		59.4	53.6	90	55.4	47.5	86	12	71-144/27
74-95-3	Methylene Bromide	5.0 U		59.4	52.5	88	55.4	47.3	85	10	74-124/24
75-09-2	Methylene Chloride	6.1	IV	59.4	55.6	83	55.4	50.7	81	9	74-137/28
108-10-1	4-Methyl-2-pentanone (MIBK)	25 U		297	333	112	277	303	109	9	76-132/26
1634-04-4	Methyl Tert Butyl Ether	5.0 U		59.4	54.9	92	55.4	51.5	93	6	77-120/24
91-20-3	Naphthalene	5.0 U		59.4	37.8	64*	55.4	32.1	58*	16	79-129/33
103-65-1	n-Propylbenzene	5.0 U		59.4	54.0	91	55.4	47.7	86	12	80-135/33
100-42-5	Styrene	5.0 U		59.4	51.6	87	55.4	45.4	82	13	78-125/30
630-20-6	1,1,1,2-Tetrachloroethane	5.0 U		59.4	54.5	92	55.4	49.2	89	10	78-126/27
79-34-5	1,1,2,2-Tetrachloroethane	5.0 U		59.4	62.3	105	55.4	55.6	100	11	71-126/30
127-18-4	Tetrachloroethylene	5.0 U		59.4	48.0	81	55.4	43.0	78*	11	79-130/31
108-88-3	Toluene	5.0 U		59.4	54.8	92	55.4	48.3	87	13	76-124/30
87-61-6	1,2,3-Trichlorobenzene	5.0 U		59.4	30.5	51*	55.4	26.3	47*	15	77-128/35
120-82-1	1,2,4-Trichlorobenzene	5.0 U		59.4	35.1	59*	55.4	30.1	54*	15	78-130/34
71-55-6	1,1,1-Trichloroethane	5.0 U		59.4	47.4	80	55.4	42.5	77	11	70-129/27
79-00-5	1,1,2-Trichloroethane	5.0 U		59.4	58.7	99	55.4	52.6	95	11	74-124/28
79-01-6	Trichloroethylene	5.0 U		59.4	47.4	80	55.4	42.6	77	11	75-128/27
75-69-4	Trichlorofluoromethane	5.0 U		59.4	44.4	75	55.4	41.1	74	8	73-145/31
96-18-4	1,2,3-Trichloropropane	5.0 U		59.4	63.5	107	55.4	56.9	103	11	74-127/27
95-63-6	1,2,4-Trimethylbenzene	5.0 U		59.4	54.3	91	55.4	47.5	86	13	74-123/34
108-67-8	1,3,5-Trimethylbenzene	5.0 U		59.4	53.6	90	55.4	46.7	84	14	73-122/33
108-05-4	Vinyl Acetate	25 U		297	31.0	10*	277	14.5	5*	73*	48-164/37
75-01-4	Vinyl Chloride	5.0 U		59.4	48.2	81	55.4	43.8	79	10	76-141/27
	m,p-Xylene	10 U		119	105	88	111	91.6	83	14	80-128/30
95-47-6	o-Xylene	5.0 U		59.4	52.3	88	55.4	46.3	84	12	80-132/30

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA25397-1MS	Y20779.D	1	06/23/15	AD	n/a	n/a	VY896
FA25397-1MSD	Y20780.D	1	06/23/15	AD	n/a	n/a	VY896
FA25397-1	Y20778.D	1	06/23/15	AD	n/a	n/a	VY896

The QC reported here applies to the following samples:

Method: SW846 8260B

FA25397-1

CAS No.	Surrogate Recoveries	MS	MSD	FA25397-1	Limits
1868-53-7	Dibromofluoromethane	97%	98%	98%	75-124%
17060-07-0	1,2-Dichloroethane-D4	100%	100%	112%	72-135%
2037-26-5	Toluene-D8	109%	107%	105%	75-126%
460-00-4	4-Bromofluorobenzene	108%	106%	104%	71-133%

\* = Outside of Control Limits.

# Instrument Performance Check (BFB)

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Sample:</b> VY879-BFB	<b>Injection Date:</b> 05/28/15
<b>Lab File ID:</b> Y20316.D	<b>Injection Time:</b> 10:44
<b>Instrument ID:</b> GCMSY	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	38736	15.9	Pass
75	30.0 - 60.0% of mass 95	108072	44.2	Pass
95	Base peak, 100% relative abundance	244288	100.0	Pass
96	5.0 - 9.0% of mass 95	16816	6.88	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) <sup>a</sup>	Pass
174	50.0 - 100.0% of mass 95	147520	60.4	Pass
175	5.0 - 9.0% of mass 174	10855	4.44 (7.36) <sup>a</sup>	Pass
176	95.0 - 101.0% of mass 174	142272	58.2 (96.4) <sup>a</sup>	Pass
177	5.0 - 9.0% of mass 176	7549	3.09 (5.31) <sup>b</sup>	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VY879-IC879	Y20317.D	05/28/15	11:10	00:26	Initial cal 1
VY879-IC879	Y20318.D	05/28/15	11:37	00:53	Initial cal 2
VY879-IC879	Y20319.D	05/28/15	12:04	01:20	Initial cal 3
VY879-ICC879	Y20321.D	05/28/15	12:58	02:14	Initial cal 5
VY879-IC879	Y20322.D	05/28/15	13:25	02:41	Initial cal 6
VY879-IC879	Y20323.D	05/28/15	13:53	03:09	Initial cal 7
VY879-IC879	Y20325.D	05/28/15	14:46	04:02	Initial cal 4
VY879-ICV879	Y20326.D	05/28/15	15:13	04:29	Initial cal verification 4
VY879-BS	Y20328.D	05/28/15	16:12	05:28	Blank Spike
VY879-MB	Y20329.D	05/28/15	16:39	05:55	Method Blank

# Instrument Performance Check (BFB)

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Sample:</b> VY896-BFB	<b>Injection Date:</b> 06/23/15
<b>Lab File ID:</b> Y20774.D	<b>Injection Time:</b> 11:20
<b>Instrument ID:</b> GCMSY	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	26904	17.0	Pass
75	30.0 - 60.0% of mass 95	71437	45.1	Pass
95	Base peak, 100% relative abundance	158400	100.0	Pass
96	5.0 - 9.0% of mass 95	10949	6.91	Pass
173	Less than 2.0% of mass 174	527	0.33 (0.57) <sup>a</sup>	Pass
174	50.0 - 100.0% of mass 95	92872	58.6	Pass
175	5.0 - 9.0% of mass 174	6932	4.38 (7.46) <sup>a</sup>	Pass
176	95.0 - 101.0% of mass 174	88440	55.8 (95.2) <sup>a</sup>	Pass
177	5.0 - 9.0% of mass 176	5834	3.68 (6.60) <sup>b</sup>	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VY896-CC879	Y20775.D	06/23/15	11:47	00:27	Continuing cal 4
VY896-BS	Y20776.D	06/23/15	12:14	00:54	Blank Spike
VY896-MB	Y20777.D	06/23/15	12:41	01:21	Method Blank
FA25397-1	Y20778.D	06/23/15	13:08	01:48	KHQA-IDW001-000.0-20150622
FA25397-1MS	Y20779.D	06/23/15	13:35	02:15	Matrix Spike
FA25397-1MSD	Y20780.D	06/23/15	14:02	02:42	Matrix Spike Duplicate
ZZZZZZ	Y20781.D	06/23/15	14:29	03:09	(unrelated sample)
ZZZZZZ	Y20782.D	06/23/15	14:56	03:36	(unrelated sample)
ZZZZZZ	Y20783.D	06/23/15	15:23	04:03	(unrelated sample)
ZZZZZZ	Y20784.D	06/23/15	15:50	04:30	(unrelated sample)
ZZZZZZ	Y20785.D	06/23/15	16:17	04:57	(unrelated sample)
ZZZZZZ	Y20786.D	06/23/15	16:44	05:24	(unrelated sample)
VY896-ECC879	Y20787.D	06/23/15	17:11	05:51	Ending cal 4

# Volatile Internal Standard Area Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Check Std:</b> VY896-CC879	<b>Injection Date:</b> 06/23/15
<b>Lab File ID:</b> Y20775.D	<b>Injection Time:</b> 11:47
<b>Instrument ID:</b> GCMSY	<b>Method:</b> SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Initial Cal <sup>a</sup>	990072	7.20	733810	10.38	325746	12.74	110395	4.75
Check Std <sup>b</sup>	902156	7.21	599514	10.38	258196	12.74	74707	4.72
Upper Limit <sup>c</sup>	1804312	7.71	1199028	10.88	516392	13.24	149414	5.22
Lower Limit <sup>d</sup>	451078	6.71	299757	9.88	129098	12.24	37354	4.22

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
VY896-BS	921448	7.20	621404	10.38	271130	12.74	87147	4.74
VY896-MB	841071	7.20	567475	10.38	231156	12.74	77533	4.71
FA25397-1	862820	7.21	573295	10.38	232701	12.74	103321	4.72
FA25397-1MS	879103	7.20	571521	10.38	223281	12.74	62818	4.72
FA25397-1MSD	894607	7.21	592732	10.38	231378	12.74	76626	4.71
ZZZZZZ	861011	7.21	567101	10.37	211489	12.74	99346	4.71
ZZZZZZ	844469	7.21	564414	10.38	215255	12.74	113668	4.72
ZZZZZZ	832822	7.21	541452	10.38	203303	12.74	78030	4.71
ZZZZZZ	815765	7.20	525605	10.38	190760	12.74	82514	4.71
ZZZZZZ	794463	7.21	523889	10.38	182228	12.74	96243	4.72
ZZZZZZ	813136	7.20	543619	10.37	211225	12.74	110233	4.72
VY896-ECC879	857246	7.21	576112	10.38	255549	12.74	98088	4.73

- IS 1** = Fluorobenzene
- IS 2** = Chlorobenzene-D5
- IS 3** = 1,4-Dichlorobenzene-d4
- IS 4** = Tert Butyl Alcohol-D10

- (a) Initial Cal is: VY879-ICC879 Y20321.D 05/28/15 12:58
- (b) Check Std Limit = -50 to + 100% of initial cal area.
- (c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
- (d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.



# Volatile Surrogate Recovery Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Method:</b> SW846 8260B	<b>Matrix:</b> SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
FA25397-1	Y20778.D	98	112	105	104
FA25397-1MS	Y20779.D	97	100	109	108
FA25397-1MSD	Y20780.D	98	100	107	106
VY896-BS	Y20776.D	97	100	106	100
VY896-MB	Y20777.D	98	106	105	104

### Surrogate Compounds

### Recovery Limits

S1 = Dibromofluoromethane	75-124%
S2 = 1,2-Dichloroethane-D4	72-135%
S3 = Toluene-D8	75-126%
S4 = 4-Bromofluorobenzene	71-133%

# Initial Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: VY879-ICC879  
Lab FileID: Y20321.D

## Response Factor Report MSVOA14

Method : C:\msdchem\1\METHODS\052815APP9-Y.m (RTE Integrator)  
Title : SW-846 Method 5035A/8260B  
Last Update : Fri May 29 09:48:30 2015  
Response via : Initial Calibration

### Calibration Files

1 =Y20317.D 2 =Y20318.D 3 =Y20319.D 4 =Y20325.D  
5 =Y20321.D 6 =Y20322.D 7 =Y20323.D

Compound	1	2	3	4	5	6	7	Avg	%RSD
-----									
1) I Fluorobenzene	-----ISTD-----								
2) Dichlorodifluorom	0.445	0.432	0.451	0.451	0.404	0.426	0.424	0.433	4.01
3)P Chloromethane	0.560	0.564	0.549	0.555	0.508	0.535	0.535	0.544	3.60
4)C Vinyl Chloride	0.546	0.546	0.553	0.551	0.489	0.516	0.510	0.530	4.72
5) Bromomethane	0.293	0.305	0.300	0.294	0.272	0.280	0.276	0.288	4.40
6) Chloroethane	0.277	0.286	0.282	0.237	0.224	0.194		0.250	15.02
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9992									
Response Ratio = 0.00000 + 0.27444 *A + -0.02674 *A^2									
7) Trichlorofluorome	0.445	0.442	0.446	0.468	0.375	0.382	0.362	0.417	10.23
8) Ethyl Ether	0.297	0.310	0.293	0.302	0.280	0.285	0.285	0.293	3.61
9) 1,2-Dichlorotrifl	0.388	0.413	0.405	0.419	0.355	0.377	0.372	0.390	6.03
10)C 1,1-Dichloroethen	0.539	0.548	0.535	0.543	0.493	0.527	0.518	0.529	3.53
11) Freon 113	0.307	0.343	0.319	0.293	0.276	0.298	0.297	0.305	7.00
12) Carbon Disulfide	1.232	1.258	1.218	1.196	1.139	1.205	1.184	1.205	3.16
13) Iodomethane	0.490	0.516	0.496	0.465	0.459	0.480	0.482	0.484	3.94
14) Allyl chloride	0.559	0.572	0.533	0.485	0.507	0.535	0.526	0.531	5.54
15) Methylene Chlorid	0.790	0.733	0.535	0.552	0.428	0.438	0.432	0.558	26.59
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9959									
Response Ratio = 0.00000 + 0.49333 *A + -0.01662 *A^2									
16) Acetone	0.087	0.077	0.074	0.080	0.072	0.078	0.073	0.077	6.78
17) Methyl acetate	0.299	0.281	0.240	0.276	0.209	0.216	0.210	0.247	15.23
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9953									
Response Ratio = 0.00000 + 0.24161 *A + -0.00166 *A^2									
18) trans-1,2-Dichlor	0.505	0.497	0.481	0.540	0.456	0.472	0.464	0.488	5.91
19) Hexane	0.356	0.408	0.356	0.354	0.324	0.339	0.336	0.353	7.71
20) Methyl Tert Butyl	0.935	0.961	0.921	0.924	0.872	0.904	0.921	0.920	2.95
21) Acetonitrile	0.026	0.025	0.028	0.031	0.031	0.034	0.031	0.029	10.48
22) Di-isopropyl ethe	1.199	1.240	1.179	1.211	1.130	1.165	1.163	1.184	3.05
23) Chloroprene	0.510	0.509	0.515	0.503	0.489	0.515	0.518	0.508	1.94
24)P 1,1-Dichloroethan	0.665	0.689	0.658	0.691	0.620	0.641	0.632	0.656	4.19
25) Acrylonitrile	0.093	0.108	0.113	0.113	0.112	0.117	0.115	0.110	7.36
26) ETBE	1.006	1.021	0.986	0.984	0.954	0.981	0.990	0.989	2.13
27) Vinyl acetate	0.360	0.411	0.480	0.622	0.612	0.643	0.629	0.537	21.92
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9991									
Response Ratio = 0.00000 + 0.60453 *A + 0.00150 *A^2									
28) cis-1,2-Dichloroe	0.420	0.423	0.413	0.411	0.397	0.403	0.402	0.410	2.31
29) 2,2-Dichloropropa	0.339	0.344	0.328	0.338	0.291	0.292	0.280	0.316	8.59
30) Bromochloromethan	0.166	0.163	0.160	0.162	0.154	0.157	0.157	0.160	2.70
31) Cyclohexane	0.640	0.640	0.630	0.632	0.577	0.609	0.604	0.619	3.78
32)C Chloroform	0.632	0.641	0.624	0.637	0.588	0.605	0.602	0.619	3.25
33) Ethyl acetate	0.234	0.267	0.270	0.283	0.279	0.292	0.294	0.274	7.39
34) Tetrahydrofuran	0.112	0.094	0.094	0.097	0.093	0.094	0.093	0.097	7.13

# Initial Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: VY879-ICC879  
Lab FileID: Y20321.D

35)S	Dibromofluorometh	0.204	0.204	0.204	0.206	0.209	0.207	0.212	0.207	1.56
36)	Carbon Tetrachlor	0.347	0.335	0.338	0.354	0.316	0.331	0.332	0.336	3.60
37)	1,1,1-Trichloroet	0.480	0.482	0.481	0.460	0.437	0.448	0.444	0.462	4.16
38)	2-Butanone	0.126	0.132	0.132	0.141	0.135	0.143	0.143	0.136	4.87
39)	1,1-Dichloroprope	0.537	0.538	0.525	0.550	0.486	0.509	0.505	0.521	4.30
40)	Propionitrile	0.034	0.036	0.040	0.042	0.042	0.045	0.045	0.041	10.34
41)	Methacrylonitrile	0.158	0.169	0.170	0.168	0.166	0.171	0.171	0.168	2.72
42)	Benzene	1.628	1.663	1.598	1.624	1.503	1.555	1.546	1.588	3.52
43)	TAME	0.923	0.975	0.937	0.964	0.908	0.943	0.955	0.944	2.47
44)S	1,2-Dichloroethan	0.226	0.220	0.213	0.209	0.210	0.215	0.207	0.214	3.16
45)	1,2-Dichloroethan	0.396	0.410	0.381	0.389	0.363	0.370	0.370	0.383	4.38
46)	Trichloroethene	0.396	0.404	0.380	0.389	0.354	0.367	0.362	0.379	4.90
47)	Methylcyclohexane	0.767	0.748	0.763	0.774	0.692	0.730	0.726	0.743	3.90
48)	Dibromomethane	0.179	0.188	0.184	0.184	0.172	0.178	0.180	0.181	2.94
49)C	1,2-Dichloropropa	0.401	0.410	0.396	0.407	0.381	0.392	0.392	0.397	2.50
50)	Bromodichlorometh	0.387	0.424	0.411	0.441	0.407	0.422	0.424	0.417	4.06
51)	Methyl methacryla	0.229	0.256	0.243	0.233	0.248	0.255	0.264	0.247	5.14
52)	2-Chloroethyl vin	0.167	0.171	0.173	0.181	0.179	0.189	0.196	0.179	5.79
53)	cis-1,3-Dichlorop	0.563	0.587	0.575	0.607	0.570	0.596	0.594	0.584	2.68

54) I Chlorobenzene-d5 -----ISTD-----

55)S	Toluene-d8	1.364	1.332	1.354	1.369	1.336	1.332	1.326	1.345	1.29
56)C	Toluene	2.337	2.345	2.267	2.330	2.118	2.169	2.153	2.246	4.33
57)	2-Nitropropane	0.085	0.087	0.085	0.088	0.086	0.087	0.089	0.087	1.82
58)	4-Methyl-2-pentan	0.416	0.419	0.420	0.435	0.408	0.418	0.421	0.420	1.92
59)	trans-1,3-Dichlor	0.601	0.629	0.613	0.711	0.605	0.619	0.621	0.628	5.98
60)	Tetrachloroethene	0.453	0.444	0.421	0.432	0.403	0.417	0.424	0.428	3.92
61)	Ethyl methacrylat	0.405	0.448	0.494	0.556	0.583	0.601	0.612	0.528	15.21

---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999  
Response Ratio = 0.00000 + 0.54461 \*A + 0.01732 \*A^2

62)	1,1,2-Trichloroet	0.350	0.358	0.342	0.349	0.327	0.332	0.331	0.341	3.47
63)	Dibromochlorometh	0.338	0.361	0.360	0.387	0.359	0.370	0.373	0.364	4.19
64)	1,3-Dichloropropa	0.752	0.788	0.749	0.744	0.705	0.721	0.722	0.740	3.66
65)	1,2-Dibromoethane	0.375	0.377	0.369	0.375	0.355	0.364	0.369	0.369	2.05
66)	2-hexanone	0.273	0.283	0.293	0.306	0.292	0.303	0.307	0.294	4.35
67)	1-Chlorohexane	0.792	0.754	0.761	0.777	0.713	0.745	0.742	0.755	3.41
68)C	Ethylbenzene	2.552	2.540	2.475	2.627	2.332	2.414	2.388	2.475	4.21
69)P	Chlorobenzene	1.351	1.357	1.309	1.375	1.226	1.272	1.261	1.307	4.31
70)	1,1,1,2-Tetrachlo	0.392	0.403	0.384	0.412	0.372	0.385	0.389	0.391	3.35
71)	m,p-Xylene	1.862	1.896	1.862	1.969	1.751	1.820	1.800	1.851	3.80
72)	o-Xylene	1.864	1.902	1.852	1.989	1.780	1.837	1.828	1.865	3.55
73)	Styrene	1.330	1.364	1.412	1.505	1.397	1.468	1.457	1.419	4.33
74)P	Bromoform	0.167	0.175	0.181	0.194	0.186	0.196	0.201	0.186	6.67
75)	Isopropylbenzene	2.296	2.331	2.277	2.418	2.138	2.242	2.231	2.276	3.84

76) I 1,4-Dichlorobenzene-d -----ISTD-----

77)S	4-Bromofluorobenz	0.698	0.684	0.688	0.692	0.674	0.673	0.686	0.685	1.31
78)	cis-1,4-Dichloro-	0.225	0.216	0.254	0.234	0.275	0.289	0.290	0.255	11.97
79)	n-Propylbenzene	6.554	6.410	6.404	6.895	5.916	6.069	6.000	6.321	5.52
80)	Bromobenzene	1.038	1.054	1.026	1.048	0.957	0.983	0.991	1.014	3.64
81)P	1,1,2,2-Tetrachlo	1.246	1.240	1.239	1.231	1.162	1.185	1.184	1.213	2.82
82)	1,3,5-Trimethylbe	4.435	4.544	4.497	4.601	4.171	4.300	4.274	4.403	3.59
83)	2-Chlorotoluene	4.218	4.167	4.100	4.346	3.831	3.907	3.882	4.064	4.79
84)	trans-1,4-Dichlor	0.243	0.245	0.278	0.273	0.297	0.308	0.309	0.279	9.92
85)	1,2,3-Trichloropr	0.325	0.313	0.318	0.316	0.296	0.294	0.302	0.309	3.86
86)	Cyclohexanone	0.048	0.039	0.050	0.048	0.059	0.059	0.058	0.052	14.50

---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9980  
Response Ratio = 0.00000 + 0.05536 \*A + 0.00014 \*A^2

6.7.1  
6

# Initial Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY879-ICC879  
**Lab FileID:** Y20321.D

87)	4-Chlorotoluene	3.915	3.887	3.856	3.992	3.554	3.637	3.605	3.778	4.61
88)	tert-Butylbenzene	2.440	2.472	2.484	2.534	2.254	2.300	2.309	2.399	4.54
89)	1,2,4-Trimethylbe	4.211	4.411	4.328	4.558	4.069	4.209	4.190	4.282	3.80
90)	Pentachloroethane	0.471	0.450	0.461	0.495	0.451	0.480	0.470	0.468	3.44
91)	sec-Butylbenzene	5.930	5.806	5.843	6.173	5.316	5.520	5.460	5.721	5.26
92)	4-Isopropyltoluen	4.447	4.577	4.559	4.769	4.186	4.374	4.317	4.461	4.31
93)	1,3-Dichlorobenze	2.077	2.066	2.051	2.183	1.903	1.971	1.945	2.028	4.67
94)	1,4-Dichlorobenze	2.321	2.259	2.158	2.201	1.923	2.005	1.970	2.120	7.26
95)	n-Butylbenzene	2.594	2.699	2.741	2.886	2.546	2.640	2.578	2.669	4.41
96)	Benzyl Chloride	0.355	0.382	0.376	0.418	0.428	0.459	0.463	0.412	10.15
97)	1,2-Dichlorobenze	1.969	2.017	1.926	2.027	1.824	1.871	1.856	1.927	4.16
98)	1,2-Dibromo-3-Chl	0.195	0.190	0.194	0.199	0.188	0.196	0.196	0.194	1.89
99)	Hexachlorobutadie	0.523	0.483	0.495	0.497	0.421	0.450	0.445	0.473	7.54
100)	1,2,4-Trichlorobe	1.108	1.160	1.110	1.219	1.057	1.093	1.060	1.115	5.15
101)	Naphthalene	2.993	3.050	3.054	3.574	3.047	3.109	3.102	3.133	6.33
102)	1,2,3-Trichlorobe	1.072	1.109	1.036	1.143	0.988	1.018	1.005	1.053	5.44
103)	I Tert Butyl Alcohol-d1	-----ISTD-----								
104)	Ethanol	0.161	0.174	0.222	0.245	0.250	0.244	0.248	0.221	16.93
		---- Linear regr., Force(0,0) ---- Coefficient = 0.9997								
		Response Ratio = 0.00000 + 0.24657 *A								
105)	Acrolein	2.064	2.384	2.500	2.547	2.263	2.236	2.368	2.337	7.07
106)	Tert butyl alcoho	1.851	1.646	1.800	1.766	1.662	1.754	1.691	1.738	4.33
107)	Isobutyl alcohol	0.385	0.356	0.397	0.406	0.411	0.434	0.474	0.409	9.11
108)	Tert Amyl Alcohol	1.407	1.422	1.538	1.365	1.401	1.436	1.479	1.435	3.98
109)	1,4-Dioxane	0.078	0.109	0.162	0.191	0.185	0.189	0.194	0.158	29.20
		---- Linear regr., Force(0,0) ---- Coefficient = 0.9996								
		Response Ratio = 0.00000 + 0.19097 *A								

(#) = Out of Range

052815APP9-Y.m

Fri May 29 10:00:36 2015

# Initial Calibration Verification

Job Number: FA25397  
 Account: GSYNFLTI Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

Sample: VY879-ICV879  
 Lab FileID: Y20326.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\052815\Y20326.D Vial: 15  
 Acq On : 28 May 2015 3:13 pm Operator: angied  
 Sample : ICV879-4 Inst : MSVOA14  
 Misc : MS30634,VY879,5.00,,,,, Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\052815APP9-Y.m (RTE Integrator)  
 Title : SW-846 Method 5035A/8260B  
 Last Update : Fri May 29 09:48:30 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Fluorobenzene	1.000	1.000	0.0	103	0.00	7.21
2	Dichlorodifluoromethane	0.433	0.449	-3.7	103	0.00	2.04
3 P	Chloromethane	0.544	0.554	-1.8	103	0.00	2.27
4 C	Vinyl Chloride	0.530	0.556	-4.9	104	0.00	2.39
5	Bromomethane	0.288	0.293	-1.7	103	0.00	2.80
----- Amount Calc. %Drift -----							
6	Chloroethane	50.000	56.747	-13.5	121	0.00	2.97
----- AvgRF CCRF %Dev -----							
7	Trichlorofluoromethane	0.417	0.471	-12.9	104	0.00	3.12
8	Ethyl Ether	0.293	0.295	-0.7	101	0.00	3.48
9	1,2-Dichlorotrifluoroetha	0.390	0.423	-8.5	104	0.00	3.71
10 C	1,1-Dichloroethene	0.529	0.544	-2.8	103	0.00	3.72
11	Freon 113	0.305	0.295	3.3	104	-0.01	3.79
12	Carbon Disulfide	1.205	1.198	0.6	103	0.00	3.76
13	Iodomethane	0.484	0.479	1.0	106	0.00	3.89
14	Allyl chloride	0.531	0.519	2.3	110	0.00	4.26
----- Amount Calc. %Drift -----							
15	Methylene Chloride	50.000	55.727	-11.5	99	0.00	4.38
----- AvgRF CCRF %Dev -----							
16	Acetone	0.077	0.080	-3.9	102	0.00	4.43
----- Amount Calc. %Drift -----							
17	Methyl acetate	250.000	299.499	-19.8	104	0.00	4.57
----- AvgRF CCRF %Dev -----							
18	trans-1,2-Dichloroethene	0.488	0.536	-9.8	102	0.00	4.57
19	Hexane	0.353	0.334	5.4	97	0.00	4.67
20	Methyl Tert Butyl Ether	0.920	0.938	-2.0	105	0.00	4.69
21	Acetonitrile	0.029	0.027	6.9	89	0.00	4.94
22	Di-isopropyl ether	1.184	1.240	-4.7	106	0.00	5.11
23	Chloroprene	0.508	0.527	-3.7	108	0.00	5.23
24 P	1,1-Dichloroethane	0.656	0.692	-5.5	103	0.00	5.25
25	Acrylonitrile	0.110	0.112	-1.8	102	0.00	5.28
26	ETBE	0.989	1.012	-2.3	106	0.00	5.51
----- Amount Calc. %Drift -----							
27	Vinyl acetate	250.000	242.126	3.1	98	0.00	5.51

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY879-ICV879  
**Lab FileID:** Y20326.D

		AvgRF	CCRF	%Dev			
28	cis-1,2-Dichloroethene	0.410	0.411	-0.2	103	0.00	5.84
29	2,2-Dichloropropane	0.316	0.341	-7.9	104	0.00	5.96
30	Bromochloromethane	0.160	0.161	-0.6	102	0.00	6.06
31	Cyclohexane	0.619	0.648	-4.7	106	0.00	6.09
32 C	Chloroform	0.619	0.639	-3.2	104	0.00	6.13
33	Ethyl acetate	0.274	0.279	-1.8	102	0.00	6.25
34	Tetrahydrofuran	0.097	0.091	6.2	97	0.00	6.32
35 S	Dibromofluoromethane	0.207	0.207	0.0	103	0.00	6.33
36	Carbon Tetrachloride	0.336	0.358	-6.5	104	0.00	6.31
37	1,1,1-Trichloroethane	0.462	0.474	-2.6	106	0.00	6.37
38	2-Butanone	0.136	0.136	0.0	99	0.00	6.45
39	1,1-Dichloropropene	0.521	0.548	-5.2	103	0.00	6.51
40	Propionitrile	0.041	0.043	-4.9	106	0.00	6.76
41	Methacrylonitrile	0.168	0.176	-4.8	107	0.00	6.79
42	Benzene	1.588	1.632	-2.8	104	0.00	6.77
43	TAME	0.944	0.990	-4.9	106	0.00	6.88
44 S	1,2-Dichloroethane-d4	0.214	0.212	0.9	105	0.00	6.90
45	1,2-Dichloroethane	0.383	0.389	-1.6	103	0.00	6.98
46	Trichloroethene	0.379	0.391	-3.2	103	0.00	7.39
47	Methylcyclohexane	0.743	0.766	-3.1	102	0.00	7.39
48	Dibromomethane	0.181	0.183	-1.1	103	0.00	7.83
49 C	1,2-Dichloropropane	0.397	0.409	-3.0	104	0.00	7.92
50	Bromodichloromethane	0.417	0.446	-7.0	104	0.00	7.99
51	Methyl methacrylate	0.247	0.250	-1.2	110	0.00	8.12
52	2-Chloroethyl vinyl ether	0.179	0.186	-3.9	106	0.00	8.54
53	cis-1,3-Dichloropropene	0.584	0.617	-5.7	105	0.00	8.62
54 I	Chlorobenzene-d5	1.000	1.000	0.0	104	0.00	10.38
55 S	Toluene-d8	1.345	1.357	-0.9	103	0.00	8.82
56 C	Toluene	2.246	2.312	-2.9	103	0.00	8.87
57	2-Nitropropane	0.087	0.087	0.0	103	0.00	9.07
58	4-Methyl-2-pentanone	0.420	0.427	-1.7	102	0.00	9.22
59	trans-1,3-Dichloropropene	0.628	0.712	-13.4	104	0.00	9.27
60	Tetrachloroethene	0.428	0.430	-0.5	104	0.00	9.27
61	Ethyl methacrylate	50.000	51.184	-2.4	108	0.00	9.41
62	1,1,2-Trichloroethane	0.341	0.354	-3.8	105	0.00	9.43
63	Dibromochloromethane	0.364	0.387	-6.3	104	0.00	9.63
64	1,3-Dichloropropane	0.740	0.741	-0.1	104	0.00	9.71
65	1,2-Dibromoethane	0.369	0.381	-3.3	106	0.00	9.88
66	2-hexanone	0.294	0.297	-1.0	101	0.00	10.05
67	1-Chlorohexane	0.755	0.757	-0.3	101	0.00	10.35
68 C	Ethylbenzene	2.475	2.557	-3.3	101	0.00	10.41
69 P	Chlorobenzene	1.307	1.358	-3.9	103	0.00	10.39
70	1,1,1,2-Tetrachloroethane	0.391	0.413	-5.6	104	0.00	10.45
71	m,p-Xylene	1.851	1.921	-3.8	101	0.00	10.55
72	o-Xylene	1.865	1.956	-4.9	102	0.00	10.98
73	Styrene	1.419	1.496	-5.4	103	0.00	11.04
74 P	Bromoforn	0.186	0.196	-5.4	105	0.00	11.08
75	Isopropylbenzene	2.276	2.402	-5.5	103	0.00	11.29
76 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	104	0.00	12.74
77 S	4-Bromofluorobenzene	0.685	0.685	0.0	103	0.00	11.60
78	cis-1,4-Dichloro-2-butene	0.255	0.246	3.5	109	0.00	11.64
79	n-Propylbenzene	6.321	6.688	-5.8	101	0.00	11.71
80	Bromobenzene	1.014	1.043	-2.9	103	0.00	11.71

6.7.2  
6

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY879-ICV879  
**Lab FileID:** Y20326.D

81 P	1,1,2,2-Tetrachloroethane	1.213	1.233	-1.6	104	0.00	11.78
82	1,3,5-Trimethylbenzene	4.403	4.524	-2.7	102	0.00	11.91
83	2-Chlorotoluene	4.064	4.253	-4.7	102	0.00	11.89
84	trans-1,4-Dichloro-2-Bute	0.279	0.268	3.9	102	0.00	11.96
85	1,2,3-Trichloropropane	0.309	0.308	0.3	101	0.00	11.93
		----- Amount	Calc.	%Drift	-----		
86	Cyclohexanone	250.000	179.529	28.2#	87	0.00	11.98
		----- AvgRF	CCRF	%Dev	-----		
87	4-Chlorotoluene	3.778	3.909	-3.5	102	0.00	12.05
88	tert-Butylbenzene	2.399	2.540	-5.9	104	0.00	12.24
89	1,2,4-Trimethylbenzene	4.282	4.471	-4.4	102	0.00	12.31
90	Pentachloroethane	0.468	0.503	-7.5	106	0.00	12.28
91	sec-Butylbenzene	5.721	6.081	-6.3	102	0.00	12.43
92	4-Isopropyltoluene	4.461	4.620	-3.6	101	0.00	12.56
93	1,3-Dichlorobenzene	2.028	2.108	-3.9	100	0.00	12.67
94	1,4-Dichlorobenzene	2.120	2.124	-0.2	100	0.00	12.76
95	n-Butylbenzene	2.669	2.720	-1.9	98	0.00	13.00
96	Benzyl Chloride	0.412	0.408	1.0	102	0.00	13.00
97	1,2-Dichlorobenzene	1.927	1.972	-2.3	101	0.00	13.20
98	1,2-Dibromo-3-Chloropropa	0.194	0.200	-3.1	104	0.00	14.00
99	Hexachlorobutadiene	0.473	0.478	-1.1	100	0.00	14.61
100	1,2,4-Trichlorobenzene	1.115	1.131	-1.4	96	0.00	14.64
101	Naphthalene	3.133	3.480	-11.1	101	0.00	14.93
102	1,2,3-Trichlorobenzene	1.053	1.084	-2.9	99	0.00	15.09
103 I	Tert Butyl Alcohol-d10	1.000	1.000	0.0	103	0.00	4.72
		----- Amount	Calc.	%Drift	-----		
104	Ethanol	1000.000	822.336	17.8	86	-0.02	3.66
		----- AvgRF	CCRF	%Dev	-----		
105	Acrolein	2.337	2.422	-3.6	98	0.00	4.10
106	Tert butyl alcohol	1.738	1.594	8.3	93	0.00	4.80
107	Isobutyl alcohol	0.409	0.368	10.0	94	0.00	6.96
108	Tert Amyl Alcohol	1.435	1.296	9.7	98	0.00	7.07
		----- Amount	Calc.	%Drift	-----		
109	1,4-Dioxane	1000.000	698.857	30.1#	72	0.00	8.19

(#) = Out of Range  
 Y20325.D 052815APP9-Y.m

SPCC's out = 0 CCC's out = 0  
 Fri May 29 09:58:58 2015

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY896-CC879  
**Lab FileID:** Y20775.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\062315\Y20775.D Vial: 7  
 Acq On : 23 Jun 2015 11:47 am Operator: ANGIED  
 Sample : CC879-4 Inst : MSVOA14  
 Misc : MS30884,VY896,5.00,,,,, Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\052815APP9-Y.m (RTE Integrator)  
 Title : SW-846 Method 5035A/8260B  
 Last Update : Fri May 29 09:48:30 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Fluorobenzene	1.000	1.000	0.0	97	0.00	7.21
2	Dichlorodifluoromethane	0.433	0.423	2.3	91	0.00	2.03
3 P	Chloromethane	0.544	0.559	-2.8	98	0.00	2.28
4 C	Vinyl Chloride	0.530	0.523	1.3	92	0.00	2.39
5	Bromomethane	0.288	0.273	5.2	90	0.00	2.81
-----							
		Amount	Calc.	%Drift			
6	Chloroethane	50.000	56.334	-12.7	113	0.00	2.97
-----							
		AvgRF	CCRF	%Dev			
7	Trichlorofluoromethane	0.417	0.410	1.7	85	0.00	3.12
8	Ethyl Ether	0.293	0.267	8.9	86	0.00	3.48
9	1,2-Dichlorotrifluoroetha	0.390	0.361	7.4	83	0.00	3.71
10 C	1,1-Dichloroethene	0.529	0.497	6.0	89	0.00	3.73
11	Freon 113	0.305	0.257	15.7	85	0.00	3.80
12	Carbon Disulfide	1.205	1.143	5.1	93	0.00	3.77
13	Iodomethane	0.484	0.445	8.1	93	0.00	3.89
14	Allyl chloride	0.531	0.542	-2.1	108	0.00	4.27
-----							
		Amount	Calc.	%Drift			
15	Methylene Chloride	50.000	53.025	-6.0	88	0.00	4.38
-----							
		AvgRF	CCRF	%Dev			
16	Acetone	0.077	0.063	18.2	76	0.00	4.44
-----							
		Amount	Calc.	%Drift			
17	Methyl acetate	250.000	224.075	10.4	74	0.00	4.58
-----							
		AvgRF	CCRF	%Dev			
18	trans-1,2-Dichloroethene	0.488	0.470	3.7	84	0.00	4.57
19	Hexane	0.353	0.333	5.7	91	0.00	4.67
20	Methyl Tert Butyl Ether	0.920	0.829	9.9	87	0.00	4.69
21	Acetonitrile	0.029	0.024	17.2	74	0.00	4.94
22	Di-isopropyl ether	1.184	1.135	4.1	91	0.00	5.11
23	Chloroprene	0.508	0.528	-3.9	102	0.00	5.23
24 P	1,1-Dichloroethane	0.656	0.624	4.9	88	0.00	5.25
25	Acrylonitrile	0.110	0.104	5.5	89	0.00	5.29
26	ETBE	0.989	0.944	4.6	93	0.00	5.51
-----							
		Amount	Calc.	%Drift			
27	Vinyl acetate	250.000	238.750	4.5	91	0.00	5.51

6.7.3  
6



# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY896-CC879  
**Lab FileID:** Y20775.D

		AvgRF	CCRF	%Dev			
28	cis-1,2-Dichloroethene	0.410	0.383	6.6	90	0.00	5.84
29	2,2-Dichloropropane	0.316	0.321	-1.6	92	0.00	5.96
30	Bromochloromethane	0.160	0.141	11.9	85	0.00	6.06
31	Cyclohexane	0.619	0.567	8.4	87	0.00	6.09
32 C	Chloroform	0.619	0.575	7.1	88	0.00	6.13
33	Ethyl acetate	0.274	0.271	1.1	93	0.00	6.24
34	Tetrahydrofuran	0.097	0.082	15.5	82	0.00	6.32
35 S	Dibromofluoromethane	0.207	0.199	3.9	94	0.00	6.33
36	Carbon Tetrachloride	0.336	0.317	5.7	87	0.00	6.31
37	1,1,1-Trichloroethane	0.462	0.436	5.6	92	0.00	6.37
38	2-Butanone	0.136	0.127	6.6	87	0.00	6.45
39	1,1-Dichloropropene	0.521	0.492	5.6	87	0.00	6.51
40	Propionitrile	0.041	0.038	7.3	86	0.00	6.76
41	Methacrylonitrile	0.168	0.166	1.2	96	0.00	6.79
42	Benzene	1.588	1.489	6.2	89	0.00	6.77
43	TAME	0.944	0.883	6.5	89	0.00	6.88
44 S	1,2-Dichloroethane-d4	0.214	0.209	2.3	97	0.00	6.90
45	1,2-Dichloroethane	0.383	0.345	9.9	86	0.00	6.97
46	Trichloroethene	0.379	0.348	8.2	87	0.00	7.39
47	Methylcyclohexane	0.743	0.699	5.9	88	0.00	7.39
48	Dibromomethane	0.181	0.166	8.3	87	0.00	7.83
49 C	1,2-Dichloropropane	0.397	0.370	6.8	88	0.00	7.92
50	Bromodichloromethane	0.417	0.387	7.2	85	0.00	7.98
51	Methyl methacrylate	0.247	0.231	6.5	96	0.00	8.12
52	2-Chloroethyl vinyl ether	0.179	0.181	-1.1	97	0.00	8.54
53	cis-1,3-Dichloropropene	0.584	0.540	7.5	86	0.00	8.62
54 I	Chlorobenzene-d5	1.000	1.000	0.0	89	0.00	10.38
55 S	Toluene-d8	1.345	1.434	-6.6	93	0.00	8.82
56 C	Toluene	2.246	2.297	-2.3	87	0.00	8.87
57	2-Nitropropane	0.087	0.091	-4.6	91	0.00	9.07
58	4-Methyl-2-pentanone	0.420	0.456	-8.6	93	0.00	9.22
59	trans-1,3-Dichloropropene	0.628	0.627	0.2	78	0.00	9.27
60	Tetrachloroethene	0.428	0.429	-0.2	88	0.00	9.27
61	Ethyl methacrylate	50.000	51.203	-2.4	92	0.00	9.41
62	1,1,2-Trichloroethane	0.341	0.341	0.0	87	0.00	9.43
63	Dibromochloromethane	0.364	0.359	1.4	82	0.00	9.63
64	1,3-Dichloropropane	0.740	0.745	-0.7	89	0.00	9.71
65	1,2-Dibromoethane	0.369	0.357	3.3	85	0.00	9.87
66	2-hexanone	0.294	0.321	-9.2	93	0.00	10.05
67	1-Chlorohexane	0.755	0.775	-2.6	89	0.00	10.35
68 C	Ethylbenzene	2.475	2.537	-2.5	86	0.00	10.41
69 P	Chlorobenzene	1.307	1.330	-1.8	86	0.00	10.39
70	1,1,1,2-Tetrachloroethane	0.391	0.390	0.3	84	0.00	10.45
71	m,p-Xylene	1.851	1.894	-2.3	85	0.00	10.55
72	o-Xylene	1.865	1.887	-1.2	84	0.00	10.98
73	Styrene	1.419	1.463	-3.1	86	0.00	11.03
74 P	Bromoform	0.186	0.185	0.5	84	0.00	11.08
75	Isopropylbenzene	2.276	2.285	-0.4	84	0.00	11.29
76 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00	12.74
77 S	4-Bromofluorobenzene	0.685	0.685	0.0	85	0.00	11.60
78	cis-1,4-Dichloro-2-butene	0.255	0.303	-18.8	112	0.00	11.64
79	n-Propylbenzene	6.321	6.575	-4.0	82	0.00	11.71
80	Bromobenzene	1.014	1.042	-2.8	86	0.00	11.71

6.7.3  
6

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY896-CC879  
**Lab FileID:** Y20775.D

81 P	1,1,2,2-Tetrachloroethane	1.213	1.262	-4.0	89	0.00	11.77
82	1,3,5-Trimethylbenzene	4.403	4.640	-5.4	87	0.00	11.90
83	2-Chlorotoluene	4.064	4.276	-5.2	85	0.00	11.89
84	trans-1,4-Dichloro-2-Bute	0.279	0.309	-10.8	98	0.00	11.96
85	1,2,3-Trichloropropane	0.309	0.317	-2.6	87	0.00	11.93
		----- Amount	Calc.	%Drift	-----		
86	Cyclohexanone	250.000	330.020	-32.0#	133	0.00	11.98
		----- AvgRF	CCRF	%Dev	-----		
87	4-Chlorotoluene	3.778	3.962	-4.9	86	0.00	12.05
88	tert-Butylbenzene	2.399	2.485	-3.6	85	0.00	12.24
89	1,2,4-Trimethylbenzene	4.282	4.472	-4.4	85	0.00	12.31
90	Pentachloroethane	0.468	0.515	-10.0	90	0.00	12.27
91	sec-Butylbenzene	5.721	6.003	-4.9	84	0.00	12.42
92	4-Isopropyltoluene	4.461	4.689	-5.1	85	0.00	12.56
93	1,3-Dichlorobenzene	2.028	2.100	-3.6	83	0.00	12.67
94	1,4-Dichlorobenzene	2.120	2.138	-0.8	84	0.00	12.75
95	n-Butylbenzene	2.669	2.887	-8.2	86	0.00	13.00
96	Benzyl Chloride	0.412	0.445	-8.0	92	0.00	13.00
97	1,2-Dichlorobenzene	1.927	1.946	-1.0	83	0.00	13.19
98	1,2-Dibromo-3-Chloropropa	0.194	0.199	-2.6	87	0.00	14.00
99	Hexachlorobutadiene	0.473	0.494	-4.4	86	0.00	14.60
100	1,2,4-Trichlorobenzene	1.115	1.168	-4.8	83	0.00	14.64
101	Naphthalene	3.133	3.166	-1.1	77	0.00	14.93
102	1,2,3-Trichlorobenzene	1.053	1.065	-1.1	80	0.00	15.08
103 I	Tert Butyl Alcohol-d10	1.000	1.000	0.0	70	0.00	4.72
		----- Amount	Calc.	%Drift	-----		
104	Ethanol	1000.000	931.926	6.8	66	0.00	3.67
		----- AvgRF	CCRF	%Dev	-----		
105	Acrolein	2.337	2.806	-20.1#	77	0.00	4.10
106	Tert butyl alcohol	1.738	1.645	5.4	65	0.00	4.80
107	Isobutyl alcohol	0.409	0.406	0.7	70	0.00	6.97
108	Tert Amyl Alcohol	1.435	1.604	-11.8	83	0.00	7.07
		----- Amount	Calc.	%Drift	-----		
109	1,4-Dioxane	1000.000	943.290	5.7	66	0.00	8.19

(#) = Out of Range  
 Y20325.D 052815APP9-Y.m

SPCC's out = 0 CCC's out = 0  
 Wed Jun 24 09:36:19 2015

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY896-ECC879  
**Lab FileID:** Y20787.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\062315\Y20787.D  
 Acq On : 23 Jun 2015 5:11 pm  
 Sample : ECC879-4  
 Misc : MS30884,VY896,5.00,,,,,  
 MS Integration Params: rteint.p

Vial: 19  
 Operator: ANGIED  
 Inst : MSVOA14  
 Multiplr: 1.00

Method : C:\msdchem\1\METHODS\052815APP9-Y.m (RTE Integrator)  
 Title : SW-846 Method 5035A/8260B  
 Last Update : Fri May 29 09:48:30 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 50% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Fluorobenzene	1.000	1.000	0.0	92	0.00	7.21
2	Dichlorodifluoromethane	0.433	0.424	2.1	87	0.00	2.03
3 P	Chloromethane	0.544	0.566	-4.0	94	0.00	2.27
4 C	Vinyl Chloride	0.530	0.533	-0.6	89	0.00	2.39
5	Bromomethane	0.288	0.278	3.5	87	0.00	2.80
----- Amount Calc. %Drift -----							
6	Chloroethane	50.000	56.619	-13.2	107	0.00	2.97
----- AvgRF CCRF %Dev -----							
7	Trichlorofluoromethane	0.417	0.416	0.2	82	0.00	3.12
8	Ethyl Ether	0.293	0.277	5.5	85	0.00	3.49
9	1,2-Dichlorotrifluoroetha	0.390	0.370	5.1	81	0.00	3.71
10 C	1,1-Dichloroethene	0.529	0.505	4.5	86	0.00	3.73
11	Freon 113	0.305	0.265	13.1	83	0.00	3.79
12	Carbon Disulfide	1.205	1.144	5.1	88	0.00	3.77
13	Iodomethane	0.484	0.456	5.8	90	0.00	3.89
14	Allyl chloride	0.531	0.555	-4.5	105	0.00	4.27
----- Amount Calc. %Drift -----							
15	Methylene Chloride	50.000	48.711	2.6	77	0.00	4.38
----- AvgRF CCRF %Dev -----							
16	Acetone	0.077	0.079	-2.6	90	0.00	4.44
----- Amount Calc. %Drift -----							
17	Methyl acetate	250.000	232.100	7.2	72	0.00	4.58
----- AvgRF CCRF %Dev -----							
18	trans-1,2-Dichloroethene	0.488	0.470	3.7	80	0.00	4.58
19	Hexane	0.353	0.317	10.2	83	0.00	4.67
20	Methyl Tert Butyl Ether	0.920	0.846	8.0	84	0.00	4.70
21	Acetonitrile	0.029	0.035	-20.7	102	0.00	4.95
22	Di-isopropyl ether	1.184	1.157	2.3	88	0.00	5.11
23	Chloroprene	0.508	0.540	-6.3	99	0.00	5.23
24 P	1,1-Dichloroethane	0.656	0.641	2.3	85	0.00	5.25
25	Acrylonitrile	0.110	0.109	0.9	88	0.00	5.30
26	ETBE	0.989	0.971	1.8	91	0.00	5.51
----- Amount Calc. %Drift -----							
27	Vinyl acetate	250.000	244.514	2.2	89	0.00	5.51

6.7.4  
6

# Continuing Calibration Summary

Job Number: FA25397  
 Account: GSYNFLTI Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

Sample: VY896-ECC879  
 Lab FileID: Y20787.D

		AvgRF	CCRF	%Dev			
28	cis-1,2-Dichloroethene	0.410	0.384	6.3	86	0.00	5.84
29	2,2-Dichloropropane	0.316	0.324	-2.5	88	0.00	5.96
30	Bromochloromethane	0.160	0.147	8.1	84	0.00	6.06
31	Cyclohexane	0.619	0.578	6.6	84	0.00	6.09
32 C	Chloroform	0.619	0.557	10.0	81	0.00	6.13
33	Ethyl acetate	0.274	0.277	-1.1	90	0.00	6.24
34	Tetrahydrofuran	0.097	0.090	7.2	86	0.00	6.32
35 S	Dibromofluoromethane	0.207	0.203	1.9	91	0.00	6.33
36	Carbon Tetrachloride	0.336	0.318	5.4	83	0.00	6.31
37	1,1,1-Trichloroethane	0.462	0.455	1.5	91	0.00	6.37
38	2-Butanone	0.136	0.139	-2.2	91	0.00	6.46
39	1,1-Dichloropropene	0.521	0.488	6.3	82	0.00	6.51
40	Propionitrile	0.041	0.043	-4.9	95	0.00	6.77
41	Methacrylonitrile	0.168	0.173	-3.0	94	0.00	6.79
42	Benzene	1.588	1.504	5.3	85	0.00	6.77
43	TAME	0.944	0.909	3.7	87	0.00	6.88
44 S	1,2-Dichloroethane-d4	0.214	0.212	0.9	93	0.00	6.91
45	1,2-Dichloroethane	0.383	0.363	5.2	86	0.00	6.98
46	Trichloroethene	0.379	0.349	7.9	83	0.00	7.39
47	Methylcyclohexane	0.743	0.703	5.4	84	0.00	7.39
48	Dibromomethane	0.181	0.168	7.2	84	0.00	7.83
49 C	1,2-Dichloropropane	0.397	0.381	4.0	86	0.00	7.92
50	Bromodichloromethane	0.417	0.403	3.4	84	0.00	7.98
51	Methyl methacrylate	0.247	0.237	4.0	94	0.00	8.12
52	2-Chloroethyl vinyl ether	0.179	0.188	-5.0	95	0.00	8.54
53	cis-1,3-Dichloropropene	0.584	0.558	4.5	85	0.00	8.62
54 I	Chlorobenzene-d5	1.000	1.000	0.0	85	0.00	10.38
55 S	Toluene-d8	1.345	1.422	-5.7	89	0.00	8.82
56 C	Toluene	2.246	2.302	-2.5	84	0.00	8.87
57	2-Nitropropane	0.087	0.094	-8.0	91	0.00	9.07
58	4-Methyl-2-pentanone	0.420	0.467	-11.2	91	0.00	9.22
59	trans-1,3-Dichloropropene	0.628	0.644	-2.5	77	0.00	9.27
60	Tetrachloroethene	0.428	0.416	2.8	82	0.00	9.27
61	Ethyl methacrylate	50.000	51.650	-3.3	89	0.00	9.41
62	1,1,2-Trichloroethane	0.341	0.344	-0.9	84	0.00	9.43
63	Dibromochloromethane	0.364	0.373	-2.5	82	0.00	9.63
64	1,3-Dichloropropane	0.740	0.752	-1.6	86	0.00	9.71
65	1,2-Dibromoethane	0.369	0.369	0.0	84	0.00	9.87
66	2-hexanone	0.294	0.329	-11.9	92	0.00	10.05
67	1-Chlorohexane	0.755	0.749	0.8	82	0.00	10.35
68 C	Ethylbenzene	2.475	2.506	-1.3	81	0.00	10.41
69 P	Chlorobenzene	1.307	1.336	-2.2	83	0.00	10.39
70	1,1,1,2-Tetrachloroethane	0.391	0.398	-1.8	83	0.00	10.45
71	m,p-Xylene	1.851	1.886	-1.9	82	0.00	10.55
72	o-Xylene	1.865	1.896	-1.7	81	0.00	10.98
73	Styrene	1.419	1.457	-2.7	83	0.00	11.03
74 P	Bromoform	0.186	0.186	0.0	82	0.00	11.07
75	Isopropylbenzene	2.276	2.295	-0.8	81	0.00	11.29
76 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	85	0.00	12.74
77 S	4-Bromofluorobenzene	0.685	0.662	3.4	82	0.00	11.60
78	cis-1,4-Dichloro-2-butene	0.255	0.311	-22.0	114	0.00	11.64
79	n-Propylbenzene	6.321	6.308	0.2	78	0.00	11.71
80	Bromobenzene	1.014	1.010	0.4	82	0.00	11.71

6.7.4  
6

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** VY896-ECC879  
**Lab FileID:** Y20787.D

81 P	1,1,2,2-Tetrachloroethane	1.213	1.256	-3.5	87	0.00	11.77
82	1,3,5-Trimethylbenzene	4.403	4.535	-3.0	84	0.00	11.90
83	2-Chlorotoluene	4.064	4.127	-1.6	81	0.00	11.89
84	trans-1,4-Dichloro-2-Bute	0.279	0.325	-16.5	102	0.00	11.95
85	1,2,3-Trichloropropane	0.309	0.309	0.0	84	0.00	11.92
		----- Amount	Calc.	%Drift	-----		
86	Cyclohexanone	250.000	363.067	-45.2	145	0.00	11.97
		----- AvgRF	CCRF	%Dev	-----		
87	4-Chlorotoluene	3.778	3.751	0.7	80	0.00	12.05
88	tert-Butylbenzene	2.399	2.488	-3.7	84	0.00	12.24
89	1,2,4-Trimethylbenzene	4.282	4.309	-0.6	81	0.00	12.31
90	Pentachloroethane	0.468	0.524	-12.0	90	0.00	12.27
91	sec-Butylbenzene	5.721	5.891	-3.0	82	0.00	12.42
92	4-Isopropyltoluene	4.461	4.495	-0.8	81	0.00	12.56
93	1,3-Dichlorobenzene	2.028	2.015	0.6	79	0.00	12.67
94	1,4-Dichlorobenzene	2.120	2.055	3.1	80	0.00	12.75
95	n-Butylbenzene	2.669	2.636	1.2	78	0.00	13.00
96	Benzyl Chloride	0.412	0.438	-6.3	90	0.00	13.00
97	1,2-Dichlorobenzene	1.927	1.923	0.2	81	0.00	13.19
98	1,2-Dibromo-3-Chloropropa	0.194	0.207	-6.7	89	0.00	14.00
99	Hexachlorobutadiene	0.473	0.477	-0.8	82	0.00	14.60
100	1,2,4-Trichlorobenzene	1.115	1.063	4.7	75	0.00	14.64
101	Naphthalene	3.133	3.189	-1.8	76	0.00	14.93
102	1,2,3-Trichlorobenzene	1.053	1.075	-2.1	80	0.00	15.08
103 I	Tert Butyl Alcohol-d10	1.000	1.000	0.0	92	0.00	4.73
		----- Amount	Calc.	%Drift	-----		
104	Ethanol	1000.000	990.863	0.9	92	0.06	3.74
		----- AvgRF	CCRF	%Dev	-----		
105	Acrolein	2.337	2.080	11.0	75	0.00	4.10
106	Tert butyl alcohol	1.738	1.586	8.7	83	0.00	4.81
107	Isobutyl alcohol	0.409	0.410	-0.2	93	0.00	6.97
108	Tert Amyl Alcohol	1.435	1.348	6.1	91	0.00	7.08
		----- Amount	Calc.	%Drift	-----		
109	1,4-Dioxane	1000.000	851.516	14.8	79	0.02	8.21

(#) = Out of Range  
 Y20325.D 052815APP9-Y.m

SPCC's out = 0 CCC's out = 0  
 Wed Jun 24 09:28:54 2015

## GC/MS Semi-volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

## Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-MB	U051558.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	830	170	ug/kg	
59-50-7	4-Chloro-3-methyl Phenol	ND	170	17	ug/kg	
95-57-8	2-Chlorophenol	ND	170	17	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	17	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	170	17	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	830	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	330	67	ug/kg	
95-48-7	2-Methylphenol	ND	170	17	ug/kg	
	3&4-Methylphenol	ND	170	33	ug/kg	
88-75-5	2-Nitrophenol	ND	170	17	ug/kg	
100-02-7	4-Nitrophenol	ND	830	130	ug/kg	
87-86-5	Pentachlorophenol	ND	830	130	ug/kg	
108-95-2	Phenol	ND	170	17	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	17	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	17	ug/kg	
83-32-9	Acenaphthene	ND	170	17	ug/kg	
208-96-8	Acenaphthylene	ND	170	17	ug/kg	
62-53-3	Aniline	ND	170	26	ug/kg	
120-12-7	Anthracene	ND	170	17	ug/kg	
92-87-5	Benzidine	ND	1700	330	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	17	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	17	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	17	ug/kg	
100-51-6	Benzyl Alcohol	ND	170	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	33	ug/kg	
86-74-8	Carbazole	ND	170	17	ug/kg	
106-47-8	4-Chloroaniline	ND	170	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	17	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	170	17	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	17	ug/kg	
218-01-9	Chrysene	ND	170	17	ug/kg	

## Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-MB	U051558.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Compound	Result	RL	MDL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	170	17	ug/kg	
132-64-9	Dibenzofuran	ND	170	17	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	17	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	17	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	170	17	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	17	ug/kg	
84-66-2	Diethyl Phthalate	ND	330	33	ug/kg	
131-11-3	Dimethyl Phthalate	ND	170	33	ug/kg	
117-84-0	Di-n-octyl Phthalate	ND	170	33	ug/kg	
84-74-2	Di-n-butyl Phthalate	ND	330	33	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	170	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	170	17	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	170	17	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	37.4	330	33	ug/kg	J
206-44-0	Fluoranthene	ND	170	17	ug/kg	
86-73-7	Fluorene	ND	170	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	17	ug/kg	
87-68-3	Hexachlorobutadiene	ND	170	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	170	33	ug/kg	
67-72-1	Hexachloroethane	ND	170	17	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	17	ug/kg	
78-59-1	Isophorone	ND	170	17	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	17	ug/kg	
91-20-3	Naphthalene	ND	170	17	ug/kg	
88-74-4	2-Nitroaniline	ND	170	21	ug/kg	
99-09-2	3-Nitroaniline	ND	170	19	ug/kg	
100-01-6	4-Nitroaniline	ND	170	17	ug/kg	
98-95-3	Nitrobenzene	ND	170	17	ug/kg	
62-75-9	N-Nitrosodimethylamine	ND	170	18	ug/kg	
621-64-7	N-Nitrosodi-n-propylamine	ND	170	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	17	ug/kg	
85-01-8	Phenanthrene	ND	170	17	ug/kg	
129-00-0	Pyrene	ND	170	17	ug/kg	
110-86-1	Pyridine	ND	330	33	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	170	17	ug/kg	



## Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-MB	U051558.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	78%	40-102%
4165-62-2	Phenol-d5	82%	41-100%
118-79-6	2,4,6-Tribromophenol	94%	42-108%
4165-60-0	Nitrobenzene-d5	78%	40-105%
321-60-8	2-Fluorobiphenyl	81%	43-107%
1718-51-0	Terphenyl-d14	114%	45-119%

7.1.1  
7

# Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-BS	U051557.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic Acid	3330	2660	80	36-118
59-50-7	4-Chloro-3-methyl Phenol	1670	1470	88	52-108
95-57-8	2-Chlorophenol	1670	1350	81	48-104
120-83-2	2,4-Dichlorophenol	1670	1470	88	51-105
105-67-9	2,4-Dimethylphenol	1670	1200	72	43-96
51-28-5	2,4-Dinitrophenol	3330	3020	91	40-119
534-52-1	4,6-Dinitro-o-cresol	3330	3250	98	64-121
95-48-7	2-Methylphenol	1670	1420	85	46-107
	3&4-Methylphenol	3330	2830	85	44-111
88-75-5	2-Nitrophenol	1670	1440	86	49-104
100-02-7	4-Nitrophenol	3330	2690	81	56-116
87-86-5	Pentachlorophenol	3330	3170	95	61-114
108-95-2	Phenol	1670	1340	80	45-110
95-95-4	2,4,5-Trichlorophenol	1670	1600	96	58-112
88-06-2	2,4,6-Trichlorophenol	1670	1540	92	56-109
83-32-9	Acenaphthene	1670	1510	91	56-109
208-96-8	Acenaphthylene	1670	1420	85	56-106
62-53-3	Aniline	1670	1210	73	42-108
120-12-7	Anthracene	1670	1560	94	61-110
56-55-3	Benzo(a)anthracene	1670	1640	98	66-111
50-32-8	Benzo(a)pyrene	1670	1620	97	59-104
205-99-2	Benzo(b)fluoranthene	1670	1650	99	67-113
191-24-2	Benzo(g,h,i)perylene	1670	1620	97	67-113
207-08-9	Benzo(k)fluoranthene	1670	1600	96	67-114
100-51-6	Benzyl Alcohol	1670	1360	82	53-108
101-55-3	4-Bromophenyl phenyl ether	1670	1630	98	62-110
85-68-7	Butyl benzyl phthalate	1670	1730	104	65-113
86-74-8	Carbazole	1670	1510	91	60-111
106-47-8	4-Chloroaniline	1670	1210	73	30-115
111-91-1	bis(2-Chloroethoxy)methane	1670	1430	86	48-105
111-44-4	bis(2-Chloroethyl)ether	1670	1330	80	46-103
108-60-1	bis(2-Chloroisopropyl)ether	1670	1330	80	40-110
91-58-7	2-Chloronaphthalene	1670	1410	85	53-106
7005-72-3	4-Chlorophenyl phenyl ether	1670	1510	91	58-106
218-01-9	Chrysene	1670	1600	96	65-112
53-70-3	Dibenzo(a,h)anthracene	1670	1740	104	68-115

\* = Outside of Control Limits.

7.2.1  
 7

# Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-BS	U051557.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
132-64-9	Dibenzofuran	1670	1460	88	57-108
95-50-1	1,2-Dichlorobenzene	1670	1250	75	44-102
541-73-1	1,3-Dichlorobenzene	1670	1230	74	42-100
106-46-7	1,4-Dichlorobenzene	1670	1220	73	40-106
84-66-2	Diethyl Phthalate	1670	1560	94	61-109
131-11-3	Dimethyl Phthalate	1670	1520	91	59-108
117-84-0	Di-n-octyl Phthalate	1670	1840	110	64-119
84-74-2	Di-n-butyl Phthalate	1670	1620	97	63-108
121-14-2	2,4-Dinitrotoluene	1670	1540	92	59-109
606-20-2	2,6-Dinitrotoluene	1670	1510	91	61-107
122-66-7	1,2-Diphenylhydrazine	1670	1510	91	58-112
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1750	105	64-115
206-44-0	Fluoranthene	1670	1530	92	60-108
86-73-7	Fluorene	1670	1530	92	58-109
118-74-1	Hexachlorobenzene	1670	1560	94	59-111
87-68-3	Hexachlorobutadiene	1670	1360	82	41-108
77-47-4	Hexachlorocyclopentadiene	1670	1560	94	49-110
67-72-1	Hexachloroethane	1670	1230	74	40-105
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1780	107	66-116
78-59-1	Isophorone	1670	1430	86	42-89
90-12-0	1-Methylnaphthalene	1670	1450	87	49-106
91-57-6	2-Methylnaphthalene	1670	1390	83	47-106
91-20-3	Naphthalene	1670	1340	80	44-104
88-74-4	2-Nitroaniline	1670	1550	93	56-123
99-09-2	3-Nitroaniline	1670	1340	80	41-111
100-01-6	4-Nitroaniline	1670	1340	80	54-113
98-95-3	Nitrobenzene	1670	1340	80	43-108
62-75-9	N-Nitrosodimethylamine	1670	1260	76	40-106
621-64-7	N-Nitrosodi-n-propylamine	1670	1350	81	48-108
86-30-6	N-Nitrosodiphenylamine	1670	1510	91	62-110
85-01-8	Phenanthrene	1670	1550	93	63-111
129-00-0	Pyrene	1670	1610	97	65-115
110-86-1	Pyridine	1670	971	58	31-102
120-82-1	1,2,4-Trichlorobenzene	1670	1320	79	45-100

\* = Outside of Control Limits.

## Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-BS	U051557.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	75%	40-102%
4165-62-2	Phenol-d5	81%	41-100%
118-79-6	2,4,6-Tribromophenol	94%	42-108%
4165-60-0	Nitrobenzene-d5	79%	40-105%
321-60-8	2-Fluorobiphenyl	83%	43-107%
1718-51-0	Terphenyl-d14	107%	45-119%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-MS	U051560.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
OP56559-MSD	U051561.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
FA25397-1	U051559.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Compound	FA25397-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
65-85-0	Benzoic Acid	910 U		3560	2000	56	3610	1820	50	9	36-118/41
59-50-7	4-Chloro-3-methyl Phenol	180 U		1780	1460	82	1810	1390	77	5	52-108/21
95-57-8	2-Chlorophenol	180 U		1780	1300	73	1810	1140	63	13	48-104/26
120-83-2	2,4-Dichlorophenol	180 U		1780	1450	81	1810	1310	73	10	51-105/27
105-67-9	2,4-Dimethylphenol	180 U		1780	1280	72	1810	1180	65	8	43-96/23
51-28-5	2,4-Dinitrophenol	910 U		3560	2600	73	3610	2440	68	6	40-119/32
534-52-1	4,6-Dinitro-o-cresol	360 U		3560	3200	90	3610	3060	85	4	64-121/29
95-48-7	2-Methylphenol	180 U		1780	1400	79	1810	1260	70	11	46-107/24
	3&4-Methylphenol	180 U		3560	2740	77	3610	2530	70	8	44-111/24
88-75-5	2-Nitrophenol	180 U		1780	1410	79	1810	1240	69	13	49-104/27
100-02-7	4-Nitrophenol	910 U		3560	2870	81	3610	2740	76	5	56-116/23
87-86-5	Pentachlorophenol	910 U		3560	3520	99	3610	3340	92	5	61-114/23
108-95-2	Phenol	180 U		1780	1280	72	1810	1150	64	11	45-110/24
95-95-4	2,4,5-Trichlorophenol	180 U		1780	1620	91	1810	1520	84	6	58-112/22
88-06-2	2,4,6-Trichlorophenol	180 U		1780	1540	86	1810	1430	79	7	56-109/25
83-32-9	Acenaphthene	180 U		1780	1500	84	1810	1390	77	8	56-109/23
208-96-8	Acenaphthylene	18.2	I	1780	1420	79	1810	1310	72	8	56-106/23
62-53-3	Aniline	180 U		1780	1050	59	1810	908	50	15	42-108/28
120-12-7	Anthracene	26.8	I	1780	1620	89	1810	1530	83	6	61-110/21
56-55-3	Benzo(a)anthracene	132	I	1780	1830	95	1810	1710	87	7	66-111/23
50-32-8	Benzo(a)pyrene	143	I	1780	1810	94	1810	1720	87	5	59-104/23
205-99-2	Benzo(b)fluoranthene	283		1780	2060	100	1810	1890	89	9	67-113/24
191-24-2	Benzo(g,h,i)perylene	98.4	I	1780	1720	91	1810	1670	87	3	67-113/21
207-08-9	Benzo(k)fluoranthene	89.8	I	1780	1720	91	1810	1660	87	4	67-114/22
100-51-6	Benzyl Alcohol	180 U		1780	1310	74	1810	1190	66	10	53-108/24
101-55-3	4-Bromophenyl phenyl ether	180 U		1780	1630	91	1810	1560	86	4	62-110/21
85-68-7	Butyl benzyl phthalate	45.5	I	1780	1800	98	1810	1720	93	5	65-113/20
86-74-8	Carbazole	180 U		1780	1480	83	1810	1420	79	4	60-111/19
106-47-8	4-Chloroaniline	180 U		1780	1050	59	1810	1020	56	3	30-115/30
111-91-1	bis(2-Chloroethoxy)methane	180 U		1780	1390	78	1810	1230	68	12	48-105/24
111-44-4	bis(2-Chloroethyl)ether	180 U		1780	1310	74	1810	1150	64	13	46-103/27
108-60-1	bis(2-Chloroisopropyl)ether	180 U		1780	1240	70	1810	1080	60	14	40-110/25
91-58-7	2-Chloronaphthalene	180 U		1780	1390	78	1810	1260	70	10	53-106/23
7005-72-3	4-Chlorophenyl phenyl ether	180 U		1780	1500	84	1810	1410	78	6	58-106/21
218-01-9	Chrysene	163	I	1780	1860	95	1810	1680	84	10	65-112/25
53-70-3	Dibenzo(a,h)anthracene	28.2	I	1780	1720	95	1810	1720	94	0	68-115/23

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-MS	U051560.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
OP56559-MSD	U051561.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
FA25397-1	U051559.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Compound	FA25397-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
132-64-9	Dibenzofuran	180 U		1780	1430	80	1810	1340	74	6	57-108/22
95-50-1	1,2-Dichlorobenzene	180 U		1780	1150	65	1810	970	54	17	44-102/28
541-73-1	1,3-Dichlorobenzene	180 U		1780	1110	62	1810	930	52	18	42-100/30
106-46-7	1,4-Dichlorobenzene	180 U		1780	1130	63	1810	934	52	19	40-106/29
84-66-2	Diethyl Phthalate	360 U		1780	1540	86	1810	1470	81	5	61-109/20
131-11-3	Dimethyl Phthalate	180 U		1780	1480	83	1810	1410	78	5	59-108/20
117-84-0	Di-n-octyl Phthalate	180 U		1780	1910	107	1810	1820	101	5	64-119/21
84-74-2	Di-n-butyl Phthalate	360 U		1780	1630	91	1810	1570	87	4	63-108/19
121-14-2	2,4-Dinitrotoluene	180 U		1780	1500	84	1810	1430	79	5	59-109/20
606-20-2	2,6-Dinitrotoluene	180 U		1780	1470	82	1810	1400	78	5	61-107/22
122-66-7	1,2-Diphenylhydrazine	180 U		1780	1500	84	1810	1430	79	5	58-112/22
117-81-7	bis(2-Ethylhexyl)phthalate	209	IV	1780	1970	99	1810	1870	92	5	64-115/23
206-44-0	Fluoranthene	172	I	1780	1760	89	1810	1620	80	8	60-108/25
86-73-7	Fluorene	180 U		1780	1510	85	1810	1420	79	6	58-109/21
118-74-1	Hexachlorobenzene	180 U		1780	1580	89	1810	1490	83	6	59-111/21
87-68-3	Hexachlorobutadiene	180 U		1780	1310	74	1810	1110	61	17	41-108/27
77-47-4	Hexachlorocyclopentadiene	180 U		1780	1500	84	1810	1270	70	17	49-110/31
67-72-1	Hexachloroethane	180 U		1780	1130	63	1810	943	52	18	40-105/32
193-39-5	Indeno(1,2,3-cd)pyrene	108	I	1780	1860	98	1810	1820	95	2	66-116/22
78-59-1	Isophorone	180 U		1780	1370	77	1810	1240	69	10	42-89/22
90-12-0	1-Methylnaphthalene	180 U		1780	1430	80	1810	1300	72	10	49-106/26
91-57-6	2-Methylnaphthalene	180 U		1780	1370	77	1810	1240	69	10	47-106/27
91-20-3	Naphthalene	180 U		1780	1300	73	1810	1130	63	14	44-104/27
88-74-4	2-Nitroaniline	180 U		1780	1540	86	1810	1450	80	6	56-123/24
99-09-2	3-Nitroaniline	180 U		1780	1330	75	1810	1300	72	2	41-111/25
100-01-6	4-Nitroaniline	180 U		1780	1240	70	1810	1220	68	2	54-113/22
98-95-3	Nitrobenzene	180 U		1780	1290	72	1810	1130	63	13	43-108/25
62-75-9	N-Nitrosodimethylamine	180 U		1780	1130	63	1810	989	55	13	40-106/27
621-64-7	N-Nitrosodi-n-propylamine	180 U		1780	1260	71	1810	1140	63	10	48-108/27
86-30-6	N-Nitrosodiphenylamine	180 U		1780	1540	86	1810	1470	81	5	62-110/21
85-01-8	Phenanthrene	33.9	I	1780	1580	87	1810	1530	83	3	63-111/22
129-00-0	Pyrene	220		1780	1930	96	1810	1800	88	7	65-115/25
110-86-1	Pyridine	360 U		1780	850	48	1810	697	39	20	31-102/38
120-82-1	1,2,4-Trichlorobenzene	180 U		1780	1270	71	1810	1100	61	14	45-100/26

\* = Outside of Control Limits.

7.3.1

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56559-MS	U051560.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
OP56559-MSD	U051561.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346
FA25397-1	U051559.D	1	06/23/15	NJ	06/23/15	OP56559	SU2346

The QC reported here applies to the following samples:

Method: SW846 8270D

FA25397-1

CAS No.	Surrogate Recoveries	MS	MSD	FA25397-1	Limits
367-12-4	2-Fluorophenol	67%	58%	74%	40-102%
4165-62-2	Phenol-d5	73%	65%	78%	41-100%
118-79-6	2,4,6-Tribromophenol	95%	89%	93%	42-108%
4165-60-0	Nitrobenzene-d5	71%	61%	74%	40-105%
321-60-8	2-Fluorobiphenyl	76%	68%	77%	43-107%
1718-51-0	Terphenyl-d14	105%	99%	108%	45-119%

\* = Outside of Control Limits.

# Instrument Performance Check (DFTPP)

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Sample:</b> SU2343-DFTPP	<b>Injection Date:</b> 06/19/15
<b>Lab File ID:</b> U051480.D	<b>Injection Time:</b> 08:43
<b>Instrument ID:</b> GCMSU	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	28546	52.1	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	30309	55.4	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	32170	58.8	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	54749	100.0	Pass
199	5.0 - 9.0% of mass 198	3698	6.75	Pass
275	10.0 - 30.0% of mass 198	12349	22.6	Pass
365	1.0 - 100.0% of mass 198	1383	2.53	Pass
441	Present, but less than mass 443	4338	7.92 (84.2) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	28389	51.9	Pass
443	17.0 - 23.0% of mass 442	5154	9.41 (18.2) <sup>c</sup>	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
SU2343-IC2343	U051481.D	06/19/15	08:59	00:16	Initial cal 5
SU2343-IC2343	U051482.D	06/19/15	09:31	00:48	Initial cal 10
SU2343-IC2343	U051483.D	06/19/15	09:58	01:15	Initial cal 25
SU2343-ICC2343	U051484.D	06/19/15	10:25	01:42	Initial cal 50
SU2343-IC2343	U051485.D	06/19/15	10:52	02:09	Initial cal 60
SU2343-IC2343	U051486.D	06/19/15	11:19	02:36	Initial cal 75
SU2343-IC2343	U051487.D	06/19/15	11:47	03:04	Initial cal 100
SU2343-ICV2343	U051488.D	06/19/15	12:16	03:33	Initial cal verification 50
SU2343-ICV2343	U051489.D	06/19/15	12:43	04:00	Initial cal verification 50

7.4.1  
7



# Instrument Performance Check (DFTPP)

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Sample:</b> SU2346-DFTPP	<b>Injection Date:</b> 06/23/15
<b>Lab File ID:</b> U051555.D	<b>Injection Time:</b> 14:19
<b>Instrument ID:</b> GCMSU	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	16343	49.9	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	17625	53.8	Pass
70	Less than 2.0% of mass 69	40	0.12 (0.23) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	18995	58.0	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	32744	100.0	Pass
199	5.0 - 9.0% of mass 198	2186	6.68	Pass
275	10.0 - 30.0% of mass 198	7383	22.5	Pass
365	1.0 - 100.0% of mass 198	858	2.62	Pass
441	Present, but less than mass 443	2644	8.07 (80.7) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	17397	53.1	Pass
443	17.0 - 23.0% of mass 442	3276	10.0 (18.8) <sup>c</sup>	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
SU2346-CC2343	U051556.D	06/23/15	14:36	00:17	Continuing cal 50
OP56559-BS	U051557.D	06/23/15	15:05	00:46	Blank Spike
OP56559-MB	U051558.D	06/23/15	15:32	01:13	Method Blank
FA25397-1	U051559.D	06/23/15	16:00	01:41	KHQA-IDW001-000.0-20150622
OP56559-MS	U051560.D	06/23/15	16:27	02:08	Matrix Spike
OP56559-MSD	U051561.D	06/23/15	16:54	02:35	Matrix Spike Duplicate
ZZZZZZ	U051562.D	06/23/15	17:21	03:02	(unrelated sample)
ZZZZZZ	U051563.D	06/23/15	17:48	03:29	(unrelated sample)
ZZZZZZ	U051565.D	06/23/15	18:41	04:22	(unrelated sample)
ZZZZZZ	U051566.D	06/23/15	19:07	04:48	(unrelated sample)
ZZZZZZ	U051567.D	06/23/15	19:34	05:15	(unrelated sample)
ZZZZZZ	U051568.D	06/23/15	20:01	05:42	(unrelated sample)

7.4.2  
7

# Semivolatiles Internal Standard Area Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Check Std:</b> SU2346-CC2343	<b>Injection Date:</b> 06/23/15
<b>Lab File ID:</b> U051556.D	<b>Injection Time:</b> 14:36
<b>Instrument ID:</b> GCMSU	<b>Method:</b> SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Initial Cal <sup>a</sup>	40210	4.67	155859	5.75	81482	7.93	125334	10.39	112925	15.29	95247	17.78
Check Std <sup>b</sup>	58967	4.65	227864	5.73	123542	7.91	187141	10.37	170957	15.28	149593	17.77
Upper Limit <sup>c</sup>	117934	5.15	455728	6.23	247084	8.41	374282	10.87	341914	15.78	299186	18.27
Lower Limit <sup>d</sup>	29484	4.15	113932	5.23	61771	7.41	93571	9.87	85479	14.78	74797	17.27

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP56559-BS	51243	4.65	196938	5.72	104048	7.91	155224	10.36	133077	15.27	114030	17.77
OP56559-MB	49507	4.64	190966	5.72	104771	7.90	156702	10.36	132118	15.26	109799	17.76
FA25397-1	59038	4.64	229863	5.72	124128	7.90	183205	10.36	147147	15.26	114616	17.76
OP56559-MS	64832	4.65	245978	5.72	130431	7.91	191566	10.37	160439	15.28	130672	17.77
OP56559-MSD	59058	4.64	227478	5.72	121226	7.90	178448	10.36	147635	15.27	122230	17.77
ZZZZZZ	52601	4.64	200053	5.72	107185	7.90	158234	10.35	131373	15.26	107415	17.76
ZZZZZZ	34927	4.64	144882	5.72	89544	7.90	180841	10.36	185277	15.26	150242	17.76
ZZZZZZ	48715	4.64	187225	5.72	102088	7.90	155752	10.35	137637	15.26	120298	17.77
ZZZZZZ	56584	4.64	222502	5.72	121008	7.90	181876	10.36	159459	15.27	142248	17.78
ZZZZZZ	50523	4.65	200452	5.72	108527	7.91	163894	10.37	144052	15.28	128395	17.79
ZZZZZZ	49917	4.65	193343	5.73	105944	7.91	159602	10.37	137946	15.28	124569	17.79

- IS 1** = 1,4-Dichlorobenzene-d4
- IS 2** = Naphthalene-d8
- IS 3** = Acenaphthene-D10
- IS 4** = Phenanthrene-d10
- IS 5** = Chrysene-d12
- IS 6** = Perylene-d12

- (a) Initial Cal is: SU2343-ICC2343 U051484.D 06/19/15 10:25
- (b) Check Std Limit = -50 to + 100% of initial cal area.
- (c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
- (d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

7.5.1  
7

# Semivolatile Surrogate Recovery Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Method:</b> SW846 8270D	<b>Matrix:</b> SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
FA25397-1	U051559.D	74	78	93	74	77	108
OP56559-BS	U051557.D	75	81	94	79	83	107
OP56559-MB	U051558.D	78	82	94	78	81	114
OP56559-MS	U051560.D	67	73	95	71	76	105
OP56559-MSD	U051561.D	58	65	89	61	68	99

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	40-102%
S2 = Phenol-d5	41-100%
S3 = 2,4,6-Tribromophenol	42-108%
S4 = Nitrobenzene-d5	40-105%
S5 = 2-Fluorobiphenyl	43-107%
S6 = Terphenyl-d14	45-119%

7.6.1  
7

# Initial Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: SU2343-ICC2343  
Lab FileID: U051484.D

## Response Factor Report MSBNA04

Method : C:\msdchem\2\METHODS\8270da.m (RTE Integrator)  
Title : SW846 8270D OR EPA 625  
Last Update : Mon Jun 22 09:59:32 2015  
Response via : Initial Calibration

### Calibration Files

5 =U051481.D 10 =U051482.D 25 =U051483.D 50 =U051484.D  
60 =U051485.D 75 =U051486.D 100 =U051487.D

Compound	5	10	25	50	60	75	100	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	-----ISTD-----								
2) 1,4-Dioxane	0.693	0.694	0.708	0.683	0.680	0.698	0.669	0.689	1.84
3) N-nitrosodimethyl	0.691	0.629	0.747	0.737	0.792	0.796	0.775	0.738	8.16
4) Pyridine	1.605	1.622	1.720	1.675	1.749	1.751	1.685	1.687	3.42
5)P Benzaldehyde	1.132	1.244	1.156	0.917	0.884	0.821	0.689	0.977	20.76
	---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9981								
	Response Ratio = 0.00000 + 1.20548 *A + -0.20774 *A^2								
6) Aniline	2.205	2.339	2.385	2.378	2.432	2.430	2.369	2.362	3.26
7)S 2-Fluorophenol	1.329	1.382	1.496	1.481	1.536	1.544	1.500	1.467	5.51
8)P bis(2-Chloroethyl	1.384	1.398	1.481	1.505	1.519	1.533	1.511	1.476	4.08
9)S Phenol-d5	1.693	1.800	1.904	1.864	1.911	1.906	1.873	1.850	4.29
10)P Phenol	1.884	2.021	2.117	2.089	2.126	2.135	2.086	2.066	4.29
11)P 2-Chlorophenol	1.384	1.466	1.488	1.513	1.531	1.553	1.521	1.494	3.74
12) 1,3-Dichlorobenze	1.574	1.608	1.613	1.589	1.629	1.630	1.611	1.608	1.27
13) 1,4-Dichlorobenze	1.596	1.601	1.613	1.620	1.638	1.654	1.637	1.623	1.32
14) 1,2-Dichlorobenze	1.510	1.518	1.591	1.545	1.559	1.565	1.551	1.548	1.79
15) Benzyl alcohol	0.869	0.814	0.973	0.989	1.010	1.016	1.024	0.956	8.55
16)P bis(2-chloroisopr	2.158	2.246	2.218	2.158	2.183	2.163	2.065	2.170	2.63
17)P 2-Methylphenol	1.244	1.321	1.408	1.388	1.423	1.424	1.417	1.375	4.94
18)P Acetophenone	1.957	2.075	2.134	2.137	2.189	2.171	2.161	2.118	3.76
19)P Hexachloroethane	0.676	0.666	0.696	0.681	0.706	0.707	0.700	0.690	2.32
20)P N-Nitroso-di-n-pr	1.134	1.149	1.157	1.157	1.170	1.170	1.140	1.154	1.19
21)P 3&4-Methylphenol	1.246	1.379	1.444	1.438	1.514	1.511	1.487	1.431	6.60
22) I Naphthalene-d8	-----ISTD-----								
23)S Nitrobenzene-d5	0.417	0.436	0.459	0.460	0.473	0.474	0.458	0.454	4.57
24)P Nitrobenzene	0.406	0.419	0.453	0.447	0.456	0.462	0.450	0.442	4.76
25)P Isophorone	0.764	0.785	0.801	0.795	0.813	0.818	0.792	0.795	2.28
26)P 2-Nitrophenol	0.164	0.176	0.195	0.196	0.211	0.208	0.206	0.194	9.12
27)P 2,4-Dimethylpheno	0.351	0.364	0.387	0.385	0.397	0.397	0.388	0.381	4.54
28)P bis(2-Chloroethox	0.415	0.439	0.447	0.455	0.468	0.461	0.451	0.448	3.83
29) Benzoic Acid	0.211	0.249	0.257	0.285	0.320	0.321	0.326	0.281	15.58
	---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9975								
	Response Ratio = 0.00000 + 0.26643 *A + 0.02537 *A^2								
30)P 2,4-Dichloropheno	0.262	0.279	0.287	0.289	0.299	0.305	0.294	0.288	5.01
31) 1,2,4-Trichlorobe	0.283	0.300	0.305	0.305	0.312	0.311	0.305	0.303	3.16
32) alpha-Terpineol							0.000		-1.00
33)P Naphthalene	1.045	1.088	1.110	1.099	1.131	1.130	1.099	1.100	2.63
34)P 4-Chloroaniline	0.438	0.467	0.487	0.491	0.499	0.505	0.489	0.482	4.72
35) 2,6-Dichloropheno	0.275	0.284	0.293	0.301	0.313	0.315	0.310	0.299	5.16
36)P Hexachlorobutadie	0.150	0.154	0.156	0.158	0.165	0.165	0.160	0.158	3.61
37)P Caprolactam	0.105	0.107	0.118	0.121	0.124	0.124	0.124	0.118	7.10
38)P 4-Chloro-3-methyl	0.279	0.303	0.314	0.324	0.333	0.332	0.326	0.316	6.14
39)P 2-Methylnaphthale	0.687	0.715	0.735	0.720	0.737	0.745	0.725	0.723	2.65

# Initial Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2343-ICC2343  
**Lab FileID:** U051484.D

40)	1-Methylnaphthale	0.616	0.632	0.631	0.637	0.656	0.657	0.642	0.639	2.23
41)P	1,2,4,5-Tetrachlo	0.278	0.290	0.293	0.295	0.309	0.310	0.303	0.297	3.88
42) I	Acenaphthene-d10	-----ISTD-----								
43)P	Hexachlorocyclo	0.215	0.251	0.288	0.316	0.336	0.340	0.349	0.299	16.95
		---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9992								
		Response Ratio = 0.00000 + 0.28914 *A + 0.02513 *A^2								
44)P	2,4,6-Trichloroph	0.296	0.326	0.345	0.349	0.359	0.359	0.365	0.343	7.03
45)P	2,4,5-Trichloroph	0.322	0.333	0.358	0.372	0.372	0.383	0.376	0.359	6.42
46)S	2-Fluorobiphenyl	1.269	1.377	1.406	1.434	1.453	1.449	1.456	1.406	4.75
47)P	1,1'-Biphenyl	1.428	1.570	1.594	1.624	1.631	1.638	1.618	1.586	4.64
48)P	2-Chloronaphthale	1.061	1.141	1.177	1.210	1.230	1.222	1.214	1.179	5.13
49)P	2-Nitroaniline	0.343	0.389	0.422	0.435	0.445	0.445	0.445	0.418	9.21
50)	p-Dinitrobenzene	0.210	0.236	0.278	0.296	0.301	0.303	0.307	0.276	13.83
51)P	Acenaphthylene	1.725	1.878	1.946	1.975	2.008	2.009	1.975	1.931	5.24
52)P	Dimethylphthalate	1.182	1.296	1.318	1.330	1.342	1.354	1.341	1.309	4.52
53)	m-Dinitrobenzene	0.161	0.193	0.226	0.225	0.231	0.231	0.234	0.214	12.69
54)P	2,6-Dinitrotoluen	0.265	0.293	0.307	0.311	0.315	0.317	0.319	0.304	6.36
55)	o-Dinitrobenzene	0.233	0.267	0.279	0.278	0.276	0.278	0.275	0.269	6.17
56)P	Acenaphthene	1.110	1.196	1.235	1.229	1.242	1.240	1.227	1.211	3.89
57)P	3-Nitroaniline	0.270	0.325	0.372	0.373	0.375	0.380	0.382	0.354	11.84
58)P	2,4-Dinitrophenol	0.035	0.060	0.106	0.140	0.159	0.159	0.177	0.119	45.74
		---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9971								
		Response Ratio = 0.00000 + 0.10196 *A + 0.03080 *A^2								
59)P	Dibenzofuran	1.498	1.648	1.674	1.674	1.706	1.700	1.683	1.655	4.33
60)P	2,4-Dinitrotoluen	0.329	0.357	0.396	0.410	0.418	0.421	0.419	0.393	9.13
61)P	4-Nitrophenol	0.123	0.147	0.189	0.195	0.203	0.201	0.217	0.182	18.67
		---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9992								
		Response Ratio = 0.00000 + 0.17178 *A + 0.01786 *A^2								
62)	2,3,5,6-Tetrachlo	0.214	0.246	0.274	0.286	0.299	0.296	0.305	0.274	12.11
63)P	2,3,4,6-Tetrachlo	0.236	0.247	0.272	0.289	0.292	0.291	0.297	0.275	8.81
64)P	Fluorene	1.193	1.312	1.355	1.372	1.398	1.383	1.377	1.342	5.28
65)P	4-Chlorophenyl-ph	0.525	0.562	0.585	0.603	0.612	0.614	0.621	0.589	5.89
66)P	Diethylphthalate	1.160	1.274	1.330	1.344	1.351	1.352	1.352	1.309	5.47
67)P	4-Nitroaniline	0.275	0.300	0.363	0.360	0.370	0.376	0.383	0.347	12.08
68) I	Phenanthrene-d10	-----ISTD-----								
69)P	4,6-Dinitro-2-met	0.062	0.093	0.117	0.131	0.145	0.146	0.154	0.121	27.50
		---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9986								
		Response Ratio = 0.00000 + 0.11414 *A + 0.01636 *A^2								
70)P	n-Nitrosodiphenyl	0.538	0.603	0.615	0.617	0.634	0.632	0.628	0.610	5.47
71)	Diphenylamine	0.646	0.723	0.738	0.741	0.760	0.758	0.754	0.731	5.47
72)	1,2-Diphenylhydra	0.916	1.027	1.020	1.040	1.052	1.044	1.039	1.020	4.60
73)S	2,4,6-Tribromophe	0.071	0.086	0.088	0.091	0.095	0.097	0.099	0.090	10.71
74)P	4-Bromophenyl-phe	0.180	0.200	0.195	0.201	0.205	0.208	0.204	0.199	4.74
75)P	Hexachlorobenzene	0.179	0.189	0.194	0.199	0.203	0.206	0.200	0.196	4.83
76)	Simazine	0.089	0.098	0.107	0.108	0.107	0.110	0.103	0.103	7.20
77)P	Atrazine	0.193	0.217	0.218	0.222	0.225	0.219	0.213	0.215	4.85
78)P	Pentachlorophenol		0.066	0.085	0.105	0.113	0.115	0.122	0.101	21.34
		---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9983								
		Response Ratio = 0.00000 + 0.08607 *A + 0.01493 *A^2								
79)P	Phenanthrene	1.065	1.150	1.169	1.179	1.206	1.202	1.190	1.166	4.16
80)P	Anthracene	1.027	1.169	1.170	1.192	1.211	1.225	1.210	1.172	5.76
81)P	Carbazole	0.990	1.133	1.160	1.157	1.196	1.186	1.193	1.145	6.30
82)P	Di-n-butylphthala	1.179	1.319	1.363	1.403	1.434	1.435	1.411	1.363	6.69

7.7.1  
7

# Initial Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2343-ICC2343  
**Lab FileID:** U051484.D

83)P Fluoranthene	0.992	1.107	1.160	1.163	1.184	1.186	1.184	1.139	6.21
84) I Chrysene-d12	-----ISTD-----								
85) Benzidine	0.591	0.703	0.688	0.613	0.608	0.555	0.507	0.609	11.37
86)P Pyrene	1.197	1.339	1.340	1.361	1.391	1.372	1.356	1.337	4.79
87)S Terphenyl-d14	0.720	0.777	0.794	0.833	0.851	0.845	0.840	0.809	5.95
88)P Butylbenzylphthal	0.523	0.598	0.614	0.649	0.666	0.662	0.653	0.624	8.21
89)P 3,3'-Dichlorobenz	0.301	0.360	0.374	0.385	0.404	0.389	0.379	0.370	9.04
90)P Benzo[a]anthracen	0.980	1.077	1.111	1.122	1.173	1.150	1.150	1.109	5.87
91)P Chrysene	0.989	1.065	1.095	1.108	1.147	1.130	1.132	1.095	4.95
92)P bis(2-Ethylhexyl)	0.722	0.785	0.801	0.887	0.913	0.899	0.879	0.841	8.53
93) I Perylene-d12	-----ISTD-----								
94)P Di-n-octylphthala	1.171	1.339	1.408	1.651	1.662	1.666	1.651	1.507	13.33
95)P Benzo[b]fluoranth	0.920	1.058	1.134	1.168	1.205	1.187	1.206	1.125	9.26
96)P Benzo[k]fluoranth	1.046	1.130	1.126	1.218	1.215	1.243	1.221	1.171	6.17
97)P Benzo[a]pyrene	0.925	1.058	1.110	1.172	1.188	1.178	1.205	1.120	8.92
98)P Indeno[1,2,3-cd]p	0.756	0.859	0.913	0.972	0.977	0.999	1.028	0.929	10.21
99)P Dibenz[a,h]anthra	0.783	0.838	0.915	0.962	0.997	1.004	1.043	0.935	10.14
100)P Benzo[g,h,i]peryl	0.901	1.013	1.081	1.129	1.102	1.140	1.140	1.072	8.17

(#) = Out of Range

8270da.m

Mon Jun 22 10:01:59 2015

7.7.1  
7

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2343-ICV2343  
**Lab FileID:** U051488.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\SU2343\U051488.D Vial: 9  
 Acq On : 19 Jun 2015 12:16 pm Operator: nareshj  
 Sample : icv2343-50 Inst : MSBNA04  
 Misc : op56350,su2343,1000,,,1,1,water Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\msdchem\2\METHODS\8270da.m (RTE Integrator)  
 Title : SW846 8270D OR EPA 625  
 Last Update : Mon Jun 22 09:59:32 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	137	0.00	4.67
2	1,4-Dioxane	50.000	43.833	12.3	121	0.00	2.20
3	N-nitrosodimethylamine	50.000	48.347	3.3	133	-0.01	2.50
4	Pyridine			-----NA-----			
		----- Amount	Calc.	%Drift			
5 P	Benzaldehyde	50.000	55.372	-10.7	152	0.00	4.34
		----- Amount	Calc.	%Drift			
6	Aniline			-----NA-----			
7 S	2-Fluorophenol			-----NA-----			
8 P	bis(2-Chloroethyl)ether	50.000	47.171	5.7	127	0.00	4.48
9 S	Phenol-d5			-----NA-----			
10 P	Phenol	50.000	42.932	14.1	117	0.00	4.43
11 P	2-Chlorophenol	50.000	47.781	4.4	130	0.00	4.52
12	1,3-Dichlorobenzene	50.000	46.624	6.8	130	0.00	4.62
13	1,4-Dichlorobenzene	50.000	46.124	7.8	127	0.00	4.68
14	1,2-Dichlorobenzene	50.000	45.808	8.4	126	0.00	4.79
15	Benzyl alcohol			-----NA-----			
16 P	bis(2-chloroisopropyl)eth	50.000	49.426	1.1	137	0.00	4.89
17 P	2-Methylphenol	50.000	46.648	6.7	127	0.00	4.88
18 P	Acetophenone	50.000	46.740	6.5	127	0.00	4.98
19 P	Hexachloroethane	50.000	47.828	4.3	133	0.00	5.06
20 P	N-Nitroso-di-n-propylamin	50.000	47.571	4.9	130	0.00	4.99
21 P	3&4-Methylphenol	100.000	96.695	3.3	132	0.00	5.00
22 I	Naphthalene-d8	40.000	40.000	0.0	139	0.00	5.75
23 S	Nitrobenzene-d5			-----NA-----			
24 P	Nitrobenzene	50.000	46.765	6.5	129	0.00	5.12
25 P	Isophorone	50.000	47.480	5.0	132	0.00	5.33
26 P	2-Nitrophenol	50.000	49.823	0.4	137	0.00	5.40
27 P	2,4-Dimethylphenol	50.000	41.830	16.3	115	0.00	5.44
28 P	bis(2-Chloroethoxy)methan	50.000	48.703	2.6	133	0.00	5.52
		----- Amount	Calc.	%Drift			
29	Benzoic Acid	100.000	88.072	11.9	139	0.08	5.58
		----- Amount	Calc.	%Drift			
30 P	2,4-Dichlorophenol	50.000	47.602	4.8	132	0.00	5.62
31	1,2,4-Trichlorobenzene	50.000	46.133	7.7	128	0.00	5.70
32	alpha-Terpineol			-----NA-----			
33 P	Naphthalene	50.000	47.092	5.8	131	0.00	5.77

7.7.2  
7







# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2343-ICV2343  
**Lab FileID:** U051489.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\SU2343\U051489.D Vial: 10  
 Acq On : 19 Jun 2015 12:43 pm Operator: nareshj  
 Sample : icv2343-50 Inst : MSBNA04  
 Misc : op56350,su2343,1000,,,1,1,water Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\msdchem\2\METHODS\8270da.m (RTE Integrator)  
 Title : SW846 8270D OR EPA 625  
 Last Update : Mon Jun 22 09:59:32 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	76	0.00	4.67
2	1,4-Dioxane			NA			
3	N-nitrosodimethylamine			NA			
4	Pyridine	50.000	50.739	-1.5	78	-0.03	2.52
		----- Amount	Calc.	%Drift			
5 P	Benzaldehyde			NA			
		----- Amount	Calc.	%Drift			
6	Aniline	50.000	52.785	-5.6	80	0.00	4.42
7 S	2-Fluorophenol			NA			
8 P	bis(2-Chloroethyl)ether			NA			
9 S	Phenol-d5			NA			
10 P	Phenol			NA			
11 P	2-Chlorophenol			NA			
12	1,3-Dichlorobenzene			NA			
13	1,4-Dichlorobenzene			NA			
14	1,2-Dichlorobenzene			NA			
15	Benzyl alcohol	50.000	50.513	-1.0	74	0.00	4.78
16 P	bis(2-chloroisopropyl)eth			NA			
17 P	2-Methylphenol			NA			
18 P	Acetophenone			NA			
19 P	Hexachloroethane			NA			
20 P	N-Nitroso-di-n-propylamin			NA			
21 P	3&4-Methylphenol			NA			
22 I	Naphthalene-d8	40.000	40.000	0.0	76	0.00	5.75
23 S	Nitrobenzene-d5			NA			
24 P	Nitrobenzene			NA			
25 P	Isophorone			NA			
26 P	2-Nitrophenol			NA			
27 P	2,4-Dimethylphenol			NA			
28 P	bis(2-Chloroethoxy)methan			NA			
		----- Amount	Calc.	%Drift			
29	Benzoic Acid			NA			
		----- Amount	Calc.	%Drift			
30 P	2,4-Dichlorophenol			NA			
31	1,2,4-Trichlorobenzene			NA			
32	alpha-Terpineol			NA			
33 P	Naphthalene			NA			

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2343-ICV2343  
**Lab FileID:** U051489.D

34	P	4-Chloroaniline	50.000	53.397	-6.8	80	0.00	5.83
35		2,6-Dichlorophenol		-----NA-----				
36	P	Hexachlorobutadiene		-----NA-----				
37	P	Caprolactam		-----NA-----				
38	P	4-Chloro-3-methylphenol		-----NA-----				
39	P	2-Methylnaphthalene	50.000	53.201	-6.4	82	0.00	6.52
40		1-Methylnaphthalene		-----NA-----				
41	P	1,2,4,5-Tetrachlorobenzen		-----NA-----				
42	I	Acenaphthene-d10	40.000	40.000	0.0	80	0.00	7.93
		----- Amount		Calc.	%Drift			
43	P	Hexachlorocyclopentadiene		-----NA-----				
		----- Amount		Calc.	%Drift			
44	P	2,4,6-Trichlorophenol		-----NA-----				
45	P	2,4,5-Trichlorophenol		-----NA-----				
46	S	2-Fluorobiphenyl		-----NA-----				
47	P	1,1'-Biphenyl		-----NA-----				
48	P	2-Chloronaphthalene		-----NA-----				
49	P	2-Nitroaniline	50.000	67.504	-35.0#	103	0.00	7.29
50		p-Dinitrobenzene		-----NA-----				
51	P	Acenaphthylene		-----NA-----				
52	P	Dimethylphthalate		-----NA-----				
53		m-Dinitrobenzene	50.000	46.926	6.1	71	0.00	7.60
54	P	2,6-Dinitrotoluene		-----NA-----				
55		o-Dinitrobenzene		-----NA-----				
56	P	Acenaphthene		-----NA-----				
57	P	3-Nitroaniline	50.000	54.787	-9.6	83	0.00	7.90
		----- Amount		Calc.	%Drift			
58	P	2,4-Dinitrophenol		-----NA-----				
		----- Amount		Calc.	%Drift			
59	P	Dibenzofuran	50.000	51.787	-3.6	82	0.00	8.25
60	P	2,4-Dinitrotoluene		-----NA-----				
		----- Amount		Calc.	%Drift			
61	P	4-Nitrophenol		-----NA-----				
		----- Amount		Calc.	%Drift			
62		2,3,5,6-Tetrachlorophenol		-----NA-----				
63	P	2,3,4,6-Tetrachlorophenol		-----NA-----				
64	P	Fluorene		-----NA-----				
65	P	4-Chlorophenyl-phenylethe		-----NA-----				
66	P	Diethylphthalate		-----NA-----				
67	P	4-Nitroaniline	50.000	51.431	-2.9	79	0.00	8.86
68	I	Phenanthrene-d10	40.000	40.000	0.0	77	0.00	10.39
		----- Amount		Calc.	%Drift			
69	P	4,6-Dinitro-2-methylpheno		-----NA-----				
		----- Amount		Calc.	%Drift			
70	P	n-Nitrosodiphenylamine		-----NA-----				
71		Diphenylamine		-----NA-----				
72		1,2-Diphenylhydrazine		-----NA-----				
73	S	2,4,6-Tribromophenol		-----NA-----				
74	P	4-Bromophenyl-phenylether		-----NA-----				
75	P	Hexachlorobenzene		-----NA-----				

7.7.3  
7

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2343-ICV2343  
**Lab FileID:** U051489.D

		Amount	Calc.	%Drift			
76	Simazine						
77 P	Atrazine						
78 P	Pentachlorophenol						
79 P	Phenanthrene						
80 P	Anthracene						
81 P	Carbazole	50.000	55.072	-10.1	84	0.00	10.86
82 P	Di-n-butylphthalate						
83 P	Fluoranthene						
84 I	Chrysene-d12	40.000	40.000	0.0	76	-0.01	15.28
85	Benzidine	50.000	57.457	-14.9	87	0.00	12.95
86 P	Pyrene						
87 S	Terphenyl-d14						
88 P	Butylbenzylphthalate						
89 P	3,3'-Dichlorobenzidine	50.000	46.945	6.1	69	0.00	15.32
90 P	Benzo[a]anthracene						
91 P	Chrysene						
92 P	bis(2-Ethylhexyl)phthalat						
93 I	Perylene-d12	40.000	40.000	0.0	78	0.00	17.77
94 P	Di-n-octylphthalate						
95 P	Benzo[b]fluoranthene						
96 P	Benzo[k]fluoranthene						
97 P	Benzo[a]pyrene						
98 P	Indeno[1,2,3-cd]pyrene						
99 P	Dibenz[a,h]anthracene						
100 P	Benzo[g,h,i]perylene						

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
 U051484.D 8270da.m                      Mon Jun 22 10:02:18 2015

7.7.3  
7

# Continuing Calibration Summary

Job Number: FA25397  
 Account: GSYNFLTI Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

Sample: SU2346-CC2343  
 Lab FileID: U051556.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\SU2346\U051556.D Vial: 2  
 Acq On : 23 Jun 2015 2:36 pm Operator: nareshj  
 Sample : cc2343-50 Inst : MSBNA04  
 Misc : op56350,su2346,1000,,,1,1,water Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\msdchem\2\METHODS\8270da.m (RTE Integrator)  
 Title : SW846 8270D OR EPA 625  
 Last Update : Wed Jun 24 09:04:56 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	147	0.00	4.65
2	1,4-Dioxane	0.689	0.611	11.3	131	0.00	2.19
3	N-nitrosodimethylamine	0.738	0.755	-2.3	150	0.00	2.49
4	Pyridine	1.687	1.609	4.6	141	0.00	2.51
----- Amount Calc. %Drift -----							
5 P	Benzaldehyde	50.000	66.605	-33.2#	183	0.00	4.33
----- AvgRF CCRF %Dev -----							
6	Aniline	2.362	2.298	2.7	142	0.00	4.41
7 S	2-Fluorophenol	1.467	1.442	1.7	143	0.00	3.68
8 P	bis(2-Chloroethyl)ether	1.476	1.463	0.9	143	0.00	4.46
9 S	Phenol-d5	1.850	1.821	1.6	143	0.00	4.41
10 P	Phenol	2.066	2.038	1.4	143	0.00	4.42
11 P	2-Chlorophenol	1.494	1.509	-1.0	146	0.00	4.50
12	1,3-Dichlorobenzene	1.608	1.574	2.1	145	0.00	4.60
13	1,4-Dichlorobenzene	1.623	1.608	0.9	146	0.00	4.66
14	1,2-Dichlorobenzene	1.548	1.555	-0.5	148	0.00	4.77
15	Benzyl alcohol	0.956	0.957	-0.1	142	0.00	4.76
16 P	bis(2-chloroisopropyl)eth	2.170	1.988	8.4	135	0.00	4.86
17 P	2-Methylphenol	1.375	1.482	-7.8	157	0.00	4.86
18 P	Acetophenone	2.118	2.204	-4.1	151	0.00	4.97
19 P	Hexachloroethane	0.690	0.676	2.0	146	0.00	5.04
20 P	N-Nitroso-di-n-propylamin	1.154	1.077	6.7	137	0.00	4.97
21 P	3&4-Methylphenol	1.431	1.494	-4.4	152	0.00	4.98
22 I	Naphthalene-d8	1.000	1.000	0.0	146	0.00	5.73
23 S	Nitrobenzene-d5	0.454	0.458	-0.9	146	0.00	5.09
24 P	Nitrobenzene	0.442	0.445	-0.7	146	0.00	5.10
25 P	Isophorone	0.795	0.801	-0.8	147	0.00	5.31
26 P	2-Nitrophenol	0.194	0.213	-9.8	159	0.00	5.37
27 P	2,4-Dimethylphenol	0.381	0.391	-2.6	148	0.00	5.42
28 P	bis(2-Chloroethoxy)methan	0.448	0.453	-1.1	145	0.00	5.50
----- Amount Calc. %Drift -----							
29	Benzoic Acid	50.000	48.297	3.4	147	0.00	5.56
----- AvgRF CCRF %Dev -----							
30 P	2,4-Dichlorophenol	0.288	0.306	-6.3	155	0.00	5.60
31	1,2,4-Trichlorobenzene	0.303	0.315	-4.0	151	0.00	5.67
32	alpha-Terpineol			NA			
33 P	Naphthalene	1.100	1.110	-0.9	148	0.00	5.75

7.7.4  
7

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2346-CC2343  
**Lab FileID:** U051556.D

34	P	4-Chloroaniline	0.482	0.501	-3.9	149	0.00	5.81
35		2,6-Dichlorophenol	0.299	0.319	-6.7	155	0.00	5.82
36	P	Hexachlorobutadiene	0.158	0.170	-7.6	157	0.00	5.87
37	P	Caprolactam	0.118	0.132	-11.9	159	0.00	6.22
38	P	4-Chloro-3-methylphenol	0.316	0.332	-5.1	150	0.00	6.36
39	P	2-Methylnaphthalene	0.723	0.744	-2.9	151	0.00	6.50
40		1-Methylnaphthalene	0.639	0.655	-2.5	150	0.00	6.62
41	P	1,2,4,5-Tetrachlorobenzen	0.297	0.316	-6.4	157	0.00	6.71
42	I	Acenaphthene-d10	1.000	1.000	0.0	152	0.00	7.91
43	P	Hexachlorocyclopentadiene	50.000	54.811	-9.6	170	0.00	6.69
44	P	2,4,6-Trichlorophenol	0.343	0.366	-6.7	159	0.00	6.87
45	P	2,4,5-Trichlorophenol	0.359	0.382	-6.4	156	0.00	6.92
46	S	2-Fluorobiphenyl	1.406	1.442	-2.6	153	0.00	6.97
47	P	1,1'-Biphenyl	1.586	1.671	-5.4	156	0.00	7.10
48	P	2-Chloronaphthalene	1.179	1.207	-2.4	151	0.00	7.12
49	P	2-Nitroaniline	0.418	0.434	-3.8	151	0.00	7.28
50		p-Dinitrobenzene	0.276	0.305	-10.5	156	0.00	7.49
51	P	Acenaphthylene	1.931	1.970	-2.0	151	0.00	7.70
52	P	Dimethylphthalate	1.309	1.326	-1.3	151	0.00	7.57
53		m-Dinitrobenzene	0.214	0.234	-9.3	158	0.00	7.61
54	P	2,6-Dinitrotoluene	0.304	0.313	-3.0	153	0.00	7.65
55		o-Dinitrobenzene	0.269	0.267	0.7	145	0.00	7.72
56	P	Acenaphthene	1.211	1.208	0.2	149	0.00	7.96
57	P	3-Nitroaniline	0.354	0.369	-4.2	150	0.00	7.89
58	P	2,4-Dinitrophenol	50.000	59.730	-19.5	192	0.00	8.06
59	P	Dibenzofuran	1.655	1.683	-1.7	152	0.00	8.23
60	P	2,4-Dinitrotoluene	0.393	0.412	-4.8	152	0.00	8.26
61	P	4-Nitrophenol	50.000	50.404	-0.8	152	0.00	8.23
62		2,3,5,6-Tetrachlorophenol	0.274	0.294	-7.3	156	0.00	8.38
63	P	2,3,4,6-Tetrachlorophenol	0.275	0.297	-8.0	156	0.00	8.45
64	P	Fluorene	1.342	1.372	-2.2	152	0.00	8.77
65	P	4-Chlorophenyl-phenylethe	0.589	0.624	-5.9	157	0.00	8.81
66	P	Diethylphthalate	1.309	1.347	-2.9	152	0.00	8.69
67	P	4-Nitroaniline	0.347	0.363	-4.6	153	0.00	8.87
68	I	Phenanthrene-d10	1.000	1.000	0.0	149	0.00	10.37
69	P	4,6-Dinitro-2-methylpheno	50.000	55.361	-10.7	172	0.00	8.93
70	P	n-Nitrosodiphenylamine	0.610	0.632	-3.6	153	0.00	9.03
71		Diphenylamine	0.731	0.759	-3.8	153	0.00	9.03
72		1,2-Diphenylhydrazine	1.020	1.015	0.5	146	0.00	9.08
73	S	2,4,6-Tribromophenol	0.090	0.105	-16.7	171	0.00	9.18
74	P	4-Bromophenyl-phenylether	0.199	0.213	-7.0	158	0.00	9.64
75	P	Hexachlorobenzene	0.196	0.212	-8.2	159	0.00	9.70

7.7.4

7

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** SU2346-CC2343  
**Lab FileID:** U051556.D

76	Simazine	0.103	0.094	8.7	131	0.00	9.98
77 P	Atrazine	0.215	0.240	-11.6	162	0.00	10.05
-----							
78 P	Pentachlorophenol	50.000	52.149	-4.3	157	0.00	10.08
-----							
		AvgRF	CCRF	%Dev	-----		
79 P	Phenanthrene	1.166	1.190	-2.1	151	0.00	10.41
80 P	Anthracene	1.172	1.208	-3.1	151	0.00	10.51
81 P	Carbazole	1.145	1.168	-2.0	151	0.00	10.84
82 P	Di-n-butylphthalate	1.363	1.427	-4.7	152	0.00	11.64
83 P	Fluoranthene	1.139	1.181	-3.7	152	0.00	12.58
84 I	Chrysene-d12	1.000	1.000	0.0	151	0.00	15.28
85	Benzidine	0.609	0.717	-17.7	177	0.00	12.93
86 P	Pyrene	1.337	1.351	-1.0	150	0.00	12.98
87 S	Terphenyl-d14	0.809	0.872	-7.8	158	0.00	13.40
88 P	Butylbenzylphthalate	0.624	0.670	-7.4	156	0.00	14.44
89 P	3,3'-Dichlorobenzidine	0.370	0.416	-12.4	164	0.00	15.31
90 P	Benzo[a]anthracene	1.109	1.150	-3.7	155	0.00	15.26
91 P	Chrysene	1.095	1.108	-1.2	151	0.00	15.33
92 P	bis(2-Ethylhexyl)phthalat	0.841	0.909	-8.1	155	0.00	15.63
93 I	Perylene-d12	1.000	1.000	0.0	157	0.00	17.77
94 P	Di-n-octylphthalate	1.507	1.732	-14.9	165	0.00	16.82
95 P	Benzo[b]fluoranthene	1.125	1.184	-5.2	159	0.00	17.17
96 P	Benzo[k]fluoranthene	1.171	1.178	-0.6	152	0.00	17.22
97 P	Benzo[a]pyrene	1.120	1.172	-4.6	157	0.00	17.68
98 P	Indeno[1,2,3-cd]pyrene	0.929	1.045	-12.5	169	0.00	19.35
99 P	Dibenz[a,h]anthracene	0.935	1.047	-12.0	171	0.00	19.40
100 P	Benzo[g,h,i]perylene	1.072	1.113	-3.8	155	0.00	19.70

(#) = Out of Range  
 U051484.D 8270da.m

SPCC's out = 0 CCC's out = 0  
 Wed Jun 24 09:18:45 2015

7.7.4

7

## GC Semi-volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries



# Method Blank Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56576-MB	MM17981.D	1	06/24/15	RS	06/24/15	OP56576	GMM387

The QC reported here applies to the following samples:

Method: SW846 8082A

FA25397-1

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	17	6.7	ug/kg	
11104-28-2	Aroclor 1221	ND	17	8.3	ug/kg	
11141-16-5	Aroclor 1232	ND	17	8.3	ug/kg	
53469-21-9	Aroclor 1242	ND	17	6.7	ug/kg	
12672-29-6	Aroclor 1248	ND	17	6.7	ug/kg	
11097-69-1	Aroclor 1254	ND	17	6.7	ug/kg	
11096-82-5	Aroclor 1260	ND	17	6.7	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
877-09-8	Tetrachloro-m-xylene	100%	44-126%
2051-24-3	Decachlorobiphenyl	105%	41-145%

8.1.1  
8

# Blank Spike Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56576-BS	MM17980.D	1	06/24/15	RS	06/24/15	OP56576	GMM387

The QC reported here applies to the following samples:

Method: SW846 8082A

FA25397-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
12674-11-2	Aroclor 1016	133	138	104	58-126
11096-82-5	Aroclor 1260	133	131	98	59-133

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	94%	44-126%
2051-24-3	Decachlorobiphenyl	95%	41-145%

8.2.1  
8

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP56576-MS	MM17984.D	100	06/24/15	RS	06/24/15	OP56576	GMM387
OP56576-MSD	MM17985.D	100	06/24/15	RS	06/24/15	OP56576	GMM387
FA25397-1 <sup>a</sup>	MM17983.D	100	06/24/15	RS	06/24/15	OP56576	GMM387

The QC reported here applies to the following samples:

Method: SW846 8082A

FA25397-1

CAS No.	Compound	FA25397-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
12674-11-2	Aroclor 1016	1800 U	146	ND	0*	144	ND	0*	nc	58-126/25
11097-69-1	Aroclor 1254	14400		15200			14000		8 <sup>b</sup>	60-130/30
11096-82-5	Aroclor 1260	1800 U	146	ND	0*	144	ND	0*	nc	59-133/31

CAS No.	Surrogate Recoveries	MS	MSD	FA25397-1	Limits
877-09-8	Tetrachloro-m-xylene	0% * <sup>c</sup>	0% * <sup>c</sup>	0% * <sup>c</sup>	44-126%
2051-24-3	Decachlorobiphenyl	0% * <sup>c</sup>	0% * <sup>c</sup>	0% * <sup>c</sup>	41-145%

- (a) All hits confirmed by dual column analysis.
- (b) Reported for replicate purposes only.
- (c) Outside control limits due to dilution.

\* = Outside of Control Limits.

# Semivolatile Surrogate Recovery Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Method:</b> SW846 8082A	<b>Matrix:</b> SO
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**Samples and QC shown here apply to the above method**

Lab Sample ID	Lab File ID	S1 <sup>a</sup>	S2 <sup>a</sup>
FA25397-1	MM17983.D	0* <sup>b</sup>	0* <sup>b</sup>
OP56576-BS	MM17980.D	94	95
OP56576-MB	MM17981.D	100	105
OP56576-MS	MM17984.D	0* <sup>b</sup>	0* <sup>b</sup>
OP56576-MSD	MM17985.D	0* <sup>b</sup>	0* <sup>b</sup>

Surrogate Compounds	Recovery Limits
S1 = Tetrachloro-m-xylene	44-126%
S2 = Decachlorobiphenyl	41-145%

- (a) Recovery from GC signal #1
- (b) Outside control limits due to dilution.

8.4.1  
8

# GC Surrogate Retention Time Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Check Std:</b> GMM387-CC379	<b>Injection Date:</b> 06/24/15
<b>Lab File ID:</b> MM17973.D	<b>Injection Time:</b> 09:53
<b>Instrument ID:</b> GCMM	<b>Method:</b> SW846 8082A

	S1 <sup>a</sup> RT	S2 <sup>a</sup> RT
Check Std	3.33	7.02

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S2 <sup>a</sup> RT
ZZZZZZ	MM17978.D	06/24/15	10:59	0.00	0.00
ZZZZZZ	MM17979.D	06/24/15	11:10	0.00	0.00
OP56576-BS	MM17980.D	06/24/15	12:37	3.34	7.04
OP56576-MB	MM17981.D	06/24/15	12:48	3.33	7.02
FA25397-1	MM17983.D	06/24/15	13:14	0.00	0.00
OP56576-MS	MM17984.D	06/24/15	13:25	0.00	0.00
OP56576-MSD	MM17985.D	06/24/15	13:37	0.00	0.00
ZZZZZZ	MM17986.D	06/24/15	13:49	3.33	7.02

## Surrogate Compounds

S1 = Tetrachloro-m-xylene  
 S2 = Decachlorobiphenyl

(a) Retention time from GC signal #1

# Initial Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM379-ICC379  
Lab FileID: MM17736.D

## Response Factor Report ECD 9

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Initial Calibration

### Calibration Files

20 =MM17761.D 50 =MM17762.D 200 =MM17763.D 400 =MM17764.D  
600 =MM17765.D 1000 =MM17766.D

Compound	20	50	200	400	600	1000	Avg	%RSD
1) S Tetrachloro-m-xylene	1.273	1.206	1.236	1.192	1.212	1.156	1.213	E6 3.27
2) L1 AR1016-A	2.392	2.137	1.955	1.859	1.857	1.857	2.010	E4 10.77
3) L1 AR1016-B	3.469	3.041	2.793	2.625	2.695	2.646	2.878	E4 11.36
4) L1 AR1016-C	5.979	5.439	5.515	5.521	5.657	5.604	5.619	E4 3.41
5) L1 AR1016-D	2.875	2.551	2.530	2.564	2.545	2.650	2.619	E4 5.05
6) L1 AR1016-E	2.660	2.283	2.195	2.055	2.047	2.074	2.219	E4 10.60
7) L1 AR1016-F	2.089	1.930	1.975	1.973	1.994	2.059	2.003	E4 2.96
8) L2 AR1221-A	1.088	1.070	0.876	0.819	0.820	0.795	0.912	E4 14.56
9) L2 AR1221-B	2.889	3.067	2.875	2.681	2.662	2.550	2.787	E3 6.80
10) L2 AR1221-C	1.243	1.312	1.113	1.082	1.162	1.179	1.182	E4 7.14
11) L2 AR1221-D	9.552	9.718	8.124	7.841	8.421	8.281	8.656	E3 9.06
12) L2 AR1221-E	3.339	3.291	2.791	2.750	2.947	2.948	3.011	E4 8.28
13) L3 AR1232-A	2.942	2.409	2.365	2.297	1.998	2.191	2.367	E4 13.43
14) L3 AR1232-B	1.725	1.415	1.331	1.290	1.147	1.211	1.353	E4 15.12
15) L3 AR1232-C	3.377	2.672	2.655	2.694	2.599	2.685	2.780	E4 10.59
16) L3 AR1232-D	1.471	1.228	1.174	1.146	1.075	1.161	1.209	E4 11.38
17) L3 AR1232-E	1.180	1.081	1.121	1.078	1.089	1.104	1.109	E4 3.46
18) L3 AR1232-F	9.059	8.139	7.959	7.877	7.575	7.849	8.077	E3 6.37
19) L4 AR1242-A	2.223	2.039	1.796	1.726	1.466	1.634	1.814	E4 15.20
20) L4 AR1242-B	2.937	2.596	2.410	2.295	1.957	2.185	2.397	E4 14.21
21) L4 AR1242-C	5.804	5.117	5.059	5.007	4.372	4.798	5.026	E4 9.31
22) L4 AR1242-D	2.760	2.420	2.349	2.258	1.993	2.272	2.342	E4 10.71
23) L4 AR1242-E	2.095	1.915	1.860	1.891	1.806	1.914	1.914	E4 5.12
24) L4 AR1242-F	2.251	2.240	2.247	2.268	2.157	2.289	2.242	E4 2.03
25) L5 AR1248-A	2.033	1.830	1.839	1.352	1.494	1.472	1.670	E4 16.00
26) L5 AR1248-B	3.763	3.412	3.804	2.964	3.167	3.117	3.371	E4 10.40
27) L5 AR1248-C	3.232	2.979	3.433	2.605	2.685	2.728	2.944	E4 11.29
28) L5 AR1248-D	4.341	3.996	4.819	3.640	3.842	3.706	4.057	E4 11.07
29) L5 AR1248-E	4.160	3.970	5.036	4.070	4.251	4.214	4.284	E4 8.92
30) L5 AR1248-F	2.650	2.453	2.761	2.351	2.296	2.353	2.477	E4 7.55
31) L6 AR1254-A	2.996	2.656	2.444	2.263	2.374	2.417	2.525	E4 10.46
32) L6 AR1254-B	6.265	5.785	5.655	5.579	5.559	5.689	5.755	E4 4.56
33) L6 AR1254-C	7.598	7.167	7.455	7.367	7.402	7.720	7.452	E4 2.57
34) L6 AR1254-D	4.983	4.575	4.938	5.016	5.031	5.237	4.963	E4 4.36
35) L6 AR1254-E	4.860	3.855	4.140	4.003	4.088	4.244	4.198	E4 8.33
36) L6 AR1254-F	7.494	6.377	6.526	6.476	6.504	6.561	6.656	E4 6.24
37) L7 AR1260-A	6.690	6.107	5.691	5.455	5.399	5.631	5.829	E4 8.41
38) L7 AR1260-B	8.120	7.486	7.436	7.289	7.415	7.440	7.531	E4 3.93
39) L7 AR1260-C	6.235	5.681	5.348	5.286	5.062	5.330	5.490	E4 7.56
40) L7 AR1260-D	1.273	1.185	1.227	1.225	1.198	1.241	1.225	E5 2.56
41) L7 AR1260-E	7.933	7.265	7.262	7.217	7.073	7.126	7.313	E4 4.28
42) L7 AR1260-F	3.262	2.872	2.742	2.603	2.568	2.734	2.797	E4 9.02
43) L9 AR1262-A	5.738	4.867	4.639	4.567	4.454	4.562	4.804	E4 9.94
44) L9 AR1262-B	8.707	7.726	7.660	7.321	7.473	7.400	7.714	E4 6.61
45) L9 AR1262-C	7.556	6.676	6.470	6.361	6.417	6.323	6.634	E4 7.06
46) L9 AR1262-D	1.488	1.369	1.443	1.338	1.331	1.390	1.393	E5 4.42
47) L9 AR1262-E	1.004	0.910	0.892	0.890	0.870	0.897	0.911	E5 5.20

# Initial Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICC379  
**Lab FileID:** MM17736.D

48)	L9	AR1262-F	5.093	4.573	4.510	4.361	4.330	4.481	4.558	E4	6.09
49)	L8	AR1268-A	4.969	4.338	3.894	3.924	3.906	3.762	4.132	E4	10.99
50)	L8	AR1268-B	4.935	4.641	4.151	4.032	4.002	4.061	4.304	E4	9.06
51)	L8	AR1268-C	1.879	1.849	1.763	1.722	1.717	1.663	1.765	E5	4.71
52)	L8	AR1268-D	1.628	1.595	1.529	1.547	1.589	1.507	1.566	E5	2.91
53)	L8	AR1268-E	1.227	1.175	1.152	1.177	1.124	1.136	1.165	E5	3.16
54)	L8	AR1268-F	3.018	3.028	3.039	3.028	2.962	2.920	2.999	E5	1.58
55)	S	Decachlorobiphenyl	9.058	7.984	7.927	7.498	7.324	7.671	7.910	E5	7.78

Signal #2

1)	S	Tetrachloro-m-xylen	2.395	2.313	2.295	2.250	2.188	2.176	2.270	E6	3.63
2)	L1	AR1016-A	4.374	4.121	3.852	3.686	3.692	3.617	3.890	E4	7.67
3)	L1	AR1016-B	6.283	5.648	5.483	5.215	5.113	5.079	5.470	E4	8.33
4)	L1	AR1016-C	1.148	1.044	1.079	1.060	1.043	1.038	1.069	E5	3.87
5)	L1	AR1016-D	5.237	4.910	4.988	4.921	4.974	4.987	5.003	E4	2.39
6)	L1	AR1016-E	5.283	4.844	4.688	4.588	4.461	4.469	4.722	E4	6.57
7)	L1	AR1016-F	5.404	4.818	4.784	4.826	4.628	4.735	4.866	E4	5.62
8)	L2	AR1221-A	2.103	1.959	1.611	1.516	1.524	1.479	1.699	E4	15.59
9)	L2	AR1221-B	5.529	6.206	5.212	4.983	5.202	4.837	5.328	E3	9.20
10)	L2	AR1221-C	2.594	2.564	2.239	2.229	2.408	2.368	2.400	E4	6.49
11)	L2	AR1221-D	1.844	1.792	1.554	1.542	1.613	1.571	1.653	E4	7.95
12)	L2	AR1221-E	6.362	6.450	5.620	5.474	5.794	5.675	5.896	E4	6.94
13)	L3	AR1232-A	5.214	4.605	4.567	4.474	3.900	4.163	4.487	E4	9.97
14)	L3	AR1232-B	3.030	2.553	2.473	2.484	2.240	2.376	2.526	E4	10.68
15)	L3	AR1232-C	5.953	5.106	5.112	5.257	4.790	5.088	5.218	E4	7.50
16)	L3	AR1232-D	2.748	2.264	2.177	2.161	2.039	2.143	2.256	E4	11.17
17)	L3	AR1232-E	2.870	2.381	2.339	2.404	2.347	2.393	2.456	E4	8.34
18)	L3	AR1232-F	1.304	1.199	1.207	1.231	1.233	1.247	1.237	E4	3.01
19)	L4	AR1242-A	4.252	3.812	3.552	3.310	2.746	3.152	3.471	E4	15.16
20)	L4	AR1242-B	5.409	4.801	4.589	4.316	3.624	4.112	4.475	E4	13.68
21)	L4	AR1242-C	1.082	0.973	0.970	0.953	0.800	0.889	0.945	E5	9.96
22)	L4	AR1242-D	5.034	4.545	4.519	4.389	3.722	4.278	4.415	E4	9.66
23)	L4	AR1242-E	3.675	3.335	3.325	3.326	3.137	3.321	3.353	E4	5.21
24)	L4	AR1242-F	6.720	6.338	6.354	6.128	5.734	5.998	6.212	E4	5.46
25)	L5	AR1248-A	3.674	3.355	3.492	2.648	2.764	2.668	3.100	E4	14.79
26)	L5	AR1248-B	6.735	6.315	7.389	5.565	6.024	5.945	6.329	E4	10.27
27)	L5	AR1248-C	6.774	6.319	7.224	5.706	5.891	5.617	6.255	E4	10.25
28)	L5	AR1248-D	8.042	7.460	8.783	6.740	6.969	6.867	7.477	E4	10.70
29)	L5	AR1248-E	1.010	0.962	1.218	0.940	0.966	0.957	1.009	E5	10.42
30)	L5	AR1248-F	4.738	4.559	5.235	4.234	4.235	4.267	4.545	E4	8.72
31)	L6	AR1254-A	5.123	4.933	4.337	4.243	4.440	4.515	4.599	E4	7.62
32)	L6	AR1254-B	1.086	0.989	0.967	0.945	0.952	0.961	0.983	E5	5.35
33)	L6	AR1254-C	1.455	1.362	1.395	1.334	1.339	1.343	1.371	E5	3.39
34)	L6	AR1254-D	9.416	8.554	9.009	8.961	8.860	9.193	8.999	E4	3.26
35)	L6	AR1254-E	7.708	6.524	6.517	6.133	6.002	6.239	6.520	E4	9.48
36)	L6	AR1254-F	6.804	5.889	6.266	6.301	6.198	6.434	6.315	E4	4.76
37)	L7	AR1260-A	1.196	1.034	1.011	0.977	0.936	0.946	1.017	E5	9.39
38)	L7	AR1260-B	1.402	1.240	1.219	1.178	1.155	1.172	1.228	E5	7.41
39)	L7	AR1260-C	1.034	0.940	0.936	0.921	0.888	0.903	0.937	E5	5.48
40)	L7	AR1260-D	2.259	2.125	2.137	2.095	2.061	2.050	2.121	E5	3.57
41)	L7	AR1260-E	1.579	1.467	1.463	1.419	1.392	1.436	1.459	E5	4.46
42)	L7	AR1260-F	5.195	4.792	4.496	4.512	4.461	4.524	4.663	E4	6.14
43)	L9	AR1262-A	1.083	0.927	0.874	0.843	0.793	0.802	0.887	E5	12.16
44)	L9	AR1262-B	1.136	1.011	0.969	0.889	0.752	0.875	0.939	E5	14.02
45)	L9	AR1262-C	1.349	1.256	1.257	1.177	1.162	1.149	1.225	E5	6.25
46)	L9	AR1262-D	2.595	2.487	2.449	2.308	2.323	2.312	2.412	E5	4.87
47)	L9	AR1262-E	1.856	1.703	1.723	1.677	1.650	1.598	1.701	E5	5.14
48)	L9	AR1262-F	8.325	7.801	7.593	7.260	6.985	7.112	7.512	E4	6.66
49)	L8	AR1268-A	8.674	7.837	6.856	6.892	6.771	6.553	7.264	E4	11.30

8.6.1  
8

# Initial Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICC379  
**Lab FileID:** MM17736.D

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50)	L8	AR1268-B	9.595	8.754	7.590	7.454	7.553	7.083	8.005	E4	12.01
51)	L8	AR1268-C	3.099	2.975	2.898	2.774	2.799	2.663	2.868	E5	5.43
52)	L8	AR1268-D	3.216	3.073	2.970	2.870	2.893	2.834	2.976	E5	4.88
53)	L8	AR1268-E	2.075	2.019	1.922	1.911	1.919	1.861	1.951	E5	4.07
54)	L8	AR1268-F	4.974	4.946	4.820	4.744	4.675	4.637	4.799	E5	2.90
55)	S	Decachlorobiphenyl	1.459	1.287	1.226	1.151	1.141	1.173	1.240	E6	9.72

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(#) = Out of Range

8082dodalv0611.m

Thu Jun 11 16:01:34 2015

8.6.1

8



# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17739.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17739.D\ECD1A.ch Vial: 8  
Signal #2 : C:\msdchem\2\DATA\gmm379pcb\MM17739.D\ECD2B.ch  
Acq On : 11 Jun 2015 9:46 am Operator: Russ  
Sample : icv379-400 1016/1260 Inst : ECD 9  
Misc : op56321,gmm379,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene							
2 L1 AR1016-A	400.000	367.322	8.2	99	0.00	3.56-	3.66
3 L1 AR1016-B	400.000	367.182	8.2	101	0.00	3.79-	3.89
4 L1 AR1016-C	400.000	389.705	2.6	99	0.00	4.11-	4.21
5 L1 AR1016-D	400.000	383.224	4.2	98	0.00	4.21-	4.31
6 L1 AR1016-E	400.000	368.668	7.8	100	0.00	4.28-	4.38
7 L1 AR1016-F	400.000	414.576	-3.6	105	0.00	4.50-	4.60
8 L2 AR1221-A							
9 L2 AR1221-B							
10 L2 AR1221-C							
11 L2 AR1221-D							
12 L2 AR1221-E							
13 L3 AR1232-A							
14 L3 AR1232-B							
15 L3 AR1232-C							
16 L3 AR1232-D							
17 L3 AR1232-E							
18 L3 AR1232-F							
19 L4 AR1242-A							
20 L4 AR1242-B							
21 L4 AR1242-C							
22 L4 AR1242-D							
23 L4 AR1242-E							
24 L4 AR1242-F							
25 L5 AR1248-A							
26 L5 AR1248-B							
27 L5 AR1248-C							
28 L5 AR1248-D							
29 L5 AR1248-E							
30 L5 AR1248-F							
31 L6 AR1254-A							
32 L6 AR1254-B							
33 L6 AR1254-C							
34 L6 AR1254-D							
35 L6 AR1254-E							
36 L6 AR1254-F							
37 L7 AR1260-A	400.000	372.615	6.8	100	0.00	5.15-	5.25
38 L7 AR1260-B	400.000	389.050	2.7	100	0.00	5.52-	5.62
39 L7 AR1260-C	400.000	361.532	9.6	94	0.00	5.73-	5.83
40 L7 AR1260-D	400.000	383.312	4.2	96	0.00	5.95-	6.05
41 L7 AR1260-E	400.000	390.878	2.3	99	0.00	6.15-	6.25

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17739.D

42	L7	AR1260-F	400.000	384.533	3.9	103	0.00	6.57-	6.67
43	L9	AR1262-A						-----NA-----	
44	L9	AR1262-B						-----NA-----	
45	L9	AR1262-C						-----NA-----	
46	L9	AR1262-D						-----NA-----	
47	L9	AR1262-E						-----NA-----	
48	L9	AR1262-F						-----NA-----	
49	L8	AR1268-A						-----NA-----	
50	L8	AR1268-B						-----NA-----	
51	L8	AR1268-C						-----NA-----	
52	L8	AR1268-D						-----NA-----	
53	L8	AR1268-E						-----NA-----	
54	L8	AR1268-F						-----NA-----	
55	S	Decachlorobiphenyl						-----NA-----	

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2						-----NA-----	
58	L1	AR1016-A #2	400.000	374.558	6.4	99	0.00	3.62-	3.72
59	L1	AR1016-B #2	400.000	375.153	6.2	98	0.00	3.85-	3.95
60	L1	AR1016-C #2	400.000	386.991	3.3	98	0.00	4.17-	4.27
61	L1	AR1016-D #2	400.000	388.107	3.0	99	0.00	4.30-	4.40
62	L1	AR1016-E #2	400.000	370.116	7.5	95	0.00	4.36-	4.46
63	L1	AR1016-F #2	400.000	382.484	4.4	96	0.00	4.48-	4.58
64	L2	AR1221-A #2						-----NA-----	
65	L2	AR1221-B #2						-----NA-----	
66	L2	AR1221-C #2						-----NA-----	
67	L2	AR1221-D #2						-----NA-----	
68	L2	AR1221-E #2						-----NA-----	
69	L3	AR1232-A #2						-----NA-----	
70	L3	AR1232-B #2						-----NA-----	
71	L3	AR1232-C #2						-----NA-----	
72	L3	AR1232-D #2						-----NA-----	
73	L3	AR1232-E #2						-----NA-----	
74	L3	AR1232-F #2						-----NA-----	
75	L4	AR1242-A #2						-----NA-----	
76	L4	AR1242-B #2						-----NA-----	
77	L4	AR1242-C #2						-----NA-----	
78	L4	AR1242-D #2						-----NA-----	
79	L4	AR1242-E #2						-----NA-----	
80	L4	AR1242-F #2						-----NA-----	
81	L5	AR1248-A #2						-----NA-----	
82	L5	AR1248-B #2						-----NA-----	
83	L5	AR1248-C #2						-----NA-----	
84	L5	AR1248-D #2						-----NA-----	
85	L5	AR1248-E #2						-----NA-----	
86	L5	AR1248-F #2						-----NA-----	
87	L6	AR1254-A #2						-----NA-----	
88	L6	AR1254-B #2						-----NA-----	
89	L6	AR1254-C #2						-----NA-----	
90	L6	AR1254-D #2						-----NA-----	
91	L6	AR1254-E #2						-----NA-----	
92	L6	AR1254-F #2						-----NA-----	
93	L7	AR1260-A #2	400.000	375.095	6.2	98	0.00	5.22-	5.32
94	L7	AR1260-B #2	400.000	362.487	9.4	94	0.00	5.36-	5.46
95	L7	AR1260-C #2	400.000	379.891	5.0	97	0.00	5.81-	5.91
96	L7	AR1260-D #2	400.000	381.873	4.5	97	0.00	6.00-	6.10
97	L7	AR1260-E #2	400.000	380.953	4.8	98	0.00	6.25-	6.35
98	L7	AR1260-F #2	400.000	394.961	1.3	102	0.00	6.63-	6.73
99	L9	AR1262-A #2						-----NA-----	

8.6.2

8

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17739.D

---

100	L9	AR1262-B	#2	-----NA-----
101	L9	AR1262-C	#2	-----NA-----
102	L9	AR1262-D	#2	-----NA-----
103	L9	AR1262-E	#2	-----NA-----
104	L9	AR1262-F	#2	-----NA-----
105	L8	AR1268-A	#2	-----NA-----
106	L8	AR1268-B	#2	-----NA-----
107	L8	AR1268-C	#2	-----NA-----
108	L8	AR1268-D	#2	-----NA-----
109	L8	AR1268-E	#2	-----NA-----
110	L8	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

---

---

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
MM17764.D    8082dodalv0611.m              Thu Jun 11 16:02:29 2015

8.6.2

8

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17746.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17746.D\ECD1A.ch Vial: 15  
Signal #2 : C:\msdchem\2\DATA\gmm379pcb\MM17746.D\ECD2B.ch  
Acq On : 11 Jun 2015 11:07 am Operator: Russ  
Sample : icv379-400 1248 Inst : ECD 9  
Misc : op56321,gmm379,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A			-----NA-----				
9 L2 AR1221-B			-----NA-----				
10 L2 AR1221-C			-----NA-----				
11 L2 AR1221-D			-----NA-----				
12 L2 AR1221-E			-----NA-----				
13 L3 AR1232-A			-----NA-----				
14 L3 AR1232-B			-----NA-----				
15 L3 AR1232-C			-----NA-----				
16 L3 AR1232-D			-----NA-----				
17 L3 AR1232-E			-----NA-----				
18 L3 AR1232-F			-----NA-----				
19 L4 AR1242-A			-----NA-----				
20 L4 AR1242-B			-----NA-----				
21 L4 AR1242-C			-----NA-----				
22 L4 AR1242-D			-----NA-----				
23 L4 AR1242-E			-----NA-----				
24 L4 AR1242-F			-----NA-----				
25 L5 AR1248-A	400.000	307.529	23.1#	95	0.00	3.79-	3.89
26 L5 AR1248-B	400.000	313.462	21.6#	89	0.00	4.11-	4.21
27 L5 AR1248-C	400.000	357.539	10.6	101	0.00	4.31-	4.41
28 L5 AR1248-D	400.000	343.414	14.1	96	0.00	4.41-	4.51
29 L5 AR1248-E	400.000	356.870	10.8	94	0.00	4.67-	4.77
30 L5 AR1248-F	400.000	335.819	16.0	88	0.00	5.04-	5.14
31 L6 AR1254-A			-----NA-----				
32 L6 AR1254-B			-----NA-----				
33 L6 AR1254-C			-----NA-----				
34 L6 AR1254-D			-----NA-----				
35 L6 AR1254-E			-----NA-----				
36 L6 AR1254-F			-----NA-----				
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

8.6.3  
8

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17746.D

42 L7 AR1260-F -----NA-----  
43 L9 AR1262-A -----NA-----  
44 L9 AR1262-B -----NA-----  
45 L9 AR1262-C -----NA-----  
46 L9 AR1262-D -----NA-----  
47 L9 AR1262-E -----NA-----  
48 L9 AR1262-F -----NA-----  
49 L8 AR1268-A -----NA-----  
50 L8 AR1268-B -----NA-----  
51 L8 AR1268-C -----NA-----  
52 L8 AR1268-D -----NA-----  
53 L8 AR1268-E -----NA-----  
54 L8 AR1268-F -----NA-----  
55 S Decachlorobiphenyl -----NA-----

\*\*\*\*\* Signal #2 \*\*\*\*\*

57 S Tetrachloro-m-xylene #2 -----NA-----  
58 L1 AR1016-A #2 -----NA-----  
59 L1 AR1016-B #2 -----NA-----  
60 L1 AR1016-C #2 -----NA-----  
61 L1 AR1016-D #2 -----NA-----  
62 L1 AR1016-E #2 -----NA-----  
63 L1 AR1016-F #2 -----NA-----  
64 L2 AR1221-A #2 -----NA-----  
65 L2 AR1221-B #2 -----NA-----  
66 L2 AR1221-C #2 -----NA-----  
67 L2 AR1221-D #2 -----NA-----  
68 L2 AR1221-E #2 -----NA-----  
69 L3 AR1232-A #2 -----NA-----  
70 L3 AR1232-B #2 -----NA-----  
71 L3 AR1232-C #2 -----NA-----  
72 L3 AR1232-D #2 -----NA-----  
73 L3 AR1232-E #2 -----NA-----  
74 L3 AR1232-F #2 -----NA-----  
75 L4 AR1242-A #2 -----NA-----  
76 L4 AR1242-B #2 -----NA-----  
77 L4 AR1242-C #2 -----NA-----  
78 L4 AR1242-D #2 -----NA-----  
79 L4 AR1242-E #2 -----NA-----  
80 L4 AR1242-F #2 -----NA-----  
81 L5 AR1248-A #2 400.000 318.400 20.4# 93 0.00 3.85- 3.95  
82 L5 AR1248-B #2 400.000 326.718 18.3 93 0.00 4.17- 4.27  
83 L5 AR1248-C #2 400.000 358.710 10.3 98 0.00 4.36- 4.46  
84 L5 AR1248-D #2 400.000 345.434 13.6 96 0.00 4.48- 4.58  
85 L5 AR1248-E #2 400.000 358.163 10.5 96 0.00 4.74- 4.84  
86 L5 AR1248-F #2 400.000 343.595 14.1 92 0.00 5.13- 5.23  
87 L6 AR1254-A #2 -----NA-----  
88 L6 AR1254-B #2 -----NA-----  
89 L6 AR1254-C #2 -----NA-----  
90 L6 AR1254-D #2 -----NA-----  
91 L6 AR1254-E #2 -----NA-----  
92 L6 AR1254-F #2 -----NA-----  
93 L7 AR1260-A #2 -----NA-----  
94 L7 AR1260-B #2 -----NA-----  
95 L7 AR1260-C #2 -----NA-----  
96 L7 AR1260-D #2 -----NA-----  
97 L7 AR1260-E #2 -----NA-----  
98 L7 AR1260-F #2 -----NA-----  
99 L9 AR1262-A #2 -----NA-----

8.6.3

8

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17746.D

---

100	L9	AR1262-B	#2	-----NA-----
101	L9	AR1262-C	#2	-----NA-----
102	L9	AR1262-D	#2	-----NA-----
103	L9	AR1262-E	#2	-----NA-----
104	L9	AR1262-F	#2	-----NA-----
105	L8	AR1268-A	#2	-----NA-----
106	L8	AR1268-B	#2	-----NA-----
107	L8	AR1268-C	#2	-----NA-----
108	L8	AR1268-D	#2	-----NA-----
109	L8	AR1268-E	#2	-----NA-----
110	L8	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

---

---

(#) = Out of Range

MM17764.D 8082dodalv0611.m

SPCC's out = 0 CCC's out = 0

Thu Jun 11 16:02:32 2015

# Initial Calibration Verification

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM379-ICV379  
Lab FileID: MM17753.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17753.D\ECD1A.ch Vial: 22  
Signal #2 : C:\msdchem\2\DATA\gmm379pcb\MM17753.D\ECD2B.ch  
Acq On : 11 Jun 2015 12:28 pm Operator: Russ  
Sample : icv379-400 1242/1262 Inst : ECD 9  
Misc : op56321,gmm379,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A			-----NA-----				
9 L2 AR1221-B			-----NA-----				
10 L2 AR1221-C			-----NA-----				
11 L2 AR1221-D			-----NA-----				
12 L2 AR1221-E			-----NA-----				
13 L3 AR1232-A			-----NA-----				
14 L3 AR1232-B			-----NA-----				
15 L3 AR1232-C			-----NA-----				
16 L3 AR1232-D			-----NA-----				
17 L3 AR1232-E			-----NA-----				
18 L3 AR1232-F			-----NA-----				
19 L4 AR1242-A	400.000	348.844	12.8	92	0.00	3.56	3.66
20 L4 AR1242-B	400.000	350.861	12.3	92	0.00	3.92	4.02
21 L4 AR1242-C	400.000	373.390	6.7	94	0.00	4.11	4.21
22 L4 AR1242-D	400.000	367.517	8.1	95	0.00	4.21	4.31
23 L4 AR1242-E	400.000	377.885	5.5	96	0.00	4.50	4.60
24 L4 AR1242-F	400.000	403.638	-0.9	100	0.00	4.70	4.80
25 L5 AR1248-A			-----NA-----				
26 L5 AR1248-B			-----NA-----				
27 L5 AR1248-C			-----NA-----				
28 L5 AR1248-D			-----NA-----				
29 L5 AR1248-E			-----NA-----				
30 L5 AR1248-F			-----NA-----				
31 L6 AR1254-A			-----NA-----				
32 L6 AR1254-B			-----NA-----				
33 L6 AR1254-C			-----NA-----				
34 L6 AR1254-D			-----NA-----				
35 L6 AR1254-E			-----NA-----				
36 L6 AR1254-F			-----NA-----				
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

8.6.4  
8





# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17753.D

100	L9	AR1262-B #2	400.000	364.939	8.8	96	0.00	5.36- 5.46
101	L9	AR1262-C #2	400.000	362.672	9.3	94	0.00	5.81- 5.91
102	L9	AR1262-D #2	400.000	367.738	8.1	96	0.00	6.00- 6.10
103	L9	AR1262-E #2	400.000	361.399	9.7	92	0.00	6.25- 6.35
104	L9	AR1262-F #2	400.000	374.733	6.3	97	0.00	6.63- 6.73
105	L8	AR1268-A #2						-----NA-----
106	L8	AR1268-B #2						-----NA-----
107	L8	AR1268-C #2						-----NA-----
108	L8	AR1268-D #2						-----NA-----
109	L8	AR1268-E #2						-----NA-----
110	L8	AR1268-F #2						-----NA-----
111	S	Decachlorobiphenyl #2						-----NA-----

(#) = Out of Range  
MM17764.D 8082dodalv0611.m

SPCC's out = 0 CCC's out = 0  
Thu Jun 11 16:02:34 2015

8.6.4

8

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17760.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17760.D\ECD1A.ch Vial: 29  
Signal #2 : C:\msdchem\2\DATA\gmm379pcb\MM17760.D\ECD2B.ch  
Acq On : 11 Jun 2015 1:50 pm Operator: Russ  
Sample : icv379-400 1232/1268 Inst : ECD 9  
Misc : op56321,gmm379,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A			-----NA-----				
9 L2 AR1221-B			-----NA-----				
10 L2 AR1221-C			-----NA-----				
11 L2 AR1221-D			-----NA-----				
12 L2 AR1221-E			-----NA-----				
13 L3 AR1232-A	400.000	395.108	1.2	102	0.00	3.56-	3.66
14 L3 AR1232-B	400.000	354.352	11.4	93	0.00	3.92-	4.02
15 L3 AR1232-C	400.000	357.515	10.6	92	0.00	4.11-	4.21
16 L3 AR1232-D	400.000	341.088	14.7	90	0.00	4.41-	4.51
17 L3 AR1232-E	400.000	366.677	8.3	94	0.00	4.67-	4.77
18 L3 AR1232-F	400.000	368.523	7.9	94	0.00	4.80-	4.90
19 L4 AR1242-A			-----NA-----				
20 L4 AR1242-B			-----NA-----				
21 L4 AR1242-C			-----NA-----				
22 L4 AR1242-D			-----NA-----				
23 L4 AR1242-E			-----NA-----				
24 L4 AR1242-F			-----NA-----				
25 L5 AR1248-A			-----NA-----				
26 L5 AR1248-B			-----NA-----				
27 L5 AR1248-C			-----NA-----				
28 L5 AR1248-D			-----NA-----				
29 L5 AR1248-E			-----NA-----				
30 L5 AR1248-F			-----NA-----				
31 L6 AR1254-A			-----NA-----				
32 L6 AR1254-B			-----NA-----				
33 L6 AR1254-C			-----NA-----				
34 L6 AR1254-D			-----NA-----				
35 L6 AR1254-E			-----NA-----				
36 L6 AR1254-F			-----NA-----				
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17760.D

42	L7	AR1260-F											
43	L9	AR1262-A											
44	L9	AR1262-B											
45	L9	AR1262-C											
46	L9	AR1262-D											
47	L9	AR1262-E											
48	L9	AR1262-F											
49	L8	AR1268-A	400.000	259.775	35.1#	68	0.00	5.58-	5.68				
50	L8	AR1268-B	400.000	313.169	21.7#	84	0.00	5.74-	5.84				
51	L8	AR1268-C	400.000	351.780	12.1	90	0.00	6.15-	6.25				
52	L8	AR1268-D	400.000	317.448	20.6#	80	0.00	6.20-	6.30				
53	L8	AR1268-E	400.000	408.606	-2.2	101	0.00	6.33-	6.43				
54	L8	AR1268-F	400.000	437.709	-9.4	108	0.00	6.79-	6.89				
55	S	Decachlorobiphenyl											

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2											
58	L1	AR1016-A #2											
59	L1	AR1016-B #2											
60	L1	AR1016-C #2											
61	L1	AR1016-D #2											
62	L1	AR1016-E #2											
63	L1	AR1016-F #2											
64	L2	AR1221-A #2											
65	L2	AR1221-B #2											
66	L2	AR1221-C #2											
67	L2	AR1221-D #2											
68	L2	AR1221-E #2											
69	L3	AR1232-A #2	400.000	416.115	-4.0	104	0.00	3.62-	3.72				
70	L3	AR1232-B #2	400.000	366.098	8.5	93	0.00	3.99-	4.09				
71	L3	AR1232-C #2	400.000	375.425	6.1	93	0.00	4.17-	4.27				
72	L3	AR1232-D #2	400.000	344.198	14.0	90	0.00	4.48-	4.58				
73	L3	AR1232-E #2	400.000	361.953	9.5	92	0.00	4.74-	4.84				
74	L3	AR1232-F #2	400.000	384.467	3.9	97	0.00	4.89-	4.99				
75	L4	AR1242-A #2											
76	L4	AR1242-B #2											
77	L4	AR1242-C #2											
78	L4	AR1242-D #2											
79	L4	AR1242-E #2											
80	L4	AR1242-F #2											
81	L5	AR1248-A #2											
82	L5	AR1248-B #2											
83	L5	AR1248-C #2											
84	L5	AR1248-D #2											
85	L5	AR1248-E #2											
86	L5	AR1248-F #2											
87	L6	AR1254-A #2											
88	L6	AR1254-B #2											
89	L6	AR1254-C #2											
90	L6	AR1254-D #2											
91	L6	AR1254-E #2											
92	L6	AR1254-F #2											
93	L7	AR1260-A #2											
94	L7	AR1260-B #2											
95	L7	AR1260-C #2											
96	L7	AR1260-D #2											
97	L7	AR1260-E #2											
98	L7	AR1260-F #2											
99	L9	AR1262-A #2											

8.6.5

8



# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17767.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17767.D\ECD1A.ch Vial: 36  
Signal #2 : C:\msdchem\2\DATA\gmm379pcb\MM17767.D\ECD2B.ch  
Acq On : 11 Jun 2015 3:11 pm Operator: Russ  
Sample : icv379-400 1221/1254 Inst : ECD 9  
Misc : op56321,gmm379,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A	400.000	318.935	20.3#	89	0.00	2.88	2.98
9 L2 AR1221-B	400.000	336.646	15.8	88	0.00	3.19	3.29
10 L2 AR1221-C	400.000	322.630	19.3	88	0.00	3.45	3.55
11 L2 AR1221-D	400.000	318.047	20.5#	88	0.00	3.51	3.61
12 L2 AR1221-E	400.000	330.842	17.3	91	0.00	3.56	3.66
13 L3 AR1232-A			-----NA-----				
14 L3 AR1232-B			-----NA-----				
15 L3 AR1232-C			-----NA-----				
16 L3 AR1232-D			-----NA-----				
17 L3 AR1232-E			-----NA-----				
18 L3 AR1232-F			-----NA-----				
19 L4 AR1242-A			-----NA-----				
20 L4 AR1242-B			-----NA-----				
21 L4 AR1242-C			-----NA-----				
22 L4 AR1242-D			-----NA-----				
23 L4 AR1242-E			-----NA-----				
24 L4 AR1242-F			-----NA-----				
25 L5 AR1248-A			-----NA-----				
26 L5 AR1248-B			-----NA-----				
27 L5 AR1248-C			-----NA-----				
28 L5 AR1248-D			-----NA-----				
29 L5 AR1248-E			-----NA-----				
30 L5 AR1248-F			-----NA-----				
31 L6 AR1254-A	400.000	371.646	7.1	104	0.00	4.28	4.38
32 L6 AR1254-B	400.000	379.188	5.2	98	0.00	4.80	4.90
33 L6 AR1254-C	400.000	399.048	0.2	101	0.00	5.04	5.14
34 L6 AR1254-D	400.000	386.647	3.3	96	0.00	5.24	5.34
35 L6 AR1254-E	400.000	371.331	7.2	97	0.00	5.42	5.52
36 L6 AR1254-F	400.000	360.303	9.9	93	0.00	5.52	5.62
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

8.6.6  
8

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17767.D

42 L7 AR1260-F -----NA-----  
43 L9 AR1262-A -----NA-----  
44 L9 AR1262-B -----NA-----  
45 L9 AR1262-C -----NA-----  
46 L9 AR1262-D -----NA-----  
47 L9 AR1262-E -----NA-----  
48 L9 AR1262-F -----NA-----  
49 L8 AR1268-A -----NA-----  
50 L8 AR1268-B -----NA-----  
51 L8 AR1268-C -----NA-----  
52 L8 AR1268-D -----NA-----  
53 L8 AR1268-E -----NA-----  
54 L8 AR1268-F -----NA-----  
55 S Decachlorobiphenyl -----NA-----

\*\*\*\*\* Signal #2 \*\*\*\*\*

57 S Tetrachloro-m-xylene #2 -----NA-----  
58 L1 AR1016-A #2 -----NA-----  
59 L1 AR1016-B #2 -----NA-----  
60 L1 AR1016-C #2 -----NA-----  
61 L1 AR1016-D #2 -----NA-----  
62 L1 AR1016-E #2 -----NA-----  
63 L1 AR1016-F #2 -----NA-----  
64 L2 AR1221-A #2 400.000 317.522 20.6# 89 0.00 2.92- 3.02  
65 L2 AR1221-B #2 400.000 332.857 16.8 89 0.00 3.24- 3.34  
66 L2 AR1221-C #2 400.000 328.417 17.9 88 0.00 3.49- 3.59  
67 L2 AR1221-D #2 400.000 318.502 20.4# 85 0.00 3.56- 3.66  
68 L2 AR1221-E #2 400.000 330.334 17.4 89 0.00 3.62- 3.72  
69 L3 AR1232-A #2 -----NA-----  
70 L3 AR1232-B #2 -----NA-----  
71 L3 AR1232-C #2 -----NA-----  
72 L3 AR1232-D #2 -----NA-----  
73 L3 AR1232-E #2 -----NA-----  
74 L3 AR1232-F #2 -----NA-----  
75 L4 AR1242-A #2 -----NA-----  
76 L4 AR1242-B #2 -----NA-----  
77 L4 AR1242-C #2 -----NA-----  
78 L4 AR1242-D #2 -----NA-----  
79 L4 AR1242-E #2 -----NA-----  
80 L4 AR1242-F #2 -----NA-----  
81 L5 AR1248-A #2 -----NA-----  
82 L5 AR1248-B #2 -----NA-----  
83 L5 AR1248-C #2 -----NA-----  
84 L5 AR1248-D #2 -----NA-----  
85 L5 AR1248-E #2 -----NA-----  
86 L5 AR1248-F #2 -----NA-----  
87 L6 AR1254-A #2 400.000 376.304 5.9 102 0.00 4.33- 4.43  
88 L6 AR1254-B #2 400.000 372.026 7.0 97 0.00 4.84- 4.94  
89 L6 AR1254-C #2 400.000 388.434 2.9 100 0.00 5.13- 5.23  
90 L6 AR1254-D #2 400.000 399.450 0.1 100 0.00 5.30- 5.40  
91 L6 AR1254-E #2 400.000 348.604 12.8 93 0.00 5.47- 5.57  
92 L6 AR1254-F #2 400.000 394.150 1.5 99 0.00 5.52- 5.62  
93 L7 AR1260-A #2 -----NA-----  
94 L7 AR1260-B #2 -----NA-----  
95 L7 AR1260-C #2 -----NA-----  
96 L7 AR1260-D #2 -----NA-----  
97 L7 AR1260-E #2 -----NA-----  
98 L7 AR1260-F #2 -----NA-----  
99 L9 AR1262-A #2 -----NA-----

# Initial Calibration Verification

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM379-ICV379  
**Lab FileID:** MM17767.D

---

100	L9	AR1262-B	#2	-----NA-----
101	L9	AR1262-C	#2	-----NA-----
102	L9	AR1262-D	#2	-----NA-----
103	L9	AR1262-E	#2	-----NA-----
104	L9	AR1262-F	#2	-----NA-----
105	L8	AR1268-A	#2	-----NA-----
106	L8	AR1268-B	#2	-----NA-----
107	L8	AR1268-C	#2	-----NA-----
108	L8	AR1268-D	#2	-----NA-----
109	L8	AR1268-E	#2	-----NA-----
110	L8	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

---

---

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
MM17764.D    8082dodalv0611.m              Thu Jun 11 16:02:38 2015

8.6.8  
8

# Continuing Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM387-CC379  
Lab FileID: MM17973.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17973.D\ECD1A.ch Vial: 2  
Signal #2 : C:\msdchem\2\DATA\gmm387pcb\MM17973.D\ECD2B.ch  
Acq On : 24 Jun 2015 9:53 am Operator: Russ  
Sample : cc379-200 1016/1260 Inst : ECD 9  
Misc : op56557,gmm387,1.00,,,10,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S	Tetrachloro-m-xylene	20.000	20.285	-1.4	100	0.00	3.27-	3.38
2 L1	AR1016-A	200.000	198.380	0.8	102	0.00	3.56-	3.66
3 L1	AR1016-B	200.000	194.607	2.7	100	0.00	3.79-	3.89
4 L1	AR1016-C	200.000	198.177	0.9	101	0.00	4.11-	4.21
5 L1	AR1016-D	200.000	198.138	0.9	103	0.00	4.21-	4.31
6 L1	AR1016-E	200.000	199.225	0.4	101	0.00	4.28-	4.38
7 L1	AR1016-F	200.000	199.259	0.4	101	0.00	4.50-	4.60
8 L2	AR1221-A			-----NA-----				
9 L2	AR1221-B			-----NA-----				
10 L2	AR1221-C			-----NA-----				
11 L2	AR1221-D			-----NA-----				
12 L2	AR1221-E			-----NA-----				
13 L3	AR1232-A			-----NA-----				
14 L3	AR1232-B			-----NA-----				
15 L3	AR1232-C			-----NA-----				
16 L3	AR1232-D			-----NA-----				
17 L3	AR1232-E			-----NA-----				
18 L3	AR1232-F			-----NA-----				
19 L4	AR1242-A			-----NA-----				
20 L4	AR1242-B			-----NA-----				
21 L4	AR1242-C			-----NA-----				
22 L4	AR1242-D			-----NA-----				
23 L4	AR1242-E			-----NA-----				
24 L4	AR1242-F			-----NA-----				
25 L5	AR1248-A			-----NA-----				
26 L5	AR1248-B			-----NA-----				
27 L5	AR1248-C			-----NA-----				
28 L5	AR1248-D			-----NA-----				
29 L5	AR1248-E			-----NA-----				
30 L5	AR1248-F			-----NA-----				
31 L6	AR1254-A			-----NA-----				
32 L6	AR1254-B			-----NA-----				
33 L6	AR1254-C			-----NA-----				
34 L6	AR1254-D			-----NA-----				
35 L6	AR1254-E			-----NA-----				
36 L6	AR1254-F			-----NA-----				
37 L7	AR1260-A	200.000	198.556	0.7	102	0.00	5.15-	5.25
38 L7	AR1260-B	200.000	200.519	-0.3	102	0.00	5.52-	5.62
39 L7	AR1260-C	200.000	200.047	-0.0	103	0.00	5.73-	5.83
40 L7	AR1260-D	200.000	204.461	-2.2	102	0.00	5.95-	6.05
41 L7	AR1260-E	200.000	204.589	-2.3	103	0.00	6.15-	6.25



# Continuing Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM387-CC379  
Lab FileID: MM17973.D

42	L7	AR1260-F	200.000	208.354	-4.2	106	0.00	6.57-	6.67
43	L9	AR1262-A			-----NA-----				
44	L9	AR1262-B			-----NA-----				
45	L9	AR1262-C			-----NA-----				
46	L9	AR1262-D			-----NA-----				
47	L9	AR1262-E			-----NA-----				
48	L9	AR1262-F			-----NA-----				
49	L8	AR1268-A			-----NA-----				
50	L8	AR1268-B			-----NA-----				
51	L8	AR1268-C			-----NA-----				
52	L8	AR1268-D			-----NA-----				
53	L8	AR1268-E			-----NA-----				
54	L8	AR1268-F			-----NA-----				
55	S	Decachlorobiphenyl	20.000	21.357	-6.8	107	0.00	6.96-	7.06
***** Signal #2 *****									
57	S	Tetrachloro-m-xylene #	20.000	20.824	-4.1	103	0.00	3.29-	3.39
58	L1	AR1016-A #2	200.000	198.980	0.5	100	0.00	3.62-	3.72
59	L1	AR1016-B #2	200.000	201.208	-0.6	100	0.00	3.85-	3.95
60	L1	AR1016-C #2	200.000	199.084	0.5	99	0.00	4.17-	4.27
61	L1	AR1016-D #2	200.000	202.157	-1.1	101	0.00	4.30-	4.40
62	L1	AR1016-E #2	200.000	200.144	-0.1	101	0.00	4.36-	4.46
63	L1	AR1016-F #2	200.000	205.464	-2.7	104	0.00	4.48-	4.58
64	L2	AR1221-A #2			-----NA-----				
65	L2	AR1221-B #2			-----NA-----				
66	L2	AR1221-C #2			-----NA-----				
67	L2	AR1221-D #2			-----NA-----				
68	L2	AR1221-E #2			-----NA-----				
69	L3	AR1232-A #2			-----NA-----				
70	L3	AR1232-B #2			-----NA-----				
71	L3	AR1232-C #2			-----NA-----				
72	L3	AR1232-D #2			-----NA-----				
73	L3	AR1232-E #2			-----NA-----				
74	L3	AR1232-F #2			-----NA-----				
75	L4	AR1242-A #2			-----NA-----				
76	L4	AR1242-B #2			-----NA-----				
77	L4	AR1242-C #2			-----NA-----				
78	L4	AR1242-D #2			-----NA-----				
79	L4	AR1242-E #2			-----NA-----				
80	L4	AR1242-F #2			-----NA-----				
81	L5	AR1248-A #2			-----NA-----				
82	L5	AR1248-B #2			-----NA-----				
83	L5	AR1248-C #2			-----NA-----				
84	L5	AR1248-D #2			-----NA-----				
85	L5	AR1248-E #2			-----NA-----				
86	L5	AR1248-F #2			-----NA-----				
87	L6	AR1254-A #2			-----NA-----				
88	L6	AR1254-B #2			-----NA-----				
89	L6	AR1254-C #2			-----NA-----				
90	L6	AR1254-D #2			-----NA-----				
91	L6	AR1254-E #2			-----NA-----				
92	L6	AR1254-F #2			-----NA-----				
93	L7	AR1260-A #2	200.000	202.549	-1.3	102	0.00	5.22-	5.32
94	L7	AR1260-B #2	200.000	197.298	1.4	99	0.00	5.36-	5.46
95	L7	AR1260-C #2	200.000	206.093	-3.0	103	0.00	5.81-	5.91
96	L7	AR1260-D #2	200.000	209.035	-4.5	104	0.00	6.00-	6.10
97	L7	AR1260-E #2	200.000	210.248	-5.1	105	0.00	6.25-	6.35
98	L7	AR1260-F #2	200.000	215.899	-7.9	112	0.00	6.63-	6.73
99	L9	AR1262-A #2			-----NA-----				

8.6.7  
8



# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17974.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17974.D\ECD1A.ch Vial: 3  
Signal #2 : C:\msdchem\2\DATA\gmm387pcb\MM17974.D\ECD2B.ch  
Acq On : 24 Jun 2015 10:05 am Operator: Russ  
Sample : cc379-200 1248 Inst : ECD 9  
Misc : op56557,gmm387,1.00,,,10,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A			-----NA-----				
9 L2 AR1221-B			-----NA-----				
10 L2 AR1221-C			-----NA-----				
11 L2 AR1221-D			-----NA-----				
12 L2 AR1221-E			-----NA-----				
13 L3 AR1232-A			-----NA-----				
14 L3 AR1232-B			-----NA-----				
15 L3 AR1232-C			-----NA-----				
16 L3 AR1232-D			-----NA-----				
17 L3 AR1232-E			-----NA-----				
18 L3 AR1232-F			-----NA-----				
19 L4 AR1242-A			-----NA-----				
20 L4 AR1242-B			-----NA-----				
21 L4 AR1242-C			-----NA-----				
22 L4 AR1242-D			-----NA-----				
23 L4 AR1242-E			-----NA-----				
24 L4 AR1242-F			-----NA-----				
25 L5 AR1248-A	200.000	169.294	15.4	77	0.00	3.79-	3.89
26 L5 AR1248-B	200.000	171.731	14.1	76	0.00	4.11-	4.21
27 L5 AR1248-C	200.000	181.363	9.3	78	0.00	4.31-	4.41
28 L5 AR1248-D	200.000	185.123	7.4	78	0.00	4.41-	4.51
29 L5 AR1248-E	200.000	184.171	7.9	78	0.00	4.67-	4.77
30 L5 AR1248-F	200.000	193.739	3.1	87	0.00	5.04-	5.14
31 L6 AR1254-A			-----NA-----				
32 L6 AR1254-B			-----NA-----				
33 L6 AR1254-C			-----NA-----				
34 L6 AR1254-D			-----NA-----				
35 L6 AR1254-E			-----NA-----				
36 L6 AR1254-F			-----NA-----				
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

8.6.8  
8

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17974.D

42	L7	AR1260-F	-----NA-----
43	L9	AR1262-A	-----NA-----
44	L9	AR1262-B	-----NA-----
45	L9	AR1262-C	-----NA-----
46	L9	AR1262-D	-----NA-----
47	L9	AR1262-E	-----NA-----
48	L9	AR1262-F	-----NA-----
49	L8	AR1268-A	-----NA-----
50	L8	AR1268-B	-----NA-----
51	L8	AR1268-C	-----NA-----
52	L8	AR1268-D	-----NA-----
53	L8	AR1268-E	-----NA-----
54	L8	AR1268-F	-----NA-----
55	S	Decachlorobiphenyl	-----NA-----

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2	-----NA-----
58	L1	AR1016-A #2	-----NA-----
59	L1	AR1016-B #2	-----NA-----
60	L1	AR1016-C #2	-----NA-----
61	L1	AR1016-D #2	-----NA-----
62	L1	AR1016-E #2	-----NA-----
63	L1	AR1016-F #2	-----NA-----
64	L2	AR1221-A #2	-----NA-----
65	L2	AR1221-B #2	-----NA-----
66	L2	AR1221-C #2	-----NA-----
67	L2	AR1221-D #2	-----NA-----
68	L2	AR1221-E #2	-----NA-----
69	L3	AR1232-A #2	-----NA-----
70	L3	AR1232-B #2	-----NA-----
71	L3	AR1232-C #2	-----NA-----
72	L3	AR1232-D #2	-----NA-----
73	L3	AR1232-E #2	-----NA-----
74	L3	AR1232-F #2	-----NA-----
75	L4	AR1242-A #2	-----NA-----
76	L4	AR1242-B #2	-----NA-----
77	L4	AR1242-C #2	-----NA-----
78	L4	AR1242-D #2	-----NA-----
79	L4	AR1242-E #2	-----NA-----
80	L4	AR1242-F #2	-----NA-----
81	L5	AR1248-A #2	200.000 176.617 11.7 78 0.00 3.85- 3.95
82	L5	AR1248-B #2	200.000 174.393 12.8 75 0.00 4.17- 4.27
83	L5	AR1248-C #2	200.000 186.375 6.8 81 0.00 4.36- 4.46
84	L5	AR1248-D #2	200.000 187.822 6.1 80 0.00 4.48- 4.58
85	L5	AR1248-E #2	200.000 192.028 4.0 80 0.00 4.74- 4.84
86	L5	AR1248-F #2	200.000 196.091 2.0 85 0.00 5.13- 5.23
87	L6	AR1254-A #2	-----NA-----
88	L6	AR1254-B #2	-----NA-----
89	L6	AR1254-C #2	-----NA-----
90	L6	AR1254-D #2	-----NA-----
91	L6	AR1254-E #2	-----NA-----
92	L6	AR1254-F #2	-----NA-----
93	L7	AR1260-A #2	-----NA-----
94	L7	AR1260-B #2	-----NA-----
95	L7	AR1260-C #2	-----NA-----
96	L7	AR1260-D #2	-----NA-----
97	L7	AR1260-E #2	-----NA-----
98	L7	AR1260-F #2	-----NA-----
99	L9	AR1262-A #2	-----NA-----

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17974.D

---

100	L9	AR1262-B	#2	-----NA-----
101	L9	AR1262-C	#2	-----NA-----
102	L9	AR1262-D	#2	-----NA-----
103	L9	AR1262-E	#2	-----NA-----
104	L9	AR1262-F	#2	-----NA-----
105	L8	AR1268-A	#2	-----NA-----
106	L8	AR1268-B	#2	-----NA-----
107	L8	AR1268-C	#2	-----NA-----
108	L8	AR1268-D	#2	-----NA-----
109	L8	AR1268-E	#2	-----NA-----
110	L8	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

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(#) = Out of Range

MM17763.D 8082dodalv0611.m

SPCC's out = 0 CCC's out = 0

Thu Jun 25 06:50:21 2015

8.6.8

8

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17975.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17975.D\ECD1A.ch Vial: 4  
Signal #2 : C:\msdchem\2\DATA\gmm387pcb\MM17975.D\ECD2B.ch  
Acq On : 24 Jun 2015 10:16 am Operator: Russ  
Sample : cc379-200 1242/1262 Inst : ECD 9  
Misc : op56557,gmm387,1.00,,,10,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A			-----NA-----				
9 L2 AR1221-B			-----NA-----				
10 L2 AR1221-C			-----NA-----				
11 L2 AR1221-D			-----NA-----				
12 L2 AR1221-E			-----NA-----				
13 L3 AR1232-A			-----NA-----				
14 L3 AR1232-B			-----NA-----				
15 L3 AR1232-C			-----NA-----				
16 L3 AR1232-D			-----NA-----				
17 L3 AR1232-E			-----NA-----				
18 L3 AR1232-F			-----NA-----				
19 L4 AR1242-A	200.000	181.892	9.1	92	0.00	3.56	3.66
20 L4 AR1242-B	200.000	187.702	6.1	93	0.00	3.92	4.02
21 L4 AR1242-C	200.000	185.721	7.1	92	0.00	4.11	4.21
22 L4 AR1242-D	200.000	185.819	7.1	93	0.00	4.21	4.31
23 L4 AR1242-E	200.000	187.342	6.3	96	0.00	4.50	4.60
24 L4 AR1242-F	200.000	198.332	0.8	99	0.00	4.70	4.80
25 L5 AR1248-A			-----NA-----				
26 L5 AR1248-B			-----NA-----				
27 L5 AR1248-C			-----NA-----				
28 L5 AR1248-D			-----NA-----				
29 L5 AR1248-E			-----NA-----				
30 L5 AR1248-F			-----NA-----				
31 L6 AR1254-A			-----NA-----				
32 L6 AR1254-B			-----NA-----				
33 L6 AR1254-C			-----NA-----				
34 L6 AR1254-D			-----NA-----				
35 L6 AR1254-E			-----NA-----				
36 L6 AR1254-F			-----NA-----				
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

8.6.8  
8

# Continuing Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM387-CC379  
Lab FileID: MM17975.D

42	L7	AR1260-F											
43	L9	AR1262-A	200.000	203.068	-1.5	105	0.00	5.15-	5.25				
44	L9	AR1262-B	200.000	204.068	-2.0	103	0.00	5.58-	5.68				
45	L9	AR1262-C	200.000	202.844	-1.4	104	0.00	5.28-	5.83				
46	L9	AR1262-D	200.000	208.307	-4.2	101	0.00	5.95-	6.05				
47	L9	AR1262-E	200.000	199.413	0.3	102	0.00	6.15-	6.25				
48	L9	AR1262-F	200.000	202.144	-1.1	102	0.00	6.57-	6.67				
49	L8	AR1268-A											
50	L8	AR1268-B											
51	L8	AR1268-C											
52	L8	AR1268-D											
53	L8	AR1268-E											
54	L8	AR1268-F											
55	S	Decachlorobiphenyl											
***** Signal #2 *****													
57	S	Tetrachloro-m-xylene #2											
58	L1	AR1016-A #2											
59	L1	AR1016-B #2											
60	L1	AR1016-C #2											
61	L1	AR1016-D #2											
62	L1	AR1016-E #2											
63	L1	AR1016-F #2											
64	L2	AR1221-A #2											
65	L2	AR1221-B #2											
66	L2	AR1221-C #2											
67	L2	AR1221-D #2											
68	L2	AR1221-E #2											
69	L3	AR1232-A #2											
70	L3	AR1232-B #2											
71	L3	AR1232-C #2											
72	L3	AR1232-D #2											
73	L3	AR1232-E #2											
74	L3	AR1232-F #2											
75	L4	AR1242-A #2	200.000	191.106	4.4	93	0.00	3.62-	3.72				
76	L4	AR1242-B #2	200.000	192.442	3.8	94	0.00	3.99-	4.09				
77	L4	AR1242-C #2	200.000	190.138	4.9	93	0.00	4.17-	4.27				
78	L4	AR1242-D #2	200.000	189.839	5.1	93	0.00	4.30-	4.40				
79	L4	AR1242-E #2	200.000	190.622	4.7	96	0.00	4.59-	4.69				
80	L4	AR1242-F #2	200.000	199.516	0.2	98	0.00	4.74-	4.84				
81	L5	AR1248-A #2											
82	L5	AR1248-B #2											
83	L5	AR1248-C #2											
84	L5	AR1248-D #2											
85	L5	AR1248-E #2											
86	L5	AR1248-F #2											
87	L6	AR1254-A #2											
88	L6	AR1254-B #2											
89	L6	AR1254-C #2											
90	L6	AR1254-D #2											
91	L6	AR1254-E #2											
92	L6	AR1254-F #2											
93	L7	AR1260-A #2											
94	L7	AR1260-B #2											
95	L7	AR1260-C #2											
96	L7	AR1260-D #2											
97	L7	AR1260-E #2											
98	L7	AR1260-F #2											
99	L9	AR1262-A #2	200.000	203.154	-1.6	103	0.00	5.22-	5.32				

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17975.D

100	L9	AR1262-B #2	200.000	216.653	-8.3	105	0.00	5.36-	5.46
101	L9	AR1262-C #2	200.000	210.482	-5.2	103	0.00	5.81-	5.91
102	L9	AR1262-D #2	200.000	209.345	-4.7	103	0.00	6.00-	6.10
103	L9	AR1262-E #2	200.000	212.681	-6.3	105	0.00	6.25-	6.35
104	L9	AR1262-F #2	200.000	212.496	-6.2	105	0.00	6.63-	6.73
105	L8	AR1268-A #2						-----NA-----	
106	L8	AR1268-B #2						-----NA-----	
107	L8	AR1268-C #2						-----NA-----	
108	L8	AR1268-D #2						-----NA-----	
109	L8	AR1268-E #2						-----NA-----	
110	L8	AR1268-F #2						-----NA-----	
111	S	Decachlorobiphenyl #2						-----NA-----	

(#) = Out of Range  
MM17763.D 8082dodalv0611.m

SPCC's out = 0 CCC's out = 0  
Thu Jun 25 06:50:23 2015

6.68

8



# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17976.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17976.D\ECD1A.ch Vial: 5  
Signal #2 : C:\msdchem\2\DATA\gmm387pcb\MM17976.D\ECD2B.ch  
Acq On : 24 Jun 2015 10:28 am Operator: Russ  
Sample : cc379-200 1232/1268 Inst : ECD 9  
Misc : op56557,gmm387,1.00,,,10,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene							
2 L1 AR1016-A							
3 L1 AR1016-B							
4 L1 AR1016-C							
5 L1 AR1016-D							
6 L1 AR1016-E							
7 L1 AR1016-F							
8 L2 AR1221-A							
9 L2 AR1221-B							
10 L2 AR1221-C							
11 L2 AR1221-D							
12 L2 AR1221-E							
13 L3 AR1232-A	200.000	182.247	8.9	91	0.00	3.56-	3.66
14 L3 AR1232-B	200.000	185.633	7.2	94	0.00	3.92-	4.02
15 L3 AR1232-C	200.000	177.515	11.2	93	0.00	4.11-	4.21
16 L3 AR1232-D	200.000	190.280	4.9	98	0.00	4.41-	4.51
17 L3 AR1232-E	200.000	189.678	5.2	94	0.00	4.67-	4.77
18 L3 AR1232-F	200.000	201.538	-0.8	102	0.00	4.80-	4.90
19 L4 AR1242-A							
20 L4 AR1242-B							
21 L4 AR1242-C							
22 L4 AR1242-D							
23 L4 AR1242-E							
24 L4 AR1242-F							
25 L5 AR1248-A							
26 L5 AR1248-B							
27 L5 AR1248-C							
28 L5 AR1248-D							
29 L5 AR1248-E							
30 L5 AR1248-F							
31 L6 AR1254-A							
32 L6 AR1254-B							
33 L6 AR1254-C							
34 L6 AR1254-D							
35 L6 AR1254-E							
36 L6 AR1254-F							
37 L7 AR1260-A							
38 L7 AR1260-B							
39 L7 AR1260-C							
40 L7 AR1260-D							
41 L7 AR1260-E							





# Continuing Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM387-CC379  
Lab FileID: MM17977.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17977.D\ECD1A.ch Vial: 6  
Signal #2 : C:\msdchem\2\DATA\gmm387pcb\MM17977.D\ECD2B.ch  
Acq On : 24 Jun 2015 10:39 am Operator: Russ  
Sample : cc379-200 1221/1254 Inst : ECD 9  
Misc : op56557,gmm387,1.00,,,10,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A	200.000	206.811	-3.4	108	0.00	2.88	2.98
9 L2 AR1221-B	200.000	214.045	-7.0	104	0.00	3.19	3.29
10 L2 AR1221-C	200.000	202.122	-1.1	107	0.00	3.45	3.55
11 L2 AR1221-D	200.000	196.708	1.6	105	0.00	3.51	3.61
12 L2 AR1221-E	200.000	195.081	2.5	105	0.00	3.56	3.66
13 L3 AR1232-A			-----NA-----				
14 L3 AR1232-B			-----NA-----				
15 L3 AR1232-C			-----NA-----				
16 L3 AR1232-D			-----NA-----				
17 L3 AR1232-E			-----NA-----				
18 L3 AR1232-F			-----NA-----				
19 L4 AR1242-A			-----NA-----				
20 L4 AR1242-B			-----NA-----				
21 L4 AR1242-C			-----NA-----				
22 L4 AR1242-D			-----NA-----				
23 L4 AR1242-E			-----NA-----				
24 L4 AR1242-F			-----NA-----				
25 L5 AR1248-A			-----NA-----				
26 L5 AR1248-B			-----NA-----				
27 L5 AR1248-C			-----NA-----				
28 L5 AR1248-D			-----NA-----				
29 L5 AR1248-E			-----NA-----				
30 L5 AR1248-F			-----NA-----				
31 L6 AR1254-A	200.000	199.362	0.3	103	0.00	4.28	4.38
32 L6 AR1254-B	200.000	208.911	-4.5	106	0.00	4.80	4.90
33 L6 AR1254-C	200.000	205.115	-2.6	103	0.00	5.04	5.14
34 L6 AR1254-D	200.000	200.519	-0.3	101	0.00	5.24	5.34
35 L6 AR1254-E	200.000	198.871	0.6	101	0.00	5.42	5.52
36 L6 AR1254-F	200.000	205.044	-2.5	105	0.00	5.52	5.62
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				



# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17977.D

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100	L9	AR1262-B	#2	-----NA-----
101	L9	AR1262-C	#2	-----NA-----
102	L9	AR1262-D	#2	-----NA-----
103	L9	AR1262-E	#2	-----NA-----
104	L9	AR1262-F	#2	-----NA-----
105	L8	AR1268-A	#2	-----NA-----
106	L8	AR1268-B	#2	-----NA-----
107	L8	AR1268-C	#2	-----NA-----
108	L8	AR1268-D	#2	-----NA-----
109	L8	AR1268-E	#2	-----NA-----
110	L8	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

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(#) = Out of Range

MM17763.D 8082dodalv0611.m

SPCC's out = 0 CCC's out = 0

Thu Jun 25 06:50:27 2015

# Continuing Calibration Summary

Job Number: FA25397  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM387-CC379  
Lab FileID: MM17988.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM17988.D\ECD1A.ch Vial: 17  
Signal #2 : C:\msdchem\2\DATA\gmm387pcb\MM17988.D\ECD2B.ch  
Acq On : 24 Jun 2015 2:24 pm Operator: Russ  
Sample : cc379-400 1016/1260 Inst : ECD 9  
Misc : op56576,gmm387,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\MET...8082dodalv0611.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Thu Jun 11 15:57:10 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S	Tetrachloro-m-xylene	40.000	43.266	-8.2	110	0.00	3.27-	3.38
2 L1	AR1016-A	400.000	416.170	-4.0	112	0.00	3.56-	3.66
3 L1	AR1016-B	400.000	406.758	-1.7	111	0.01	3.79-	3.89
4 L1	AR1016-C	400.000	411.723	-2.9	105	0.00	4.11-	4.21
5 L1	AR1016-D	400.000	409.703	-2.4	105	0.01	4.21-	4.31
6 L1	AR1016-E	400.000	391.272	2.2	106	0.01	4.28-	4.38
7 L1	AR1016-F	400.000	406.496	-1.6	103	0.01	4.50-	4.60
8 L2	AR1221-A				NA			
9 L2	AR1221-B				NA			
10 L2	AR1221-C				NA			
11 L2	AR1221-D				NA			
12 L2	AR1221-E				NA			
13 L3	AR1232-A				NA			
14 L3	AR1232-B				NA			
15 L3	AR1232-C				NA			
16 L3	AR1232-D				NA			
17 L3	AR1232-E				NA			
18 L3	AR1232-F				NA			
19 L4	AR1242-A				NA			
20 L4	AR1242-B				NA			
21 L4	AR1242-C				NA			
22 L4	AR1242-D				NA			
23 L4	AR1242-E				NA			
24 L4	AR1242-F				NA			
25 L5	AR1248-A				NA			
26 L5	AR1248-B				NA			
27 L5	AR1248-C				NA			
28 L5	AR1248-D				NA			
29 L5	AR1248-E				NA			
30 L5	AR1248-F				NA			
31 L6	AR1254-A				NA			
32 L6	AR1254-B				NA			
33 L6	AR1254-C				NA			
34 L6	AR1254-D				NA			
35 L6	AR1254-E				NA			
36 L6	AR1254-F				NA			
37 L7	AR1260-A	400.000	367.677	8.1	98	0.02	5.15-	5.25
38 L7	AR1260-B	400.000	369.886	7.5	96	0.02	5.52-	5.62
39 L7	AR1260-C	400.000	347.645	13.1	90	0.02	5.73-	5.83
40 L7	AR1260-D	400.000	372.724	6.8	93	0.02	5.95-	6.05
41 L7	AR1260-E	400.000	370.615	7.3	94	0.02	6.15-	6.25

# Continuing Calibration Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM387-CC379  
**Lab FileID:** MM17988.D

42	L7	AR1260-F	400.000	362.640	9.3	97	0.02	6.57-	6.67
43	L9	AR1262-A						-----NA-----	
44	L9	AR1262-B						-----NA-----	
45	L9	AR1262-C						-----NA-----	
46	L9	AR1262-D						-----NA-----	
47	L9	AR1262-E						-----NA-----	
48	L9	AR1262-F						-----NA-----	
49	L8	AR1268-A						-----NA-----	
50	L8	AR1268-B						-----NA-----	
51	L8	AR1268-C						-----NA-----	
52	L8	AR1268-D						-----NA-----	
53	L8	AR1268-E						-----NA-----	
54	L8	AR1268-F						-----NA-----	
55	S	Decachlorobiphenyl	40.000	36.643	8.4	97	0.02	6.96-	7.06
***** Signal #2 *****									
57	S	Tetrachloro-m-xylene #	40.000	41.697	-4.2	105	0.00	3.29-	3.39
58	L1	AR1016-A #2	400.000	404.621	-1.2	107	0.00	3.62-	3.72
59	L1	AR1016-B #2	400.000	404.596	-1.1	106	0.00	3.85-	3.95
60	L1	AR1016-C #2	400.000	426.022	-6.5	107	0.00	4.17-	4.27
61	L1	AR1016-D #2	400.000	398.906	0.3	101	0.00	4.30-	4.40
62	L1	AR1016-E #2	400.000	379.721	5.1	98	0.00	4.36-	4.46
63	L1	AR1016-F #2	400.000	377.580	5.6	95	0.00	4.48-	4.58
64	L2	AR1221-A #2						-----NA-----	
65	L2	AR1221-B #2						-----NA-----	
66	L2	AR1221-C #2						-----NA-----	
67	L2	AR1221-D #2						-----NA-----	
68	L2	AR1221-E #2						-----NA-----	
69	L3	AR1232-A #2						-----NA-----	
70	L3	AR1232-B #2						-----NA-----	
71	L3	AR1232-C #2						-----NA-----	
72	L3	AR1232-D #2						-----NA-----	
73	L3	AR1232-E #2						-----NA-----	
74	L3	AR1232-F #2						-----NA-----	
75	L4	AR1242-A #2						-----NA-----	
76	L4	AR1242-B #2						-----NA-----	
77	L4	AR1242-C #2						-----NA-----	
78	L4	AR1242-D #2						-----NA-----	
79	L4	AR1242-E #2						-----NA-----	
80	L4	AR1242-F #2						-----NA-----	
81	L5	AR1248-A #2						-----NA-----	
82	L5	AR1248-B #2						-----NA-----	
83	L5	AR1248-C #2						-----NA-----	
84	L5	AR1248-D #2						-----NA-----	
85	L5	AR1248-E #2						-----NA-----	
86	L5	AR1248-F #2						-----NA-----	
87	L6	AR1254-A #2						-----NA-----	
88	L6	AR1254-B #2						-----NA-----	
89	L6	AR1254-C #2						-----NA-----	
90	L6	AR1254-D #2						-----NA-----	
91	L6	AR1254-E #2						-----NA-----	
92	L6	AR1254-F #2						-----NA-----	
93	L7	AR1260-A #2	400.000	351.137	12.2	91	0.00	5.22-	5.32
94	L7	AR1260-B #2	400.000	354.070	11.5	92	0.00	5.36-	5.46
95	L7	AR1260-C #2	400.000	347.511	13.1	88	0.01	5.81-	5.91
96	L7	AR1260-D #2	400.000	345.907	13.5	88	0.01	6.00-	6.10
97	L7	AR1260-E #2	400.000	348.056	13.0	89	0.01	6.25-	6.35
98	L7	AR1260-F #2	400.000	347.385	13.2	90	0.01	6.63-	6.73
99	L9	AR1262-A #2						-----NA-----	

8.6.12

8





## Metals Analysis

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### QC Data Summaries

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Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
Analyst: LM Run ID: MA12481  
Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:04	MA12481-STD1	1		STDA
09:08	MA12481-STD2	1		STDB
09:12	MA12481-STD3	1		STDC
09:15	MA12481-STD4	1		STDD
09:20	MA12481-HSTD1	1		
09:26	MA12481-ICV1	1		
09:32	MA12481-ICB1	1		
09:35	MA12481-CRIA1	1		
09:43	MA12481-ICSA1	1		
09:50	MA12481-ICSAB1	1		
09:56	MA12481-CCV1	1		
10:05	MA12481-CCB1	1		
10:32	MA12481-CCV2	1		
10:39	MA12481-CCB2	1		
10:43	MP29067-D1	1		
10:47	MP29067-S1	1		
10:51	MP29067-S2	1		
10:56	MP29067-PS1	1		
11:00	MP29067-SD1	5		
11:04	ZZZZZZ	1		
11:08	ZZZZZZ	25		
11:13	ZZZZZZ	1		
11:17	ZZZZZZ	1		
11:21	ZZZZZZ	1		
11:25	MA12481-CCV3	1		
11:30	MA12481-CCB3	1		
11:34	ZZZZZZ	1		
11:38	ZZZZZZ	1		
11:42	ZZZZZZ	1		
11:47	ZZZZZZ	1		
11:51	ZZZZZZ	2		
12:04	MP29070-MB1	1		
12:08	MP29070-B1	1		

9.1  
9

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
Analyst: LM      Run ID: MA12481  
Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:12	FA25301-2	1		(sample used for QC only; not part of login FA25397)
12:16	MA12481-CCV4	1		
12:21	MA12481-CCB4	1		
12:25	MP29070-D1	1		
12:29	MP29070-SD1	5		
12:34	MP29070-PS1	1		
12:38	MP29070-S1	1		
12:42	MP29070-S2	1		
12:46	ZZZZZZ	1		
12:50	ZZZZZZ	1		
12:55	ZZZZZZ	1		
12:59	ZZZZZZ	1		
13:03	ZZZZZZ	1		
13:07	MA12481-CCV5	1		
13:12	MA12481-CCB5	1		
13:51	MA12481-CCV6	1		
13:57	MA12481-CCB6	1		
14:06	ZZZZZZ	1		
14:10	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:19	ZZZZZZ	1		
14:23	ZZZZZZ	1		
14:27	ZZZZZZ	1		
14:32	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:40	ZZZZZZ	1		
14:45	ZZZZZZ	1		
14:49	MA12481-CCV7	1		
14:53	MA12481-CCB7	1		
14:58	ZZZZZZ	1		
15:02	ZZZZZZ	1		
15:06	ZZZZZZ	1		
15:10	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
Analyst: LM      Run ID: MA12481  
Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:15	MP29072-MB1	1		
15:19	MP29072-B1	1		
15:23	FA25298-1	1		(sample used for QC only; not part of login FA25397)
15:27	MP29072-D1	1		
15:32	MP29072-SD1	5		
15:36	MP29072-PS1	1		
15:40	MA12481-CCV8	1		
15:44	MA12481-CCB8	1		
15:49	MP29072-S1	1		
15:53	MP29072-S2	1		
15:57	ZZZZZZ	1		
16:01	ZZZZZZ	1		
16:06	ZZZZZZ	1		
16:10	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:18	ZZZZZZ	1		
16:27	ZZZZZZ	1		
16:32	MA12481-CCV9	1		
16:36	MA12481-CCB9	1		
16:40	ZZZZZZ	1		
16:45	ZZZZZZ	10		
16:49	ZZZZZZ	1		
16:53	ZZZZZZ	1		
16:58	ZZZZZZ	1		
17:02	FA25397-1	1		
----->	Last reportable sample/prep for job FA25397			
17:06	ZZZZZZ	5		
17:11	ZZZZZZ	5		
17:15	ZZZZZZ	5		
17:19	ZZZZZZ	5		
17:24	MA12481-CCV10	1		
17:28	MA12481-CCB10	1		
17:41	MA12481-CRIA2	1		
17:46	MA12481-ICSA2	1		

9.1  
9

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
Analyst: LM      Run ID: MA12481  
Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Dilution Factor	PS Recov	Comments
------	--------------------	-----------------	----------	----------

17:50 MA12481-ICSAB2 1

17:55 MA12481-CCV11 1

17:59 MA12481-CCB11 1

-----> Last reportable CCB for job FA25397  
Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 Analyst: LM Run ID: MA12481  
 Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
09:04	MA12481-STD1	9145	59154	5030	4176
09:08	MA12481-STD2	9078	58552	4963	3928
09:12	MA12481-STD3	8745	56605	5081	3611
09:15	MA12481-STD4	8414	55270	5004	3382
09:20	MA12481-HSTD1	8350	55150	5050	3366
09:26	MA12481-ICV1	8607	56067	4990	3594
09:32	MA12481-ICB1	9195 R	59753 R	5115 R	4199 R
09:35	MA12481-CRIA1	8988	58568	5025	3977
09:43	MA12481-ICSA1	8131	50947	4791	3290
09:50	MA12481-ICSAB1	8098	50994	4775	3238
09:56	MA12481-CCV1	8592	55516	4825	3570
10:05	MA12481-CCB1	8927	58203	4844	4074
10:32	MA12481-CCV2	8506	55253	4825	3551
10:39	MA12481-CCB2	8861	58225	4812	4068
10:43	MP29067-D1	9212	60104	5047	4177
10:47	MP29067-S1	8829	56565	4899	3751
10:51	MP29067-S2	8801	56818	4890	3744
10:56	MP29067-PS1	9051	59097	4969	3975
11:00	MP29067-SD1	9107	59021	4969	4189
11:04	ZZZZZZ	10803	69058	6049	3634
11:08	ZZZZZZ	9916	63914	5365	4064
11:13	ZZZZZZ	10161	64972	5591	3804
11:17	ZZZZZZ	9832	63185	5352	3978
11:21	ZZZZZZ	10214	65553	5516	4023
11:25	MA12481-CCV3	8391	54403	4675	3525
11:30	MA12481-CCB3	8764	56925	4606	4040
11:34	ZZZZZZ	10301	66391	5551	4008
11:38	ZZZZZZ	10185	65800	5448	4020
11:42	ZZZZZZ	11646 !	73939	6246	3831
11:47	ZZZZZZ	10604	67483	5696	3896
11:51	ZZZZZZ	9188	60658	5151	3932
12:04	MP29070-MB1	8956	58261	4817	4117
12:08	MP29070-B1	8563	55176	4651	3678

9.1.1  
9

INTERNAL STANDARD SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 Analyst: LM Run ID: MA12481  
 Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:12	FA25301-2	8974	57903	4814	3933
12:16	MA12481-CCV4	8451	54818	4671	3551
12:21	MA12481-CCB4	8825	57557	4648	4058
12:25	MP29070-D1	8951	58109	4847	3908
12:29	MP29070-SD1	8992	58292	4817	4086
12:34	MP29070-PS1	8849	57102	4802	3825
12:38	MP29070-S1	8641	55392	4740	3642
12:42	MP29070-S2	8633	55426	4742	3638
12:46	ZZZZZZ	8813	57143	4711	3907
12:50	ZZZZZZ	8887	58065	4754	4036
12:55	ZZZZZZ	8810	57578	4706	3984
12:59	ZZZZZZ	8849	57712	4720	3977
13:03	ZZZZZZ	8945	58210	4815	4004
13:07	MA12481-CCV5	8366	53821	4617	3512
13:12	MA12481-CCB5	8799	57072	4593	4047
13:51	MA12481-CCV6	8393	54650	4622	3513
13:57	MA12481-CCB6	8725	56892	4563	4026
14:06	ZZZZZZ	8650	56010	4700	3833
14:10	ZZZZZZ	8720	56271	4680	3838
14:15	ZZZZZZ	8739	56661	4667	3894
14:19	ZZZZZZ	8647	55965	4652	3848
14:23	ZZZZZZ	8758	56756	4672	3895
14:27	ZZZZZZ	8388	53713	4563	3605
14:32	ZZZZZZ	8854	56809	4730	3824
14:36	ZZZZZZ	8903	57608	4724	3950
14:40	ZZZZZZ	7623	48823	4595	3065
14:45	ZZZZZZ	8899	56665	4770	3740
14:49	MA12481-CCV7	8381	53961	4586	3505
14:53	MA12481-CCB7	8716	56950	4555	4013
14:58	ZZZZZZ	9154	58094	4892	3701
15:02	ZZZZZZ	8939	56709	4786	3719
15:06	ZZZZZZ	9041	57315	4804	3765
15:10	ZZZZZZ	8988	56609	4841	3555

9.1.1  
9



INTERNAL STANDARD SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 Analyst: LM Run ID: MA12481  
 Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:15	MP29072-MB1	8986	58207	4739	4129
15:19	MP29072-B1	8614	55362	4584	3680
15:23	FA25298-1	9200	58938	4844	3977
15:27	MP29072-D1	9199	59066	4810	3972
15:32	MP29072-SD1	9069	58179	4759	4086
15:36	MP29072-PS1	9115	57811	4766	3847
15:40	MA12481-CCV8	8422	53984	4537	3515
15:44	MA12481-CCB8	8757	56785	4511	4013
15:49	MP29072-S1	8997	57084	4728	3640
15:53	MP29072-S2	8889	56495	4647	3635
15:57	ZZZZZ	9453	59605	4910	3895
16:01	ZZZZZ	9184	58409	4693	3931
16:06	ZZZZZ	8812	57845	4536	4046
16:10	ZZZZZ	8932	58578	4608	4050
16:14	ZZZZZ	8966	58128	4614	4007
16:18	ZZZZZ	9150	59321	4781	3990
16:27	ZZZZZ	6800	59326	4932	3400
16:32	MA12481-CCV9	8411	53745	4349	3481
16:36	MA12481-CCB9	8912	57269	4444	4033
16:40	ZZZZZ	8754	64173	5111	3773
16:45	ZZZZZ	8013	57258	4485	3848
16:49	ZZZZZ	8957	58097	4579	3917
16:53	ZZZZZ	8964	59534	4801	3657
16:58	ZZZZZ	9427	59687	4707	3949
17:02	FA25397-1	10726	67340	5414	3533
17:06	ZZZZZ	9088	57705	4546	3882
17:11	ZZZZZ	9018	57776	4466	3900
17:15	ZZZZZ	9101	58851	4621	3889
17:19	ZZZZZ	9050	57953	4540	3891
17:24	MA12481-CCV10	8427	53525	4251	3463
17:28	MA12481-CCB10	8917	56471	4288	4025
17:41	MA12481-CRIA2	8787	55901	4271	3845
17:46	MA12481-ICSA2	7949	48924	4030	3179

9.1.1  
9

INTERNAL STANDARD SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 Analyst: LM Run ID: MA12481  
 Parameters: As,Ba,Cd,Cr,Pb,Se,Ag

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:50	MA12481-ICSAB2	7921	49025	4060	3137
17:55	MA12481-CCV11	8443	53387	4245	3467
17:59	MA12481-CCB11	8876	56591	4309	4014

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	60-125 %
Istd#2	Yttrium (3600)	60-125 %
Istd#3	Yttrium (3710)	60-125 %
Istd#4	Indium	60-125 %

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 QC Limits: result < RL Run ID: MA12481 Units: ug/l

Metal	RL	IDL	09:32 ICB1		10:05 CCB1		10:39 CCB2		11:30 CCB3	
			raw	final	raw	final	raw	final	raw	final
Aluminum	200	14								
Antimony	6.0	1								
Arsenic	10	1.3	-0.20	<10	-0.70	<10	-0.10	<10	0.90	<10
Barium	200	1	-0.10	<200	-0.10	<200	-0.20	<200	-0.70	<200
Beryllium	4.0	.2								
Cadmium	5.0	.2	0.0	<5.0	0.10	<5.0	0.0	<5.0	0.10	<5.0
Calcium	1000	50								
Chromium	10	1	0.10	<10	0.0	<10	0.30	<10	0.20	<10
Cobalt	50	.2								
Copper	25	1								
Iron	300	17								
Lead	5.0	1	-0.30	<5.0	0.30	<5.0	0.10	<5.0	0.60	<5.0
Magnesium	5000	35								
Manganese	15	.5								
Molybdenum	50	.3								
Nickel	40	.4								
Potassium	10000	200								
Selenium	10	2.4	-1.4	<10	-0.70	<10	1.7	<10	1.2	<10
Silver	10	.7	0.20	<10	0.20	<10	0.60	<10	1.0	<10
Sodium	10000	500								
Strontium	10	.5								
Thallium	10	1.1								
Tin	50	.9								
Titanium	10	.5								
Vanadium	50	.5								
Zinc	20	3								

(\*) Outside of QC limits  
 (anr) Analyte not requested

9.1.2  
 9

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 QC Limits: result < RL Run ID: MA12481 Units: ug/l

Metal	RL	IDL	12:21 CCB4		13:12 CCB5		13:57 CCB6		14:53 CCB7	
			raw	final	raw	final	raw	final	raw	final
Aluminum	200	14								
Antimony	6.0	1								
Arsenic	10	1.3	-0.40	<10	-0.10	<10	0.10	<10	-0.10	<10
Barium	200	1	-0.20	<200	-0.10	<200	-0.10	<200	0.20	<200
Beryllium	4.0	.2								
Cadmium	5.0	.2	0.20	<5.0	0.10	<5.0	0.0	<5.0	0.10	<5.0
Calcium	1000	50								
Chromium	10	1	-0.20	<10	0.30	<10	0.30	<10	0.20	<10
Cobalt	50	.2								
Copper	25	1								
Iron	300	17								
Lead	5.0	1	0.0	<5.0	0.20	<5.0	0.60	<5.0	0.80	<5.0
Magnesium	5000	35								
Manganese	15	.5								
Molybdenum	50	.3								
Nickel	40	.4								
Potassium	10000	200								
Selenium	10	2.4	0.50	<10	-0.70	<10	1.3	<10	1.6	<10
Silver	10	.7	0.80	<10	0.80	<10	0.20	<10	0.40	<10
Sodium	10000	500								
Strontium	10	.5								
Thallium	10	1.1								
Tin	50	.9								
Titanium	10	.5								
Vanadium	50	.5								
Zinc	20	3								

(\*) Outside of QC limits  
 (anr) Analyte not requested

9.1.2  
 9

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 QC Limits: result < RL Run ID: MA12481 Units: ug/l

Metal	RL	IDL	15:44 CCB8		16:36 CCB9		17:28 CCB10		17:59 CCB11	
			raw	final	raw	final	raw	final	raw	final
Aluminum	200	14								
Antimony	6.0	1								
Arsenic	10	1.3	0.30	<10	0.70	<10	-0.10	<10	0.90	<10
Barium	200	1	0.10	<200	0.20	<200	0.30	<200	0.40	<200
Beryllium	4.0	.2								
Cadmium	5.0	.2	-0.10	<5.0	0.10	<5.0	0.10	<5.0	0.10	<5.0
Calcium	1000	50								
Chromium	10	1	0.0	<10	0.90	<10	0.0	<10	0.20	<10
Cobalt	50	.2								
Copper	25	1								
Iron	300	17								
Lead	5.0	1	0.40	<5.0	1.3	<5.0	0.60	<5.0	1.2	<5.0
Magnesium	5000	35								
Manganese	15	.5								
Molybdenum	50	.3								
Nickel	40	.4								
Potassium	10000	200								
Selenium	10	2.4	0.10	<10	-0.30	<10	-0.10	<10	-0.20	<10
Silver	10	.7	1.0	<10	0.20	<10	0.40	<10	1.1	<10
Sodium	10000	500								
Strontium	10	.5								
Thallium	10	1.1								
Tin	50	.9								
Titanium	10	.5								
Vanadium	50	.5								
Zinc	20	3								

(\*) Outside of QC limits  
 (anr) Analyte not requested

9.1.2  
 9

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA12481      Units: ug/l

Time:	09:26	09:56	10:32
Sample ID:	ICV	CCV	CCV2
Metal	True	True	True
	ICV1	CCV1	CCV2
	Results	Results	Results
	% Rec	% Rec	% Rec
Aluminum			
Antimony			
Arsenic	2000	2070	2030
Barium	2000	2040	2020
Beryllium			
Cadmium	2000	2080	2050
Calcium			
Chromium	2000	2080	2040
Cobalt			
Copper			
Iron			
Lead	2000	2050	2020
Magnesium			
Manganese			
Molybdenum			
Nickel			
Potassium			
Selenium	2000	2050	2030
Silver	250	259	257
Sodium			
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc			

(\*) Outside of QC limits  
(anr) Analyte not requested

9.1.3  
9

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA12481      Units: ug/l

Time:	11:25	12:16	13:07
Sample ID:	CCV3	CCV4	CCV5
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	2000	2050	102.5
Barium	2000	2000	100.0
Beryllium			
Cadmium	2000	2070	103.5
Calcium			
Chromium	2000	2070	103.5
Cobalt			
Copper			
Iron			
Lead	2000	2040	102.0
Magnesium			
Manganese			
Molybdenum			
Nickel			
Potassium			
Selenium	2000	2050	102.5
Silver	250	258	103.2
Sodium			
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc			

(\*) Outside of QC limits  
(anr) Analyte not requested

9.1.3  
9

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA12481      Units: ug/l

Metal	Time:	13:51			14:49			15:40		
	Sample ID:	CCV	CCV6	% Rec	CCV	CCV7	% Rec	CCV	CCV8	% Rec
Aluminum										
Antimony										
Arsenic	2000	2000	100.0	2000	2020	101.0	2000	2000	100.0	
Barium	2000	2040	102.0	2000	2030	101.5	2000	2060	103.0	
Beryllium										
Cadmium	2000	2030	101.5	2000	2040	102.0	2000	2030	101.5	
Calcium										
Chromium	2000	2030	101.5	2000	2050	102.5	2000	2050	102.5	
Cobalt										
Copper										
Iron										
Lead	2000	2000	100.0	2000	2020	101.0	2000	2010	100.5	
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium	2000	2010	100.5	2000	2020	101.0	2000	2010	100.5	
Silver	250	257	102.8	250	260	104.0	250	261	104.4	
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

(\*) Outside of QC limits  
(anr) Analyte not requested

9.1.3  
9



CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP      Date Analyzed: 06/23/15      Methods: SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA12481      Units: ug/l

Time:	16:32			17:24			17:55		
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	2000	1970	98.5	2000	1950	97.5	2000	1930	96.5
Barium	2000	2120	106.0	2000	2150	107.5	2000	2150	107.5
Beryllium									
Cadmium	2000	2010	100.5	2000	1980	99.0	2000	1970	98.5
Calcium									
Chromium	2000	2060	103.0	2000	2050	102.5	2000	2040	102.0
Cobalt									
Copper									
Iron									
Lead	2000	2000	100.0	2000	1980	99.0	2000	1980	99.0
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium	2000	2000	100.0	2000	1990	99.5	2000	1980	99.0
Silver	250	262	104.8	250	264	105.6	250	263	105.2
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

(\*) Outside of QC limits  
(anr) Analyte not requested

9.1.3  
9

HIGH STANDARD CHECK SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 QC Limits: 95 to 105 % Recovery Run ID: MA12481 Units: ug/l

Time:	09:20		
Sample ID:	HSTD	HSTD1	
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	4000	4050	101.3
Barium	4000	3980	99.5
Beryllium			
Cadmium	4000	4010	100.3
Calcium			
Chromium	4000	3980	99.5
Cobalt			
Copper			
Iron			
Lead	4000	4050	101.3
Magnesium			
Manganese			
Molybdenum			
Nickel			
Potassium			
Selenium	4000	4030	100.8
Silver	500	496	99.2
Sodium			
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc			

(\* ) Outside of QC limits  
 (anr) Analyte not requested

9.1.4  
**9**

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA12481 Units: ug/l

Time:			09:35			17:41		
Sample ID:	CRI	CRIA	CRI A1	% Rec	CRI A2	% Rec		
Metal	True	True	Results	% Rec	Results	% Rec		
Aluminum	400	200						
Antimony	10	5.0						
Arsenic	20	10	8.5	85.0	9.3	93.0		
Barium	400	200	208	104.0	219	109.5		
Beryllium	10	5.0						
Cadmium	10	5.0	5.2	104.0	4.9	98.0		
Calcium	2000	1000						
Chromium	20	10	10.7	107.0	16.6	166.0*(a)		
Cobalt	100	50						
Copper	50	25						
Iron	600	300						
Lead	10	5.0	5.5	110.0	5.5	110.0		
Magnesium	10000	5000						
Manganese	30	15						
Molybdenum	100	50						
Nickel	80	40						
Potassium	20000	10000						
Selenium	20	10	9.2	92.0	11.6	116.0		
Silver	20	10	9.6	96.0	10.1	101.0		
Sodium	20000	10000						
Strontium	20	10						
Thallium	20	10						
Tin	100	50						
Titanium	20	10						
Vanadium	100	50						
Zinc	40	20						

(\*) Outside of QC limits  
 (anr) Analyte not requested  
 (a) Possible instrument baseline drift.

9.1.5  
**9**

INTERFERING ELEMENT CHECK STANDARDS SUMMARY  
Part 1 - ICSA and ICSAB Standards

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: SA062315M1.ICP Date Analyzed: 06/23/15 Methods: SW846 6010C  
QC Limits: 80 to 120 % Recovery Run ID: MA12481 Units: ug/l

Metal	Time:		09:43		09:50		17:46		17:50		
	Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec	ICSA2	% Rec	ICSAB2	% Rec
Aluminum	500000	500000	503000	100.6	501000	100.2	512000	102.4	530000	106.0	
Antimony		1000	0.0		1070	107.0	-1.1		1000	100.0	
Arsenic		1000	1.0		1080	108.0	2.6		1010	101.0	
Barium		500	0.0		529	105.8	1.0		558	111.6	
Beryllium		500	-0.10		524	104.8	-0.20		511	102.2	
Cadmium		1000	0.0		958	95.8	-0.80		905	90.5	
Calcium	500000	500000	487000	97.4	476000	95.2	515000	103.0	512000	102.4	
Chromium		500	0.60		504	100.8	1.3		495	99.0	
Cobalt		500	0.20		490	98.0	0.0		479	95.8	
Copper		500	0.0		535	107.0	-0.30		543	108.6	
Iron	200000	200000	191000	95.5	190000	95.0	192000	96.0	189000	94.5	
Lead		1000	0.0		977	97.7	-7.5		921	92.1	
Magnesium	500000	500000	486000	97.2	485000	97.0	515000	103.0	510000	102.0	
Manganese		500	-0.70		522	104.4	-1.0		500	100.0	
Molybdenum		1000	0.60		972	97.2	0.50		949	94.9	
Nickel		1000	-0.60		980	98.0	-0.60		999	99.9	
Potassium			113		82.6		264		38.2		
Selenium		1000	-0.30		1010	101.0	5.7		964	96.4	
Silver		1000	-0.50		1030	103.0	-0.60		1050	105.0	
Sodium			742		595		150		103		
Strontium		1000	0.20		1010	101.0	0.70		1100	110.0	
Thallium		1000	0.0		967	96.7	1.6		918	91.8	
Tin		1000	1.0		943	94.3	0.40		942	94.2	
Titanium		1000	0.50		998	99.8	1.4		1050	105.0	
Vanadium		500	-0.30		479	95.8	-0.20		499	99.8	
Zinc		1000	1.4		983	98.3	1.2		996	99.6	

(\*) Outside of QC limits  
(anr) Analyte not requested

9.1.6  
9

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV Date Analyzed: 06/24/15 Methods: SW846 7471B  
Analyst: JL Run ID: MA12483  
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:16	MA12483-STD1	1		STD1
10:18	MA12483-STD2	1		STD2
10:19	MA12483-STD3	1		STD3
10:21	MA12483-STD4	1		STD4
10:22	MA12483-STD5	1		STD5
10:24	MA12483-STD6	1		STD6
10:26	MA12483-HSTD1	1		
10:28	MA12483-ICV1	1		
10:30	MA12483-ICB1	1		
10:32	MA12483-CRI1	1		
10:34	MA12483-CCV1	1		
10:35	MA12483-CCB1	1		
10:37	MP29074-MB1	1		
10:38	MP29074-B1	1		
10:40	FA25397-1	1		
10:41	MP29074-D1	1		
10:43	MP29074-SD1	5		
10:45	MP29074-S1	1		
10:46	MP29074-S2	1		
----->	Last reportable sample/prep for job FA25397			
10:48	ZZZZZZ	1		
10:50	ZZZZZZ	1		
10:51	ZZZZZZ	1		
10:53	MA12483-CCV2	1		
10:54	MA12483-CCB2	1		
10:56	ZZZZZZ	1		
10:57	ZZZZZZ	1		
10:59	ZZZZZZ	1		
11:00	ZZZZZZ	1		
11:02	ZZZZZZ	1		
11:03	ZZZZZZ	1		
11:04	ZZZZZZ	1		
11:06	ZZZZZZ	1		
11:07	ZZZZZZ	1		

9.2  
9

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV                      Date Analyzed: 06/24/15                      Methods: SW846 7471B  
Analyst: JL                                              Run ID: MA12483  
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:08	ZZZZZZ	1		
11:10	MA12483-CCV3	1		
11:11	MA12483-CCB3	1		
11:22	MA12483-CRI2	1		
11:23	MA12483-CCV4	1		
11:25	MA12483-CCB4	1		

-----> Last reportable CCB for job FA25397  
Refer to raw data for calibration curve and standards.

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV Date Analyzed: 06/24/15 Methods: SW846 7471B  
 QC Limits: result < RL Run ID: MA12483 Units: ug/l

Time:			10:30		10:35		10:54		11:11	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.50	.03	-0.031	<0.50	-0.031	<0.50	0.017	<0.50	-0.033	<0.50

(\*) Outside of QC limits  
 (anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 1 - Initial and Continuing Calibration Blanks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV      Date Analyzed: 06/24/15      Methods: SW846 7471B  
QC Limits: result < RL      Run ID: MA12483      Units: ug/l

Time:			11:25	
Sample ID:			CCB4	
Metal	RL	IDL	raw	final

Mercury      0.50      .03      -0.038      <0.50

(\*) Outside of QC limits  
(anr) Analyte not requested



CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV      Date Analyzed: 06/24/15      Methods: SW846 7471B  
QC Limits: 90 to 110 % Recovery      Run ID: MA12483      Units: ug/l

	Time:									
Sample ID:	ICV	10:28 ICV1		CCV	10:34 CCV1		CCV	10:53 CCV2		
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec	
Mercury	3.0	3.0	100.0	3	3.1	103.3	3.0	3.0	100.0	

(\*) Outside of QC limits  
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV      Date Analyzed: 06/24/15      Methods: SW846 7471B  
QC Limits: 90 to 110 % Recovery      Run ID: MA12483      Units: ug/l

	Time:	11:10		11:23		
Sample ID:	CCV	CCV3		CCV	CCV4	
Metal	True	Results	% Rec	True	Results	% Rec
Mercury	3.0	3.0	100.0	3.0	3.0	100.0

(\*) Outside of QC limits  
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV      Date Analyzed: 06/24/15      Methods: SW846 7471B  
QC Limits: 95 to 105 % Recovery      Run ID: MA12483      Units: ug/l

Time:		10:26	
Sample ID:	HSTD	HSTD1	
Metal	True	Results	% Rec

Mercury      6.0      6.0      100.0

(\*) Outside of QC limits  
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

File ID: H50624S2.CSV Date Analyzed: 06/24/15 Methods: SW846 7471B  
 QC Limits: 80 to 120 % Recovery Run ID: MA12483 Units: ug/l

	Time:		10:32		11:22	
Sample ID:	CRI	CRIA	CRI1		CRI2	
Metal	True	True	Results	% Rec	Results	% Rec
Mercury	0.20		0.18	90.0	0.19	95.0

(\*) Outside of QC limits  
 (anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29072  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 06/23/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.7	1.8		
Antimony	1.0	.05	.065		
Arsenic	0.50	.065	.1	0.050	<0.50
Barium	10	.05	.05	-0.0050	<10
Beryllium	0.25	.01	.025		
Cadmium	0.20	.01	.025	-0.0050	<0.20
Calcium	250	2.5	2.5		
Chromium	0.50	.05	.05	0.015	<0.50
Cobalt	2.5	.01	.025		
Copper	1.3	.05	.05		
Iron	15	.85	.85		
Lead	1.0	.05	.05	0.010	<1.0
Magnesium	250	1.8	1.8		
Manganese	0.75	.025	.025		
Molybdenum	2.5	.015	.025		
Nickel	2.0	.02	.025		
Potassium	500	10	10		
Selenium	1.0	.12	.12	0.075	<1.0
Silver	0.50	.035	.041	0.010	<0.50
Sodium	500	25	25		
Strontium	0.50	.025	.025		
Thallium	0.50	.055	.055		
Tin	2.5	.045	.045		
Titanium	0.50	.025	.025		
Vanadium	2.5	.025	.025		
Zinc	1.0	.15	.15		

Associated samples MP29072: FA25397-1

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

9.3.1  
9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29072  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 06/23/15 06/23/15

Metal	FA25298-1 Original	DUP	RPD	QC Limits	FA25298-1 Original MS	Spikelot MPFLICP2	% Rec	QC Limits	
Aluminum									
Antimony									
Arsenic	0.43	0.43	0.0	0-20	0.43	71.8	75.6	94.4	80-120
Barium	1.9	2.2	14.6	0-20	1.9	81.7	75.6	105.6	80-120
Beryllium									
Cadmium	0.0	0.0	NC	0-20	0.0	1.8	1.89	95.3	80-120
Calcium									
Chromium	2.9	2.9	0.0	0-20	2.9	11.1	7.56	108.5	80-120
Cobalt									
Copper									
Iron									
Lead	1.3	1.4	7.4	0-20	1.3	21.1	18.9	104.8	80-120
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium	0.0	0.0	NC	0-20	0.0	71.9	75.6	95.1	80-120
Silver	0.0	0.0	NC	0-20	0.0	1.8	1.89	95.3	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP29072: FA25397-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

9.3.2  
 9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29072  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 06/23/15

Metal	FA25298-1 Original MSD		SpikeLot MPFLICP2 % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	0.43	91.0	95.5	94.9	23.6 (a)	20
Barium	1.9	103	95.5	105.9	23.1 (a)	20
Beryllium						
Cadmium	0.0	2.3	2.39	96.4	24.4 (a)	20
Calcium						
Chromium	2.9	13.0	9.55	105.8	15.8	20
Cobalt						
Copper						
Iron						
Lead	1.3	26.0	23.9	103.5	20.8 (a)	20
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium	0.0	91.3	95.5	95.7	23.8 (a)	20
Silver	0.0	2.3	2.39	96.4	24.4 (a)	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP29072: FA25397-1

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

9.3.2  
9

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29072  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 06/23/15

Metal	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	80-120
Barium	106	100	106.0	80-120
Beryllium				
Cadmium	2.5	2.5	100.0	80-120
Calcium				
Chromium	10.6	10	106.0	80-120
Cobalt				
Copper				
Iron				
Lead	25.1	25	100.4	80-120
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	101	100	101.0	80-120
Silver	2.5	2.5	100.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP29072: FA25397-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

9.3.3  
 9



SERIAL DILUTION RESULTS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29072  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: ug/l

Prep Date: 06/23/15

Metal	FA25298-1 Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	10.1	15.7	55.4 (a)	0-10
Barium	44.8	44.1	1.6	0-10
Beryllium				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	68.2	68.6	0.6	0-10
Cobalt				
Copper				
Iron				
Lead	30.8	29.9	2.9	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP29072: FA25397-1

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

9.3.4  
 9

POST DIGESTATE SPIKE SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29072  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: ug/l

Prep Date:

06/23/15

Metal	Sample ml	Final ml	FA25298-1 Raw	PS Corr.** ug/l	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic	9.8	10	10.1	9.898	108.6	0.2	5	100	98.7	80-120
Barium	9.8	10	44.8	43.904	301.4	0.2	12.5	250	103.0	80-120
Beryllium										
Cadmium	9.8	10			49.4	0.2	2.5	50	98.8	80-120
Calcium										
Chromium	9.8	10	68.2	66.836	118.4	0.2	2.5	50	103.1	80-120
Cobalt										
Copper										
Iron										
Lead	9.8	10	30.8	30.184	80.4	0.2	2.5	50	100.4	80-120
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium	9.8	10			96	0.2	5	100	96.0	80-120
Silver	9.8	10			49.7	0.2	2.5	50	99.4	80-120
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP29072: FA25397-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (\*\*) Corr. sample result = Raw \* (sample volume / final volume)  
 (anr) Analyte not requested

9.3.5  
 9

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29074  
Matrix Type: SOLID

Methods: SW846 7471B  
Units: mg/kg

Prep Date: 06/24/15

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.042	.0025	.0042	-0.00076	<0.042

Associated samples MP29074: FA25397-1

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29074  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 06/24/15 06/24/15

Metal	FA25397-1		QC	FA25397-1		Spikelot	QC		
	Original	DUP	RPD	Limits	Original	MS	HGFLWS1	% Rec	Limits
Mercury	0.064	0.060	6.5	0-20	0.064	0.35	0.25	114.4	80-120

Associated samples MP29074: FA25397-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA25397  
 Account: GSYNFLTI - Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29074  
 Matrix Type: SOLID

Methods: SW846 7471B  
 Units: mg/kg

Prep Date: 06/24/15

Metal	FA25397-1 Original MSD	Spikelot HGFLWS1	% Rec	MSD RPD	QC Limit
Mercury	0.064	0.34	0.246	112.1	2.9

Associated samples MP29074: FA25397-1

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29074  
Matrix Type: SOLID

Methods: SW846 7471B  
Units: mg/kg

Prep Date: 06/24/15

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.25	0.25	100.0	80-120

Associated samples MP29074: FA25397-1

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA25397  
Account: GSYNFLTI - Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

QC Batch ID: MP29074  
Matrix Type: SOLID

Methods: SW846 7471B  
Units: ug/l

Prep Date: 06/24/15

Metal	FA25397-1	QC	
	Original	SDL 1:5 %DIF	Limits

Mercury 0.742 0.342 53.9 (a) 0-10

Associated samples MP29074: FA25397-1

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

## General Chemistry

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### QC Data Summaries

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Includes the following where applicable:

- Percent Solids Raw Data Summary



# Percent Solids Raw Data Summary

**Job Number:** FA25397  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

---

**Sample:** FA25397-1      **Analyzed:** 23-JUN-15 by FN      **Method:** SM19 2540G  
**ClientID:** KHQA-IDW001-000.0-20150622

Wet Weight (Total)	8.53	g
Tare Weight	1.03	g
Dry Weight (Total)	7.95	g
Solids, Percent	92.3	%

---

JULY 2015  
BACKFILL SAMPLING  
LABORATORY ANALYTICAL REPORT

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tampa  
6712 Benjamin Road  
Suite 100  
Tampa, FL 33634  
Tel: (813)885-7427

TestAmerica Job ID: 660-67748-1

Client Project/Site: Courtenay Pkwy Borrow Pit

For:

FECC, Inc.  
3652 Old Winter Garden Road  
Orlando, Florida 32805

Attn: Mr. Victor San Agustin



Authorized for release by:  
7/10/2015 6:57:12 PM

Jess Hornsby, Project Manager I  
(813)885-7427

[jess.hornsby@testamericainc.com](mailto:jess.hornsby@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1

2

3

4

5

6

7

8

9

10

11

12

13

14



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Sample Summary . . . . .	3
Case Narrative . . . . .	4
Definitions/Glossary . . . . .	5
Detection Summary . . . . .	6
Client Sample Results . . . . .	7
QC Sample Results . . . . .	12
QC Association Summary . . . . .	38
Lab Chronicle . . . . .	41
Method Summary . . . . .	42
Certification Summary . . . . .	43
Chain of Custody . . . . .	44
Receipt Checklists . . . . .	45

# Sample Summary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
660-67748-1	COURTENAY PKWY PIT	Solid	07/01/15 09:45	07/01/15 16:10

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# Case Narrative

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Job ID: 660-67748-1**

**Laboratory: TestAmerica Tampa**

## Narrative

### Receipt

The sample was received on 7/1/2015 4:10 PM; the sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 5.1°C.

### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### GC/MS Semi VOA

Method 8270D: The continuing calibration verification (CCV) associated with batch 640-117724 recovered below the lower control limit for Pentachlorophenol. The affected analyte was not detected in samples associated with this CCV and the analyte was detected in the RL standard; therefore, the data have been reported.

Method 8270D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 640-117702 and analytical batch 640-117724 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### GC Semi VOA

Method FL-PRO: Surrogate recovery for the following method blank was outside the upper control limit: (MB 400-264053/1-A). This method blank did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8141B: The laboratory control sample and the laboratory control sample duplicate (LCS/LCSD) for preparation batch 640-117740 and analytical batch 640-117797 recovered outside control limits for the following analytes: Monochrotophos and Naled. Monochrotophos and Naled have been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. Batch precision also exceeded control limits for monochrotophos. These results have been reported and qualified.

Method 8141B: The initial calibration curve analyzed in batch 640-117797 was outside acceptance criteria for demeton-S. Total demeton was within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.

### GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

### GC Semi VOA

Qualifier	Qualifier Description
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
U	Indicates that the compound was analyzed for but not detected.
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.
J1	Estimated value; value may not be accurate. Surrogate recovery outside of criteria.

### Metals

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Detection Summary

Client: FECC, Inc.  
 Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.19		0.078	0.042	mg/Kg	1	☼	8260B	Total/NA
Total Petroleum Hydrocarbons (C8-C40)	19		11	1.8	mg/Kg	1	☼	FL-PRO	Total/NA
Arsenic	1.9		0.56	0.26	mg/Kg	1	☼	6010B	Total/NA
Barium	4.1		1.1	0.18	mg/Kg	1	☼	6010B	Total/NA
Chromium	2.0		1.1	0.19	mg/Kg	1	☼	6010B	Total/NA
Lead	1.1		0.56	0.17	mg/Kg	1	☼	6010B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Tampa





# Client Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

**Date Collected: 07/01/15 09:45**

**Matrix: Solid**

**Date Received: 07/01/15 16:10**

**Percent Solids: 93.8**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Acetone</b>	<b>0.19</b>		0.078	0.042	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Benzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Bromobenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Bromoform	0.0033	U	0.0078	0.0033	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Bromomethane	0.0056	U	0.016	0.0056	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
2-Butanone (MEK)	0.010	U	0.039	0.010	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Carbon disulfide	0.0078	U	0.016	0.0078	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Carbon tetrachloride	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Chlorobenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Chlorobromomethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Chlorodibromomethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Chloroethane	0.0034	U	0.016	0.0034	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Chloroform	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Chloromethane	0.0039	U	0.016	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
2-Chlorotoluene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
4-Chlorotoluene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
cis-1,2-Dichloroethene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
cis-1,3-Dichloropropene	0.0031	U	0.0078	0.0031	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2-Dibromo-3-Chloropropane	0.0056	U	0.016	0.0056	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Dibromomethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2-Dichlorobenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,3-Dichlorobenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,4-Dichlorobenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Dichlorobromomethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Dichlorodifluoromethane	0.0037	U	0.016	0.0037	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,1-Dichloroethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2-Dichloroethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,1-Dichloroethene	0.0034	U	0.0078	0.0034	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2-Dichloropropane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,3-Dichloropropane	0.0031	U	0.0078	0.0031	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
2,2-Dichloropropane	0.0031	U	0.0078	0.0031	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,1-Dichloropropene	0.0031	U	0.0078	0.0031	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Ethylbenzene	0.0031	U	0.0078	0.0031	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Ethylene Dibromide	0.0022	U	0.0078	0.0022	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Hexachlorobutadiene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
2-Hexanone	0.036	U	0.039	0.036	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Isopropylbenzene	0.0059	U	0.0078	0.0059	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
4-Isopropyltoluene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Methylene Chloride	0.0062	U	0.0078	0.0062	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
4-Methyl-2-pentanone (MIBK)	0.017	U	0.039	0.017	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Methyl tert-butyl ether	0.0078	U	0.016	0.0078	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
m-Xylene & p-Xylene	0.0047	U	0.016	0.0047	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Naphthalene	0.0053	U	0.0078	0.0053	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
n-Butylbenzene	0.0033	U	0.0078	0.0033	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
N-Propylbenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
o-Xylene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
sec-Butylbenzene	0.0037	U	0.0078	0.0037	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Styrene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
tert-Butylbenzene	0.0031	U	0.0078	0.0031	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1

TestAmerica Tampa

# Client Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

**Date Collected: 07/01/15 09:45**

**Matrix: Solid**

**Date Received: 07/01/15 16:10**

**Percent Solids: 93.8**

**Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,1,1,2,2-Tetrachloroethane	0.0053	U	0.0078	0.0053	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Tetrachloroethene	0.0047	U	0.0078	0.0047	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Toluene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
trans-1,2-Dichloroethene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
trans-1,3-Dichloropropene	0.0033	U	0.0078	0.0033	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2,3-Trichlorobenzene	0.0037	U	0.0078	0.0037	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2,4-Trichlorobenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,1,1-Trichloroethane	0.0033	U	0.0078	0.0033	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,1,2-Trichloroethane	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Trichloroethene	0.0034	U	0.0078	0.0034	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Trichlorofluoromethane	0.0044	U	0.016	0.0044	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2,3-Trichloropropane	0.0047	U	0.0078	0.0047	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,2,4-Trimethylbenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
1,3,5-Trimethylbenzene	0.0039	U	0.0078	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Vinyl chloride	0.0039	U	0.016	0.0039	mg/Kg	☼	07/02/15 12:22	07/06/15 10:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		69 - 130				07/02/15 12:22	07/06/15 10:55	1
Dibromofluoromethane	98		63 - 139				07/02/15 12:22	07/06/15 10:55	1
Toluene-d8 (Surr)	96		67 - 138				07/02/15 12:22	07/06/15 10:55	1

**Method: 8270D - Semivolatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.083	U	0.35	0.083	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Acenaphthylene	0.067	U	0.35	0.067	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Anthracene	0.064	U	0.35	0.064	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzidine	0.16	U	2.9	0.16	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzo[a]anthracene	0.068	U	0.35	0.068	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzo[a]pyrene	0.085	J3 U	0.35	0.085	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzo[b]fluoranthene	0.076	J3 U	0.35	0.076	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzo[g,h,i]perylene	0.047	U	0.35	0.047	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzoic acid	0.48	U	1.8	0.48	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzo[k]fluoranthene	0.076	J3 U	0.35	0.076	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Benzyl alcohol	0.042	U	0.35	0.042	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Bis(2-chloroethoxy)methane	0.039	U	0.35	0.039	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Bis(2-chloroethyl)ether	0.061	U	0.35	0.061	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Bis(2-ethylhexyl) phthalate	0.10	U	0.35	0.10	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4-Bromophenyl phenyl ether	0.060	U	0.35	0.060	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Butyl benzyl phthalate	0.069	U	0.35	0.069	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4-Chloroaniline	0.067	U	0.70	0.067	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4-Chloro-3-methylphenol	0.086	U	0.35	0.086	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2-Chloronaphthalene	0.099	U	0.35	0.099	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2-Chlorophenol	0.080	U	0.35	0.080	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4-Chlorophenyl phenyl ether	0.085	U	0.35	0.085	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Chrysene	0.079	U	0.35	0.079	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Dibenz(a,h)anthracene	0.068	U	0.35	0.068	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Dibenzofuran	0.070	U	0.35	0.070	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
1,2-Dichlorobenzene	0.038	U	0.35	0.038	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
1,3-Dichlorobenzene	0.091	U	0.35	0.091	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1

TestAmerica Tampa

# Client Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

**Date Collected: 07/01/15 09:45**

**Matrix: Solid**

**Date Received: 07/01/15 16:10**

**Percent Solids: 93.8**

**Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.056	U	0.35	0.056	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
3,3'-Dichlorobenzidine	0.15	U	0.70	0.15	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,4-Dichlorophenol	0.10	U	0.35	0.10	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Diethyl phthalate	0.055	U	0.35	0.055	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,4-Dimethylphenol	0.077	U	0.35	0.077	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Dimethyl phthalate	0.075	U	0.35	0.075	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Di-n-butyl phthalate	0.077	U	0.35	0.077	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4,6-Dinitro-2-methylphenol	0.12	U	1.8	0.12	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,4-Dinitrophenol	0.11	U	1.8	0.11	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,4-Dinitrotoluene	0.038	U	0.35	0.038	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,6-Dinitrotoluene	0.10	U	0.35	0.10	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Di-n-octyl phthalate	0.082	U	0.35	0.082	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Fluoranthene	0.064	J3 U	0.35	0.064	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Fluorene	0.095	U	0.35	0.095	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Hexachlorobenzene	0.12	J3 U	0.35	0.12	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Hexachlorobutadiene	0.072	U	0.35	0.072	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Hexachlorocyclopentadiene	0.10	U	0.35	0.10	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Hexachloroethane	0.075	U	0.35	0.075	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Indeno[1,2,3-cd]pyrene	0.062	U	0.35	0.062	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Isophorone	0.068	U	0.35	0.068	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
1-Methylnaphthalene	0.087	U	0.35	0.087	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2-Methylnaphthalene	0.087	U	0.35	0.087	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2-Methylphenol	0.075	U	0.35	0.075	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
3 & 4 Methylphenol	0.11	U	0.35	0.11	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Naphthalene	0.070	U	0.35	0.070	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2-Nitroaniline	0.076	U	1.8	0.076	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
3-Nitroaniline	0.10	U	1.8	0.10	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4-Nitroaniline	0.068	U	1.8	0.068	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Nitrobenzene	0.053	U	0.35	0.053	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2-Nitrophenol	0.087	U	0.35	0.087	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
4-Nitrophenol	0.095	U	1.8	0.095	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
N-Nitrosodimethylamine	0.091	U	0.35	0.091	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
N-Nitrosodi-n-propylamine	0.037	U	0.35	0.037	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
N-Nitrosodiphenylamine	0.052	U	0.35	0.052	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,2'-oxybis[1-chloropropane]	0.086	U	0.35	0.086	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Pentachlorophenol	0.12	U	1.8	0.12	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Phenanthrene	0.054	U	0.35	0.054	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Phenol	0.069	U	0.35	0.069	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
Pyrene	0.056	U	0.35	0.056	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
1,2,4-Trichlorobenzene	0.067	U	0.35	0.067	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,4,5-Trichlorophenol	0.11	U	0.35	0.11	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1
2,4,6-Trichlorophenol	0.061	U	0.35	0.061	mg/Kg	☼	07/06/15 12:45	07/07/15 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	71		35 - 102	07/06/15 12:45	07/07/15 19:28	1
2-Fluorophenol	77		30 - 107	07/06/15 12:45	07/07/15 19:28	1
Nitrobenzene-d5	68		26 - 102	07/06/15 12:45	07/07/15 19:28	1
Phenol-d5	68		31 - 100	07/06/15 12:45	07/07/15 19:28	1
Terphenyl-d14	98		31 - 122	07/06/15 12:45	07/07/15 19:28	1
2,4,6-Tribromophenol	77		33 - 115	07/06/15 12:45	07/07/15 19:28	1

TestAmerica Tampa

# Client Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.00042	U	0.0018	0.00042	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
alpha-BHC	0.00044	U	0.0018	0.00044	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
alpha-Chlordane	0.00037	U	0.0018	0.00037	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
beta-BHC	0.00039	U	0.0018	0.00039	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
4,4'-DDD	0.00027	U	0.0035	0.00027	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
4,4'-DDE	0.00040	U	0.0035	0.00040	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
4,4'-DDT	0.00046	U	0.0035	0.00046	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
delta-BHC	0.00049	U	0.0018	0.00049	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Dieldrin	0.00033	U	0.0035	0.00033	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Endosulfan I	0.00046	U	0.0018	0.00046	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Endosulfan II	0.00029	U	0.0035	0.00029	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Endosulfan sulfate	0.00076	U	0.0035	0.00076	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Endrin	0.00044	U	0.0035	0.00044	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Endrin aldehyde	0.00037	U	0.0035	0.00037	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Endrin ketone	0.00063	U	0.0035	0.00063	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
gamma-BHC (Lindane)	0.00033	U	0.0018	0.00033	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
gamma-Chlordane	0.00033	U	0.0018	0.00033	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Heptachlor	0.00037	U	0.0018	0.00037	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Heptachlor epoxide	0.00042	U	0.0018	0.00042	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Methoxychlor	0.00038	U	0.018	0.00038	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Chlordane (technical)	0.0050	U	0.018	0.0050	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1016	0.0061	U	0.035	0.0061	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1221	0.018	U	0.071	0.018	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1232	0.011	U	0.035	0.011	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1242	0.0088	U	0.035	0.0088	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1248	0.012	U	0.035	0.012	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1254	0.0098	U	0.035	0.0098	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
PCB-1260	0.0050	U	0.035	0.0050	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1
Toxaphene	0.035	U	0.18	0.035	mg/Kg	☼	07/06/15 14:28	07/07/15 22:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB-Decachlorobiphenyl	69		30 - 138	07/06/15 14:28	07/07/15 22:42	1
Dibutylchloroendate	68		30 - 130	07/06/15 14:28	07/07/15 22:42	1
Tetrachloro-m-xylene	95		30 - 129	07/06/15 14:28	07/07/15 22:42	1

## Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bolstar	0.0050	U	0.035	0.0050	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Chlorpyrifos	0.0072	U	0.035	0.0072	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Coumaphos	0.023	U	0.35	0.023	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Demeton, Total	0.0082	U	0.088	0.0082	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Diazinon	0.0060	U	0.035	0.0060	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Dichlorvos	0.0068	U	0.070	0.0068	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Dimethoate	0.0093	U	0.070	0.0093	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Disulfoton	0.017	U	0.070	0.017	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
EPN	0.0048	U	0.035	0.0048	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Ethyl Parathion	0.0058	U	0.035	0.0058	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Fensulfothion	0.013	U	0.35	0.013	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Guthion	0.016	U	0.070	0.016	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Malathion	0.0087	U	0.035	0.0087	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Merphos	0.012	U	0.035	0.012	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Methyl parathion	0.0057	U	0.018	0.0057	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Mevinphos	0.0049	U	0.070	0.0049	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Mocap	0.0045	U	0.018	0.0045	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1

TestAmerica Tampa

# Client Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

**Date Collected: 07/01/15 09:45**

**Matrix: Solid**

**Date Received: 07/01/15 16:10**

**Percent Solids: 93.8**

**Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique (Continued)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochrotophos	0.049	J3 U	0.35	0.049	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Naled	0.023	J3 U	0.35	0.023	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Phorate	0.0057	U	0.035	0.0057	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Ronnel	0.0045	U	0.035	0.0045	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Sulfotepp	0.0091	U	0.018	0.0091	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Tokuthion	0.0057	U	0.035	0.0057	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1
Trichloronate	0.0081	U	0.35	0.0081	mg/Kg	☼	07/07/15 14:29	07/10/15 15:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenylphosphate (TPP)	99		35 - 134	07/07/15 14:29	07/10/15 15:47	1

**Method: FL-PRO - Florida - Petroleum Range Organics (GC)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Petroleum Hydrocarbons (C8-C40)</b>	<b>19</b>		11	1.8	mg/Kg	☼	07/08/15 09:58	07/08/15 16:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	100		62 - 109	07/08/15 09:58	07/08/15 16:46	1
<i>n</i> -C39	107		60 - 118	07/08/15 09:58	07/08/15 16:46	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>1.9</b>		0.56	0.26	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1
<b>Barium</b>	<b>4.1</b>		1.1	0.18	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1
Cadmium	0.098	U	0.56	0.098	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1
<b>Chromium</b>	<b>2.0</b>		1.1	0.19	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1
<b>Lead</b>	<b>1.1</b>		0.56	0.17	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1
Selenium	0.42	U	1.1	0.42	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1
Silver	0.21	U	1.1	0.21	mg/Kg	☼	07/02/15 12:50	07/03/15 08:05	1

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.012	U	0.031	0.012	mg/Kg	☼	07/06/15 13:20	07/06/15 15:34	1

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: 660-67753-D-8-A MS**

**Matrix: Solid**

**Analysis Batch: 159337**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 159299**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Acetone	0.024	U	0.261	0.249		mg/Kg	☼	95	67 - 133
Benzene	0.0022	U	0.0261	0.0237		mg/Kg	☼	91	61 - 131
Bromobenzene	0.0022	U	0.0261	0.0248		mg/Kg	☼	95	58 - 130
Bromoform	0.0019	U	0.0261	0.0221		mg/Kg	☼	85	62 - 130
Bromomethane	0.0032	U	0.0261	0.0270		mg/Kg	☼	104	48 - 136
2-Butanone (MEK)	0.0058	U	0.261	0.235		mg/Kg	☼	90	70 - 130
Carbon disulfide	0.0045	U	0.0261	0.0233		mg/Kg	☼	89	34 - 143
Carbon tetrachloride	0.0022	U	0.0261	0.0247		mg/Kg	☼	95	57 - 130
Chlorobenzene	0.0022	U	0.0261	0.0247		mg/Kg	☼	95	62 - 130
Chlorobromomethane	0.0022	U	0.0261	0.0247		mg/Kg	☼	95	50 - 130
Chlorodibromomethane	0.0022	U	0.0261	0.0244		mg/Kg	☼	94	57 - 130
Chloroethane	0.0020	U	0.0261	0.0268		mg/Kg	☼	103	49 - 140
Chloroform	0.0022	U	0.0261	0.0235		mg/Kg	☼	90	62 - 130
Chloromethane	0.0022	U	0.0261	0.0262		mg/Kg	☼	100	35 - 139
2-Chlorotoluene	0.0022	U	0.0261	0.0231		mg/Kg	☼	88	60 - 130
4-Chlorotoluene	0.0022	U	0.0261	0.0247		mg/Kg	☼	95	63 - 130
cis-1,2-Dichloroethene	0.0022	U	0.0261	0.0243		mg/Kg	☼	93	62 - 130
cis-1,3-Dichloropropene	0.0018	U	0.0261	0.0237		mg/Kg	☼	91	60 - 130
1,2-Dibromo-3-Chloropropane	0.0032	U	0.0261	0.0205		mg/Kg	☼	78	54 - 130
Dibromomethane	0.0022	U	0.0261	0.0246		mg/Kg	☼	94	68 - 130
1,2-Dichlorobenzene	0.0022	U	0.0261	0.0249		mg/Kg	☼	95	60 - 130
1,3-Dichlorobenzene	0.0022	U	0.0261	0.0244		mg/Kg	☼	93	55 - 130
1,4-Dichlorobenzene	0.0022	U	0.0261	0.0248		mg/Kg	☼	95	64 - 130
Dichlorobromomethane	0.0022	U	0.0261	0.0235		mg/Kg	☼	90	66 - 130
Dichlorodifluoromethane	0.0021	U	0.0261	0.0262		mg/Kg	☼	100	10 - 140
1,1-Dichloroethane	0.0022	U	0.0261	0.0239		mg/Kg	☼	92	47 - 130
1,2-Dichloroethane	0.0022	U	0.0261	0.0243		mg/Kg	☼	93	63 - 130
1,1-Dichloroethene	0.0020	U	0.0261	0.0246		mg/Kg	☼	94	54 - 144
1,2-Dichloropropane	0.0022	U	0.0261	0.0242		mg/Kg	☼	93	55 - 130
1,3-Dichloropropane	0.0018	U	0.0261	0.0239		mg/Kg	☼	91	63 - 130
2,2-Dichloropropane	0.0018	U	0.0261	0.0227		mg/Kg	☼	87	55 - 130
1,1-Dichloropropene	0.0018	U	0.0261	0.0256		mg/Kg	☼	98	55 - 130
Ethylbenzene	0.0018	U	0.0261	0.0239		mg/Kg	☼	92	68 - 130
Ethylene Dibromide	0.0013	U	0.0261	0.0234		mg/Kg	☼	90	64 - 130
Hexachlorobutadiene	0.0022	U	0.0261	0.0244		mg/Kg	☼	94	57 - 130
2-Hexanone	0.021	U	0.261	0.231		mg/Kg	☼	89	69 - 136
Isopropylbenzene	0.0034	U	0.0261	0.0231		mg/Kg	☼	89	60 - 130
4-Isopropyltoluene	0.0022	U	0.0261	0.0247		mg/Kg	☼	95	64 - 130
Methylene Chloride	0.0036	U	0.0261	0.0238		mg/Kg	☼	91	50 - 135
4-Methyl-2-pentanone (MIBK)	0.0098	U	0.261	0.231		mg/Kg	☼	89	69 - 134
Methyl tert-butyl ether	0.0045	U	0.0261	0.0225		mg/Kg	☼	86	55 - 134
Naphthalene	0.0030	U	0.0261	0.0222		mg/Kg	☼	85	60 - 130
n-Butylbenzene	0.0019	U	0.0261	0.0242		mg/Kg	☼	93	63 - 130
N-Propylbenzene	0.0022	U	0.0261	0.0249		mg/Kg	☼	95	63 - 130
o-Xylene	0.0022	U	0.0261	0.0221		mg/Kg	☼	85	64 - 130
sec-Butylbenzene	0.0021	U	0.0261	0.0244		mg/Kg	☼	93	63 - 130
Styrene	0.0022	U	0.0261	0.0232		mg/Kg	☼	89	58 - 131
tert-Butylbenzene	0.0018	U	0.0261	0.0250		mg/Kg	☼	96	62 - 130

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 660-67753-D-8-A MS**  
**Matrix: Solid**  
**Analysis Batch: 159337**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 159299**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
1,1,1,2-Tetrachloroethane	0.0022	U	0.0261	0.0237		mg/Kg	☼	91	56 - 130
1,1,2,2-Tetrachloroethane	0.0030	U	0.0261	0.0231		mg/Kg	☼	89	64 - 130
Tetrachloroethene	0.0027	U	0.0261	0.0248		mg/Kg	☼	95	56 - 130
Toluene	0.0022	U	0.0261	0.0246		mg/Kg	☼	94	61 - 130
trans-1,2-Dichloroethene	0.0022	U	0.0261	0.0253		mg/Kg	☼	97	46 - 135
trans-1,3-Dichloropropene	0.0019	U	0.0261	0.0243		mg/Kg	☼	93	65 - 130
1,2,3-Trichlorobenzene	0.0021	U	0.0261	0.0228		mg/Kg	☼	87	57 - 130
1,2,4-Trichlorobenzene	0.0022	U	0.0261	0.0232		mg/Kg	☼	89	59 - 130
1,1,1-Trichloroethane	0.0019	U	0.0261	0.0238		mg/Kg	☼	91	57 - 130
1,1,2-Trichloroethane	0.0022	U	0.0261	0.0237		mg/Kg	☼	91	62 - 130
Trichloroethene	0.0020	U	0.0261	0.0257		mg/Kg	☼	98	54 - 131
Trichlorofluoromethane	0.0025	U	0.0261	0.0287		mg/Kg	☼	110	53 - 130
1,2,3-Trichloropropane	0.0027	U	0.0261	0.0249		mg/Kg	☼	96	60 - 130
1,2,4-Trimethylbenzene	0.0022	U	0.0261	0.0237		mg/Kg	☼	91	59 - 130
1,3,5-Trimethylbenzene	0.0022	U	0.0261	0.0243		mg/Kg	☼	93	58 - 130
Vinyl chloride	0.0022	U	0.0261	0.0253		mg/Kg	☼	97	46 - 136

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	96		69 - 130
Dibromofluoromethane	100		63 - 139
Toluene-d8 (Surr)	101		67 - 138

**Lab Sample ID: 660-67753-D-8-B MSD**  
**Matrix: Solid**  
**Analysis Batch: 159337**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 159299**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Acetone	0.024	U	0.270	0.297		mg/Kg	☼	110	67 - 133	18	40
Benzene	0.0022	U	0.0270	0.0277		mg/Kg	☼	103	61 - 131	15	40
Bromobenzene	0.0022	U	0.0270	0.0302		mg/Kg	☼	112	58 - 130	20	40
Bromoform	0.0019	U	0.0270	0.0278		mg/Kg	☼	103	62 - 130	23	40
Bromomethane	0.0032	U	0.0270	0.0309		mg/Kg	☼	115	48 - 136	13	40
2-Butanone (MEK)	0.0058	U	0.270	0.292		mg/Kg	☼	108	70 - 130	22	40
Carbon disulfide	0.0045	U	0.0270	0.0268		mg/Kg	☼	100	34 - 143	14	40
Carbon tetrachloride	0.0022	U	0.0270	0.0282		mg/Kg	☼	105	57 - 130	13	40
Chlorobenzene	0.0022	U	0.0270	0.0297		mg/Kg	☼	110	62 - 130	19	40
Chlorobromomethane	0.0022	U	0.0270	0.0288		mg/Kg	☼	107	50 - 130	15	40
Chlorodibromomethane	0.0022	U	0.0270	0.0297		mg/Kg	☼	110	57 - 130	20	40
Chloroethane	0.0020	U	0.0270	0.0257		mg/Kg	☼	95	49 - 140	4	40
Chloroform	0.0022	U	0.0270	0.0276		mg/Kg	☼	103	62 - 130	16	40
Chloromethane	0.0022	U	0.0270	0.0269		mg/Kg	☼	100	35 - 139	3	40
2-Chlorotoluene	0.0022	U	0.0270	0.0279		mg/Kg	☼	104	60 - 130	19	40
4-Chlorotoluene	0.0022	U	0.0270	0.0303		mg/Kg	☼	112	63 - 130	20	40
cis-1,2-Dichloroethene	0.0022	U	0.0270	0.0279		mg/Kg	☼	104	62 - 130	14	40
cis-1,3-Dichloropropene	0.0018	U	0.0270	0.0285		mg/Kg	☼	106	60 - 130	18	40
1,2-Dibromo-3-Chloropropane	0.0032	U	0.0270	0.0298		mg/Kg	☼	111	54 - 130	37	40
Dibromomethane	0.0022	U	0.0270	0.0302		mg/Kg	☼	112	68 - 130	20	40
1,2-Dichlorobenzene	0.0022	U	0.0270	0.0302		mg/Kg	☼	112	60 - 130	19	40

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 660-67753-D-8-B MSD**  
**Matrix: Solid**  
**Analysis Batch: 159337**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 159299**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,3-Dichlorobenzene	0.0022	U	0.0270	0.0303		mg/Kg	☼	113	55 - 130	22	40
1,4-Dichlorobenzene	0.0022	U	0.0270	0.0302		mg/Kg	☼	112	64 - 130	20	40
Dichlorobromomethane	0.0022	U	0.0270	0.0297		mg/Kg	☼	110	66 - 130	23	40
Dichlorodifluoromethane	0.0021	U	0.0270	0.0343		mg/Kg	☼	127	10 - 140	27	40
1,1-Dichloroethane	0.0022	U	0.0270	0.0283		mg/Kg	☼	105	47 - 130	17	40
1,2-Dichloroethane	0.0022	U	0.0270	0.0297		mg/Kg	☼	110	63 - 130	20	40
1,1-Dichloroethene	0.0020	U	0.0270	0.0274		mg/Kg	☼	102	54 - 144	11	40
1,2-Dichloropropane	0.0022	U	0.0270	0.0298		mg/Kg	☼	111	55 - 130	21	40
1,3-Dichloropropane	0.0018	U	0.0270	0.0309		mg/Kg	☼	115	63 - 130	26	40
2,2-Dichloropropane	0.0018	U	0.0270	0.0264		mg/Kg	☼	98	55 - 130	15	40
1,1-Dichloropropene	0.0018	U	0.0270	0.0302		mg/Kg	☼	112	55 - 130	17	40
Ethylbenzene	0.0018	U	0.0270	0.0293		mg/Kg	☼	109	68 - 130	21	40
Ethylene Dibromide	0.0013	U	0.0270	0.0299		mg/Kg	☼	111	64 - 130	25	40
Hexachlorobutadiene	0.0022	U	0.0270	0.0302		mg/Kg	☼	112	57 - 130	21	40
2-Hexanone	0.021	U	0.270	0.313		mg/Kg	☼	116	69 - 136	30	40
Isopropylbenzene	0.0034	U	0.0270	0.0279		mg/Kg	☼	103	60 - 130	19	40
4-Isopropyltoluene	0.0022	U	0.0270	0.0300		mg/Kg	☼	111	64 - 130	20	40
Methylene Chloride	0.0036	U	0.0270	0.0274		mg/Kg	☼	102	50 - 135	14	40
4-Methyl-2-pentanone (MIBK)	0.0098	U	0.270	0.314		mg/Kg	☼	117	69 - 134	31	40
Methyl tert-butyl ether	0.0045	U	0.0270	0.0271		mg/Kg	☼	101	55 - 134	19	40
Naphthalene	0.0030	U	0.0270	0.0288		mg/Kg	☼	107	60 - 130	26	40
n-Butylbenzene	0.0019	U	0.0270	0.0299		mg/Kg	☼	111	63 - 130	21	40
N-Propylbenzene	0.0022	U	0.0270	0.0299		mg/Kg	☼	111	63 - 130	18	40
o-Xylene	0.0022	U	0.0270	0.0276		mg/Kg	☼	102	64 - 130	22	40
sec-Butylbenzene	0.0021	U	0.0270	0.0300		mg/Kg	☼	111	63 - 130	21	40
Styrene	0.0022	U	0.0270	0.0284		mg/Kg	☼	105	58 - 131	20	40
tert-Butylbenzene	0.0018	U	0.0270	0.0301		mg/Kg	☼	112	62 - 130	19	40
1,1,1,2-Tetrachloroethane	0.0022	U	0.0270	0.0294		mg/Kg	☼	109	56 - 130	21	40
1,1,1,2,2-Tetrachloroethane	0.0030	U	0.0270	0.0299		mg/Kg	☼	111	64 - 130	26	40
Tetrachloroethene	0.0027	U	0.0270	0.0331		mg/Kg	☼	123	56 - 130	29	40
Toluene	0.0022	U	0.0270	0.0303		mg/Kg	☼	112	61 - 130	21	40
trans-1,2-Dichloroethene	0.0022	U	0.0270	0.0289		mg/Kg	☼	107	46 - 135	13	40
trans-1,3-Dichloropropene	0.0019	U	0.0270	0.0305		mg/Kg	☼	113	65 - 130	22	40
1,2,3-Trichlorobenzene	0.0021	U	0.0270	0.0300		mg/Kg	☼	111	57 - 130	27	40
1,2,4-Trichlorobenzene	0.0022	U	0.0270	0.0293		mg/Kg	☼	109	59 - 130	23	40
1,1,1-Trichloroethane	0.0019	U	0.0270	0.0281		mg/Kg	☼	104	57 - 130	17	40
1,1,2-Trichloroethane	0.0022	U	0.0270	0.0309		mg/Kg	☼	115	62 - 130	26	40
Trichloroethene	0.0020	U	0.0270	0.0307		mg/Kg	☼	114	54 - 131	18	40
Trichlorofluoromethane	0.0025	U	0.0270	0.0327		mg/Kg	☼	121	53 - 130	13	40
1,2,3-Trichloropropane	0.0027	U	0.0270	0.0324		mg/Kg	☼	120	60 - 130	26	40
1,2,4-Trimethylbenzene	0.0022	U	0.0270	0.0286		mg/Kg	☼	106	59 - 130	19	40
1,3,5-Trimethylbenzene	0.0022	U	0.0270	0.0302		mg/Kg	☼	112	58 - 130	22	40
Vinyl chloride	0.0022	U	0.0270	0.0281		mg/Kg	☼	104	46 - 136	11	40

Surrogate	MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	97		69 - 130
Dibromofluoromethane	104		63 - 139
Toluene-d8 (Surr)	101		67 - 138

TestAmerica Tampa



# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

Lab Sample ID: MB 660-159337/6  
Matrix: Solid  
Analysis Batch: 159337

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	0.027	U	0.050	0.027	mg/Kg			07/06/15 10:24	1
Benzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Bromobenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Bromoform	0.0021	U	0.0050	0.0021	mg/Kg			07/06/15 10:24	1
Bromomethane	0.0036	U	0.010	0.0036	mg/Kg			07/06/15 10:24	1
2-Butanone (MEK)	0.0065	U	0.025	0.0065	mg/Kg			07/06/15 10:24	1
Carbon disulfide	0.0050	U	0.010	0.0050	mg/Kg			07/06/15 10:24	1
Carbon tetrachloride	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Chlorobenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Chlorobromomethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Chlorodibromomethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Chloroethane	0.0022	U	0.010	0.0022	mg/Kg			07/06/15 10:24	1
Chloroform	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Chloromethane	0.0025	U	0.010	0.0025	mg/Kg			07/06/15 10:24	1
2-Chlorotoluene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
4-Chlorotoluene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
cis-1,2-Dichloroethene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
cis-1,3-Dichloropropene	0.0020	U	0.0050	0.0020	mg/Kg			07/06/15 10:24	1
1,2-Dibromo-3-Chloropropane	0.0036	U	0.010	0.0036	mg/Kg			07/06/15 10:24	1
Dibromomethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,2-Dichlorobenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,3-Dichlorobenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,4-Dichlorobenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Dichlorobromomethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Dichlorodifluoromethane	0.0024	U	0.010	0.0024	mg/Kg			07/06/15 10:24	1
1,1-Dichloroethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,2-Dichloroethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,1-Dichloroethene	0.0022	U	0.0050	0.0022	mg/Kg			07/06/15 10:24	1
1,2-Dichloropropane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,3-Dichloropropane	0.0020	U	0.0050	0.0020	mg/Kg			07/06/15 10:24	1
2,2-Dichloropropane	0.0020	U	0.0050	0.0020	mg/Kg			07/06/15 10:24	1
1,1-Dichloropropene	0.0020	U	0.0050	0.0020	mg/Kg			07/06/15 10:24	1
Ethylbenzene	0.0020	U	0.0050	0.0020	mg/Kg			07/06/15 10:24	1
Ethylene Dibromide	0.0014	U	0.0050	0.0014	mg/Kg			07/06/15 10:24	1
Hexachlorobutadiene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
2-Hexanone	0.023	U	0.025	0.023	mg/Kg			07/06/15 10:24	1
Isopropylbenzene	0.0038	U	0.0050	0.0038	mg/Kg			07/06/15 10:24	1
4-Isopropyltoluene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Methylene Chloride	0.0040	U	0.0050	0.0040	mg/Kg			07/06/15 10:24	1
4-Methyl-2-pentanone (MIBK)	0.011	U	0.025	0.011	mg/Kg			07/06/15 10:24	1
Methyl tert-butyl ether	0.0050	U	0.010	0.0050	mg/Kg			07/06/15 10:24	1
m-Xylene & p-Xylene	0.0030	U	0.010	0.0030	mg/Kg			07/06/15 10:24	1
Naphthalene	0.0034	U	0.0050	0.0034	mg/Kg			07/06/15 10:24	1
n-Butylbenzene	0.0021	U	0.0050	0.0021	mg/Kg			07/06/15 10:24	1
N-Propylbenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
o-Xylene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
sec-Butylbenzene	0.0024	U	0.0050	0.0024	mg/Kg			07/06/15 10:24	1
Styrene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
tert-Butylbenzene	0.0020	U	0.0050	0.0020	mg/Kg			07/06/15 10:24	1
1,1,1,2-Tetrachloroethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 660-159337/6**  
**Matrix: Solid**  
**Analysis Batch: 159337**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	0.0034	U	0.0050	0.0034	mg/Kg			07/06/15 10:24	1
Tetrachloroethene	0.0030	U	0.0050	0.0030	mg/Kg			07/06/15 10:24	1
Toluene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
trans-1,2-Dichloroethene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
trans-1,3-Dichloropropene	0.0021	U	0.0050	0.0021	mg/Kg			07/06/15 10:24	1
1,2,3-Trichlorobenzene	0.0024	U	0.0050	0.0024	mg/Kg			07/06/15 10:24	1
1,2,4-Trichlorobenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,1,1-Trichloroethane	0.0021	U	0.0050	0.0021	mg/Kg			07/06/15 10:24	1
1,1,2-Trichloroethane	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Trichloroethene	0.0022	U	0.0050	0.0022	mg/Kg			07/06/15 10:24	1
Trichlorofluoromethane	0.0028	U	0.010	0.0028	mg/Kg			07/06/15 10:24	1
1,2,3-Trichloropropane	0.0030	U	0.0050	0.0030	mg/Kg			07/06/15 10:24	1
1,2,4-Trimethylbenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
1,3,5-Trimethylbenzene	0.0025	U	0.0050	0.0025	mg/Kg			07/06/15 10:24	1
Vinyl chloride	0.0025	U	0.010	0.0025	mg/Kg			07/06/15 10:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	91		69 - 130		07/06/15 10:24	1
Dibromofluoromethane	100		63 - 139		07/06/15 10:24	1
Toluene-d8 (Surr)	97		67 - 138		07/06/15 10:24	1

**Lab Sample ID: LCS 660-159337/4**  
**Matrix: Solid**  
**Analysis Batch: 159337**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.200	0.190		mg/Kg		95	67 - 133
Benzene	0.0200	0.0175		mg/Kg		88	61 - 131
Bromobenzene	0.0200	0.0178		mg/Kg		89	58 - 130
Bromoform	0.0200	0.0170		mg/Kg		85	62 - 130
Bromomethane	0.0200	0.0183		mg/Kg		92	48 - 136
2-Butanone (MEK)	0.200	0.181		mg/Kg		90	70 - 130
Carbon disulfide	0.0200	0.0173		mg/Kg		86	34 - 143
Carbon tetrachloride	0.0200	0.0186		mg/Kg		93	57 - 130
Chlorobenzene	0.0200	0.0183		mg/Kg		92	62 - 130
Chlorobromomethane	0.0200	0.0178		mg/Kg		89	50 - 130
Chlorodibromomethane	0.0200	0.0190		mg/Kg		95	57 - 130
Chloroethane	0.0200	0.0187		mg/Kg		94	49 - 140
Chloroform	0.0200	0.0176		mg/Kg		88	62 - 130
Chloromethane	0.0200	0.0174		mg/Kg		87	35 - 139
2-Chlorotoluene	0.0200	0.0169		mg/Kg		84	60 - 130
4-Chlorotoluene	0.0200	0.0179		mg/Kg		89	63 - 130
cis-1,2-Dichloroethene	0.0200	0.0181		mg/Kg		90	62 - 130
cis-1,3-Dichloropropene	0.0200	0.0180		mg/Kg		90	60 - 130
1,2-Dibromo-3-Chloropropane	0.0200	0.0167		mg/Kg		83	54 - 130
Dibromomethane	0.0200	0.0183		mg/Kg		92	68 - 130
1,2-Dichlorobenzene	0.0200	0.0180		mg/Kg		90	60 - 130
1,3-Dichlorobenzene	0.0200	0.0184		mg/Kg		92	55 - 130

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 660-159337/4

Matrix: Solid

Analysis Batch: 159337

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.0200	0.0182		mg/Kg		91	64 - 130
Dichlorobromomethane	0.0200	0.0181		mg/Kg		90	66 - 130
Dichlorodifluoromethane	0.0200	0.0217		mg/Kg		109	10 - 140
1,1-Dichloroethane	0.0200	0.0181		mg/Kg		91	47 - 130
1,2-Dichloroethane	0.0200	0.0175		mg/Kg		88	63 - 130
1,1-Dichloroethene	0.0200	0.0171		mg/Kg		85	54 - 144
1,2-Dichloropropane	0.0200	0.0186		mg/Kg		93	55 - 130
1,3-Dichloropropane	0.0200	0.0184		mg/Kg		92	63 - 130
2,2-Dichloropropane	0.0200	0.0176		mg/Kg		88	55 - 130
1,1-Dichloropropene	0.0200	0.0183		mg/Kg		92	55 - 130
Ethylbenzene	0.0200	0.0178		mg/Kg		89	68 - 130
Ethylene Dibromide	0.0200	0.0180		mg/Kg		90	64 - 130
Hexachlorobutadiene	0.0200	0.0185		mg/Kg		92	57 - 130
2-Hexanone	0.200	0.193		mg/Kg		97	69 - 136
Isopropylbenzene	0.0200	0.0168		mg/Kg		84	60 - 130
4-Isopropyltoluene	0.0200	0.0180		mg/Kg		90	64 - 130
Methylene Chloride	0.0200	0.0177		mg/Kg		88	50 - 135
4-Methyl-2-pentanone (MIBK)	0.200	0.192		mg/Kg		96	69 - 134
Methyl tert-butyl ether	0.0200	0.0172		mg/Kg		86	55 - 134
Naphthalene	0.0200	0.0177		mg/Kg		89	60 - 130
n-Butylbenzene	0.0200	0.0178		mg/Kg		89	63 - 130
N-Propylbenzene	0.0200	0.0178		mg/Kg		89	63 - 130
o-Xylene	0.0200	0.0166		mg/Kg		83	64 - 130
sec-Butylbenzene	0.0200	0.0180		mg/Kg		90	63 - 130
Styrene	0.0200	0.0177		mg/Kg		88	58 - 131
tert-Butylbenzene	0.0200	0.0177		mg/Kg		88	62 - 130
1,1,1,2-Tetrachloroethane	0.0200	0.0189		mg/Kg		94	56 - 130
1,1,1,2,2-Tetrachloroethane	0.0200	0.0166		mg/Kg		83	64 - 130
Tetrachloroethene	0.0200	0.0188		mg/Kg		94	56 - 130
Toluene	0.0200	0.0182		mg/Kg		91	61 - 130
trans-1,2-Dichloroethene	0.0200	0.0177		mg/Kg		89	46 - 135
trans-1,3-Dichloropropene	0.0200	0.0192		mg/Kg		96	65 - 130
1,2,3-Trichlorobenzene	0.0200	0.0180		mg/Kg		90	57 - 130
1,2,4-Trichlorobenzene	0.0200	0.0182		mg/Kg		91	59 - 130
1,1,1-Trichloroethane	0.0200	0.0177		mg/Kg		88	57 - 130
1,1,2-Trichloroethane	0.0200	0.0184		mg/Kg		92	62 - 130
Trichloroethene	0.0200	0.0190		mg/Kg		95	54 - 131
Trichlorofluoromethane	0.0200	0.0196		mg/Kg		98	53 - 130
1,2,3-Trichloropropane	0.0200	0.0187		mg/Kg		94	60 - 130
1,2,4-Trimethylbenzene	0.0200	0.0174		mg/Kg		87	59 - 130
1,3,5-Trimethylbenzene	0.0200	0.0181		mg/Kg		90	58 - 130
Vinyl chloride	0.0200	0.0183		mg/Kg		91	46 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	95		69 - 130
Dibromofluoromethane	103		63 - 139
Toluene-d8 (Surr)	99		67 - 138

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 640-117702/1-A**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.076	U	0.32	0.076	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Acenaphthylene	0.061	U	0.32	0.061	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Anthracene	0.058	U	0.32	0.058	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzidine	0.15	U	2.6	0.15	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzo[a]anthracene	0.062	U	0.32	0.062	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzo[a]pyrene	0.078	U	0.32	0.078	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzo[b]fluoranthene	0.069	U	0.32	0.069	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzo[g,h,i]perylene	0.043	U	0.32	0.043	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzoic acid	0.44	U	1.7	0.44	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzo[k]fluoranthene	0.069	U	0.32	0.069	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Benzyl alcohol	0.038	U	0.32	0.038	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Bis(2-chloroethoxy)methane	0.036	U	0.32	0.036	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Bis(2-chloroethyl)ether	0.056	U	0.32	0.056	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Bis(2-ethylhexyl) phthalate	0.093	U	0.32	0.093	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4-Bromophenyl phenyl ether	0.055	U	0.32	0.055	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Butyl benzyl phthalate	0.063	U	0.32	0.063	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4-Chloroaniline	0.061	U	0.64	0.061	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4-Chloro-3-methylphenol	0.079	U	0.32	0.079	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2-Chloronaphthalene	0.091	U	0.32	0.091	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2-Chlorophenol	0.073	U	0.32	0.073	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4-Chlorophenyl phenyl ether	0.078	U	0.32	0.078	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Chrysene	0.072	U	0.32	0.072	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Dibenz(a,h)anthracene	0.062	U	0.32	0.062	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Dibenzofuran	0.064	U	0.32	0.064	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
1,2-Dichlorobenzene	0.035	U	0.32	0.035	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
1,3-Dichlorobenzene	0.083	U	0.32	0.083	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
1,4-Dichlorobenzene	0.052	U	0.32	0.052	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
3,3'-Dichlorobenzidine	0.14	U	0.64	0.14	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,4-Dichlorophenol	0.092	U	0.32	0.092	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Diethyl phthalate	0.051	U	0.32	0.051	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,4-Dimethylphenol	0.070	U	0.32	0.070	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Dimethyl phthalate	0.068	U	0.32	0.068	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Di-n-butyl phthalate	0.070	U	0.32	0.070	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4,6-Dinitro-2-methylphenol	0.11	U	1.7	0.11	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,4-Dinitrophenol	0.097	U	1.7	0.097	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,4-Dinitrotoluene	0.035	U	0.32	0.035	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,6-Dinitrotoluene	0.094	U	0.32	0.094	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Di-n-octyl phthalate	0.075	U	0.32	0.075	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Fluoranthene	0.058	U	0.32	0.058	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Fluorene	0.087	U	0.32	0.087	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Hexachlorobenzene	0.11	U	0.32	0.11	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Hexachlorobutadiene	0.066	U	0.32	0.066	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Hexachlorocyclopentadiene	0.092	U	0.32	0.092	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Hexachloroethane	0.068	U	0.32	0.068	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Indeno[1,2,3-cd]pyrene	0.056	U	0.32	0.056	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Isophorone	0.062	U	0.32	0.062	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
1-Methylnaphthalene	0.080	U	0.32	0.080	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2-Methylnaphthalene	0.080	U	0.32	0.080	mg/Kg		07/06/15 12:45	07/07/15 18:09	1

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 640-117702/1-A**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Methylphenol	0.068	U	0.32	0.068	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
3 & 4 Methylphenol	0.096	U	0.32	0.096	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Naphthalene	0.064	U	0.32	0.064	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2-Nitroaniline	0.069	U	1.7	0.069	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
3-Nitroaniline	0.094	U	1.7	0.094	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4-Nitroaniline	0.062	U	1.7	0.062	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Nitrobenzene	0.049	U	0.32	0.049	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2-Nitrophenol	0.080	U	0.32	0.080	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
4-Nitrophenol	0.087	U	1.7	0.087	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
N-Nitrosodimethylamine	0.083	U	0.32	0.083	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
N-Nitrosodi-n-propylamine	0.034	U	0.32	0.034	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
N-Nitrosodiphenylamine	0.048	U	0.32	0.048	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,2'-oxybis[1-chloropropane]	0.079	U	0.32	0.079	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Pentachlorophenol	0.11	U	1.7	0.11	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Phenanthrene	0.050	U	0.32	0.050	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Phenol	0.063	U	0.32	0.063	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
Pyrene	0.052	U	0.32	0.052	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
1,2,4-Trichlorobenzene	0.061	U	0.32	0.061	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,4,5-Trichlorophenol	0.097	U	0.32	0.097	mg/Kg		07/06/15 12:45	07/07/15 18:09	1
2,4,6-Trichlorophenol	0.056	U	0.32	0.056	mg/Kg		07/06/15 12:45	07/07/15 18:09	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl	75		35 - 102	07/06/15 12:45	07/07/15 18:09	1
2-Fluorophenol	80		30 - 107	07/06/15 12:45	07/07/15 18:09	1
Nitrobenzene-d5	73		26 - 102	07/06/15 12:45	07/07/15 18:09	1
Phenol-d5	71		31 - 100	07/06/15 12:45	07/07/15 18:09	1
Terphenyl-d14	94		31 - 122	07/06/15 12:45	07/07/15 18:09	1
2,4,6-Tribromophenol	75		33 - 115	07/06/15 12:45	07/07/15 18:09	1

**Lab Sample ID: LCS 640-117702/2-A**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Acenaphthene	6.60	5.00		mg/Kg		76	58 - 101
Acenaphthylene	6.60	5.04		mg/Kg		76	57 - 110
Anthracene	6.60	6.13		mg/Kg		93	66 - 113
Benzidine	6.60	2.83		mg/Kg		43	10 - 111
Benzo[a]anthracene	6.60	6.20		mg/Kg		94	67 - 115
Benzo[a]pyrene	6.60	6.36		mg/Kg		96	64 - 113
Benzo[b]fluoranthene	6.60	6.21		mg/Kg		94	60 - 110
Benzo[g,h,i]perylene	6.60	6.10		mg/Kg		92	68 - 114
Benzoic acid	6.60	3.60		mg/Kg		55	10 - 100
Benzo[k]fluoranthene	6.60	6.20		mg/Kg		94	58 - 115
Benzyl alcohol	6.60	5.05		mg/Kg		77	27 - 114
Bis(2-chloroethoxy)methane	6.60	5.08		mg/Kg		77	52 - 101
Bis(2-chloroethyl)ether	6.60	4.40		mg/Kg		67	45 - 102
Bis(2-ethylhexyl) phthalate	6.60	6.37		mg/Kg		97	58 - 129

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 640-117702/2-A

Matrix: Solid

Analysis Batch: 117724

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 117702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Bromophenyl phenyl ether	6.60	5.37		mg/Kg		81	62 - 108
Butyl benzyl phthalate	6.60	6.23		mg/Kg		94	62 - 126
4-Chloroaniline	6.60	4.25		mg/Kg		64	6 - 100
4-Chloro-3-methylphenol	6.60	5.68		mg/Kg		86	56 - 101
2-Chloronaphthalene	6.60	5.00		mg/Kg		76	56 - 106
2-Chlorophenol	6.60	5.06		mg/Kg		77	53 - 100
4-Chlorophenyl phenyl ether	6.60	5.23		mg/Kg		79	58 - 104
Chrysene	6.60	6.45		mg/Kg		98	68 - 116
Dibenz(a,h)anthracene	6.60	6.27		mg/Kg		95	67 - 116
Dibenzofuran	6.60	5.15		mg/Kg		78	58 - 106
1,2-Dichlorobenzene	6.60	4.70		mg/Kg		71	51 - 100
1,3-Dichlorobenzene	6.60	4.58		mg/Kg		69	48 - 100
1,4-Dichlorobenzene	6.60	4.72		mg/Kg		71	50 - 100
3,3'-Dichlorobenzidine	6.60	4.96		mg/Kg		75	29 - 100
2,4-Dichlorophenol	6.60	5.65		mg/Kg		86	55 - 102
Diethyl phthalate	6.60	5.31		mg/Kg		80	58 - 113
2,4-Dimethylphenol	6.60	5.51		mg/Kg		84	46 - 100
Dimethyl phthalate	6.60	5.31		mg/Kg		81	58 - 111
Di-n-butyl phthalate	6.60	6.25		mg/Kg		95	61 - 122
4,6-Dinitro-2-methylphenol	13.2	12.3		mg/Kg		94	10 - 109
2,4-Dinitrophenol	13.2	8.14		mg/Kg		62	10 - 100
2,4-Dinitrotoluene	6.60	5.91		mg/Kg		90	59 - 113
2,6-Dinitrotoluene	6.60	5.57		mg/Kg		84	56 - 113
Di-n-octyl phthalate	6.60	6.50		mg/Kg		99	60 - 129
Fluoranthene	6.60	6.24		mg/Kg		95	63 - 110
Fluorene	6.60	5.01		mg/Kg		76	59 - 106
Hexachlorobenzene	6.60	6.27		mg/Kg		95	61 - 107
Hexachlorobutadiene	6.60	5.76		mg/Kg		87	46 - 100
Hexachlorocyclopentadiene	6.60	3.36		mg/Kg		51	35 - 107
Hexachloroethane	6.60	4.64		mg/Kg		70	48 - 100
Indeno[1,2,3-cd]pyrene	6.60	6.30		mg/Kg		95	69 - 116
Isophorone	6.60	5.38		mg/Kg		82	49 - 100
1-Methylnaphthalene	6.60	5.47		mg/Kg		83	56 - 100
2-Methylnaphthalene	6.60	5.46		mg/Kg		83	56 - 100
2-Methylphenol	6.60	4.99		mg/Kg		76	54 - 100
3 & 4 Methylphenol	6.60	5.13		mg/Kg		78	21 - 123
Naphthalene	6.60	5.31		mg/Kg		80	52 - 100
2-Nitroaniline	6.60	5.58		mg/Kg		85	55 - 119
3-Nitroaniline	6.60	4.85		mg/Kg		73	28 - 102
4-Nitroaniline	6.60	5.33		mg/Kg		81	42 - 118
Nitrobenzene	6.60	5.17		mg/Kg		78	48 - 100
2-Nitrophenol	6.60	5.37		mg/Kg		81	52 - 100
4-Nitrophenol	13.2	10.8		mg/Kg		82	38 - 113
N-Nitrosodimethylamine	6.60	4.01		mg/Kg		61	38 - 115
N-Nitrosodi-n-propylamine	6.60	4.84		mg/Kg		73	48 - 100
N-Nitrosodiphenylamine	13.2	10.2		mg/Kg		77	65 - 117
2,2'-oxybis[1-chloropropane]	6.60	4.14		mg/Kg		63	19 - 154
Pentachlorophenol	13.2	9.28		mg/Kg		70	10 - 110

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 640-117702/2-A**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenanthrene	6.60	5.89		mg/Kg		89	66 - 113
Phenol	6.60	4.89		mg/Kg		74	47 - 107
Pyrene	6.60	5.85		mg/Kg		89	69 - 132
1,2,4-Trichlorobenzene	6.60	5.38		mg/Kg		82	53 - 100
2,4,5-Trichlorophenol	6.60	5.44		mg/Kg		82	51 - 108
2,4,6-Trichlorophenol	6.60	5.50		mg/Kg		83	55 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	72		35 - 102
2-Fluorophenol	74		30 - 107
Nitrobenzene-d5	79		26 - 102
Phenol-d5	67		31 - 100
Terphenyl-d14	87		31 - 122
2,4,6-Tribromophenol	77		33 - 115

**Lab Sample ID: LCSD 640-117702/3-A**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	6.63	4.93		mg/Kg		74	58 - 101	1	24
Acenaphthylene	6.63	5.07		mg/Kg		77	57 - 110	1	25
Anthracene	6.63	6.22		mg/Kg		94	66 - 113	2	24
Benzidine	6.63	4.00		mg/Kg		60	10 - 111	34	71
Benzo[a]anthracene	6.63	6.27		mg/Kg		95	67 - 115	1	27
Benzo[a]pyrene	6.63	6.41		mg/Kg		97	64 - 113	1	26
Benzo[b]fluoranthene	6.63	6.25		mg/Kg		94	60 - 110	1	26
Benzo[g,h,i]perylene	6.63	6.33		mg/Kg		95	68 - 114	4	26
Benzoic acid	6.63	3.38		mg/Kg		51	10 - 100	6	50
Benzo[k]fluoranthene	6.63	6.22		mg/Kg		94	58 - 115	0	25
Benzyl alcohol	6.63	5.10		mg/Kg		77	27 - 114	1	28
Bis(2-chloroethoxy)methane	6.63	5.08		mg/Kg		77	52 - 101	0	23
Bis(2-chloroethyl)ether	6.63	4.60		mg/Kg		69	45 - 102	4	25
Bis(2-ethylhexyl) phthalate	6.63	6.45		mg/Kg		97	58 - 129	1	26
4-Bromophenyl phenyl ether	6.63	5.58		mg/Kg		84	62 - 108	4	26
Butyl benzyl phthalate	6.63	6.39		mg/Kg		96	62 - 126	3	28
4-Chloroaniline	6.63	4.67		mg/Kg		70	6 - 100	9	69
4-Chloro-3-methylphenol	6.63	5.54		mg/Kg		84	56 - 101	2	25
2-Chloronaphthalene	6.63	5.11		mg/Kg		77	56 - 106	2	23
2-Chlorophenol	6.63	5.00		mg/Kg		75	53 - 100	1	25
4-Chlorophenyl phenyl ether	6.63	5.44		mg/Kg		82	58 - 104	4	26
Chrysene	6.63	6.38		mg/Kg		96	68 - 116	1	26
Dibenz(a,h)anthracene	6.63	6.45		mg/Kg		97	67 - 116	3	27
Dibenzofuran	6.63	5.12		mg/Kg		77	58 - 106	1	25
1,2-Dichlorobenzene	6.63	4.40		mg/Kg		66	51 - 100	6	24
1,3-Dichlorobenzene	6.63	4.45		mg/Kg		67	48 - 100	3	23
1,4-Dichlorobenzene	6.63	4.46		mg/Kg		67	50 - 100	6	25
3,3'-Dichlorobenzidine	6.63	5.67		mg/Kg		86	29 - 100	13	50

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 640-117702/3-A

Matrix: Solid

Analysis Batch: 117724

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 117702

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
2,4-Dichlorophenol	6.63	5.55		mg/Kg		84	55 - 102	2	25	
Diethyl phthalate	6.63	5.44		mg/Kg		82	58 - 113	2	24	
2,4-Dimethylphenol	6.63	5.45		mg/Kg		82	46 - 100	1	26	
Dimethyl phthalate	6.63	5.50		mg/Kg		83	58 - 111	3	26	
Di-n-butyl phthalate	6.63	6.38		mg/Kg		96	61 - 122	2	26	
4,6-Dinitro-2-methylphenol	13.3	12.5		mg/Kg		94	10 - 109	1	44	
2,4-Dinitrophenol	13.3	8.11		mg/Kg		61	10 - 100	0	37	
2,4-Dinitrotoluene	6.63	5.82		mg/Kg		88	59 - 113	2	25	
2,6-Dinitrotoluene	6.63	5.68		mg/Kg		86	56 - 113	2	30	
Di-n-octyl phthalate	6.63	6.50		mg/Kg		98	60 - 129	0	29	
Fluoranthene	6.63	6.14		mg/Kg		93	63 - 110	2	25	
Fluorene	6.63	5.04		mg/Kg		76	59 - 106	1	26	
Hexachlorobenzene	6.63	6.60		mg/Kg		100	61 - 107	5	23	
Hexachlorobutadiene	6.63	5.49		mg/Kg		83	46 - 100	5	25	
Hexachlorocyclopentadiene	6.63	3.71		mg/Kg		56	35 - 107	10	27	
Hexachloroethane	6.63	4.42		mg/Kg		67	48 - 100	5	25	
Indeno[1,2,3-cd]pyrene	6.63	6.48		mg/Kg		98	69 - 116	3	29	
Isophorone	6.63	5.30		mg/Kg		80	49 - 100	1	23	
1-Methylnaphthalene	6.63	5.25		mg/Kg		79	56 - 100	4	26	
2-Methylnaphthalene	6.63	5.41		mg/Kg		82	56 - 100	1	25	
2-Methylphenol	6.63	4.89		mg/Kg		74	54 - 100	2	28	
3 & 4 Methylphenol	6.63	5.11		mg/Kg		77	21 - 123	0	29	
Naphthalene	6.63	5.18		mg/Kg		78	52 - 100	3	30	
2-Nitroaniline	6.63	5.66		mg/Kg		85	55 - 119	1	30	
3-Nitroaniline	6.63	5.03		mg/Kg		76	28 - 102	4	36	
4-Nitroaniline	6.63	5.24		mg/Kg		79	42 - 118	2	25	
Nitrobenzene	6.63	4.95		mg/Kg		75	48 - 100	4	27	
2-Nitrophenol	6.63	5.31		mg/Kg		80	52 - 100	1	27	
4-Nitrophenol	13.3	10.5		mg/Kg		79	38 - 113	2	30	
N-Nitrosodimethylamine	6.63	3.96		mg/Kg		60	38 - 115	1	35	
N-Nitrosodi-n-propylamine	6.63	4.77		mg/Kg		72	48 - 100	1	25	
N-Nitrosodiphenylamine	13.3	10.5		mg/Kg		79	65 - 117	3	26	
2,2'-oxybis[1-chloropropane]	6.63	4.10		mg/Kg		62	19 - 154	1	28	
Pentachlorophenol	13.3	9.60		mg/Kg		72	10 - 110	3	49	
Phenanthrene	6.63	6.09		mg/Kg		92	66 - 113	3	26	
Phenol	6.63	4.87		mg/Kg		73	47 - 107	0	28	
Pyrene	6.63	6.03		mg/Kg		91	69 - 132	3	28	
1,2,4-Trichlorobenzene	6.63	5.39		mg/Kg		81	53 - 100	0	24	
2,4,5-Trichlorophenol	6.63	5.56		mg/Kg		84	51 - 108	2	29	
2,4,6-Trichlorophenol	6.63	5.59		mg/Kg		84	55 - 106	2	29	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	71		35 - 102
2-Fluorophenol	71		30 - 107
Nitrobenzene-d5	78		26 - 102
Phenol-d5	66		31 - 100
Terphenyl-d14	88		31 - 122
2,4,6-Tribromophenol	78		33 - 115

TestAmerica Tampa



# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

Lab Sample ID: 660-67748-1 MS  
Matrix: Solid  
Analysis Batch: 117724

Client Sample ID: COURTENAY PKWY PIT  
Prep Type: Total/NA  
Prep Batch: 117702  
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Acenaphthene	0.083	U	6.93	5.67		mg/Kg	☼	82	49 - 102
Acenaphthylene	0.067	U	6.93	5.65		mg/Kg	☼	81	50 - 109
Anthracene	0.064	U	6.93	7.26		mg/Kg	☼	105	59 - 112
Benzidine	0.16	U	6.93	3.56		mg/Kg	☼	51	10 - 135
Benzo[a]anthracene	0.068	U	6.93	7.05		mg/Kg	☼	102	60 - 112
Benzo[a]pyrene	0.085	U J3	6.93	7.37	J3	mg/Kg	☼	106	57 - 105
Benzo[b]fluoranthene	0.076	U J3	6.93	7.33	J3	mg/Kg	☼	106	53 - 105
Benzo[g,h,i]perylene	0.047	U	6.93	6.94		mg/Kg	☼	100	52 - 113
Benzoic acid	0.48	U	6.93	2.64		mg/Kg	☼	38	10 - 103
Benzo[k]fluoranthene	0.076	U J3	6.93	7.43	J3	mg/Kg	☼	107	56 - 103
Benzyl alcohol	0.042	U	6.93	5.61		mg/Kg	☼	81	20 - 113
Bis(2-chloroethoxy)methane	0.039	U	6.93	5.61		mg/Kg	☼	81	38 - 102
Bis(2-chloroethyl)ether	0.061	U	6.93	4.79		mg/Kg	☼	69	36 - 100
Bis(2-ethylhexyl) phthalate	0.10	U	6.93	7.03		mg/Kg	☼	101	54 - 125
4-Bromophenyl phenyl ether	0.060	U	6.93	6.23		mg/Kg	☼	90	55 - 108
Butyl benzyl phthalate	0.069	U	6.93	6.75		mg/Kg	☼	97	58 - 121
4-Chloroaniline	0.067	U	6.93	4.98		mg/Kg	☼	72	10 - 100
4-Chloro-3-methylphenol	0.086	U	6.93	6.34		mg/Kg	☼	92	58 - 100
2-Chloronaphthalene	0.099	U	6.93	5.53		mg/Kg	☼	80	46 - 108
2-Chlorophenol	0.080	U	6.93	5.55		mg/Kg	☼	80	48 - 101
4-Chlorophenyl phenyl ether	0.085	U	6.93	5.94		mg/Kg	☼	86	54 - 103
Chrysene	0.079	U	6.93	7.21		mg/Kg	☼	104	60 - 114
Dibenz(a,h)anthracene	0.068	U	6.93	7.10		mg/Kg	☼	102	55 - 115
Dibenzofuran	0.070	U	6.93	5.76		mg/Kg	☼	83	52 - 105
1,2-Dichlorobenzene	0.038	U	6.93	4.95		mg/Kg	☼	71	40 - 100
1,3-Dichlorobenzene	0.091	U	6.93	4.84		mg/Kg	☼	70	40 - 100
1,4-Dichlorobenzene	0.056	U	6.93	4.85		mg/Kg	☼	70	40 - 100
3,3'-Dichlorobenzidine	0.15	U	6.93	6.30		mg/Kg	☼	91	10 - 142
2,4-Dichlorophenol	0.10	U	6.93	6.27		mg/Kg	☼	91	53 - 103
Diethyl phthalate	0.055	U	6.93	6.05		mg/Kg	☼	87	53 - 108
2,4-Dimethylphenol	0.077	U	6.93	6.06		mg/Kg	☼	87	46 - 100
Dimethyl phthalate	0.075	U	6.93	6.05		mg/Kg	☼	87	50 - 108
Di-n-butyl phthalate	0.077	U	6.93	7.37		mg/Kg	☼	106	54 - 117
4,6-Dinitro-2-methylphenol	0.12	U	13.9	11.5		mg/Kg	☼	83	10 - 121
2,4-Dinitrophenol	0.11	U	13.9	4.31		mg/Kg	☼	31	10 - 105
2,4-Dinitrotoluene	0.038	U	6.93	6.71		mg/Kg	☼	97	44 - 114
2,6-Dinitrotoluene	0.10	U	6.93	6.37		mg/Kg	☼	92	52 - 106
Di-n-octyl phthalate	0.082	U	6.93	7.24		mg/Kg	☼	104	57 - 127
Fluoranthene	0.064	U J3	6.93	7.71	J3	mg/Kg	☼	111	57 - 108
Fluorene	0.095	U	6.93	5.68		mg/Kg	☼	82	54 - 104
Hexachlorobenzene	0.12	U J3	6.93	7.31	J3	mg/Kg	☼	105	56 - 104
Hexachlorobutadiene	0.072	U	6.93	5.84		mg/Kg	☼	84	38 - 100
Hexachlorocyclopentadiene	0.10	U	6.93	2.49		mg/Kg	☼	36	10 - 108
Hexachloroethane	0.075	U	6.93	4.70		mg/Kg	☼	68	34 - 100
Indeno[1,2,3-cd]pyrene	0.062	U	6.93	7.09		mg/Kg	☼	102	53 - 117
Isophorone	0.068	U	6.93	5.95		mg/Kg	☼	86	39 - 100
1-Methylnaphthalene	0.087	U	6.93	5.94		mg/Kg	☼	86	47 - 100
2-Methylnaphthalene	0.087	U	6.93	6.07		mg/Kg	☼	88	46 - 100
2-Methylphenol	0.075	U	6.93	5.65		mg/Kg	☼	82	45 - 100
3 & 4 Methylphenol	0.11	U	6.93	5.67		mg/Kg	☼	82	12 - 125

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 660-67748-1 MS**

**Matrix: Solid**

**Analysis Batch: 117724**

**Client Sample ID: COURTENAY PKWY PIT**

**Prep Type: Total/NA**

**Prep Batch: 117702**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Naphthalene	0.070	U	6.93	5.77		mg/Kg	☼	83	43 - 100
2-Nitroaniline	0.076	U	6.93	6.55		mg/Kg	☼	95	52 - 113
3-Nitroaniline	0.10	U	6.93	5.24		mg/Kg	☼	76	25 - 100
4-Nitroaniline	0.068	U	6.93	5.82		mg/Kg	☼	84	22 - 122
Nitrobenzene	0.053	U	6.93	5.59		mg/Kg	☼	81	38 - 100
2-Nitrophenol	0.087	U	6.93	5.82		mg/Kg	☼	84	39 - 104
4-Nitrophenol	0.095	U	13.9	13.0		mg/Kg	☼	94	50 - 110
N-Nitrosodimethylamine	0.091	U	6.93	4.52		mg/Kg	☼	65	19 - 115
N-Nitrosodi-n-propylamine	0.037	U	6.93	5.25		mg/Kg	☼	76	40 - 100
N-Nitrosodiphenylamine	0.052	U	13.9	12.0		mg/Kg	☼	86	55 - 117
2,2'-oxybis[1-chloropropane]	0.086	U	6.93	4.48		mg/Kg	☼	65	11 - 153
Pentachlorophenol	0.12	U	13.9	11.0		mg/Kg	☼	79	32 - 108
Phenanthrene	0.054	U	6.93	7.15		mg/Kg	☼	103	57 - 113
Phenol	0.069	U	6.93	5.52		mg/Kg	☼	80	37 - 105
Pyrene	0.056	U	6.93	6.50		mg/Kg	☼	94	55 - 133
1,2,4-Trichlorobenzene	0.067	U	6.93	5.92		mg/Kg	☼	85	40 - 100
2,4,5-Trichlorophenol	0.11	U	6.93	6.16		mg/Kg	☼	89	55 - 110
2,4,6-Trichlorophenol	0.061	U	6.93	5.99		mg/Kg	☼	86	54 - 108

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	73		35 - 102
2-Fluorophenol	78		30 - 107
Nitrobenzene-d5	84		26 - 102
Phenol-d5	70		31 - 100
Terphenyl-d14	90		31 - 122
2,4,6-Tribromophenol	86		33 - 115

**Lab Sample ID: 660-67748-1 MSD**

**Matrix: Solid**

**Analysis Batch: 117724**

**Client Sample ID: COURTENAY PKWY PIT**

**Prep Type: Total/NA**

**Prep Batch: 117702**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Acenaphthene	0.083	U	6.99	5.39		mg/Kg	☼	77	49 - 102	5	24
Acenaphthylene	0.067	U	6.99	5.39		mg/Kg	☼	77	50 - 109	5	22
Anthracene	0.064	U	6.99	6.75		mg/Kg	☼	97	59 - 112	7	19
Benzidine	0.16	U	6.99	4.67		mg/Kg	☼	67	10 - 135	27	100
Benzo[a]anthracene	0.068	U	6.99	6.89		mg/Kg	☼	99	60 - 112	2	22
Benzo[a]pyrene	0.085	U J3	6.99	7.01		mg/Kg	☼	100	57 - 105	5	20
Benzo[b]fluoranthene	0.076	U J3	6.99	6.82		mg/Kg	☼	98	53 - 105	7	24
Benzo[g,h,i]perylene	0.047	U	6.99	7.05		mg/Kg	☼	101	52 - 113	2	26
Benzoic acid	0.48	U	6.99	1.46	I	mg/Kg	☼	21	10 - 103	57	78
Benzo[k]fluoranthene	0.076	U J3	6.99	6.78		mg/Kg	☼	97	56 - 103	9	23
Benzyl alcohol	0.042	U	6.99	5.42		mg/Kg	☼	78	20 - 113	3	39
Bis(2-chloroethoxy)methane	0.039	U	6.99	5.40		mg/Kg	☼	77	38 - 102	4	40
Bis(2-chloroethyl)ether	0.061	U	6.99	4.87		mg/Kg	☼	70	36 - 100	2	32
Bis(2-ethylhexyl) phthalate	0.10	U	6.99	7.30		mg/Kg	☼	104	54 - 125	4	26
4-Bromophenyl phenyl ether	0.060	U	6.99	6.01		mg/Kg	☼	86	55 - 108	4	30
Butyl benzyl phthalate	0.069	U	6.99	7.14		mg/Kg	☼	102	58 - 121	6	24

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 660-67748-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: COURTENAY PKWY PIT**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
4-Chloroaniline	0.067	U	6.99	4.99		mg/Kg	☼	71	10 - 100	0	63
4-Chloro-3-methylphenol	0.086	U	6.99	5.91		mg/Kg	☼	84	58 - 100	7	20
2-Chloronaphthalene	0.099	U	6.99	5.27		mg/Kg	☼	75	46 - 108	5	26
2-Chlorophenol	0.080	U	6.99	5.38		mg/Kg	☼	77	48 - 101	3	37
4-Chlorophenyl phenyl ether	0.085	U	6.99	5.67		mg/Kg	☼	81	54 - 103	5	25
Chrysene	0.079	U	6.99	7.00		mg/Kg	☼	100	60 - 114	3	23
Dibenz(a,h)anthracene	0.068	U	6.99	7.22		mg/Kg	☼	103	55 - 115	2	29
Dibenzofuran	0.070	U	6.99	5.51		mg/Kg	☼	79	52 - 105	4	21
1,2-Dichlorobenzene	0.038	U	6.99	4.84		mg/Kg	☼	69	40 - 100	2	35
1,3-Dichlorobenzene	0.091	U	6.99	4.66		mg/Kg	☼	67	40 - 100	4	32
1,4-Dichlorobenzene	0.056	U	6.99	4.79		mg/Kg	☼	68	40 - 100	1	35
3,3'-Dichlorobenzidine	0.15	U	6.99	6.26		mg/Kg	☼	89	10 - 142	1	29
2,4-Dichlorophenol	0.10	U	6.99	5.81		mg/Kg	☼	83	53 - 103	8	33
Diethyl phthalate	0.055	U	6.99	5.91		mg/Kg	☼	85	53 - 108	2	25
2,4-Dimethylphenol	0.077	U	6.99	5.79		mg/Kg	☼	83	46 - 100	5	29
Dimethyl phthalate	0.075	U	6.99	5.89		mg/Kg	☼	84	50 - 108	3	23
Di-n-butyl phthalate	0.077	U	6.99	7.07		mg/Kg	☼	101	54 - 117	4	22
4,6-Dinitro-2-methylphenol	0.12	U	14.0	9.43		mg/Kg	☼	67	10 - 121	20	48
2,4-Dinitrophenol	0.11	U	14.0	2.97		mg/Kg	☼	21	10 - 105	37	74
2,4-Dinitrotoluene	0.038	U	6.99	6.18		mg/Kg	☼	88	44 - 114	8	26
2,6-Dinitrotoluene	0.10	U	6.99	6.14		mg/Kg	☼	88	52 - 106	4	30
Di-n-octyl phthalate	0.082	U	6.99	7.12		mg/Kg	☼	102	57 - 127	2	24
Fluoranthene	0.064	U J3	6.99	6.66		mg/Kg	☼	95	57 - 108	15	22
Fluorene	0.095	U	6.99	5.48		mg/Kg	☼	78	54 - 104	4	26
Hexachlorobenzene	0.12	U J3	6.99	7.07		mg/Kg	☼	101	56 - 104	3	24
Hexachlorobutadiene	0.072	U	6.99	5.78		mg/Kg	☼	83	38 - 100	1	25
Hexachlorocyclopentadiene	0.10	U	6.99	2.78		mg/Kg	☼	40	10 - 108	11	34
Hexachloroethane	0.075	U	6.99	4.70		mg/Kg	☼	67	34 - 100	0	53
Indeno[1,2,3-cd]pyrene	0.062	U	6.99	7.18		mg/Kg	☼	103	53 - 117	1	25
Isophorone	0.068	U	6.99	5.64		mg/Kg	☼	81	39 - 100	5	26
1-Methylnaphthalene	0.087	U	6.99	5.65		mg/Kg	☼	81	47 - 100	5	24
2-Methylnaphthalene	0.087	U	6.99	5.72		mg/Kg	☼	82	46 - 100	6	23
2-Methylphenol	0.075	U	6.99	5.36		mg/Kg	☼	77	45 - 100	5	33
3 & 4 Methylphenol	0.11	U	6.99	5.42		mg/Kg	☼	78	12 - 125	5	30
Naphthalene	0.070	U	6.99	5.55		mg/Kg	☼	79	43 - 100	4	25
2-Nitroaniline	0.076	U	6.99	6.03		mg/Kg	☼	86	52 - 113	8	21
3-Nitroaniline	0.10	U	6.99	5.29		mg/Kg	☼	76	25 - 100	1	42
4-Nitroaniline	0.068	U	6.99	5.40		mg/Kg	☼	77	22 - 122	7	37
Nitrobenzene	0.053	U	6.99	5.26		mg/Kg	☼	75	38 - 100	6	31
2-Nitrophenol	0.087	U	6.99	5.72		mg/Kg	☼	82	39 - 104	2	30
4-Nitrophenol	0.095	U	14.0	11.3		mg/Kg	☼	81	50 - 110	14	28
N-Nitrosodimethylamine	0.091	U	6.99	4.30		mg/Kg	☼	61	19 - 115	5	73
N-Nitrosodi-n-propylamine	0.037	U	6.99	5.21		mg/Kg	☼	75	40 - 100	1	29
N-Nitrosodiphenylamine	0.052	U	14.0	11.3		mg/Kg	☼	81	55 - 117	5	20
2,2'-oxybis[1-chloropropane]	0.086	U	6.99	4.53		mg/Kg	☼	65	11 - 153	1	39
Pentachlorophenol	0.12	U	14.0	8.92		mg/Kg	☼	64	32 - 108	21	39
Phenanthrene	0.054	U	6.99	6.57		mg/Kg	☼	94	57 - 113	8	25
Phenol	0.069	U	6.99	5.28		mg/Kg	☼	76	37 - 105	4	37

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 660-67748-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 117724**

**Client Sample ID: COURTENAY PKWY PIT**  
**Prep Type: Total/NA**  
**Prep Batch: 117702**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Pyrene	0.056	U	6.99	6.73		mg/Kg	☼	96	55 - 133	3	23
1,2,4-Trichlorobenzene	0.067	U	6.99	5.67		mg/Kg	☼	81	40 - 100	4	34
2,4,5-Trichlorophenol	0.11	U	6.99	5.74		mg/Kg	☼	82	55 - 110	7	24
2,4,6-Trichlorophenol	0.061	U	6.99	5.89		mg/Kg	☼	84	54 - 108	2	28
<b>MSD MSD</b>											
Surrogate	%Recovery	Qualifier	Limits								
2-Fluorobiphenyl	71		35 - 102								
2-Fluorophenol	73		30 - 107								
Nitrobenzene-d5	77		26 - 102								
Phenol-d5	67		31 - 100								
Terphenyl-d14	95		31 - 122								
2,4,6-Tribromophenol	79		33 - 115								

## Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

**Lab Sample ID: MB 640-117711/1-A**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aldrin	0.00039	U	0.0017	0.00039	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
alpha-BHC	0.00041	U	0.0017	0.00041	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
alpha-Chlordane	0.00035	U	0.0017	0.00035	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
beta-BHC	0.00037	U	0.0017	0.00037	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
4,4'-DDD	0.00025	U	0.0033	0.00025	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
4,4'-DDE	0.00038	U	0.0033	0.00038	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
4,4'-DDT	0.00043	U	0.0033	0.00043	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
delta-BHC	0.00046	U	0.0017	0.00046	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Dieldrin	0.00031	U	0.0033	0.00031	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Endosulfan I	0.00043	U	0.0017	0.00043	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Endosulfan II	0.00027	U	0.0033	0.00027	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Endosulfan sulfate	0.00071	U	0.0033	0.00071	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Endrin	0.00041	U	0.0033	0.00041	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Endrin aldehyde	0.00035	U	0.0033	0.00035	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Endrin ketone	0.00059	U	0.0033	0.00059	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
gamma-BHC (Lindane)	0.00031	U	0.0017	0.00031	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
gamma-Chlordane	0.00031	U	0.0017	0.00031	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Heptachlor	0.00035	U	0.0017	0.00035	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Heptachlor epoxide	0.00039	U	0.0017	0.00039	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Methoxychlor	0.00036	U	0.017	0.00036	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Chlordane (technical)	0.0047	U	0.017	0.0047	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
PCB-1016	0.0057	U	0.033	0.0057	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
PCB-1221	0.017	U	0.067	0.017	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
PCB-1232	0.010	U	0.033	0.010	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
PCB-1242	0.0083	U	0.033	0.0083	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
PCB-1248	0.011	U	0.033	0.011	mg/Kg		07/06/15 14:28	07/07/15 19:01	1

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

**Lab Sample ID: MB 640-117711/1-A**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	0.0092	U	0.033	0.0092	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
PCB-1260	0.0047	U	0.033	0.0047	mg/Kg		07/06/15 14:28	07/07/15 19:01	1
Toxaphene	0.033	U	0.17	0.033	mg/Kg		07/06/15 14:28	07/07/15 19:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	97		30 - 138	07/06/15 14:28	07/07/15 19:01	1
Dibutylchlorodate	98		30 - 130	07/06/15 14:28	07/07/15 19:01	1
Tetrachloro-m-xylene	43		30 - 129	07/06/15 14:28	07/07/15 19:01	1

**Lab Sample ID: LCS 640-117711/2-A**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aldrin	0.00663	0.00393		mg/Kg		59	33 - 122
alpha-BHC	0.00663	0.00393		mg/Kg		59	24 - 122
alpha-Chlordane	0.00663	0.00385		mg/Kg		58	38 - 126
beta-BHC	0.00663	0.00506		mg/Kg		76	38 - 127
4,4'-DDD	0.00663	0.00458		mg/Kg		69	49 - 119
4,4'-DDE	0.00663	0.00405		mg/Kg		61	44 - 120
4,4'-DDT	0.00663	0.00526		mg/Kg		79	46 - 133
delta-BHC	0.00663	0.00413		mg/Kg		62	34 - 124
Dieldrin	0.00663	0.00463		mg/Kg		70	39 - 129
Endosulfan I	0.00663	0.00389		mg/Kg		59	34 - 120
Endosulfan II	0.00663	0.00490		mg/Kg		74	51 - 118
Endosulfan sulfate	0.00663	0.00555		mg/Kg		84	49 - 135
Endrin	0.00663	0.00415		mg/Kg		63	42 - 127
Endrin aldehyde	0.00663	0.00528		mg/Kg		80	35 - 125
Endrin ketone	0.00663	0.00544		mg/Kg		82	52 - 130
gamma-BHC (Lindane)	0.00663	0.00414		mg/Kg		62	22 - 126
gamma-Chlordane	0.00663	0.00408		mg/Kg		61	36 - 125
Heptachlor	0.00663	0.00433		mg/Kg		65	26 - 132
Heptachlor epoxide	0.00663	0.00417		mg/Kg		63	31 - 130
Methoxychlor	0.00663	0.00610	I	mg/Kg		92	51 - 141

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	83		30 - 138
Dibutylchlorodate	82		30 - 130
Tetrachloro-m-xylene	64		30 - 129

**Lab Sample ID: LCS 640-117711/6-A**  
**Matrix: Solid**  
**Analysis Batch: 117734**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.167	0.0866		mg/Kg		52	25 - 139

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

**Lab Sample ID: LCS 640-117711/6-A**  
**Matrix: Solid**  
**Analysis Batch: 117734**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1260	0.167	0.0978		mg/Kg		59	50 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	65		30 - 138
Dibutylchloroendate	61		30 - 130
Tetrachloro-m-xylene	55		30 - 129

**Lab Sample ID: LCSD 640-117711/3-A**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Aldrin	0.00667	0.00411		mg/Kg		62	33 - 122	4	50
alpha-BHC	0.00667	0.00386		mg/Kg		58	24 - 122	2	43
alpha-Chlordane	0.00667	0.00481		mg/Kg		72	38 - 126	17	41
beta-BHC	0.00667	0.00609		mg/Kg		91	38 - 127	19	42
4,4'-DDD	0.00667	0.00525		mg/Kg		79	49 - 119	14	44
4,4'-DDE	0.00667	0.00543		mg/Kg		81	44 - 120	29	36
4,4'-DDT	0.00667	0.00619		mg/Kg		93	46 - 133	16	38
delta-BHC	0.00667	0.00482		mg/Kg		72	34 - 124	15	50
Dieldrin	0.00667	0.00543		mg/Kg		82	39 - 129	16	50
Endosulfan I	0.00667	0.00484		mg/Kg		73	34 - 120	22	40
Endosulfan II	0.00667	0.00545		mg/Kg		82	51 - 118	11	34
Endosulfan sulfate	0.00667	0.00599		mg/Kg		90	49 - 135	8	40
Endrin	0.00667	0.00522		mg/Kg		78	42 - 127	23	36
Endrin aldehyde	0.00667	0.00589		mg/Kg		88	35 - 125	11	40
Endrin ketone	0.00667	0.00593		mg/Kg		89	52 - 130	9	33
gamma-BHC (Lindane)	0.00667	0.00433		mg/Kg		65	22 - 126	4	50
gamma-Chlordane	0.00667	0.00473		mg/Kg		71	36 - 125	15	42
Heptachlor	0.00667	0.00441		mg/Kg		66	26 - 132	2	50
Heptachlor epoxide	0.00667	0.00482		mg/Kg		72	31 - 130	14	47
Methoxychlor	0.00667	0.00676	I	mg/Kg		101	51 - 141	10	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	88		30 - 138
Dibutylchloroendate	90		30 - 130
Tetrachloro-m-xylene	62		30 - 129

**Lab Sample ID: LCSD 640-117711/7-A**  
**Matrix: Solid**  
**Analysis Batch: 117734**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	0.167	0.0847		mg/Kg		51	25 - 139	2	50
PCB-1260	0.167	0.0947		mg/Kg		57	50 - 130	3	50

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

**Lab Sample ID: LCSD 640-117711/7-A**  
**Matrix: Solid**  
**Analysis Batch: 117734**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	62		30 - 138
Dibutylchloredate	60		30 - 130
Tetrachloro-m-xylene	40		30 - 129

**Lab Sample ID: 640-51504-A-5-A MS**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Aldrin	0.00040	U	0.00692	0.00323		mg/Kg	☼	47	21 - 130
alpha-BHC	0.00042	U	0.00692	0.00308		mg/Kg	☼	45	32 - 130
alpha-Chlordane	0.00036	U	0.00692	0.00476		mg/Kg	☼	69	48 - 130
beta-BHC	0.00038	U	0.00692	0.00597		mg/Kg	☼	86	45 - 138
4,4'-DDD	0.00026	U	0.00692	0.00709		mg/Kg	☼	102	45 - 130
4,4'-DDE	0.00039	U	0.00692	0.00544		mg/Kg	☼	79	48 - 130
4,4'-DDT	0.00044	U	0.00692	0.00702		mg/Kg	☼	101	30 - 130
delta-BHC	0.00048	U	0.00692	0.00512		mg/Kg	☼	74	43 - 130
Dieldrin	0.00032	U	0.00692	0.00506		mg/Kg	☼	73	30 - 130
Endosulfan I	0.00044	U	0.00692	0.00471		mg/Kg	☼	68	42 - 130
Endosulfan II	0.00028	U	0.00692	0.00555		mg/Kg	☼	80	46 - 130
Endosulfan sulfate	0.00073	U	0.00692	0.00718		mg/Kg	☼	104	43 - 130
Endrin	0.00042	U	0.00692	0.00523		mg/Kg	☼	76	36 - 130
Endrin aldehyde	0.00036	U	0.00692	0.00571		mg/Kg	☼	83	34 - 130
Endrin ketone	0.00061	U	0.00692	0.00590		mg/Kg	☼	85	40 - 130
gamma-BHC (Lindane)	0.00032	U	0.00692	0.00358		mg/Kg	☼	52	21 - 130
gamma-Chlordane	0.00032	U	0.00692	0.00480		mg/Kg	☼	69	45 - 130
Heptachlor	0.00036	U	0.00692	0.00359		mg/Kg	☼	52	22 - 130
Heptachlor epoxide	0.00040	U	0.00692	0.00455		mg/Kg	☼	66	42 - 130
Methoxychlor	0.00037	U J3	0.00692	0.00699	I	mg/Kg	☼	101	25 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	82		30 - 138
Dibutylchloredate	85		30 - 130
Tetrachloro-m-xylene	42		30 - 129

**Lab Sample ID: 640-51504-A-5-B MSD**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Aldrin	0.00040	U	0.00694	0.00400		mg/Kg	☼	58	21 - 130	21	50
alpha-BHC	0.00042	U	0.00694	0.00405		mg/Kg	☼	58	32 - 130	27	50
alpha-Chlordane	0.00036	U	0.00694	0.00522		mg/Kg	☼	75	48 - 130	9	50
beta-BHC	0.00038	U	0.00694	0.00629		mg/Kg	☼	91	45 - 138	5	50
4,4'-DDD	0.00026	U	0.00694	0.00801		mg/Kg	☼	115	45 - 130	12	50
4,4'-DDE	0.00039	U	0.00694	0.00563		mg/Kg	☼	81	48 - 130	3	50

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

**Lab Sample ID: 640-51504-A-5-B MSD**  
**Matrix: Solid**  
**Analysis Batch: 117729**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
4,4'-DDT	0.00044	U	0.00694	0.00689		mg/Kg	☼	99	30 - 130	3	50	
delta-BHC	0.00048	U	0.00694	0.00577		mg/Kg	☼	83	43 - 130	12	50	
Dieldrin	0.00032	U	0.00694	0.00550		mg/Kg	☼	79	30 - 130	8	50	
Endosulfan I	0.00044	U	0.00694	0.00522		mg/Kg	☼	75	42 - 130	10	50	
Endosulfan II	0.00028	U	0.00694	0.00590		mg/Kg	☼	85	46 - 130	6	50	
Endosulfan sulfate	0.00073	U	0.00694	0.00678		mg/Kg	☼	98	43 - 130	6	50	
Endrin	0.00042	U	0.00694	0.00559		mg/Kg	☼	81	36 - 130	7	50	
Endrin aldehyde	0.00036	U	0.00694	0.00618		mg/Kg	☼	89	34 - 130	8	50	
Endrin ketone	0.00061	U	0.00694	0.00628		mg/Kg	☼	90	40 - 130	6	50	
gamma-BHC (Lindane)	0.00032	U	0.00694	0.00436		mg/Kg	☼	63	21 - 130	20	50	
gamma-Chlordane	0.00032	U	0.00694	0.00531		mg/Kg	☼	77	45 - 130	10	50	
Heptachlor	0.00036	U	0.00694	0.00448		mg/Kg	☼	64	22 - 130	22	50	
Heptachlor epoxide	0.00040	U	0.00694	0.00512		mg/Kg	☼	74	42 - 130	12	50	
Methoxychlor	0.00037	U	0.00694	0.00739	I	mg/Kg	☼	107	25 - 130	29	50	

Surrogate	MSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	87		30 - 138
Dibutylchloroendate	91		30 - 130
Tetrachloro-m-xylene	53		30 - 129

**Lab Sample ID: 660-67748-1 MS**  
**Matrix: Solid**  
**Analysis Batch: 117734**

**Client Sample ID: COURTENAY PKWY PIT**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
PCB-1016	0.0061	U	0.177	0.100		mg/Kg	☼	57	25 - 139			
PCB-1260	0.0050	U	0.177	0.111		mg/Kg	☼	62	50 - 130			

Surrogate	MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	65		30 - 138
Dibutylchloroendate	61		30 - 130
Tetrachloro-m-xylene	37		30 - 129

**Lab Sample ID: 660-67748-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 117734**

**Client Sample ID: COURTENAY PKWY PIT**  
**Prep Type: Total/NA**  
**Prep Batch: 117711**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
PCB-1016	0.0061	U	0.177	0.0952		mg/Kg	☼	54	25 - 139	5	50	
PCB-1260	0.0050	U	0.177	0.102		mg/Kg	☼	58	50 - 130	8	50	

Surrogate	MSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	58		30 - 138
Dibutylchloroendate	56		30 - 130
Tetrachloro-m-xylene	36		30 - 129

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# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique

**Lab Sample ID: MB 640-117740/1-A**  
**Matrix: Solid**  
**Analysis Batch: 117797**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 117740**

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bolstar	0.0047	U	0.033	0.0047	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Chlorpyrifos	0.0068	U	0.033	0.0068	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Coumaphos	0.022	U	0.33	0.022	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Demeton, Total	0.0077	U	0.083	0.0077	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Diazinon	0.0057	U	0.033	0.0057	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Dichlorvos	0.0064	U	0.066	0.0064	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Dimethoate	0.0088	U	0.066	0.0088	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Disulfoton	0.016	U	0.066	0.016	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
EPN	0.0045	U	0.033	0.0045	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Ethyl Parathion	0.0055	U	0.033	0.0055	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Fensulfothion	0.012	U	0.33	0.012	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Guthion	0.015	U	0.066	0.015	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Malathion	0.0082	U	0.033	0.0082	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Merphos	0.011	U	0.033	0.011	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Methyl parathion	0.0054	U	0.017	0.0054	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Mevinphos	0.0046	U	0.066	0.0046	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Mocap	0.0042	U	0.017	0.0042	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Monochrotophos	0.046	U	0.33	0.046	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Naled	0.022	U	0.33	0.022	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Phorate	0.0054	U	0.033	0.0054	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Ronnel	0.0042	U	0.033	0.0042	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Sulfotepp	0.0086	U	0.017	0.0086	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Tokuthion	0.0054	U	0.033	0.0054	mg/Kg		07/07/15 14:29	07/10/15 15:00	1
Trichloronate	0.0076	U	0.33	0.0076	mg/Kg		07/07/15 14:29	07/10/15 15:00	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Triphenylphosphate (TPP)	82		35 - 134	07/07/15 14:29	07/10/15 15:00	1

**Lab Sample ID: LCS 640-117740/2-A**  
**Matrix: Solid**  
**Analysis Batch: 117797**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117740**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Bolstar	0.165	0.136		mg/Kg		83	55 - 141
Chlorpyrifos	0.165	0.136		mg/Kg		83	40 - 132
Coumaphos	0.165	0.137	I	mg/Kg		83	47 - 160
Demeton, Total	0.330	0.229		mg/Kg		69	31 - 118
Diazinon	0.165	0.0887		mg/Kg		54	36 - 113
Dichlorvos	0.165	0.0894		mg/Kg		54	10 - 154
EPN	0.165	0.186		mg/Kg		113	68 - 159
Ethyl Parathion	0.165	0.154		mg/Kg		93	53 - 126
Fensulfothion	0.165	0.161	I	mg/Kg		98	33 - 168
Guthion	0.165	0.158		mg/Kg		96	52 - 122
Malathion	0.165	0.147		mg/Kg		89	45 - 125
Methyl parathion	0.165	0.140		mg/Kg		85	44 - 126
Mevinphos	0.165	0.111		mg/Kg		67	10 - 156

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# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique (Continued)

**Lab Sample ID: LCS 640-117740/2-A**  
**Matrix: Solid**  
**Analysis Batch: 117797**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 117740**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mocap	0.165	0.110		mg/Kg		66	23 - 134
Monochrotophos	0.660	0.296	I	mg/Kg		45	15 - 167
Naled	0.660	0.574		mg/Kg		87	13 - 102
Phorate	0.165	0.107		mg/Kg		65	17 - 142
Ronnel	0.165	0.0907		mg/Kg		55	36 - 134
Tokuthion	0.165	0.141		mg/Kg		85	48 - 142
Trichloronate	0.165	0.127	I	mg/Kg		77	42 - 141

Surrogate	%Recovery	LCS Qualifier	Limits
Triphenylphosphate (TPP)	87		35 - 134

**Lab Sample ID: LCSD 640-117740/3-A**  
**Matrix: Solid**  
**Analysis Batch: 117797**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 117740**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Bolstar	0.166	0.147		mg/Kg		89	55 - 141	8	30
Chlorpyrifos	0.166	0.146		mg/Kg		88	40 - 132	7	30
Coumaphos	0.166	0.154	I	mg/Kg		93	47 - 160	11	30
Demeton, Total	0.332	0.271		mg/Kg		82	31 - 118	16	41
Diazinon	0.166	0.0884		mg/Kg		53	36 - 113	0	38
Dichlorvos	0.166	0.101		mg/Kg		61	10 - 154	12	51
EPN	0.166	0.213		mg/Kg		128	68 - 159	13	30
Ethyl Parathion	0.166	0.164		mg/Kg		99	53 - 126	6	30
Fensulfothion	0.166	0.197	I	mg/Kg		119	33 - 168	20	30
Guthion	0.166	0.179		mg/Kg		108	52 - 122	12	30
Malathion	0.166	0.157		mg/Kg		95	45 - 125	4	30
Methyl parathion	0.166	0.151		mg/Kg		91	44 - 126	10	30
Mevinphos	0.166	0.138		mg/Kg		83	10 - 156	22	50
Mocap	0.166	0.126		mg/Kg		76	23 - 134	14	45
Monochrotophos	0.664	1.05	J3	mg/Kg		157	15 - 167	112	60
Naled	0.664	0.681	J3	mg/Kg		103	13 - 102	19	53
Phorate	0.166	0.125		mg/Kg		76	17 - 142	16	46
Ronnel	0.166	0.159		mg/Kg		96	36 - 134	26	35
Tokuthion	0.166	0.148		mg/Kg		89	48 - 142	5	30
Trichloronate	0.166	0.135	I	mg/Kg		81	42 - 141	6	30

Surrogate	%Recovery	LCSD Qualifier	Limits
Triphenylphosphate (TPP)	96		35 - 134

**Lab Sample ID: 660-67748-1 MS**  
**Matrix: Solid**  
**Analysis Batch: 117797**

**Client Sample ID: COURTENAY PKWY PIT**  
**Prep Type: Total/NA**  
**Prep Batch: 117740**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Bolstar	0.0050	U	0.175	0.147		mg/Kg	☼	84	37 - 130

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique (Continued)

Lab Sample ID: 660-67748-1 MS

Matrix: Solid  
Analysis Batch: 117797

Client Sample ID: COURTENAY PKWY PIT

Prep Type: Total/NA  
Prep Batch: 117740

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Chlorpyrifos	0.0072	U	0.175	0.110		mg/Kg	☼	63	26 - 127
Coumaphos	0.023	U	0.175	0.157	I	mg/Kg	☼	90	28 - 139
Demeton, Total	0.0082	U	0.349	0.155		mg/Kg	☼	44	10 - 124
Diazinon	0.0060	U	0.175	0.0581		mg/Kg	☼	33	18 - 121
Dichlorvos	0.0068	U	0.175	0.0655	I	mg/Kg	☼	38	10 - 139
EPN	0.0048	U	0.175	0.215		mg/Kg	☼	123	39 - 146
Ethyl Parathion	0.0058	U	0.175	0.126		mg/Kg	☼	72	42 - 124
Fensulfothion	0.013	U	0.175	0.187	I	mg/Kg	☼	107	10 - 150
Guthion	0.016	U	0.175	0.145		mg/Kg	☼	83	28 - 106
Malathion	0.0087	U J3	0.175	0.0997		mg/Kg	☼	57	30 - 119
Methyl parathion	0.0057	U	0.175	0.116		mg/Kg	☼	67	32 - 119
Mevinphos	0.0049	U	0.175	0.0488	I	mg/Kg	☼	28	10 - 129
Mocap	0.0045	U	0.175	0.0823		mg/Kg	☼	47	10 - 130
Monochrotophos	0.049	U J3	0.698	0.048	J3 U	mg/Kg	☼	0	10 - 128
Naled	0.023	U J3	0.698	0.347	I	mg/Kg	☼	50	10 - 121
Phorate	0.0057	U	0.175	0.0750		mg/Kg	☼	43	10 - 150
Ronnel	0.0045	U	0.175	0.0645		mg/Kg	☼	37	18 - 128
Tokuthion	0.0057	U	0.175	0.134		mg/Kg	☼	77	39 - 135
Trichloronate	0.0081	U	0.175	0.0988	I	mg/Kg	☼	57	37 - 132

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Triphenylphosphate (TPP)	85		35 - 134

Lab Sample ID: 660-67748-1 MSD

Matrix: Solid  
Analysis Batch: 117797

Client Sample ID: COURTENAY PKWY PIT

Prep Type: Total/NA  
Prep Batch: 117740

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
Bolstar	0.0050	U	0.176	0.172		mg/Kg	☼	97	37 - 130	16	30
Chlorpyrifos	0.0072	U	0.176	0.138		mg/Kg	☼	78	26 - 127	23	40
Coumaphos	0.023	U	0.176	0.184	I	mg/Kg	☼	104	28 - 139	15	36
Demeton, Total	0.0082	U	0.353	0.211		mg/Kg	☼	60	10 - 124	30	54
Diazinon	0.0060	U	0.176	0.0803		mg/Kg	☼	46	18 - 121	32	60
Dichlorvos	0.0068	U	0.176	0.0819		mg/Kg	☼	46	10 - 139	22	60
EPN	0.0048	U	0.176	0.248		mg/Kg	☼	140	39 - 146	14	30
Ethyl Parathion	0.0058	U	0.176	0.154		mg/Kg	☼	87	42 - 124	21	40
Fensulfothion	0.013	U	0.176	0.227	I	mg/Kg	☼	129	10 - 150	19	60
Guthion	0.016	U	0.176	0.171		mg/Kg	☼	97	28 - 106	17	40
Malathion	0.0087	U	0.176	0.153		mg/Kg	☼	87	30 - 119	27	32
Methyl parathion	0.0057	U	0.176	0.148		mg/Kg	☼	84	32 - 119	24	42
Mevinphos	0.0049	U	0.176	0.0726		mg/Kg	☼	41	10 - 129	46	60
Mocap	0.0045	U	0.176	0.114		mg/Kg	☼	64	10 - 130	32	60
Monochrotophos	0.049	U J3	0.706	0.049	J3 U	mg/Kg	☼	0	10 - 128	NC	60
Naled	0.023	U J3	0.706	0.495		mg/Kg	☼	70	10 - 121	35	60
Phorate	0.0057	U	0.176	0.0976		mg/Kg	☼	55	10 - 150	26	60
Ronnel	0.0045	U	0.176	0.0808		mg/Kg	☼	46	18 - 128	22	57
Tokuthion	0.0057	U	0.176	0.159		mg/Kg	☼	90	39 - 135	21	37

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique (Continued)

**Lab Sample ID: 660-67748-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 117797**

**Client Sample ID: COURTENAY PKWY PIT**  
**Prep Type: Total/NA**  
**Prep Batch: 117740**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Trichloronate	0.0081	U	0.176	0.130	I	mg/Kg	☼	74	37 - 132	27	47
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
Triphenylphosphate (TPP)	95		35 - 134								

## Method: FL-PRO - Florida - Petroleum Range Organics (GC)

**Lab Sample ID: MB 400-264053/1-A**  
**Matrix: Solid**  
**Analysis Batch: 264119**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 264053**

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Total Petroleum Hydrocarbons (C8-C40)	1.7	U	10	1.7	mg/Kg		07/08/15 09:58	07/08/15 16:27	1	
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>							
o-Terphenyl	125	J1	62 - 109							
n-C39	116		60 - 118							
				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>				
				07/08/15 09:58	07/08/15 16:27	1				
				07/08/15 09:58	07/08/15 16:27	1				

**Lab Sample ID: LCS 400-264053/2-A**  
**Matrix: Solid**  
**Analysis Batch: 264119**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 264053**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Petroleum Hydrocarbons (C8-C40)	113	123		mg/Kg		108	63 - 153
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
o-Terphenyl	108		62 - 109				
n-C39	110		60 - 118				

**Lab Sample ID: 660-67753-B-6-D MS**  
**Matrix: Solid**  
**Analysis Batch: 264119**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 264053**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Petroleum Hydrocarbons (C8-C40)	3.4	I	135	151		mg/Kg	☼	109	62 - 204
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
o-Terphenyl	105		62 - 109						
n-C39	129	J1	60 - 118						

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: FL-PRO - Florida - Petroleum Range Organics (GC) (Continued)

**Lab Sample ID: 660-67753-B-6-E MSD**  
**Matrix: Solid**  
**Analysis Batch: 264119**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 264053**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Total Petroleum Hydrocarbons (C8-C40)	3.4	I	138	153		mg/Kg	☼	109	62 - 204	2	25
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD</b>	<b>Limits</b>							
<i>o</i> -Terphenyl	105			62 - 109							
<i>n</i> -C39	124	J1		60 - 118							

## Method: 6010B - Metals (ICP)

**Lab Sample ID: MB 660-159304/1-A**  
**Matrix: Solid**  
**Analysis Batch: 159314**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 159304**

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.23	U	0.50	0.23	mg/Kg		07/02/15 12:50	07/03/15 07:52	1
Barium	0.16	U	1.0	0.16	mg/Kg		07/02/15 12:50	07/03/15 07:52	1
Cadmium	0.087	U	0.50	0.087	mg/Kg		07/02/15 12:50	07/03/15 07:52	1
Chromium	0.17	U	1.0	0.17	mg/Kg		07/02/15 12:50	07/03/15 07:52	1
Lead	0.15	U	0.50	0.15	mg/Kg		07/02/15 12:50	07/03/15 07:52	1
Selenium	0.37	U	1.0	0.37	mg/Kg		07/02/15 12:50	07/03/15 07:52	1
Silver	0.19	U	1.0	0.19	mg/Kg		07/02/15 12:50	07/03/15 07:52	1

**Lab Sample ID: LCS 660-159304/2-A**  
**Matrix: Solid**  
**Analysis Batch: 159314**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 159304**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	50.0	49.9		mg/Kg		100	75 - 125
Barium	50.0	52.1		mg/Kg		104	75 - 125
Cadmium	50.0	48.7		mg/Kg		97	75 - 125
Chromium	50.0	52.1		mg/Kg		104	75 - 125
Lead	50.0	52.2		mg/Kg		104	75 - 125
Selenium	50.0	49.7		mg/Kg		99	75 - 125
Silver	50.0	48.8		mg/Kg		98	75 - 125

**Lab Sample ID: LCSD 660-159304/3-A**  
**Matrix: Solid**  
**Analysis Batch: 159314**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 159304**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	50.0	49.8		mg/Kg		100	75 - 125	0	20
Barium	50.0	52.2		mg/Kg		104	75 - 125	0	20
Cadmium	50.0	48.7		mg/Kg		97	75 - 125	0	20
Chromium	50.0	52.1		mg/Kg		104	75 - 125	0	20
Lead	50.0	52.1		mg/Kg		104	75 - 125	0	20
Selenium	50.0	49.7		mg/Kg		99	75 - 125	0	20
Silver	50.0	48.7		mg/Kg		97	75 - 125	0	20

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 6010B - Metals (ICP) (Continued)

**Lab Sample ID: 660-67748-1 MS**

**Matrix: Solid**  
**Analysis Batch: 159314**

**Client Sample ID: COURTENAY PKWY PIT**

**Prep Type: Total/NA**  
**Prep Batch: 159304**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Arsenic	1.9		55.0	57.5		mg/Kg	☼	101	75 - 125
Barium	4.1		55.0	54.9		mg/Kg	☼	92	75 - 125
Cadmium	0.098	U	55.0	54.2		mg/Kg	☼	99	75 - 125
Chromium	2.0		55.0	50.0		mg/Kg	☼	87	75 - 125
Lead	1.1		55.0	45.7		mg/Kg	☼	81	75 - 125
Selenium	0.42	U	55.0	55.1		mg/Kg	☼	100	75 - 125
Silver	0.21	U	55.0	58.1		mg/Kg	☼	106	75 - 125

**Lab Sample ID: 660-67748-1 MSD**

**Matrix: Solid**  
**Analysis Batch: 159314**

**Client Sample ID: COURTENAY PKWY PIT**

**Prep Type: Total/NA**  
**Prep Batch: 159304**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Arsenic	1.9		52.8	55.4		mg/Kg	☼	101	75 - 125	4	20
Barium	4.1		52.8	53.6		mg/Kg	☼	94	75 - 125	2	20
Cadmium	0.098	U	52.8	52.0		mg/Kg	☼	99	75 - 125	4	20
Chromium	2.0		52.8	48.0		mg/Kg	☼	87	75 - 125	4	20
Lead	1.1		52.8	43.9		mg/Kg	☼	81	75 - 125	4	20
Selenium	0.42	U	52.8	53.1		mg/Kg	☼	101	75 - 125	4	20
Silver	0.21	U	52.8	55.7		mg/Kg	☼	105	75 - 125	4	20

## Method: 7471A - Mercury (CVAA)

**Lab Sample ID: MB 660-159353/13-A**

**Matrix: Solid**  
**Analysis Batch: 159357**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 159353**

Analyte	MB		PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	0.012	U	0.030	0.012	mg/Kg		07/06/15 13:20	07/06/15 15:28	1

**Lab Sample ID: LCS 660-159353/14-A**

**Matrix: Solid**  
**Analysis Batch: 159357**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**  
**Prep Batch: 159353**

Analyte	Spike	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Mercury	0.167	0.161		mg/Kg		96	80 - 120

**Lab Sample ID: 660-67748-1 MS**

**Matrix: Solid**  
**Analysis Batch: 159357**

**Client Sample ID: COURTENAY PKWY PIT**

**Prep Type: Total/NA**  
**Prep Batch: 159353**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Mercury	0.012	U	0.172	0.156		mg/Kg	☼	91	80 - 120

TestAmerica Tampa

# QC Sample Results

Client: FECC, Inc.  
 Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 660-67748-1 MSD  
 Matrix: Solid  
 Analysis Batch: 159357

Client Sample ID: COURTENAY PKWY PIT  
 Prep Type: Total/NA  
 Prep Batch: 159353

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.012	U	0.167	0.146		mg/Kg	☼	88	80 - 120	7	20

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# QC Association Summary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## GC/MS VOA

### Prep Batch: 159299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	5035	
660-67753-D-8-A MS	Matrix Spike	Total/NA	Solid	5035	
660-67753-D-8-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

### Analysis Batch: 159337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	8260B	159299
660-67753-D-8-A MS	Matrix Spike	Total/NA	Solid	8260B	159299
660-67753-D-8-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	159299
LCS 660-159337/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 660-159337/6	Method Blank	Total/NA	Solid	8260B	

## GC/MS Semi VOA

### Prep Batch: 117702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	3546	
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	3546	
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	3546	
LCS 640-117702/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 640-117702/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 640-117702/1-A	Method Blank	Total/NA	Solid	3546	

### Analysis Batch: 117724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	8270D	117702
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	8270D	117702
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	8270D	117702
LCS 640-117702/2-A	Lab Control Sample	Total/NA	Solid	8270D	117702
LCSD 640-117702/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	117702
MB 640-117702/1-A	Method Blank	Total/NA	Solid	8270D	117702

## GC Semi VOA

### Prep Batch: 117711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-51504-A-5-A MS	Matrix Spike	Total/NA	Solid	3546	
640-51504-A-5-B MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	3546	
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	3546	
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	3546	
LCS 640-117711/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 640-117711/6-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 640-117711/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
LCSD 640-117711/7-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 640-117711/1-A	Method Blank	Total/NA	Solid	3546	

### Analysis Batch: 117729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-51504-A-5-A MS	Matrix Spike	Total/NA	Solid	8081B/8082A	117711

TestAmerica Tampa



# QC Association Summary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## GC Semi VOA (Continued)

### Analysis Batch: 117729 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-51504-A-5-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8081B/8082A	117711
LCS 640-117711/2-A	Lab Control Sample	Total/NA	Solid	8081B/8082A	117711
LCSD 640-117711/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B/8082A	117711
MB 640-117711/1-A	Method Blank	Total/NA	Solid	8081B/8082A	117711

### Analysis Batch: 117734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	8081B/8082A	117711
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	8081B/8082A	117711
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	8081B/8082A	117711
LCS 640-117711/6-A	Lab Control Sample	Total/NA	Solid	8081B/8082A	117711
LCSD 640-117711/7-A	Lab Control Sample Dup	Total/NA	Solid	8081B/8082A	117711

### Prep Batch: 117740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	3550C	
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	3550C	
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	3550C	
LCS 640-117740/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 640-117740/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
MB 640-117740/1-A	Method Blank	Total/NA	Solid	3550C	

### Analysis Batch: 117797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	8141B	117740
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	8141B	117740
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	8141B	117740
LCS 640-117740/2-A	Lab Control Sample	Total/NA	Solid	8141B	117740
LCSD 640-117740/3-A	Lab Control Sample Dup	Total/NA	Solid	8141B	117740
MB 640-117740/1-A	Method Blank	Total/NA	Solid	8141B	117740

### Prep Batch: 264053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	3550B	
660-67753-B-6-D MS	Matrix Spike	Total/NA	Solid	3550B	
660-67753-B-6-E MSD	Matrix Spike Duplicate	Total/NA	Solid	3550B	
LCS 400-264053/2-A	Lab Control Sample	Total/NA	Solid	3550B	
MB 400-264053/1-A	Method Blank	Total/NA	Solid	3550B	

### Analysis Batch: 264119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	FL-PRO	264053
660-67753-B-6-D MS	Matrix Spike	Total/NA	Solid	FL-PRO	264053
660-67753-B-6-E MSD	Matrix Spike Duplicate	Total/NA	Solid	FL-PRO	264053
LCS 400-264053/2-A	Lab Control Sample	Total/NA	Solid	FL-PRO	264053
MB 400-264053/1-A	Method Blank	Total/NA	Solid	FL-PRO	264053

TestAmerica Tampa

# QC Association Summary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Metals

### Prep Batch: 159304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	3050B	
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	3050B	
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	3050B	
LCS 660-159304/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 660-159304/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
MB 660-159304/1-A	Method Blank	Total/NA	Solid	3050B	

### Analysis Batch: 159314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	6010B	159304
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	6010B	159304
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	6010B	159304
LCS 660-159304/2-A	Lab Control Sample	Total/NA	Solid	6010B	159304
LCSD 660-159304/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	159304
MB 660-159304/1-A	Method Blank	Total/NA	Solid	6010B	159304

### Prep Batch: 159353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	7471A	
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	7471A	
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	7471A	
LCS 660-159353/14-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 660-159353/13-A	Method Blank	Total/NA	Solid	7471A	

### Analysis Batch: 159357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	7471A	159353
660-67748-1 MS	COURTENAY PKWY PIT	Total/NA	Solid	7471A	159353
660-67748-1 MSD	COURTENAY PKWY PIT	Total/NA	Solid	7471A	159353
LCS 660-159353/14-A	Lab Control Sample	Total/NA	Solid	7471A	159353
MB 660-159353/13-A	Method Blank	Total/NA	Solid	7471A	159353

## General Chemistry

### Analysis Batch: 159321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-67748-1	COURTENAY PKWY PIT	Total/NA	Solid	Moisture	
660-67759-B-1 DU	Duplicate	Total/NA	Solid	Moisture	

# Lab Chronicle

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

**Date Collected: 07/01/15 09:45**

**Matrix: Solid**

**Date Received: 07/01/15 16:10**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			159321	07/03/15 10:07	AJG	TAL TAM

**Client Sample ID: COURTENAY PKWY PIT**

**Lab Sample ID: 660-67748-1**

**Date Collected: 07/01/15 09:45**

**Matrix: Solid**

**Date Received: 07/01/15 16:10**

**Percent Solids: 93.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.427 g	5 mL	159299	07/02/15 12:22	JJP	TAL TAM
Total/NA	Analysis	8260B		1	3.427 g	5 mL	159337	07/06/15 10:55	ECC	TAL TAM
Total/NA	Prep	3546			00015.01 g	1.0 mL	117702	07/06/15 12:45	CWA	TAL TAL
Total/NA	Analysis	8270D		1	00015.01 g	1.0 mL	117724	07/07/15 19:28	VHW	TAL TAL
Total/NA	Prep	3546			00015.03 g	5.0 mL	117711	07/06/15 14:28	CWA	TAL TAL
Total/NA	Analysis	8081B/8082A		1	00015.03 g	5.0 mL	117734	07/07/15 22:42	MLT	TAL TAL
Total/NA	Prep	3550C			00030.19 g	10.0 mL	117740	07/07/15 14:29	RDD	TAL TAL
Total/NA	Analysis	8141B		1	00030.19 g	10.0 mL	117797	07/10/15 15:47	MLT	TAL TAL
Total/NA	Prep	3550B			30.23 g	2.0 mL	264053	07/08/15 09:58	VC1	TAL PEN
Total/NA	Analysis	FL-PRO		1	30.23 g	2.0 mL	264119	07/08/15 16:46	IDR	TAL PEN
Total/NA	Prep	3050B			0.95 g	50 mL	159304	07/02/15 12:50	GAF	TAL TAM
Total/NA	Analysis	6010B		1	0.95 g	50 mL	159314	07/03/15 08:05	GAF	TAL TAM
Total/NA	Prep	7471A			0.31 g	50 mL	159353	07/06/15 13:20	GH1	TAL TAM
Total/NA	Analysis	7471A		1	0.31 g	50 mL	159357	07/06/15 15:34	GH1	TAL TAM

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001  
 TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994  
 TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

# Method Summary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL TAM
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL TAL
8081B/8082A	Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography	SW846	TAL TAL
8141B	Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique	SW846	TAL TAL
FL-PRO	Florida - Petroleum Range Organics (GC)	FL-DEP	TAL PEN
6010B	Metals (ICP)	SW846	TAL TAM
7471A	Mercury (CVAA)	SW846	TAL TAM
Moisture	Percent Moisture	EPA	TAL TAM

#### Protocol References:

EPA = US Environmental Protection Agency

FL-DEP = State Of Florida Department Of Environmental Protection, Florida Administrative Code.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

# Certification Summary

Client: FECC, Inc.  
Project/Site: Courtenay Pkwy Borrow Pit

TestAmerica Job ID: 660-67748-1

## Laboratory: TestAmerica Tampa

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E84282	06-30-16

## Laboratory: TestAmerica Pensacola

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81010	06-30-16

## Laboratory: TestAmerica Tallahassee

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81005	06-30-16

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TestAmerica Tampa  
 6712 Benjamin Road Suite 100  
 Tampa, FL 33634  
 Phone (813) 885-7427 Fax (813) 885-7049

Chain of Custody Record

TestAmerica  
 THE LEADER IN ENVIRONMENTAL TESTING

**Client Information**  
 Client Contact: Mr. Victor San Agustín  
 Phone: 407-246-9995  
 Company: FECC, Inc.  
 Address: 3852 Old Winter Garden Road  
 City: Orlando  
 State, Zip: FL, 32805  
 Phone: 407-632-1946(Tel)  
 Email: vsanagustin@feccorporation.com  
 Project Name: COURTESY PKEY BOKLOW PIT  
 Project #: 68008876  
 Barcode #: COURTESY PKEY BOKLOW PIT  
 Site: 7015 N. COURTESY KEY, ACRUIT ISLAND, FL

Sampler: Victor San Agustín  
 Job PM: Hornsby, Jess  
 E-Mail: jess.hornsby@testamericainc.com  
 Carrier/Trading Net(s):  
 Due Date Requested: 7-8-15  
 TAT Requested (days): Standard TAT  
 PO #: VSA 397  
 Purchase Order Requested  
 W/O #:  
 SSCOW#:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=volatile)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers	Special Instructions/Note:
COURTESY PKEY PIT	7-1-15	0945	G	Solid	X	X	FL_PRO - Total Petroleum Hydrocarbons (C8-C40) 8081B, 8082A, 8141B, 8270D 8260B - Volatiles 6010B, 7471A	X	



660-67748 Chain of Custody

Loc: 660  
67748

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: [Signature]  
 Date: 7-1-15  
 Time: 7:00 AM

Relinquished by: [Signature]  
 Date/Time: 7-1-15 @ 12:00  
 Company: FECC

Relinquished by: [Signature]  
 Date/Time: 7-1-15 @ 12:20  
 Company: [Signature]

Relinquished by: [Signature]  
 Date/Time: [Signature]  
 Company: [Signature]

Custody Seals Intact: A Yes A No  
 Custody Seal No.: 416 S.1  
 Cooler Temperature(s) °C and Other Remarks: 20-09

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:

Method of Shipment: Priority

Received by: [Signature]  
 Date/Time: 7-1-15 10:10  
 Company: TRP

Received by: [Signature]  
 Date/Time: [Signature]  
 Company: [Signature]

Received by: [Signature]  
 Date/Time: [Signature]  
 Company: [Signature]

Received by: [Signature]  
 Date/Time: [Signature]  
 Company: [Signature]

## Login Sample Receipt Checklist

Client: FECC, Inc.

Job Number: 660-67748-1

**Login Number: 67748**

**List Source: TestAmerica Tampa**

**List Number: 1**

**Creator: Southers, Kristin B**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: FECC, Inc.

Job Number: 660-67748-1

**Login Number: 67748**  
**List Number: 3**  
**Creator: Perez, Trina M**

**List Source: TestAmerica Pensacola**  
**List Creation: 07/03/15 01:08 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1°C IR-6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





## Login Sample Receipt Checklist

Client: FECC, Inc.

Job Number: 660-67748-1

**Login Number: 67748**

**List Number: 2**

**Creator: Jones, Matt**

**List Source: TestAmerica Tallahassee**

**List Creation: 07/03/15 07:53 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



JULY 2015

DECONTAMINATED EQUIPMENT SAMPLING – PCB WIPE

LABORATORY ANALYTICAL REPORT

Technical Report for

Geosyntec Consultants

NASA HQ (KHQA); KSC, FL

FR2576

Accutest Job Number: FA26256

Sampling Date: 07/21/15

Report to:

Geosyntec Consultants  
6770 S Washington Ave Suite 3  
Titusville, FL 32780  
Esager@GeoSyntec.com; mhensley@geosyntec.com  
  
ATTN: Eric Sager

Total number of pages in report: **43**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



Norm Farmer  
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001)  
DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177),  
AK, AR, GA, KY, MA, NV, OK, UT, WA

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Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary</b> .....	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary</b> .....	<b>4</b>
<b>Section 3: Summary of Hits</b> .....	<b>6</b>
<b>Section 4: Sample Results</b> .....	<b>7</b>
<b>4.1: FA26256-1: KHQA-WIPE001-000.0-20150721</b> .....	<b>8</b>
<b>Section 5: Misc. Forms</b> .....	<b>9</b>
<b>5.1: Chain of Custody</b> .....	<b>10</b>
<b>Section 6: GC Semi-volatiles - QC Data Summaries</b> .....	<b>13</b>
<b>6.1: Method Blank Summary</b> .....	<b>14</b>
<b>6.2: Blank Spike Summary</b> .....	<b>15</b>
<b>6.3: Surrogate Recovery Summaries</b> .....	<b>16</b>
<b>6.4: GC Surrogate Retention Time Summaries</b> .....	<b>17</b>
<b>6.5: Initial and Continuing Calibration Summaries</b> .....	<b>18</b>

1

2

3

4

5

6



## Sample Summary

Geosyntec Consultants

Job No: FA26256

NASA HQ (KHQA); KSC, FL  
Project No: FR2576

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA26256-1	07/21/15	11:00 JB	07/23/15	WIPE	Wipe Sample	KHQA-WIPE001-000.0-20150721

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Geosyntec Consultants

**Job No:** FA26256

**Site:** NASA HQ (KHQA); KSC, FL

**Report Date:** 8/3/2015 7:44:52 PM

1 Sample(s) were collected on 07/21/2015 and were received at Accutest SE on 7/23/2015 properly preserved, at 3.6 Deg. C and intact. These Samples received an Accutest job number of FA26256. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Extractables by GC By Method SW846 8082A

**Matrix:** WIPE

**Batch ID:** OP57043

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

OP57043-BS: Insufficient sample for MS/MSD.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Date: August 3, 2015

\_\_\_\_\_  
Kim Benham, Client Services (signature on file)

## Manual Integration Summary

Lab Sample ID	Analysis Type	File ID	Manual Integrations
GMM406-IC406	GCSEMI	MM18746.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, Decachlorobiphenyl, Tetrachloro-m-xylene
GMM406-IC406	GCSEMI	MM18747.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, Decachlorobiphenyl, Tetrachloro-m-xylene
GMM406-IC406	GCSEMI	MM18748.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, AR1260-F, Tetrachloro-m-xylene
GMM406-ICC406	GCSEMI	MM18749.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, Tetrachloro-m-xylene
GMM407-CC406	GCSEMI	MM18775.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, Decachlorobiphenyl, Tetrachloro-m-xylene
GMM407-CC406	GCSEMI	MM18793.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, Tetrachloro-m-xylene
GMM407-CC406	GCSEMI	MM18817.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F
GMM408-ECC406	GCSEMI	MM18916.D	AR1016-A, AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, AR1260-A, AR1260-B, AR1260-C, AR1260-D, AR1260-E, AR1260-F,
GMM409-CC406	GCSEMI	MM18919.D	AR1016-B, AR1016-C, AR1016-D, AR1016-E, AR1016-F, AR1260-A, AR1260-B, AR1260-C, AR1260-D, AR1260-E, AR1260-F,
GMM410-ECC406	GCSEMI	MM19026.D	AR1260-A, AR1260-B, AR1260-C, AR1260-D, AR1260-E, AR1260-F
GMM411-CC406	GCSEMI	MM19032.D	AR1248-E, AR1248-F
GMM412-CC406	GCSEMI	MM19126.D	AR1260-F
GMM414-CC406	GCSEMI	MM19260.D	AR1248-E
GMM414-ECC406	GCSEMI	MM19306.D	AR1016-C, AR1016-D, AR1016-E,

**14 Manual Integrations were found for FA26256**

## Summary of Hits

**Job Number:** FA26256  
**Account:** Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL  
**Collected:** 07/21/15



Lab Sample ID	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
---------------	------------------	-----------------	-----	-----	-------	--------

**FA26256-1      KHQA-WIPE001-000.0-20150721**

No hits reported in this sample.



Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b> KHQA-WIPE001-000.0-20150721	<b>Date Sampled:</b> 07/21/15
<b>Lab Sample ID:</b> FA26256-1	<b>Date Received:</b> 07/23/15
<b>Matrix:</b> WIPE - Wipe Sample	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8082A SW846 3550C	
<b>Project:</b> NASA HQ (KHQA); KSC, FL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	MM19169.D	1	07/30/15	RS	07/30/15	OP57043	GMM413
Run #2							

Run #	Initial Weight	Final Volume
Run #1	1 wipes	20.0 ml
Run #2		

**PCB List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
12674-11-2	Aroclor 1016	0.40 U	1.0	0.40	ug/wipe	
11104-28-2	Aroclor 1221	0.50 U	1.0	0.50	ug/wipe	
11141-16-5	Aroclor 1232	0.50 U	1.0	0.50	ug/wipe	
53469-21-9	Aroclor 1242	0.40 U	1.0	0.40	ug/wipe	
12672-29-6	Aroclor 1248	0.40 U	1.0	0.40	ug/wipe	
11097-69-1	Aroclor 1254	0.40 U	1.0	0.40	ug/wipe	
11096-82-5	Aroclor 1260	0.40 U	1.0	0.40	ug/wipe	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	104%		44-126%
2051-24-3	Decachlorobiphenyl	96%		41-145%

U = Not detected      MDL = Method Detection Limit      I = Result >= MDL but < PQL      J = Estimated value  
 PQL = Practical Quantitation Limit      V = Indicates analyte found in associated method blank  
 L = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
4

## Misc. Forms

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5

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



**ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION**

ACCUTEST'S JOB NUMBER: FA 26256 CLIENT: GEOSYNTEC PROJECT: PHDA  
 DATE/TIME RECEIVED: 7-23-13 08:00 {MM/DD/YY 24:00} NUMBER OF COOLERS RECEIVED: 1  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER:  
 AIRBILL NUMBERS:

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM \_\_\_\_\_ 5-GRAM \_\_\_\_\_  
 NUMBER OF 5035 FIELD KITS ? \_\_\_\_\_  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_  
 pH PAPER LOT#s WIDE RANGE A036122 NARROW RANGE HC421754 OTHER (specify) 405-230010

**TEMPERATURE INFORMATION**

- IR THERM ID 1 CORR. FACTOR -0.2
- OBSERVED TEMPS: 3.8
- CORRECTED TEMPS: 3.6

**SAMPLE INFORMATION**

- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- % SOLIDS JAR NOT RECEIVED
- RESIDUAL CHLORINE PRESENT LOT# \_\_\_\_\_

{APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS}

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE [Signature] 7-23-13 REVIEWER SIGNATURE/DATE [Signature] 07-23-13  
 NF 10/14 receipt confirmation 102914.xls

51  
5

**Job Change**

FA26256

**Requested Date:** 7/24/2015  
**Account Name:** Geosyntec Consultants  
**Project** NASA HQ (KHQA); KSC, FL  
**CSR:** andreac

**Received Date:** 7/23/2015  
**Due Date:** 7/30/2015  
**Deliverable:** REDT1  
**TAT (Days):** 6

=====  
**Sample #:** FA26256-1

**Change:**  
Please analyze the wipe sample for PCBs.

KHQA-WIPE001-000.0-20150721  
=====

**Above Changes Per:** Joe Bartlett

**Date/Time:** 7/24/2015 3:01:54 PM

**FA26256: Chain of Custody**

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service

**Page 3 of 3**

Page 1 of 1

5.1  
5

## GC Semi-volatiles

---

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

# Method Blank Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57043-MB	MM19168.D	1	07/30/15	RS	07/30/15	OP57043	GMM413

The QC reported here applies to the following samples:

Method: SW846 8082A

FA26256-1

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	1.0	0.40	ug/wipe	
11104-28-2	Aroclor 1221	ND	1.0	0.50	ug/wipe	
11141-16-5	Aroclor 1232	ND	1.0	0.50	ug/wipe	
53469-21-9	Aroclor 1242	ND	1.0	0.40	ug/wipe	
12672-29-6	Aroclor 1248	ND	1.0	0.40	ug/wipe	
11097-69-1	Aroclor 1254	ND	1.0	0.40	ug/wipe	
11096-82-5	Aroclor 1260	ND	1.0	0.40	ug/wipe	

CAS No.	Surrogate Recoveries	Limits	
877-09-8	Tetrachloro-m-xylene	102%	44-126%
2051-24-3	Decachlorobiphenyl	97%	41-145%



# Blank Spike Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57043-BS <sup>a</sup>	MM19167.D	1	07/30/15	RS	07/30/15	OP57043	GMM413

The QC reported here applies to the following samples:

Method: SW846 8082A

FA26256-1

CAS No.	Compound	Spike ug/wipe	BSP ug/wipe	BSP %	Limits
12674-11-2	Aroclor 1016	4	4.3	108	58-126
11096-82-5	Aroclor 1260	4	4.4	110	59-133

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	112%	44-126%
2051-24-3	Decachlorobiphenyl	96%	41-145%

(a) Insufficient sample for MS/MSD.

\* = Outside of Control Limits.

# Semivolatile Surrogate Recovery Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Method:</b> SW846 8082A	<b>Matrix:</b> WIPE
----------------------------	---------------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 <sup>a</sup>	S2 <sup>a</sup>
FA26256-1	MM19169.D	104	96
OP57043-BS	MM19167.D	112	96
OP57043-MB	MM19168.D	102	97

Surrogate Compounds	Recovery Limits
S1 = Tetrachloro-m-xylene	44-126%
S2 = Decachlorobiphenyl	41-145%

(a) Recovery from GC signal #1

6.3.1  
6

# GC Surrogate Retention Time Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

<b>Check Std:</b> GMM413-CC406	<b>Injection Date:</b> 07/30/15
<b>Lab File ID:</b> MM19161.D	<b>Injection Time:</b> 09:35
<b>Instrument ID:</b> GCMM	<b>Method:</b> SW846 8082A

	S1 <sup>a</sup> RT	S2 <sup>a</sup> RT
Check Std	3.29	6.97

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S2 <sup>a</sup> RT
OP57043-BS	MM19167.D	07/30/15	11:05	3.30	6.98
OP57043-MB	MM19168.D	07/30/15	11:16	3.29	6.97
FA26256-1	MM19169.D	07/30/15	11:28	3.29	6.97
OP57044-BS	MM19170.D	07/30/15	11:40	3.29	6.97
OP57044-MB	MM19171.D	07/30/15	11:51	3.29	6.97

**Surrogate  
Compounds**

S1 = Tetrachloro-m-xylene  
 S2 = Decachlorobiphenyl

(a) Retention time from GC signal #1

6.4.1  
6

# Initial Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM406-ICC406  
**Lab FileID:** MM18749.D

## Response Factor Report ECD 9

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Wed Jul 22 11:20:24 2015  
Response via : Initial Calibration

### Calibration Files

1248=MM18752.D 1242=MM18753.D 1232=MM18754.D 1254=MM18755.D  
20 =MM18746.D 50 =MM18747.D 200 =MM18748.D 400 =MM18749.D  
600 =MM18750.D 1000=MM18751.D = =

Compound	1248	1242	1232	1254	20	50	200	400	600	1000	Avg	%RSD
1) Tetrachloro-m-xylene					1.126	1.267	1.259	1.248	1.255	1.237	1.232 E6	4.30
2) AR1016-A					2.270	2.381	2.085	2.089	2.029	2.029	2.147 E4	6.74
3) AR1016-B					3.409	3.343	3.043	3.014	2.989	2.954	3.125 E4	6.31
4) AR1016-C					5.388	5.916	5.685	6.278	6.183	6.556	6.001 E4	7.07
5) AR1016-D					2.322	2.651	2.570	2.721	2.769	2.888	2.654 E4	7.34
6) AR1016-E					2.536	2.531	2.258	2.367	2.392	2.320	2.401 E4	4.69
7) AR1016-F					1.840	1.860	1.934	2.004	2.139	2.183	1.993 E4	7.17
8) AR1221-A												
9) AR1221-B				9.180							9.180 E3	0.00
10) AR1221-C				3.042							3.042 E3	0.00
11) AR1221-D				1.229							1.229 E4	0.00
12) AR1221-E				8.746							8.746 E3	0.00
13) AR1232-A				3.041							3.041 E4	0.00
14) AR1232-B			2.588								2.588 E4	0.00
15) AR1232-C			1.459								1.459 E4	0.00
16) AR1232-D			3.061								3.061 E4	0.00
17) AR1232-E			1.404								1.404 E4	0.00
18) AR1232-F			1.331								1.331 E4	0.00
19) AR1242-A			9.977								9.977 E3	0.00
20) AR1242-B		1.839									1.839 E4	0.00
21) AR1242-C		2.508									2.508 E4	0.00
22) AR1242-D		5.221									5.221 E4	0.00
23) AR1242-E		2.376									2.376 E4	0.00

6.5.1  
6



# Initial Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM406-ICC406  
**Lab FileID:** MM18749.D

		1.479							1.479 E5	0.00
54)	AR1268-F									
		3.736							3.736 E5	0.00
55)	Decachlorobiphenyl									
		8.497	9.248	8.250	7.996	8.496	8.108		8.433 E5	5.31
Signal #2										
1)	Tetrachloro-m-xylene									
		2.347	2.737	2.635	2.584	2.578	2.531		2.569 E6	5.03
2)	AR1016-A									
		4.641	4.938	4.481	4.335	4.412	4.308		4.519 E4	5.25
3)	AR1016-B									
		6.709	7.060	6.471	6.395	6.330	6.104		6.512 E4	5.11
4)	AR1016-C									
		1.118	1.260	1.258	1.261	1.298	1.289		1.247 E5	5.25
5)	AR1016-D									
		5.118	5.831	5.955	6.122	6.296	6.223		5.924 E4	7.27
6)	AR1016-E									
		5.425	5.872	5.634	5.505	5.663	5.576		5.613 E4	2.74
7)	AR1016-F									
		5.337	5.870	5.686	5.660	5.945	5.779		5.713 E4	3.73
8)	AR1221-A									
		1.832							1.832 E4	0.00
9)	AR1221-B									
		6.278							6.278 E3	0.00
10)	AR1221-C									
		2.752							2.752 E4	0.00
11)	AR1221-D									
		1.899							1.899 E4	0.00
12)	AR1221-E									
		6.804							6.804 E4	0.00
13)	AR1232-A									
		5.590							5.590 E4	0.00
14)	AR1232-B									
		3.311							3.311 E4	0.00
15)	AR1232-C									
		6.605							6.605 E4	0.00
16)	AR1232-D									
		2.868							2.868 E4	0.00
17)	AR1232-E									
		2.868							2.868 E4	0.00
18)	AR1232-F									
		3.116							3.116 E4	0.00
19)	AR1242-A									
		4.014							4.014 E4	0.00
20)	AR1242-B									
		5.394							5.394 E4	0.00
21)	AR1242-C									
		1.142							1.142 E5	0.00
22)	AR1242-D									
		5.442							5.442 E4	0.00
23)	AR1242-E									
		7.480							7.480 E4	0.00
24)	AR1242-F									
		3.461							3.461 E4	0.00
25)	AR1248-A									
		3.219							3.219 E4	0.00
26)	AR1248-B									
		6.715							6.715 E4	0.00



# Initial Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM406-ICC406  
**Lab FileID:** MM18749.D

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80821v0722.m

Wed Jul 22 11:23:04 2015

6.5.1

6



# Initial Calibration Verification

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM406-ICV406  
**Lab FileID:** MM18756.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM18756.D\ECD1A.ch Vial: 57  
 Signal #2 : C:\msdchem\2\DATA\gmm405pcb\MM18756.D\ECD2B.ch  
 Acq On : 21 Jul 2015 8:44 pm Operator: nareshj  
 Sample : icv406-40 1016/1260 Inst : ECD 9  
 Misc : op56909,gmm406,15.0,,,5,1,soil Multiplr: 1.00  
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
 Title : PCBs by 8082a  
 Last Update : Wed Jul 22 11:20:24 2015  
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
 Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene							
2 L1 AR1016-A	400.000	368.552	7.9	95	0.00	3.53	3.63
3 L1 AR1016-B	400.000	380.051	5.0	99	0.00	3.76	3.86
4 L1 AR1016-C	400.000	397.010	0.7	95	0.00	4.08	4.18
5 L1 AR1016-D	400.000	402.756	-0.7	98	0.00	4.18	4.28
6 L1 AR1016-E	400.000	375.278	6.2	95	0.00	4.25	4.35
7 L1 AR1016-F	400.000	408.064	-2.0	101	0.00	4.47	4.57
8 L2 AR1221-A							
9 L2 AR1221-B							
10 L2 AR1221-C							
11 L2 AR1221-D							
12 L2 AR1221-E							
13 L3 AR1232-A							
14 L3 AR1232-B							
15 L3 AR1232-C							
16 L3 AR1232-D							
17 L3 AR1232-E							
18 L3 AR1232-F							
19 L4 AR1242-A							
20 L4 AR1242-B							
21 L4 AR1242-C							
22 L4 AR1242-D							
23 L4 AR1242-E							
24 L4 AR1242-F							
25 L5 AR1248-A							
26 L5 AR1248-B							
27 L5 AR1248-C							
28 L5 AR1248-D							
29 L5 AR1248-E							
30 L5 AR1248-F							
31 L6 AR1254-A							
32 L6 AR1254-B							
33 L6 AR1254-C							
34 L6 AR1254-D							
35 L6 AR1254-E							
36 L6 AR1254-F							
37 L7 AR1260-A	400.000	407.949	-2.0	104	0.00	5.12	5.22
38 L7 AR1260-B	400.000	414.205	-3.6	102	0.00	5.49	5.59
39 L7 AR1260-C	400.000	390.086	2.5	100	0.00	5.55	5.65
40 L7 AR1260-D	400.000	401.200	-0.3	98	0.00	5.92	6.02
41 L7 AR1260-E	400.000	403.521	-0.9	100	0.00	6.11	6.21

6.5.2  
6

# Initial Calibration Verification

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM406-ICV406  
**Lab FileID:** MM18756.D

42	L7	AR1260-F	400.000	415.584	-3.9	105	0.00	6.53-	6.63
43	L8	AR1262-A			-----NA-----				
44	L8	AR1262-B			-----NA-----				
45	L8	AR1262-C			-----NA-----				
46	L8	AR1262-D			-----NA-----				
47	L8	AR1262-E			-----NA-----				
48	L8	AR1262-F			-----NA-----				
49	L9	AR1268-A			-----NA-----				
50	L9	AR1268-B			-----NA-----				
51	L9	AR1268-C			-----NA-----				
52	L9	AR1268-D			-----NA-----				
53	L9	AR1268-E			-----NA-----				
54	L9	AR1268-F			-----NA-----				
55	S	Decachlorobiphenyl			-----NA-----				

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2			-----NA-----				
58	L1	AR1016-A #2	400.000	378.796	5.3	99	0.00	3.59-	3.69
59	L1	AR1016-B #2	400.000	386.186	3.5	98	0.00	3.82-	3.92
60	L1	AR1016-C #2	400.000	409.977	-2.5	101	0.00	4.14-	4.24
61	L1	AR1016-D #2	400.000	406.324	-1.6	98	0.00	4.27-	4.37
62	L1	AR1016-E #2	400.000	387.910	3.0	99	0.00	4.33-	4.43
63	L1	AR1016-F #2	400.000	403.328	-0.8	102	0.00	4.45-	4.55
64	L2	AR1221-A #2			-----NA-----				
65	L2	AR1221-B #2			-----NA-----				
66	L2	AR1221-C #2			-----NA-----				
67	L2	AR1221-D #2			-----NA-----				
68	L2	AR1221-E #2			-----NA-----				
69	L3	AR1232-A #2			-----NA-----				
70	L3	AR1232-B #2			-----NA-----				
71	L3	AR1232-C #2			-----NA-----				
72	L3	AR1232-D #2			-----NA-----				
73	L3	AR1232-E #2			-----NA-----				
74	L3	AR1232-F #2			-----NA-----				
75	L4	AR1242-A #2			-----NA-----				
76	L4	AR1242-B #2			-----NA-----				
77	L4	AR1242-C #2			-----NA-----				
78	L4	AR1242-D #2			-----NA-----				
79	L4	AR1242-E #2			-----NA-----				
80	L4	AR1242-F #2			-----NA-----				
81	L5	AR1248-A #2			-----NA-----				
82	L5	AR1248-B #2			-----NA-----				
83	L5	AR1248-C #2			-----NA-----				
84	L5	AR1248-D #2			-----NA-----				
85	L5	AR1248-E #2			-----NA-----				
86	L5	AR1248-F #2			-----NA-----				
87	L6	AR1254-A #2			-----NA-----				
88	L6	AR1254-B #2			-----NA-----				
89	L6	AR1254-C #2			-----NA-----				
90	L6	AR1254-D #2			-----NA-----				
91	L6	AR1254-E #2			-----NA-----				
92	L6	AR1254-F #2			-----NA-----				
93	L7	AR1260-A #2	400.000	389.839	2.5	98	0.00	5.19-	5.29
94	L7	AR1260-B #2	400.000	402.617	-0.7	101	0.00	5.33-	5.43
95	L7	AR1260-C #2	400.000	390.915	2.3	100	0.00	5.59-	5.69
96	L7	AR1260-D #2	400.000	388.078	3.0	97	0.00	5.78-	5.88
97	L7	AR1260-E #2	400.000	395.992	1.0	98	0.00	5.96-	6.06
98	L7	AR1260-F #2	400.000	389.586	2.6	100	0.00	6.22-	6.32
99	L8	AR1262-A #2			-----NA-----				

6.5.2  
6

# Initial Calibration Verification

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM406-ICV406  
**Lab FileID:** MM18756.D

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100	L8	AR1262-B	#2	-----NA-----
101	L8	AR1262-C	#2	-----NA-----
102	L8	AR1262-D	#2	-----NA-----
103	L8	AR1262-E	#2	-----NA-----
104	L8	AR1262-F	#2	-----NA-----
105	L9	AR1268-A	#2	-----NA-----
106	L9	AR1268-B	#2	-----NA-----
107	L9	AR1268-C	#2	-----NA-----
108	L9	AR1268-D	#2	-----NA-----
109	L9	AR1268-E	#2	-----NA-----
110	L9	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

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(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
MM18749.D    80821v0722.m              Wed Jul 22 11:23:15 2015

6.5.2  
6

# Continuing Calibration Summary

Job Number: FA26256  
 Account: GSYNFLTI Geosyntec Consultants  
 Project: NASA HQ (KHQA); KSC, FL

Sample: GMM413-CC406  
 Lab FileID: MM19161.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM19161.D\ECD1A.ch Vial: 2  
 Signal #2 : C:\msdchem\2\DATA\gmm413pcb\MM19161.D\ECD2B.ch  
 Acq On : 30 Jul 2015 9:35 am Operator: Russ  
 Sample : cc406-200 1016/1260 Inst : ECD 9  
 Misc : op56992,gmm413,15.0,,,5,1,soil Multiplr: 1.00  
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
 Title : PCBs by 8082a  
 Last Update : Wed Jul 22 11:20:24 2015  
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
 Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S	Tetrachloro-m-xylene	20.000	22.517	-12.6	110	0.00	3.24-	3.34
2 L1	AR1016-A	200.000	210.615	-5.3	108	0.00	3.53-	3.63
3 L1	AR1016-B	200.000	208.686	-4.3	107	0.00	3.76-	3.86
4 L1	AR1016-C	200.000	210.750	-5.4	111	0.00	4.08-	4.18
5 L1	AR1016-D	200.000	214.482	-7.2	111	0.00	4.18-	4.28
6 L1	AR1016-E	200.000	213.919	-7.0	114	0.00	4.25-	4.35
7 L1	AR1016-F	200.000	206.711	-3.4	107	0.00	4.47-	4.57
8 L2	AR1221-A							
9 L2	AR1221-B							
10 L2	AR1221-C							
11 L2	AR1221-D							
12 L2	AR1221-E							
13 L3	AR1232-A							
14 L3	AR1232-B							
15 L3	AR1232-C							
16 L3	AR1232-D							
17 L3	AR1232-E							
18 L3	AR1232-F							
19 L4	AR1242-A							
20 L4	AR1242-B							
21 L4	AR1242-C							
22 L4	AR1242-D							
23 L4	AR1242-E							
24 L4	AR1242-F							
25 L5	AR1248-A							
26 L5	AR1248-B							
27 L5	AR1248-C							
28 L5	AR1248-D							
29 L5	AR1248-E							
30 L5	AR1248-F							
31 L6	AR1254-A							
32 L6	AR1254-B							
33 L6	AR1254-C							
34 L6	AR1254-D							
35 L6	AR1254-E							
36 L6	AR1254-F							
37 L7	AR1260-A	200.000	213.499	-6.7	108	0.00	5.12-	5.22
38 L7	AR1260-B	200.000	216.210	-8.1	113	0.00	5.49-	5.59
39 L7	AR1260-C	200.000	211.163	-5.6	107	0.00	5.55-	5.65
40 L7	AR1260-D	200.000	224.568	-12.3	115	0.00	5.92-	6.02
41 L7	AR1260-E	200.000	220.740	-10.4	112	0.00	6.11-	6.21

6.5.3  
6

# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19161.D

42	L7	AR1260-F	200.000	215.835	-7.9	110	0.00	6.53-	6.63
43	L8	AR1262-A						-----NA-----	
44	L8	AR1262-B						-----NA-----	
45	L8	AR1262-C						-----NA-----	
46	L8	AR1262-D						-----NA-----	
47	L8	AR1262-E						-----NA-----	
48	L8	AR1262-F						-----NA-----	
49	L9	AR1268-A						-----NA-----	
50	L9	AR1268-B						-----NA-----	
51	L9	AR1268-C						-----NA-----	
52	L9	AR1268-D						-----NA-----	
53	L9	AR1268-E						-----NA-----	
54	L9	AR1268-F						-----NA-----	
55	S	Decachlorobiphenyl	20.000	20.897	-4.5	107	0.00	6.92-	7.02

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #	20.000	22.393	-12.0	109	0.00	3.26-	3.36
58	L1	AR1016-A #2	200.000	220.576	-10.3	111	0.00	3.59-	3.69
59	L1	AR1016-B #2	200.000	221.844	-10.9	112	0.00	3.82-	3.92
60	L1	AR1016-C #2	200.000	223.613	-11.8	111	0.00	4.14-	4.24
61	L1	AR1016-D #2	200.000	223.342	-11.7	111	0.00	4.27-	4.37
62	L1	AR1016-E #2	200.000	219.543	-9.8	109	0.00	4.33-	4.43
63	L1	AR1016-F #2	200.000	222.445	-11.2	112	0.00	4.45-	4.55
64	L2	AR1221-A #2						-----NA-----	
65	L2	AR1221-B #2						-----NA-----	
66	L2	AR1221-C #2						-----NA-----	
67	L2	AR1221-D #2						-----NA-----	
68	L2	AR1221-E #2						-----NA-----	
69	L3	AR1232-A #2						-----NA-----	
70	L3	AR1232-B #2						-----NA-----	
71	L3	AR1232-C #2						-----NA-----	
72	L3	AR1232-D #2						-----NA-----	
73	L3	AR1232-E #2						-----NA-----	
74	L3	AR1232-F #2						-----NA-----	
75	L4	AR1242-A #2						-----NA-----	
76	L4	AR1242-B #2						-----NA-----	
77	L4	AR1242-C #2						-----NA-----	
78	L4	AR1242-D #2						-----NA-----	
79	L4	AR1242-E #2						-----NA-----	
80	L4	AR1242-F #2						-----NA-----	
81	L5	AR1248-A #2						-----NA-----	
82	L5	AR1248-B #2						-----NA-----	
83	L5	AR1248-C #2						-----NA-----	
84	L5	AR1248-D #2						-----NA-----	
85	L5	AR1248-E #2						-----NA-----	
86	L5	AR1248-F #2						-----NA-----	
87	L6	AR1254-A #2						-----NA-----	
88	L6	AR1254-B #2						-----NA-----	
89	L6	AR1254-C #2						-----NA-----	
90	L6	AR1254-D #2						-----NA-----	
91	L6	AR1254-E #2						-----NA-----	
92	L6	AR1254-F #2						-----NA-----	
93	L7	AR1260-A #2	200.000	220.500	-10.3	110	0.00	5.19-	5.29
94	L7	AR1260-B #2	200.000	222.255	-11.1	111	0.00	5.33-	5.43
95	L7	AR1260-C #2	200.000	218.214	-9.1	108	0.00	5.59-	5.69
96	L7	AR1260-D #2	200.000	220.357	-10.2	111	0.00	5.78-	5.88
97	L7	AR1260-E #2	200.000	228.251	-14.1	115	0.00	5.96-	6.06
98	L7	AR1260-F #2	200.000	223.045	-11.5	111	0.00	6.22-	6.32
99	L8	AR1262-A #2						-----NA-----	

6.5.3

6



# Continuing Calibration Summary

Job Number: FA26256  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM413-CC406  
Lab FileID: MM19162.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM19162.D\ECD1A.ch Vial: 3  
Signal #2 : C:\msdchem\2\DATA\gmm413pcb\MM19162.D\ECD2B.ch  
Acq On : 30 Jul 2015 9:47 am Operator: Russ  
Sample : cc406-200 1248 Inst : ECD 9  
Misc : op56992,gmm413,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Wed Jul 22 11:20:24 2015  
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene				NA			
2 L1 AR1016-A				NA			
3 L1 AR1016-B				NA			
4 L1 AR1016-C				NA			
5 L1 AR1016-D				NA			
6 L1 AR1016-E				NA			
7 L1 AR1016-F				NA			
8 L2 AR1221-A				NA			
9 L2 AR1221-B				NA			
10 L2 AR1221-C				NA			
11 L2 AR1221-D				NA			
12 L2 AR1221-E				NA			
13 L3 AR1232-A				NA			
14 L3 AR1232-B				NA			
15 L3 AR1232-C				NA			
16 L3 AR1232-D				NA			
17 L3 AR1232-E				NA			
18 L3 AR1232-F				NA			
19 L4 AR1242-A				NA			
20 L4 AR1242-B				NA			
21 L4 AR1242-C				NA			
22 L4 AR1242-D				NA			
23 L4 AR1242-E				NA			
24 L4 AR1242-F				NA			
25 L5 AR1248-A	200.000	211.604	-5.8	0	0.00	3.76	3.86
26 L5 AR1248-B	200.000	215.501	-7.8	0	0.00	4.08	4.18
27 L5 AR1248-C	200.000	212.793	-6.4	0	0.00	4.24	4.34
28 L5 AR1248-D	200.000	217.361	-8.7	0	0.00	4.37	4.47
29 L5 AR1248-E	200.000	209.080	-4.5	0	0.00	4.62	4.72
30 L5 AR1248-F	200.000	213.929	-7.0	0	0.01	5.00	5.10
31 L6 AR1254-A				NA			
32 L6 AR1254-B				NA			
33 L6 AR1254-C				NA			
34 L6 AR1254-D				NA			
35 L6 AR1254-E				NA			
36 L6 AR1254-F				NA			
37 L7 AR1260-A				NA			
38 L7 AR1260-B				NA			
39 L7 AR1260-C				NA			
40 L7 AR1260-D				NA			
41 L7 AR1260-E				NA			

# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19162.D

42	L7	AR1260-F	-----NA-----
43	L8	AR1262-A	-----NA-----
44	L8	AR1262-B	-----NA-----
45	L8	AR1262-C	-----NA-----
46	L8	AR1262-D	-----NA-----
47	L8	AR1262-E	-----NA-----
48	L8	AR1262-F	-----NA-----
49	L9	AR1268-A	-----NA-----
50	L9	AR1268-B	-----NA-----
51	L9	AR1268-C	-----NA-----
52	L9	AR1268-D	-----NA-----
53	L9	AR1268-E	-----NA-----
54	L9	AR1268-F	-----NA-----
55	S	Decachlorobiphenyl	-----NA-----

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2	-----NA-----
58	L1	AR1016-A #2	-----NA-----
59	L1	AR1016-B #2	-----NA-----
60	L1	AR1016-C #2	-----NA-----
61	L1	AR1016-D #2	-----NA-----
62	L1	AR1016-E #2	-----NA-----
63	L1	AR1016-F #2	-----NA-----
64	L2	AR1221-A #2	-----NA-----
65	L2	AR1221-B #2	-----NA-----
66	L2	AR1221-C #2	-----NA-----
67	L2	AR1221-D #2	-----NA-----
68	L2	AR1221-E #2	-----NA-----
69	L3	AR1232-A #2	-----NA-----
70	L3	AR1232-B #2	-----NA-----
71	L3	AR1232-C #2	-----NA-----
72	L3	AR1232-D #2	-----NA-----
73	L3	AR1232-E #2	-----NA-----
74	L3	AR1232-F #2	-----NA-----
75	L4	AR1242-A #2	-----NA-----
76	L4	AR1242-B #2	-----NA-----
77	L4	AR1242-C #2	-----NA-----
78	L4	AR1242-D #2	-----NA-----
79	L4	AR1242-E #2	-----NA-----
80	L4	AR1242-F #2	-----NA-----
81	L5	AR1248-A #2	200.000 217.771 -8.9 0 0.00 3.82- 3.92
82	L5	AR1248-B #2	200.000 214.040 -7.0 0 0.00 4.14- 4.24
83	L5	AR1248-C #2	200.000 216.795 -8.4 0 0.00 4.33- 4.43
84	L5	AR1248-D #2	200.000 214.108 -7.1 0 0.00 4.45- 4.55
85	L5	AR1248-E #2	200.000 221.223 -10.6 0 0.00 4.71- 4.81
86	L5	AR1248-F #2	200.000 208.915 -4.5 0 0.00 5.10- 5.20
87	L6	AR1254-A #2	-----NA-----
88	L6	AR1254-B #2	-----NA-----
89	L6	AR1254-C #2	-----NA-----
90	L6	AR1254-D #2	-----NA-----
91	L6	AR1254-E #2	-----NA-----
92	L6	AR1254-F #2	-----NA-----
93	L7	AR1260-A #2	-----NA-----
94	L7	AR1260-B #2	-----NA-----
95	L7	AR1260-C #2	-----NA-----
96	L7	AR1260-D #2	-----NA-----
97	L7	AR1260-E #2	-----NA-----
98	L7	AR1260-F #2	-----NA-----
99	L8	AR1262-A #2	-----NA-----



# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19162.D

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100	L8	AR1262-B	#2	-----NA-----
101	L8	AR1262-C	#2	-----NA-----
102	L8	AR1262-D	#2	-----NA-----
103	L8	AR1262-E	#2	-----NA-----
104	L8	AR1262-F	#2	-----NA-----
105	L9	AR1268-A	#2	-----NA-----
106	L9	AR1268-B	#2	-----NA-----
107	L9	AR1268-C	#2	-----NA-----
108	L9	AR1268-D	#2	-----NA-----
109	L9	AR1268-E	#2	-----NA-----
110	L9	AR1268-F	#2	-----NA-----
111	S	Decachlorobiphenyl	#2	-----NA-----

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(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
MM18748.D    80821v0722.m              Mon Aug 03 11:36:19 2015

# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19163.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM19163.D\ECD1A.ch Vial: 4  
Signal #2 : C:\msdchem\2\DATA\gmm413pcb\MM19163.D\ECD2B.ch  
Acq On : 30 Jul 2015 9:58 am Operator: Russ  
Sample : cc406-200 1242/1262 Inst : ECD 9  
Misc : op56992,gmm413,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Wed Jul 22 11:20:24 2015  
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene				NA			
2 L1 AR1016-A				NA			
3 L1 AR1016-B				NA			
4 L1 AR1016-C				NA			
5 L1 AR1016-D				NA			
6 L1 AR1016-E				NA			
7 L1 AR1016-F				NA			
8 L2 AR1221-A				NA			
9 L2 AR1221-B				NA			
10 L2 AR1221-C				NA			
11 L2 AR1221-D				NA			
12 L2 AR1221-E				NA			
13 L3 AR1232-A				NA			
14 L3 AR1232-B				NA			
15 L3 AR1232-C				NA			
16 L3 AR1232-D				NA			
17 L3 AR1232-E				NA			
18 L3 AR1232-F				NA			
19 L4 AR1242-A	200.000	215.745	-7.9	0	0.00	3.53	3.63
20 L4 AR1242-B	200.000	216.140	-8.1	0	0.00	3.89	3.99
21 L4 AR1242-C	200.000	227.681	-13.8	0	0.00	4.08	4.18
22 L4 AR1242-D	200.000	216.398	-8.2	0	0.00	4.18	4.28
23 L4 AR1242-E	200.000	217.657	-8.8	0	0.00	4.47	4.57
24 L4 AR1242-F	200.000	219.696	-9.8	0	0.00	4.67	4.77
25 L5 AR1248-A				NA			
26 L5 AR1248-B				NA			
27 L5 AR1248-C				NA			
28 L5 AR1248-D				NA			
29 L5 AR1248-E				NA			
30 L5 AR1248-F				NA			
31 L6 AR1254-A				NA			
32 L6 AR1254-B				NA			
33 L6 AR1254-C				NA			
34 L6 AR1254-D				NA			
35 L6 AR1254-E				NA			
36 L6 AR1254-F				NA			
37 L7 AR1260-A				NA			
38 L7 AR1260-B				NA			
39 L7 AR1260-C				NA			
40 L7 AR1260-D				NA			
41 L7 AR1260-E				NA			

6.5.5  
6

# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19163.D

42	L7	AR1260-F								
43	L8	AR1262-A	200.000	222.552	-11.3	0	0.00	5.12-	5.22	
44	L8	AR1262-B	200.000	228.534	-14.3	0	0.00	5.55-	5.65	
45	L8	AR1262-C	200.000	227.808	-13.9	0	0.00	5.70-	5.79	
46	L8	AR1262-D	200.000	225.680	-12.8	0	0.00	5.92-	6.02	
47	L8	AR1262-E	200.000	224.139	-12.1	0	0.00	6.11-	6.21	
48	L8	AR1262-F	200.000	216.889	-8.4	0	0.00	6.53-	6.63	
49	L9	AR1268-A								
50	L9	AR1268-B								
51	L9	AR1268-C								
52	L9	AR1268-D								
53	L9	AR1268-E								
54	L9	AR1268-F								
55	S	Decachlorobiphenyl								

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2								
58	L1	AR1016-A #2								
59	L1	AR1016-B #2								
60	L1	AR1016-C #2								
61	L1	AR1016-D #2								
62	L1	AR1016-E #2								
63	L1	AR1016-F #2								
64	L2	AR1221-A #2								
65	L2	AR1221-B #2								
66	L2	AR1221-C #2								
67	L2	AR1221-D #2								
68	L2	AR1221-E #2								
69	L3	AR1232-A #2								
70	L3	AR1232-B #2								
71	L3	AR1232-C #2								
72	L3	AR1232-D #2								
73	L3	AR1232-E #2								
74	L3	AR1232-F #2								
75	L4	AR1242-A #2	200.000	214.522	-7.3	0	0.00	3.59-	3.69	
76	L4	AR1242-B #2	200.000	222.840	-11.4	0	0.00	3.96-	4.06	
77	L4	AR1242-C #2	200.000	222.136	-11.1	0	0.00	4.14-	4.24	
78	L4	AR1242-D #2	200.000	223.986	-12.0	0	0.00	4.45-	4.55	
79	L4	AR1242-E #2	200.000	223.804	-11.9	0	0.00	4.71-	4.81	
80	L4	AR1242-F #2	200.000	222.131	-11.1	0	0.00	4.86-	4.96	
81	L5	AR1248-A #2								
82	L5	AR1248-B #2								
83	L5	AR1248-C #2								
84	L5	AR1248-D #2								
85	L5	AR1248-E #2								
86	L5	AR1248-F #2								
87	L6	AR1254-A #2								
88	L6	AR1254-B #2								
89	L6	AR1254-C #2								
90	L6	AR1254-D #2								
91	L6	AR1254-E #2								
92	L6	AR1254-F #2								
93	L7	AR1260-A #2								
94	L7	AR1260-B #2								
95	L7	AR1260-C #2								
96	L7	AR1260-D #2								
97	L7	AR1260-E #2								
98	L7	AR1260-F #2								
99	L8	AR1262-A #2	200.000	229.580	-14.8	0	0.00	5.19-	5.29	

6.5.5  
6



# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19164.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM19164.D\ECD1A.ch Vial: 5  
 Signal #2 : C:\msdchem\2\DATA\gmm413pcb\MM19164.D\ECD2B.ch  
 Acq On : 30 Jul 2015 10:10 am Operator: Russ  
 Sample : cc406-200 1232/1268 Inst : ECD 9  
 Misc : op56992,gmm413,15.0,,,5,1,soil Multiplr: 1.00  
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
 Title : PCBs by 8082a  
 Last Update : Wed Jul 22 11:20:24 2015  
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
 Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene			-----NA-----				
2 L1 AR1016-A			-----NA-----				
3 L1 AR1016-B			-----NA-----				
4 L1 AR1016-C			-----NA-----				
5 L1 AR1016-D			-----NA-----				
6 L1 AR1016-E			-----NA-----				
7 L1 AR1016-F			-----NA-----				
8 L2 AR1221-A			-----NA-----				
9 L2 AR1221-B			-----NA-----				
10 L2 AR1221-C			-----NA-----				
11 L2 AR1221-D			-----NA-----				
12 L2 AR1221-E			-----NA-----				
13 L3 AR1232-A	200.000	182.000	9.0	0	0.00	3.53-	3.63
14 L3 AR1232-B	200.000	182.404	8.8	0	0.00	3.89-	3.99
15 L3 AR1232-C	200.000	177.587	11.2	0	0.00	4.08-	4.18
16 L3 AR1232-D	200.000	171.066	14.5	0	0.00	4.38-	4.48
17 L3 AR1232-E	200.000	172.957	13.5	0	0.00	4.65-	4.75
18 L3 AR1232-F	200.000	172.179	13.9	0	0.00	4.77-	4.87
19 L4 AR1242-A			-----NA-----				
20 L4 AR1242-B			-----NA-----				
21 L4 AR1242-C			-----NA-----				
22 L4 AR1242-D			-----NA-----				
23 L4 AR1242-E			-----NA-----				
24 L4 AR1242-F			-----NA-----				
25 L5 AR1248-A			-----NA-----				
26 L5 AR1248-B			-----NA-----				
27 L5 AR1248-C			-----NA-----				
28 L5 AR1248-D			-----NA-----				
29 L5 AR1248-E			-----NA-----				
30 L5 AR1248-F			-----NA-----				
31 L6 AR1254-A			-----NA-----				
32 L6 AR1254-B			-----NA-----				
33 L6 AR1254-C			-----NA-----				
34 L6 AR1254-D			-----NA-----				
35 L6 AR1254-E			-----NA-----				
36 L6 AR1254-F			-----NA-----				
37 L7 AR1260-A			-----NA-----				
38 L7 AR1260-B			-----NA-----				
39 L7 AR1260-C			-----NA-----				
40 L7 AR1260-D			-----NA-----				
41 L7 AR1260-E			-----NA-----				

6.5.6  
6

# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19164.D

42	L7	AR1260-F											
43	L8	AR1262-A											
44	L8	AR1262-B											
45	L8	AR1262-C											
46	L8	AR1262-D											
47	L8	AR1262-E											
48	L8	AR1262-F											
49	L9	AR1268-A	200.000	177.980	11.0	0	0.00	5.55-	5.65				
50	L9	AR1268-B	200.000	181.826	9.1	0	0.00	5.71-	5.81				
51	L9	AR1268-C	200.000	185.790	7.1	0	0.00	6.11-	6.21				
52	L9	AR1268-D	200.000	181.694	9.2	0	0.00	6.17-	6.27				
53	L9	AR1268-E	200.000	186.593	6.7	0	0.00	6.29-	6.39				
54	L9	AR1268-F	200.000	169.736	15.1	0	0.00	6.75-	6.85				
55	S	Decachlorobiphenyl											

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2											
58	L1	AR1016-A #2											
59	L1	AR1016-B #2											
60	L1	AR1016-C #2											
61	L1	AR1016-D #2											
62	L1	AR1016-E #2											
63	L1	AR1016-F #2											
64	L2	AR1221-A #2											
65	L2	AR1221-B #2											
66	L2	AR1221-C #2											
67	L2	AR1221-D #2											
68	L2	AR1221-E #2											
69	L3	AR1232-A #2	200.000	184.177	7.9	0	0.00	3.59-	3.69				
70	L3	AR1232-B #2	200.000	183.334	8.3	0	0.00	3.96-	4.06				
71	L3	AR1232-C #2	200.000	181.175	9.4	0	0.00	4.14-	4.24				
72	L3	AR1232-D #2	200.000	179.356	10.3	0	0.00	4.45-	4.55				
73	L3	AR1232-E #2	200.000	179.356	10.3	0	0.00	4.45-	4.55				
74	L3	AR1232-F #2	200.000	173.854	13.1	0	0.00	4.71-	4.81				
75	L4	AR1242-A #2											
76	L4	AR1242-B #2											
77	L4	AR1242-C #2											
78	L4	AR1242-D #2											
79	L4	AR1242-E #2											
80	L4	AR1242-F #2											
81	L5	AR1248-A #2											
82	L5	AR1248-B #2											
83	L5	AR1248-C #2											
84	L5	AR1248-D #2											
85	L5	AR1248-E #2											
86	L5	AR1248-F #2											
87	L6	AR1254-A #2											
88	L6	AR1254-B #2											
89	L6	AR1254-C #2											
90	L6	AR1254-D #2											
91	L6	AR1254-E #2											
92	L6	AR1254-F #2											
93	L7	AR1260-A #2											
94	L7	AR1260-B #2											
95	L7	AR1260-C #2											
96	L7	AR1260-D #2											
97	L7	AR1260-E #2											
98	L7	AR1260-F #2											
99	L8	AR1262-A #2											

6.5.6  
6



# Continuing Calibration Summary

Job Number: FA26256  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM413-CC406  
Lab FileID: MM19166.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM19166.D\ECD1A.ch Vial: 6  
Signal #2 : C:\msdchem\2\DATA\gmm413pcb\MM19166.D\ECD2B.ch  
Acq On : 30 Jul 2015 10:40 am Operator: Russ  
Sample : cc406-200 1221/1254 Inst : ECD 9  
Misc : op56992,gmm413,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Wed Jul 22 11:20:24 2015  
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S Tetrachloro-m-xylene				NA			
2 L1 AR1016-A				NA			
3 L1 AR1016-B				NA			
4 L1 AR1016-C				NA			
5 L1 AR1016-D				NA			
6 L1 AR1016-E				NA			
7 L1 AR1016-F				NA			
8 L2 AR1221-A	200.000	209.218	-4.6	0	0.00	2.85	2.95
9 L2 AR1221-B	200.000	216.962	-8.5	0	0.00	3.16	3.26
10 L2 AR1221-C	200.000	224.377	-12.2	0	0.00	3.42	3.52
11 L2 AR1221-D	200.000	225.803	-12.9	0	0.00	3.48	3.58
12 L2 AR1221-E	200.000	235.463	-17.7	0	0.00	3.53	3.63
13 L3 AR1232-A				NA			
14 L3 AR1232-B				NA			
15 L3 AR1232-C				NA			
16 L3 AR1232-D				NA			
17 L3 AR1232-E				NA			
18 L3 AR1232-F				NA			
19 L4 AR1242-A				NA			
20 L4 AR1242-B				NA			
21 L4 AR1242-C				NA			
22 L4 AR1242-D				NA			
23 L4 AR1242-E				NA			
24 L4 AR1242-F				NA			
25 L5 AR1248-A				NA			
26 L5 AR1248-B				NA			
27 L5 AR1248-C				NA			
28 L5 AR1248-D				NA			
29 L5 AR1248-E				NA			
30 L5 AR1248-F				NA			
31 L6 AR1254-A	200.000	233.133	-16.6	0	0.00	4.25	4.35
32 L6 AR1254-B	200.000	237.599	-18.8	0	0.00	4.78	4.88
33 L6 AR1254-C	200.000	243.178	-21.6#	0	0.00	5.01	5.11
34 L6 AR1254-D	200.000	258.743	-29.4#	0	0.00	5.21	5.31
35 L6 AR1254-E	200.000	247.951	-24.0#	0	0.00	5.39	5.49
36 L6 AR1254-F	200.000	241.072	-20.5#	0	0.00	5.49	5.59
37 L7 AR1260-A				NA			
38 L7 AR1260-B				NA			
39 L7 AR1260-C				NA			
40 L7 AR1260-D				NA			
41 L7 AR1260-E				NA			



# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19166.D

42	L7	AR1260-F	-----NA-----
43	L8	AR1262-A	-----NA-----
44	L8	AR1262-B	-----NA-----
45	L8	AR1262-C	-----NA-----
46	L8	AR1262-D	-----NA-----
47	L8	AR1262-E	-----NA-----
48	L8	AR1262-F	-----NA-----
49	L9	AR1268-A	-----NA-----
50	L9	AR1268-B	-----NA-----
51	L9	AR1268-C	-----NA-----
52	L9	AR1268-D	-----NA-----
53	L9	AR1268-E	-----NA-----
54	L9	AR1268-F	-----NA-----
55	S	Decachlorobiphenyl	-----NA-----

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #2	-----NA-----
58	L1	AR1016-A #2	-----NA-----
59	L1	AR1016-B #2	-----NA-----
60	L1	AR1016-C #2	-----NA-----
61	L1	AR1016-D #2	-----NA-----
62	L1	AR1016-E #2	-----NA-----
63	L1	AR1016-F #2	-----NA-----
64	L2	AR1221-A #2	200.000 211.898 -5.9 0 0.00 2.89- 2.99
65	L2	AR1221-B #2	200.000 213.553 -6.8 0 0.00 3.21- 3.31
66	L2	AR1221-C #2	200.000 223.457 -11.7 0 0.00 3.46- 3.56
67	L2	AR1221-D #2	200.000 223.697 -11.8 0 0.00 3.53- 3.63
68	L2	AR1221-E #2	200.000 225.375 -12.7 0 0.00 3.59- 3.69
69	L3	AR1232-A #2	-----NA-----
70	L3	AR1232-B #2	-----NA-----
71	L3	AR1232-C #2	-----NA-----
72	L3	AR1232-D #2	-----NA-----
73	L3	AR1232-E #2	-----NA-----
74	L3	AR1232-F #2	-----NA-----
75	L4	AR1242-A #2	-----NA-----
76	L4	AR1242-B #2	-----NA-----
77	L4	AR1242-C #2	-----NA-----
78	L4	AR1242-D #2	-----NA-----
79	L4	AR1242-E #2	-----NA-----
80	L4	AR1242-F #2	-----NA-----
81	L5	AR1248-A #2	-----NA-----
82	L5	AR1248-B #2	-----NA-----
83	L5	AR1248-C #2	-----NA-----
84	L5	AR1248-D #2	-----NA-----
85	L5	AR1248-E #2	-----NA-----
86	L5	AR1248-F #2	-----NA-----
87	L6	AR1254-A #2	200.000 240.743 -20.4# 0 0.00 4.30- 4.40
88	L6	AR1254-B #2	200.000 240.104 -20.1# 0 0.00 4.81- 4.91
89	L6	AR1254-C #2	200.000 242.529 -21.3# 0 0.00 5.10- 5.20
90	L6	AR1254-D #2	200.000 251.213 -25.6# 0 0.00 5.27- 5.37
91	L6	AR1254-E #2	200.000 241.483 -20.7# 0 0.00 5.44- 5.54
92	L6	AR1254-F #2	200.000 249.800 -24.9# 0 0.00 5.49- 5.59
93	L7	AR1260-A #2	-----NA-----
94	L7	AR1260-B #2	-----NA-----
95	L7	AR1260-C #2	-----NA-----
96	L7	AR1260-D #2	-----NA-----
97	L7	AR1260-E #2	-----NA-----
98	L7	AR1260-F #2	-----NA-----
99	L8	AR1262-A #2	-----NA-----



# Continuing Calibration Summary

Job Number: FA26256  
Account: GSYNFLTI Geosyntec Consultants  
Project: NASA HQ (KHQA); KSC, FL

Sample: GMM413-CC406  
Lab FileID: MM19173.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\gm...cb\MM19173.D\ECD1A.ch Vial: 13  
Signal #2 : C:\msdchem\2\DATA\gmm413pcb\MM19173.D\ECD2B.ch  
Acq On : 30 Jul 2015 12:49 pm Operator: Russ  
Sample : cc406-400 1016/1260 Inst : ECD 9  
Misc : op57044,gmm413,15.0,,,5,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\80821v0722.m (ChemStation Integrator)  
Title : PCBs by 8082a  
Last Update : Wed Jul 22 11:20:24 2015  
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1 S	Tetrachloro-m-xylene	40.000	46.406	-16.0	115	0.00	3.24-	3.34
2 L1	AR1016-A	400.000	431.265	-7.8	111	0.00	3.53-	3.63
3 L1	AR1016-B	400.000	418.697	-4.7	109	0.00	3.76-	3.86
4 L1	AR1016-C	400.000	472.925	-18.2	113	0.00	4.08-	4.18
5 L1	AR1016-D	400.000	467.401	-16.9	114	0.01	4.18-	4.28
6 L1	AR1016-E	400.000	425.667	-6.4	108	0.00	4.25-	4.35
7 L1	AR1016-F	400.000	468.655	-17.2	117	0.01	4.47-	4.57
8 L2	AR1221-A			-----	NA	-----		
9 L2	AR1221-B			-----	NA	-----		
10 L2	AR1221-C			-----	NA	-----		
11 L2	AR1221-D			-----	NA	-----		
12 L2	AR1221-E			-----	NA	-----		
13 L3	AR1232-A			-----	NA	-----		
14 L3	AR1232-B			-----	NA	-----		
15 L3	AR1232-C			-----	NA	-----		
16 L3	AR1232-D			-----	NA	-----		
17 L3	AR1232-E			-----	NA	-----		
18 L3	AR1232-F			-----	NA	-----		
19 L4	AR1242-A			-----	NA	-----		
20 L4	AR1242-B			-----	NA	-----		
21 L4	AR1242-C			-----	NA	-----		
22 L4	AR1242-D			-----	NA	-----		
23 L4	AR1242-E			-----	NA	-----		
24 L4	AR1242-F			-----	NA	-----		
25 L5	AR1248-A			-----	NA	-----		
26 L5	AR1248-B			-----	NA	-----		
27 L5	AR1248-C			-----	NA	-----		
28 L5	AR1248-D			-----	NA	-----		
29 L5	AR1248-E			-----	NA	-----		
30 L5	AR1248-F			-----	NA	-----		
31 L6	AR1254-A			-----	NA	-----		
32 L6	AR1254-B			-----	NA	-----		
33 L6	AR1254-C			-----	NA	-----		
34 L6	AR1254-D			-----	NA	-----		
35 L6	AR1254-E			-----	NA	-----		
36 L6	AR1254-F			-----	NA	-----		
37 L7	AR1260-A	400.000	429.522	-7.4	110	0.01	5.12-	5.22
38 L7	AR1260-B	400.000	465.426	-16.4	115	0.01	5.49-	5.59
39 L7	AR1260-C	400.000	432.446	-8.1	110	0.01	5.55-	5.65
40 L7	AR1260-D	400.000	440.692	-10.2	108	0.01	5.92-	6.02
41 L7	AR1260-E	400.000	461.998	-15.5	115	0.01	6.11-	6.21

# Continuing Calibration Summary

**Job Number:** FA26256  
**Account:** GSYNFLTI Geosyntec Consultants  
**Project:** NASA HQ (KHQA); KSC, FL

**Sample:** GMM413-CC406  
**Lab FileID:** MM19173.D

42	L7	AR1260-F	400.000	413.572	-3.4	105	0.02	6.53-	6.63
43	L8	AR1262-A			-----NA-----				
44	L8	AR1262-B			-----NA-----				
45	L8	AR1262-C			-----NA-----				
46	L8	AR1262-D			-----NA-----				
47	L8	AR1262-E			-----NA-----				
48	L8	AR1262-F			-----NA-----				
49	L9	AR1268-A			-----NA-----				
50	L9	AR1268-B			-----NA-----				
51	L9	AR1268-C			-----NA-----				
52	L9	AR1268-D			-----NA-----				
53	L9	AR1268-E			-----NA-----				
54	L9	AR1268-F			-----NA-----				
55	S	Decachlorobiphenyl	40.000	40.130	-0.3	106	0.02	6.92-	7.02

\*\*\*\*\* Signal #2 \*\*\*\*\*

57	S	Tetrachloro-m-xylene #	40.000	45.650	-14.1	113	0.00	3.26-	3.36
58	L1	AR1016-A #2	400.000	438.902	-9.7	114	0.00	3.59-	3.69
59	L1	AR1016-B #2	400.000	439.000	-9.8	112	0.00	3.82-	3.92
60	L1	AR1016-C #2	400.000	473.512	-18.4	117	0.00	4.14-	4.24
61	L1	AR1016-D #2	400.000	471.280	-17.8	114	0.00	4.27-	4.37
62	L1	AR1016-E #2	400.000	453.799	-13.4	116	0.00	4.33-	4.43
63	L1	AR1016-F #2	400.000	460.894	-15.2	116	0.00	4.45-	4.55
64	L2	AR1221-A #2			-----NA-----				
65	L2	AR1221-B #2			-----NA-----				
66	L2	AR1221-C #2			-----NA-----				
67	L2	AR1221-D #2			-----NA-----				
68	L2	AR1221-E #2			-----NA-----				
69	L3	AR1232-A #2			-----NA-----				
70	L3	AR1232-B #2			-----NA-----				
71	L3	AR1232-C #2			-----NA-----				
72	L3	AR1232-D #2			-----NA-----				
73	L3	AR1232-E #2			-----NA-----				
74	L3	AR1232-F #2			-----NA-----				
75	L4	AR1242-A #2			-----NA-----				
76	L4	AR1242-B #2			-----NA-----				
77	L4	AR1242-C #2			-----NA-----				
78	L4	AR1242-D #2			-----NA-----				
79	L4	AR1242-E #2			-----NA-----				
80	L4	AR1242-F #2			-----NA-----				
81	L5	AR1248-A #2			-----NA-----				
82	L5	AR1248-B #2			-----NA-----				
83	L5	AR1248-C #2			-----NA-----				
84	L5	AR1248-D #2			-----NA-----				
85	L5	AR1248-E #2			-----NA-----				
86	L5	AR1248-F #2			-----NA-----				
87	L6	AR1254-A #2			-----NA-----				
88	L6	AR1254-B #2			-----NA-----				
89	L6	AR1254-C #2			-----NA-----				
90	L6	AR1254-D #2			-----NA-----				
91	L6	AR1254-E #2			-----NA-----				
92	L6	AR1254-F #2			-----NA-----				
93	L7	AR1260-A #2	400.000	435.868	-9.0	109	0.00	5.19-	5.29
94	L7	AR1260-B #2	400.000	435.447	-8.9	109	0.00	5.33-	5.43
95	L7	AR1260-C #2	400.000	424.212	-6.1	109	0.00	5.59-	5.69
96	L7	AR1260-D #2	400.000	430.509	-7.6	108	0.00	5.78-	5.88
97	L7	AR1260-E #2	400.000	458.239	-14.6	113	0.00	5.96-	6.06
98	L7	AR1260-F #2	400.000	446.597	-11.6	114	0.00	6.22-	6.32
99	L8	AR1262-A #2			-----NA-----				

6.5.8

6



**APPENDIX D**

**KEDD COMPLETION TICKET  
(FURNISHED ON CD)**

**DATA CHECKER****Completion Ticket**

On 8/18/2015 at 10:47 AM the following files were submitted to TtNUS

**Completion\_GSTTI\_KHQA\_20150818.txt**

**Lithology\_GSTTI\_KHQA\_20150818.txt**

**Location\_GSTTI\_KHQA\_20150818.txt**

**Project\_GSTTI\_KHQA\_20150818.txt**

**Result\_GSTTI\_KHQA\_20150818.txt**

**Sample\_GSTTI\_KHQA\_20150818.txt**

**Water\_GSTTI\_KHQA\_20150818.txt**

The following comment was provided with this submission:

**Waste Characterization and Wipe Sample Results (June and July 2015)**

If you need to identify this session at a later date you may use the Ticket Key:

**Repository2015818\_626116525\_kedd\_GSTTI**

You may print this page by clicking on the "Print This Page" button

Thank you for using the Data Checker, to upload more files click the "Upload Files" link in the menu.

Print this Page

**APPENDIX E**

**PHOTOGRAPHIC LOG**  
(FURNISHED ON CD)



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/17/2015**

**Direction: E**

**Comments: Utility Locate**



**Photograph**

**Date: 7/17/2015**

**Direction: N**

**Comments: Utility Locate**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/17/2015**

**Direction: E**

**Comments: Placed signage and established ingress/egress routes for facility personnel.**



**Photograph**

**Date: 7/17/2015**

**Direction: S**

**Comments: Placed signage and established ingress/egress routes for facility personnel.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/17/2015**

**Direction: E**

**Comments: Staged equipment and material.**



**Photograph**

**Date: 7/17/2015**

**Direction: S**

**Comments: Staged equipment and material.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/17/2015**

**Direction: E**

**Comments: Concrete removal from areas 2E-1, 2E-2, and 2E-4.**



**Photograph**

**Date: 7/17/2015**

**Direction: E**

**Comments: Concrete removal from areas 2E-1, 2E-2, and 2E-4.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/17/2015**

**Direction: SE**

**Comments: Tree removal  
from area 2E-5.**

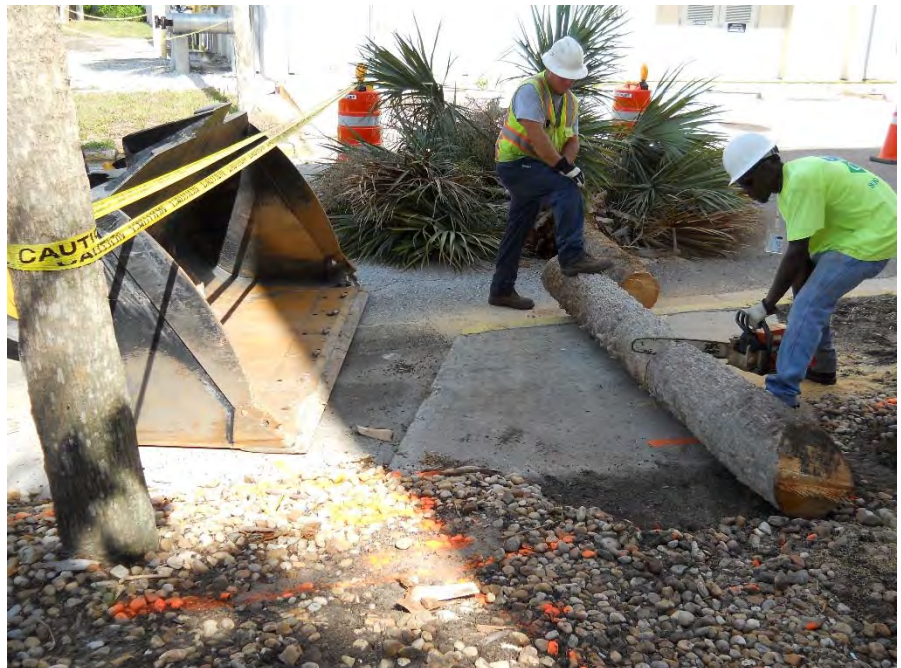


**Photograph**

**Date: 7/17/2015**

**Direction: W**

**Comments: Tree removal  
from area 2E-5.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/18/2015**

**Direction: E**

**Comments: Excavation in areas 2E-1 and 2E-2.**



**Photograph**

**Date: 7/18/2015**

**Direction: S**

**Comments: Excavation in areas 2E-2 and 2E-3.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/20/2015**

**Direction: S**

**Comments: Excavation in areas 2E-3 and 2E-4.**



**Photograph**

**Date: 7/17/2015**

**Direction: N**

**Comments: Excavation in area 2E-5.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/19/2015**

**Direction: N**

**Comments: Backfilling areas 2E-1 and 2E-2.**

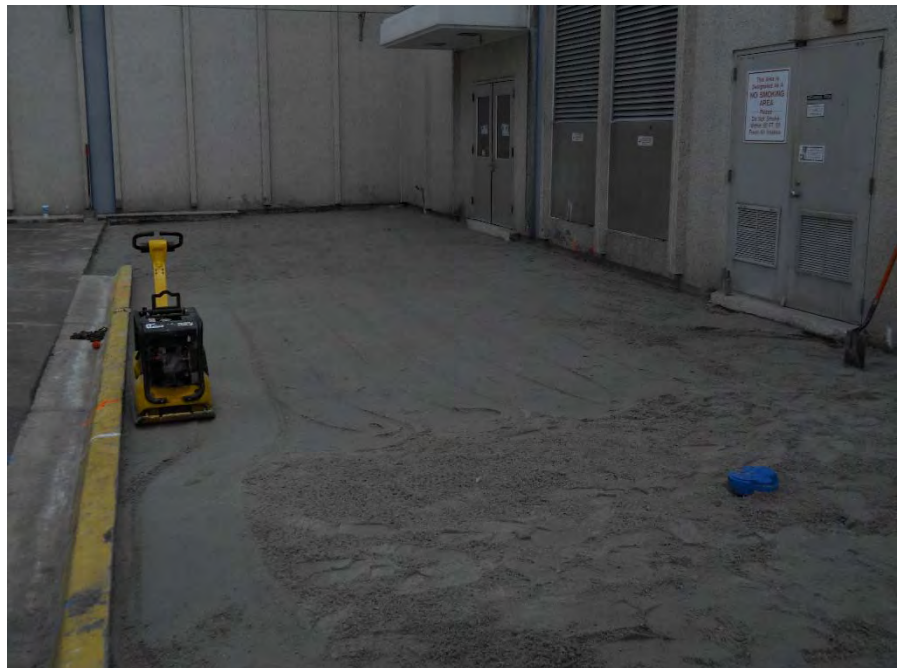


**Photograph**

**Date: 7/19/2015**

**Direction: N**

**Comments: Compaction in areas 2E-1 and 2E-2.**





**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/20/2015**

**Direction: E**

**Comments: Final grading in areas 2E-1 and 2E-2.**

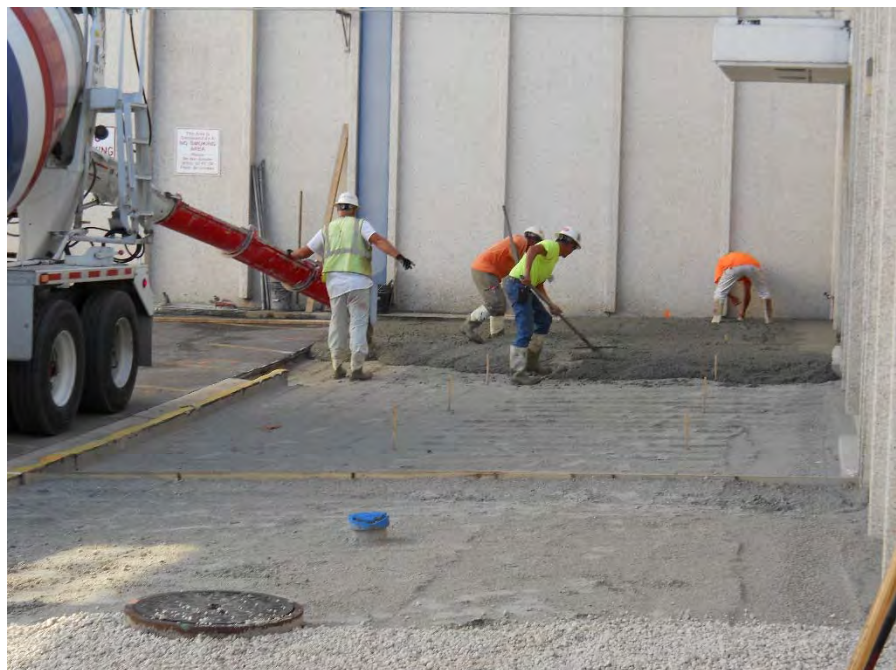


**Photograph**

**Date: 7/21/2015**

**Direction: N**

**Comments: Concrete pouring in areas 2E-1 and 2E-2.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/21/2015**

**Direction: N**

**Comments: Concrete pouring in areas 2E-4.**



**Photograph**

**Date: 7/21/2015**

**Direction: E**

**Comments: Decontaminating excavator bucket.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/21/2015**

**Direction: E**

**Comments: Re-graded  
laydown yard.**



**Photograph**

**Date: 7/21/2015**

**Direction: S**

**Comments: Filled in  
potholes with extra  
material.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/22/2015**

**Direction: N**

**Comments: Site restoration areas 2E-1, 2E-2, and 2E-3.**

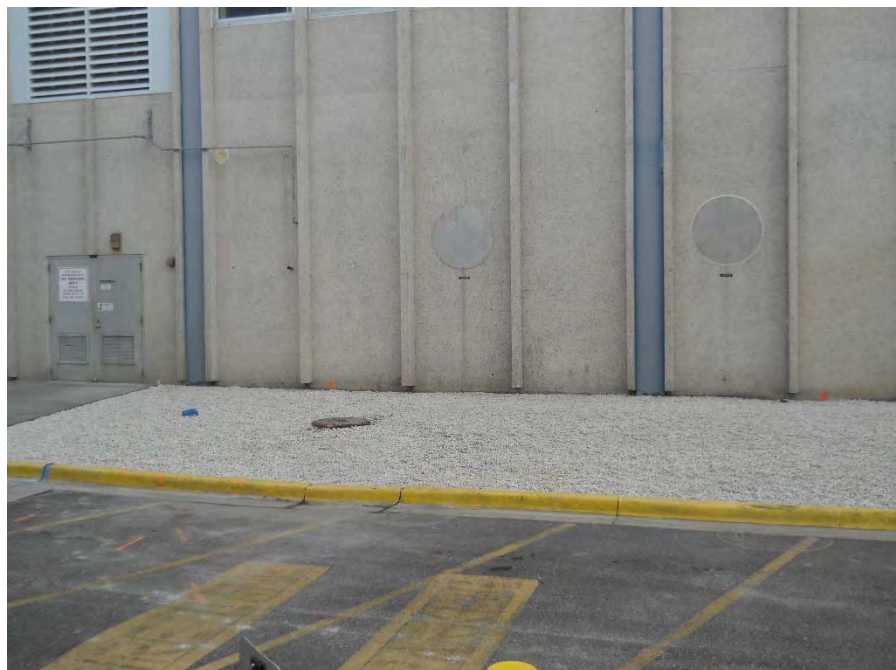


**Photograph**

**Date: 7/22/2015**

**Direction: E**

**Comments: Site restoration areas 2E-2 and 2E-3.**



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: NASA**

**Project Number: FR2576**

**Site Name: Headquarters Building Area**

**Site Location: Kennedy Space Center, FL**

**Photograph**

**Date: 7/22/2015**

**Direction: E**

**Comments: Site restoration areas 2E-3 and 2E-4.**



**Photograph**

**Date: 7/22/2015**

**Direction: E**

**Comments: Site restoration areas 2E-5.**



**APPENDIX F**

**WEIGHT TICKETS AND MANIFESTS  
(FURNISHED ON CD)**



**Omni Waste of Osceola County, LLC**  
**A Progressive Waste Solutions Company**  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	737990		akirk	
IN	OUT	TRUCK	CONT.	LICENCE
7/18/15 8:38 am	7/18/15 9:00 am	FECC		
REFERENCE			ORIGIN	
14003 397-2			BREVARD	

GROSS		62,060 lb	Scale In	COMMENTS:			
TARE		32,600 lb	Scale Out	BOL:			
NET		29,460 lb					
QTY	UNIT	DESCRIPTION	TRACKING	QTY	RATE	TAX	TOTAL
14.73	TN	Contaminated Soil	62,060.00	32,600.00	29,460.00		

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00 pm  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off # 53001

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number EPCO 10014566	2. Page 1 of 1	3. Emergency Response Phone 800 771 1030	4. Waste Tracking Number 397-2
-----------------------------------------	-------------------	---------------------------------------------	-----------------------------------

5. Generator's Name and Mailing Address  
Kennedy Space Center-NASA  
51 E. Poinciana Avenue  
Kennedy Space Center FL 32899

Generator's Site Address (if different than mailing address)  
NASA HQ KHQA  
Kennedy Space Center FL

Generator's Phone: 407 601 1306

6. Transporter 1 Company Name FECC Inc	U.S. EPA ID Number FL 0961748015
-------------------------------------------	-------------------------------------

7. Transporter 2 Company Name	U.S. EPA ID Number
-------------------------------	--------------------

8. Designated Facility Name and Site Address Orma Waste of DeSoto County 1501 Orma Way St Cloud FL 34773	U.S. EPA ID Number NA
-------------------------------------------------------------------------------------------------------------------	--------------------------

Facility's Phone: 407 891 3720

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
	No.	Type			
1. Non Regulated Material (PCB Contaminated Soil) RCRA 8 & D 1 Non Hazardous. None PPE FECC2106 15-011	001	CM	15		
2.					
3.					
4.					

62060  
14003

13. Special Handling Instructions and Additional Information  
Emergency Response/Manifest To: FECC Inc  
800 771 1030 3662 Old Winter Garden Road  
PR# 587 Orlando FL 32805

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offero's Printed/Typed Name Anne Christ	Signature <i>Anne Christ</i>	Month Day Year 7 17 15
--------------------------------------------------------	---------------------------------	---------------------------

15. International Shipments  Import to U.S.  Export from U.S. Port of entry/exit: \_\_\_\_\_  
Transporter Signature (for exports only): \_\_\_\_\_ Date leaving U.S.: \_\_\_\_\_

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name LARRY LAFFERTY	Signature <i>Larry Lafferty</i>	Month Day Year 7 18 15
Transporter 2 Printed/Typed Name	Signature	Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space  Quantity  Type  Residue  Partial Rejection  Full Rejection

Manifest Reference Number: \_\_\_\_\_

17b. Alternate Facility (or Generator)	U.S. EPA ID Number
----------------------------------------	--------------------

Facility's Phone: \_\_\_\_\_

17c. Signature of Alternate Facility (or Generator)	Month Day Year
-----------------------------------------------------	----------------

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name <i>MARK TRK</i>	Signature <i>Mark Trk</i>	Month Day Year 7 18 15
---------------------------------------	------------------------------	---------------------------

GENERATOR  
INT'L  
TRANSPORTER  
DESIGNATED FACILITY





Omni Waste of Osceola County, LLC  
 A Progressive Waste Solutions Company  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738016		akirk	
IN	OUT	TRUCK	CONT.	LICENCE
7/18/15 11:04 am	7/18/15 11:22 am	FECC		
REFERENCE			ORIGIN	
14003 397-1			BREVARD	

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
12.27	TN	Contaminated Soil	57,500.00	32,960.00	24,540.00	

GROSS 57,500 lb Scale In  
 TARE 32,960 lb Scale Out  
 NET 24,540 lb

COMMENTS:  
 BOL:

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00 pm  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off 53032

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number: F-85000-1050  
 2. Page 1 of  
 3. Emergency Response Phone: 800-771-1050  
 4. Waste Tracking Number: 397-1

5. Generator's Name and Mailing Address: Kennedy Space Center NASA, 51-21 14th Street, Kennedy Space Center, FL 32820  
 Generator's Site Address (if different than mailing address): NASA HQ KH04, Kennedy Space Center, FL

6. Transporter 1 Company Name: FECC Inc. U.S. EPA ID Number: FL098114015

7. Transporter 2 Company Name: U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Union Waste of Osceola County, 1001 Union Way, St Cloud FL 34771  
 Facility's Phone: 407 891 3720 U.S. EPA ID Number:

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. Non-Regulated Material (POB Contaminated Soil) RCRA 3 D D T Non-Hazardous None PF# FECC2308-15-011	001	DM	15	T
2.				
3.				
4.				

57500  
149003

13. Special Handling Instructions and Additional Information: Emergency Response/Manifest To FECC Inc, 3852 Old Winter Garden Road, Orlando FL 32805, PR# 397

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offor's Printed/Typed Name: Anne Crest Signature: [Signature] Month: 7 Day: 17 Year: 15

GENERATOR

15. International Shipments  Import to U.S.  Export from U.S. Port of entry/exit: Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials  
 Transporter 1 Printed/Typed Name: Ernest A. Whidden Signature: [Signature] Month: 7 Day: 18 Year: 15

Transporter 2 Printed/Typed Name: Larry Lafferty Signature: [Signature] Month: 7 Day: 18 Year: 15

TRANSPORTER

17. Discrepancy  
 17a. Discrepancy Indication Space  Quantity  Type  Residue  Partial Rejection  Full Rejection  
 Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number:  
 Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month: Day: Year:

DESIGNATED FACILITY

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a  
 Printed/Typed Name: [Signature] Signature: [Signature] Month: Day: Year:



**Omni Waste of Osceola County, LLC**  
**A Progressive Waste Solutions Company**  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738175		akirk	
IN	OUT	TRUCK	CONT.	LICENCE
7/20/15 10:40 am	7/20/15 10:59 am	FECC		
REFERENCE			ORIGIN	
14003 397-3			BREVARD	

GROSS 67,880 lb Scale In  
 TARE 33,900 lb Scale Out  
 NET 33,980 lb

COMMENTS:  
 BOL:

QTY	UNIT	DESCRIPTION	TRACKING	QTY	RATE	TAX	TOTAL
16.99	TN	Contaminated Soil	67,880.00	33,900.00	33,980.00		

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:0  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off # 53008

GENERATOR	<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number 397-3		
	5. Generator's Name and Mailing Address				Generator's Site Address (if different than mailing address)			
	Generator's Phone:							
	6. Transporter 1 Company Name				U.S. EPA ID Number			
	7. Transporter 2 Company Name				U.S. EPA ID Number			
TRANSPORTER	8. Designated Facility Name and Site Address				U.S. EPA ID Number			
	Facility's Phone:							
	9. Waste Shipping Name and Description				10. Containers		11. Total Quantity	12. Unit Wt./Vol.
					No.	Type		
	1. Hazardous Waste # PECC3338							62880 14003
2.								
3.								
4.								
DESIGNATED FACILITY	13. Special Handling Instructions and Additional Information Emergency Response/Manifest to: PECC Inc. 800/771-1050 3652 Old Winter Garden Road PR# 367 Orlando, FL 32805							
	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.							
	Generator's/Offor's Printed/Typed Name Anne Christ				Signature <i>[Signature]</i>		Month Day Year 7 17 15	
	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter Signature (for exports only): _____ Date leaving U.S.: _____							
	16. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <i>[Signature]</i>				Signature <i>[Signature]</i>		Month Day Year 7 20 15		
Transporter 2 Printed/Typed Name				Signature		Month Day Year		
17. Discrepancy								
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number: _____								
17b. Alternate Facility (or Generator)				U.S. EPA ID Number				
Facility's Phone: _____								
17c. Signature of Alternate Facility (or Generator)				Signature		Month Day Year		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a								
Printed/Typed Name <i>[Signature]</i>				Signature <i>[Signature]</i>		Month Day Year 7 20 15		



Omni Waste of Osceola County, LLC  
 A Progressive Waste Solutions Company  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738245		akirk	
IN	OUT	TRUCK	CONT.	LICENCE
7/20/15 2:57 pm	7/20/15 3:21 pm	FECC		
REFERENCE			ORIGIN	
14003 397-4			BREVARD	

		GROSS		71,860 lb		Scale In		COMMENTS:			
		TARE		32,660 lb		Scale Out		BOL:			
		NET		39,200 lb							
QTY	UNIT	DESCRIPTION	TRACKING	QTY	RATE	TAX	TOTAL				
19.60	TN	Contaminated Soil	71,860.00	32,660.00	39,200.00						

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00 pm  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off # 53014

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

FL0981748015

2. Page 1 of

3. Emergency Response Phone

305-771-1050

4. Waste Tracking Number

397-4

5. Generator's Name and Mailing Address

Kennedy Space Center NASA  
11101 Rte. 1  
Kennedy Space Center FL 32814

Generator's Site Address (if different than mailing address)

NASA HQ KHQA  
Kennedy Space Center FL

Generator's Phone: 321-867-2500

6. Transporter 1 Company Name

FECC, Inc

U.S. EPA ID Number

FL0981748015

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

Omni Waste of Osceola County  
1361 Omni Way  
St. Cloud FL 34133

U.S. EPA ID Number

134

Facility's Phone: 377-881-3720

9. Waste Shipping Name and Description

10. Containers

No. Type

11. Total Quantity

12. Unit Wt./Vol.

1. Non-Regulated Material (PCB Contaminated Soil) RCRA & D-G-T Non-Hazardous None PF# FECC2308-15-011

001

CM

15

T

2.

3.

4.

7/18/15  
14003

13. Special Handling Instructions and Additional Information

Emergency Response/Mail Manifest To: FECC, Inc  
800/771-1050 3652 Old Vinstar Garden Road  
PR# 397 Orlando, FL 32805

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name

Anne Christ

Signature

*Anne Christ*

Month Day Year

7/17/15

INT'L

15. International Shipments

Import to U.S.

Export from U.S.

Port of entry/exit:

Transporter Signature (for exports only):

Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

*Ernest A Whidden*

Signature

*Ernest A Whidden*

Month Day Year

07/20/15

Transporter 2 Printed/Typed Name

Signature

Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

Manifest Reference Number:

U.S. EPA ID Number

17b. Alternate Facility (or Generator)

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

*AAK 10/11*

Signature

*AAK 10/11*

Month Day Year

12/20/15



Omni Waste of Osceola County, LLC  
 A Progressive Waste Solutions Company  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738367		KASMITH	
IN	OUT	TRUCK	CONT.	LICENCE
7/21/15 8:30 am	7/21/15 8:59 am	FECC		
REFERENCE			ORIGIN	
14002 397-5			BREVARD	

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
		GROSS 52,300 lb Scale In				
		TARE 36,100 lb Scale Out				
		NET 16,200 lb				
8.10	TN	Contaminated Soil	52,300.00 36,100.00 16,200.00			

COMMENTS:  
 BOL:

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00 pm  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off # 53053

GENERATOR	<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number FL6300014585	2. Page 1 of 1	3. Emergency Response Phone 800-771-1060	4. Waste Tracking Number 397-5		
	5. Generator's Name and Mailing Address Kennedy Space Center-NASA 51-E2 (Attn: Anne Christ) Kennedy Space Center FL 32899				Generator's Site Address (if different than mailing address) NASA HQ (KHQA) Kennedy Space Center FL			
	Generator's Phone: 321-367-2606				U.S. EPA ID Number FL0981743015			
	6. Transporter 1 Company Name FECC Inc				U.S. EPA ID Number			
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address Omni Waste of Osceola County 1501 Omni Way St. Cloud FL 34775				U.S. EPA ID Number NA				
Facility's Phone: 407-891-3720								
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.			
		No.	Type					
1. Non Regulated Material (PCB Contaminated Soil) RCRA & D.O.T Non Hazardous None PF# FECC2306-15-011		001	CM	15	T			
2.								
3.								
4.								
13. Special Handling Instructions and Additional Information Emergency Response/Manifest To: FECC Inc. 800-771-1060 3852 Old Winter Garden Road PR# 387 Orlando FL 32805								
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.								
Generator's/Offorer's Printed/Typed Name Anne Christ				Signature <i>Anne Christ</i>		Month	Day	Year
						7	17	15
TRANSPORTER	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.				Port of entry/exit: _____ Date leaving U.S.: _____			
	16. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <i>Kay Van</i>				Signature <i>Kay Van</i>		Month	Day	Year
						07	21	15
Transporter 2 Printed/Typed Name				Signature		Month	Day	Year
DESIGNATED FACILITY	17. Discrepancy							
	17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
	Manifest Reference Number:							
	17b. Alternate Facility (or Generator)				U.S. EPA ID Number			
Facility's Phone:								
17c. Signature of Alternate Facility (or Generator)						Month	Day	Year
18. Designated Facility Owner or Operator, Certification of receipt of materials covered by the manifest except as noted in Item 17a								
Printed/Typed Name <i>Kapnick</i>				Signature <i>Kapnick</i>		Month	Day	Year
						17	21	15

52360  
14002





Omni Waste of Osceola County, LLC  
 A Progressive Waste Solutions Company  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738368		KASMITH	
IN	OUT	TRUCK	CONT.	LICENCE
7/21/15 8:44 am	7/21/15 9:00 am	FECC		
REFERENCE			ORIGIN	
14003 397-6			BREVARD	

GROSS		71,260 lb	Scale In	COMMENTS:			
TARE		33,380 lb	Scale Out	BOL:			
NET		37,880 lb					
QTY	UNIT	DESCRIPTION	TRACKING	QTY	RATE	TAX	TOTAL
18.94	TN	Contaminated Soil	71,260.00	33,380.00	37,880.00		

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00 pm  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off # 53019

<b>NON-HAZARDOUS WASTE MANIFEST</b>	1. Generator ID Number FLD981748015	2. Page 1 of 1	3. Emergency Response Phone 800-771-1050	4. Waste Tracking Number 397-6						
5. Generator's Name and Mailing Address Kennedy Space Center NASA 51 E. Matti Ave. West Kennedy Space Center FL 32899		Generator's Site Address (if different than mailing address) NASA HQ (KFOA) Kennedy Space Center FL								
Generator's Phone: 321-867-2500										
6. Transporter 1 Company Name FECC Inc		U.S. EPA ID Number FLD981748015								
7. Transporter 2 Company Name		U.S. EPA ID Number								
8. Designated Facility Name and Site Address Omni Waste of Osceola County 1301 Omni Way St Cloud FL 34773		U.S. EPA ID Number FL								
Facility's Phone: 407-891-3720										
GENERATOR	9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	71260 14003			
			No.	Type						
	1. Non Regulated Material / PCB Contaminated Soil, RCRA 5 & 6 D 1 Non-Hazardous None PF# FECC2308-15-011		301	CM	15	T				
	2.									
	3.									
4.										
13. Special Handling Instructions and Additional Information Emergency Response/Manifest To: FECC Inc 300771 1050 PR# 397 3652 Old Winter Garden Road Orlando FL 32805										
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.										
Generator's/Offoror's Printed/Typed Name Anne Christ					Signature <i>Anne Christ</i>		Month 7	Day 17	Year 15	
INT'L	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____									
	Transporter Signature (for exports only): _____				Date leaving U.S.: _____					
TRANSPORTER	16. Transporter Acknowledgment of Receipt of Materials									
	Transporter 1 Printed/Typed Name Ernest A. Whidden					Signature <i>Ernest A. Whidden</i>		Month 07	Day 21	Year 15
	Transporter 2 Printed/Typed Name					Signature		Month	Day	Year
DESIGNATED FACILITY	17. Discrepancy									
	17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
	17b. Alternate Facility (or Generator)				Manifest Reference Number:				U.S. EPA ID Number	
	Facility's Phone: _____									
17c. Signature of Alternate Facility (or Generator)										
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a										
Printed/Typed Name <i>Raf Smith</i>					Signature <i>Raf Smith</i>		Month 17	Day 15	Year 15	



**Omni Waste of Osceola County, LLC**  
**A Progressive Waste Solutions Company**  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE		TICKET #		OPERATOR	
44		738462		KASMITH	
IN	OUT	TRUCK	CONT.	LICENCE	
7/21/15 12:51 pm	7/21/15 1:07 pm	FECC			
REFERENCE			ORIGIN		
14003 397-7			BREVARD		

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
17.62	TN	Contaminated Soil	68,540.00 33,300.00 35,240.00			

GROSS 68,540 lb Scale In  
 TARE 33,300 lb Scale Out  
 NET 35,240 lb

COMMENTS:  
 BOL:

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00  
 Sunday - Closed

I hereby certify that this load does not contain any  
 unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll over # 2032  
397-7

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number FL 2800-1-0001	2. Page 1 of	3. Emergency Response Phone 1-800-777-1122	4. Waste Tracking Number 397-7
------------------------------------------	--------------	-----------------------------------------------	-----------------------------------

Generator's Name and Mailing Address Kennedy Space Center 3500 S. Atlantic Blvd Kennedy Space Center Cape Canaveral, FL 32925	Generator's Site Address (if different than mailing address) NASA HQ Kennedy Space Center
-------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------

Generator's Phone: 321-383-1320	6. Transporter 1 Company Name FECC Inc	U.S. EPA ID Number F 381743918
---------------------------------	-------------------------------------------	-----------------------------------

7. Transporter 2 Company Name	U.S. EPA ID Number
-------------------------------	--------------------

8. Designated Facility Name and Site Address County of Volusia 1501 Sunnyway St Cloud, FL 32135	U.S. EPA ID Number
----------------------------------------------------------------------------------------------------------	--------------------

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
	No.	Type			
1. Non-Regulated Material (PCB Contaminated Soil) RCRA 40 CFR 261.2 Non-Hazardous None PF# FECC2305 15-011	001	GM	15	T	
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information Emergency Response/Mail Manifest To: FECC, Inc. 800/777-1050 PR# 397 3853 Old Winter Garden Road Orlando, FL 32805
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offoror's Printed/Typed Name Gene Christ	Signature <i>Gene Christ</i>	Month Day Year 7 17 15
---------------------------------------------------------	---------------------------------	---------------------------

15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.	Port of entry/exit: Date leaving U.S.:
------------------------------------------------------------------------------------------------------------------	-------------------------------------------

16. Transporter Acknowledgment of Receipt of Materials	Signature <i>Ernest A. Whidden</i>	Month Day Year 07 31 15
Transporter 1 Printed/Typed Name Ernest A. Whidden	Signature	Month Day Year
Transporter 2 Printed/Typed Name	Signature	Month Day Year

17. Discrepancy	17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection	Manifest Reference Number:	U.S. EPA ID Number
-----------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------	--------------------

17b. Alternate Facility (or Generator)	U.S. EPA ID Number
----------------------------------------	--------------------

Facility's Phone:	17c. Signature of Alternate Facility (or Generator)	Month Day Year
-------------------	-----------------------------------------------------	----------------

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a	Signature <i>Rafael</i>	Month Day Year 7 21 15
--------------------------------------------------------------------------------------------------------------------------------------	----------------------------	---------------------------

GENERATOR  
INT'L  
TRANSPORTER  
DESIGNATED FACILITY

685210  
14003



**Omni Waste of Osceola County, LLC**  
**A Progressive Waste Solutions Company**  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738475		KASMITH	
IN	OUT	TRUCK	CONT.	LICENCE
7/21/15 1:17 pm	7/21/15 1:46 pm	FECC		
REFERENCE			ORIGIN	
14002 397-8			BREVARD	

		GROSS	66,520 lb	Scale In	COMMENTS:			
		TARE	35,780 lb	Scale Out	BOL:			
		NET	30,740 lb		TRACKING QTY	RATE	TAX	TOTAL
15.37	TN	Contaminated Soil	66,520.00	35,780.00	30,740.00			

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll 064 #53039

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number

FL8400014685

2. Page 1 of

1

3. Emergency Response Phone

800-771-1050

4. Waste Tracking Number

397-8

5. Generator's Name and Mailing Address

Kennedy Space Center-NASA  
31-E2 (Attn: Anne Christ)  
Kennedy Space Center FL 32899

Generator's Site Address (if different than mailing address)

NASA HQ (KHOA)  
Kennedy Space Center FL

Generator's Phone: 321-857-3506

6. Transporter 1 Company Name

FECC Inc.

U.S. EPA ID Number

FLD981748015

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

Omni Waste of Osceola County  
1501 Omni Way  
Orlando FL 32773

U.S. EPA ID Number

NA

Facility's Phone: 407-891-3720

9. Waste Shipping Name and Description

10. Containers

11. Total Quantity

12. Unit Wt./Vol.

No.

Type

1. Non Regulated Material (PCB Contaminated Soil) RCRA 3 D O T Non Hazardous None PF# FECC2308-15-011

001

CM

15

T

2.

3.

4.

13. Special Handling Instructions and Additional Information

Emergency Response/Mail Manifest To: FECC Inc.  
800/771-1050 3662 Old Winter Garden Road  
PR# 397 Orlando FL 32805

66520  
14007

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offoror's Printed/Typed Name

Anne Christ

Signature

*Anne Christ*

Month Day Year

7 17 15

INT'L

15. International Shipments

Import to U.S.

Export from U.S.

Port of entry/exit:

Transporter Signature (for exports only):

Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

*Kay Van*

Signature

*Kay Van*

Month Day Year

07 21 15

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

DESIGNATED FACILITY

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

*Kalmech*

Signature

*K*

Month Day Year

7 21 15



**Omni Waste of Osceola County, LLC**  
**A Progressive Waste Solutions Company**  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE	TICKET #		OPERATOR	
44	738632		akirk	
IN	OUT	TRUCK	CONT.	LICENCE
7/22/15 8:52 am	7/22/15 9:24 am	FECC		
REFERENCE			ORIGIN	
14003 397-9			BREVARD	

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
16.83	TN	Contaminated Soil	66,660.00 33,000.00 33,660.00			

GROSS 66,660 lb Scale In  
 TARE 33,000 lb Scale Out  
 NET 33,660 lb

COMMENTS:  
 BOL:

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00  
 Sunday - Closed

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll off 53017  
397-9

GENERATOR	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number FL8830014666	2. Page 1 of	3. Emergency Response Phone 800-771-1350	4. Waste Tracking Number 397-9			
	5. Generator's Name and Mailing Address Kennedy Space Center NASA 1 E. Eglin Ave. Christ Kennedy Space Center FL 32899			Generator's Site Address (if different than mailing address) NASA HQ (HQ01) Kennedy Space Center FL				
Generator's Phone: 321-457-2500			U.S. EPA ID Number FL0881748015					
6. Transporter 1 Company Name FECC Inc			U.S. EPA ID Number					
7. Transporter 2 Company Name			U.S. EPA ID Number					
8. Designated Facility Name and Site Address Omni Waste of Osceola County 1501 Omni Way St Cloud FL 34773			U.S. EPA ID Number					
Facility's Phone: 407-891-5720								
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	50003 09960 14003		
		No.	Type					
1. Non Regulated Material (PCB Contaminated Soil) RCRA & D.C.T. Non Hazardous - None PF# FECC2308-15-011		001	CM	15	T			
2.								
3.								
4.								
13. Special Handling Instructions and Additional Information Emergency Response/Manifest To: FECC Inc 800-771-1350 3852 Old Winter Garden Road PR# 357 Orlando, FL 32805								
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.								
Generator's/Offoror's Printed/Typed Name Anna Christ			Signature <i>Anna Christ</i>		Month	Day	Year	
					7	17	15	
INT'L	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
	16. Transporter Acknowledgment of Receipt of Materials							
TRANSPORTER	Transporter 1 Printed/Typed Name <i>Ernest A. Whidden</i>			Signature <i>Ernest A. Whidden</i>		Month	Day	Year
						07	22	15
Transporter 2 Printed/Typed Name			Signature		Month	Day	Year	
DESIGNATED FACILITY	17. Discrepancy							
	17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
	Manifest Reference Number: _____ U.S. EPA ID Number _____							
17b. Alternate Facility (or Generator)			U.S. EPA ID Number					
Facility's Phone: _____								
17c. Signature of Alternate Facility (or Generator)					Month	Day	Year	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a								
Printed/Typed Name <i>AAH</i>			Signature <i>AAH</i>		Month	Day	Year	





Omni Waste of Osceola County, LLC  
 A Progressive Waste Solutions Company  
 1501 Omni Way  
 St Cloud, FL 34773  
 PH: 407-891-3720

002306  
 FECC INC  
 KENNEDY SPACE CENTER NASA  
 3652 OLD WINTER GARDEN ROAD  
 CONTRACT: FECC2306-15-011

INVOICE  
 INBOUND

SITE		TICKET #		OPERATOR	
44		738727		akirk	
IN	OUT	TRUCK	CONT.	LICENCE	
7/22/15 1:38 pm	7/22/15 1:59 pm	FECC			
REFERENCE			ORIGIN		
14003 397-10			BREVARD		

GROSS		76,000 lb	Scale In	COMMENTS:			
TARE		34,060 lb	Scale Out	BOL:			
NET		41,940 lb					
QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL	
20.97	TN	Contaminated Soil	76,000.00	34,060.00	41,940.00		

New Hours of Operations  
 Monday thru Friday 5:00 am to 4:00 pm  
 Saturday 6:00 am to 12:00  
 Sunday - Closed

I hereby certify that this load does not contain any  
 unauthorized hazardous waste.

SIGNATURE: \_\_\_\_\_

CUSTOMER COPY

Roll # 53058

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number FL55JDU14583	2. Page 1 of 1	3. Emergency Response Phone 813-771-1050	4. Waste Tracking Number 397-10
	5. Generator's Name and Mailing Address Kennedy Space Center (MSC) 3104 Air Force Street Kennedy Space Center FL 32891			
Generator's Site Address (if different than mailing address) 445A-40 (KHQA) Kennedy Space Center FL			Generator's Phone: 887-2500	
6. Transporter 1 Company Name FECC Inc.	U.S. EPA ID Number FLD981748015			
7. Transporter 2 Company Name	U.S. EPA ID Number			
8. Designated Facility Name and Site Address Orma Waste of Osceola County 1501 Orma Way St Cloud FL 34770	U.S. EPA ID Number N/A			
Facility's Phone: 407-891-3720				
9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. Non Regulated Material (PCB Contaminated Soil) RCRA & DDT. Not Hazardous. None PF# FECC2308-15-011	001	CM	15	
2.				
3.				
4.				
13. Special Handling Instructions and Additional Information Emergency Response/Manifest To: FECC Inc 800-771-1050 PR# 397 3852 Old Winter Garden Road Orlando FL 32835				
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.				
Generator's/Offoror's Printed/Typed Name ARTE CHESS		Signature <i>Arte Chess</i>		Month Day Year 7   17   15
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____				
16. Transporter Acknowledgment of Receipt of Materials				
Transporter 1 Printed/Typed Name <i>Ernest A. White</i>		Signature <i>Ernest A. White</i>		Month Day Year 07   23   15
Transporter 2 Printed/Typed Name		Signature		Month Day Year
17. Discrepancy				
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection				
Manifest Reference Number: _____				
17b. Alternate Facility (or Generator)				U.S. EPA ID Number
Facility's Phone: _____				
17c. Signature of Alternate Facility (or Generator)				Month Day Year
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a				
Printed/Typed Name <i>AAKIRH</i>		Signature <i>AAKIRH</i>		Month Day Year 7   23   15

14003  
76000

**APPENDIX G**

**BACKFILL AND DENSITY TESTING REPORTS**  
(FURNISHED ON CD)

MAY 2015  
BACKFILL GEOTECH SAMPLING  
FIELD AND LABORATORY REPORT



# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

#### LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Kissimmee
- Leesburg
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- Tampa
- West Palm Beach

Project No.: 0310.1500146.0000

Date Typed: May 20, 2015

## Field and Laboratory Report Transmittal Sheet

Client: Brevard County Solid Waste Management Department  
2725 Judge Fran Jamieson Way, Bldg. A, Suite 118  
Viera, FL 32940

Project: Cocoa Landfill Import Fill Research  
Cocoa, FL

---

As requested, a representative of Universal Engineering Sciences, Inc. (UES) provided construction materials testing services of import fill material from local pits for the proposed landfill cell closure project. The requested tests included modified proctors, gradation, organic content, pH, permeability rate (remolded to 95% compaction) and soluble salts (IFAS method).

The results of the tests are summarized on the attached sheets. The reports are numbered as follows: **Pit Contact Information, 18112 MP, 18112 Curve, 18161 MP, 18161 Curve, 18159 MP, 18159 Curve, 18160 MP, 18160 Curve, 18179 MP, 18179 Curve, Org/pH Results, Perm/Wash #200/ Soluble Salts Results.** We trust this information is sufficient for your immediate needs. If you have any questions, please do not hesitate to contact the undersigned.

Reviewed By:  
**Universal Engineering Sciences, Inc.**  
Certificate of Authorization No. 549

Richard E. Hoaglin, P.E.  
**STATE OF FLORIDA**  
Licensed Professional Engineer No. 48796

ICC Email: [david.trafton@brevardcounty.us](mailto:david.trafton@brevardcounty.us)



# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

#### LOCATIONS:

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- Daytona Beach
- Fort Myers
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- Leesburg
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- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- Tampa
- West Palm Beach

Project No.: 0310.1500146.0000

Date Typed: May 20, 2015

## Pit Contact Information

Pit Name	Pit Location	Contact Name	Contact Number
Huntington Pit	Huntington Lane, Rockledge, FL	Mike Wagers	321-253-5556
Platt Pit	2200 Simon Rd, Melbourne	Doug Platt	321-288 7117
Reed Pit	2655 Pluckebaum Rd, Rockledge	Charlie Reed	321-676 5743
Hamilton Pit	7015 N. Courtenay Parkway	Brian Hamilton	321-427-5384
Brian Davis Pit	7200 84 <sup>th</sup> Ave, Vero Beach	Brian Davis	772-633-3431



**REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL**

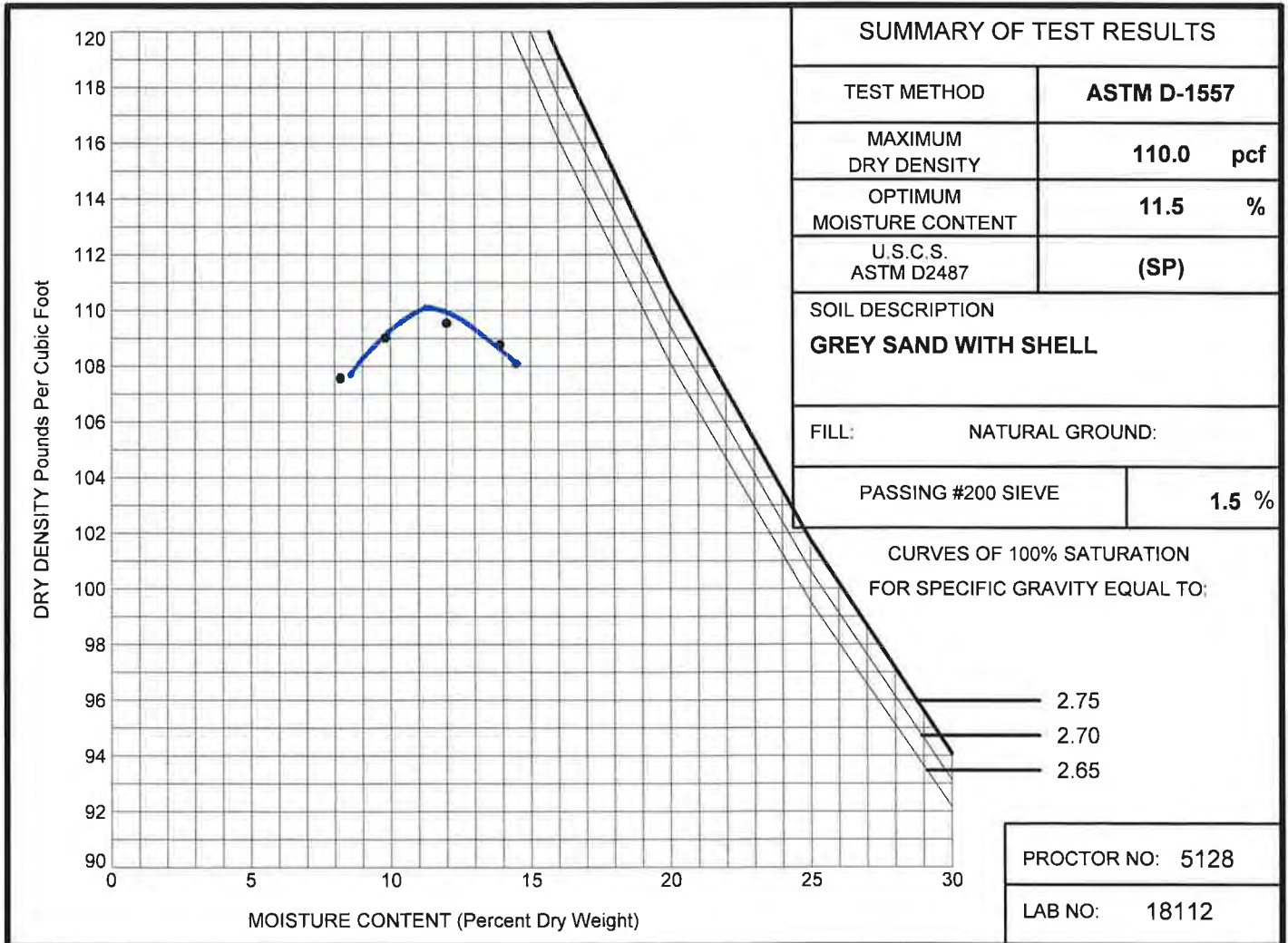
**Client: BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT  
2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118  
VIERA FLORIDA 32940**

**Project: COCOA LANDFILL IMPORT FILL RESEARCH  
  
COCOA, FLORIDA**

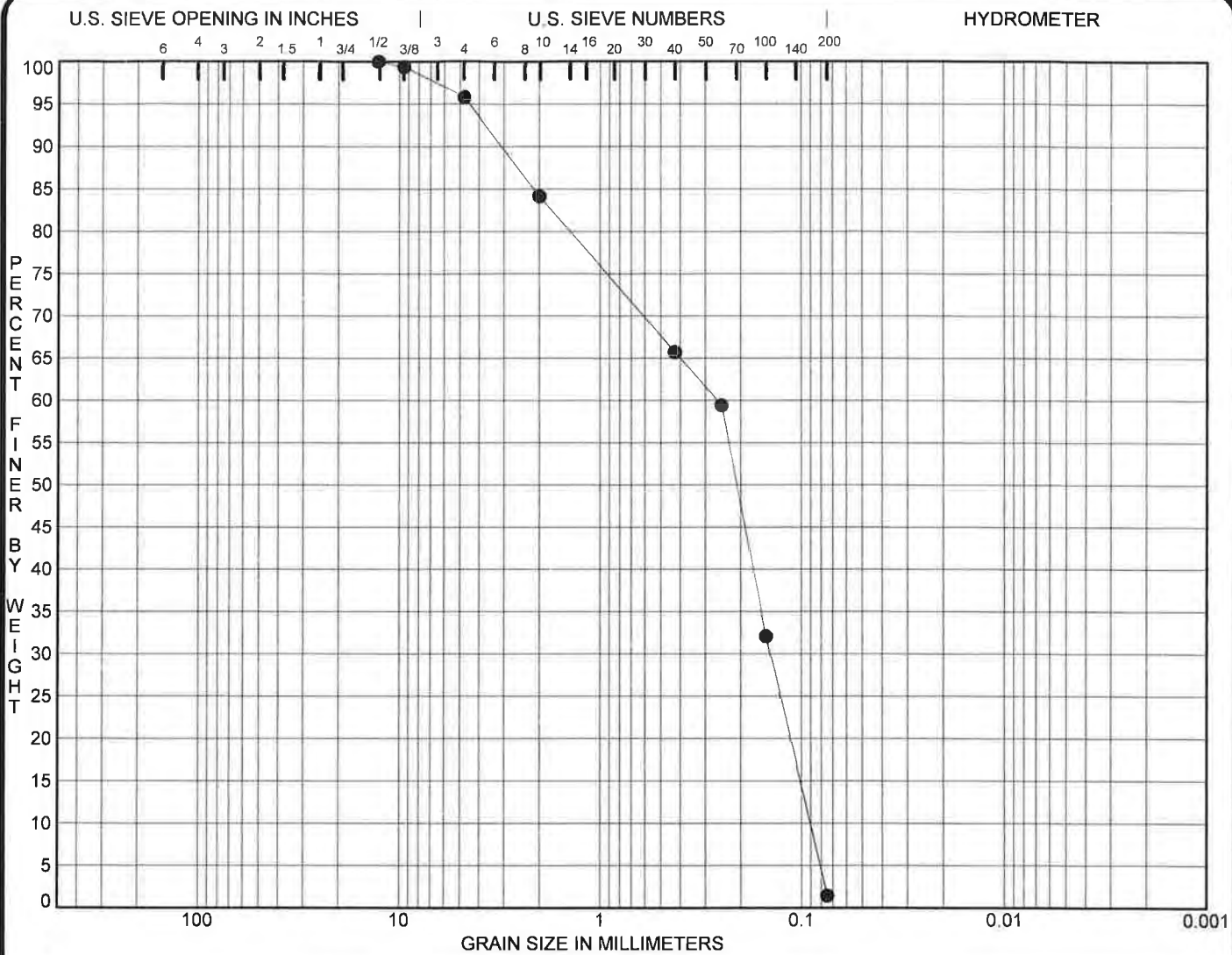
**Location: NATIVE - HAMILTON PIT**

**Date Sampled: 4/14/15**

**Sampled By: TIFFANY ENOS**



**NOTES:** This report shall not be reproduced, except in full, without the written approval of Universal Engineering Sciences.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● 5128	GREY SAND WITH SHELL (SP) NATIVE - HAMILTON PIT		NP	NP	NP	0.86	2.9
0							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 5128	12.70	0.26	0.143	0.0910	4.2	94.3	1.5	

1/2	3/8	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
100.0	99.4	95.8	84.2	65.7	59.4	32.1	1.5

Client: **BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT** Client No: 0310.1500146.000  
 2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118  
 VIERA FLORIDA 32940

Report No: 18112  
 Date: 4/23/15

Project: **COCOA LANDFILL IMPORT FILL RESEARCH**  
**COCOA, FLORIDA**

Sampled in accordance with ASTM D-75, C-702. This report shall not be reproduced, except in full, without the written approval of Universal Engineering Sciences.

**SOIL GRADATION CURVES**  
 (ASTM D422 & ASTM D4318)  
**UES**  
 ROCKLEDGE, FLORIDA





# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering -  
Environmental Sciences - Construction Materials Testing

Client No: 0310.1500146.0000

Date: May 7, 2015

820 Brevard Avenue - Rockledge, Florida 32955 - (321) 638-0808

## REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

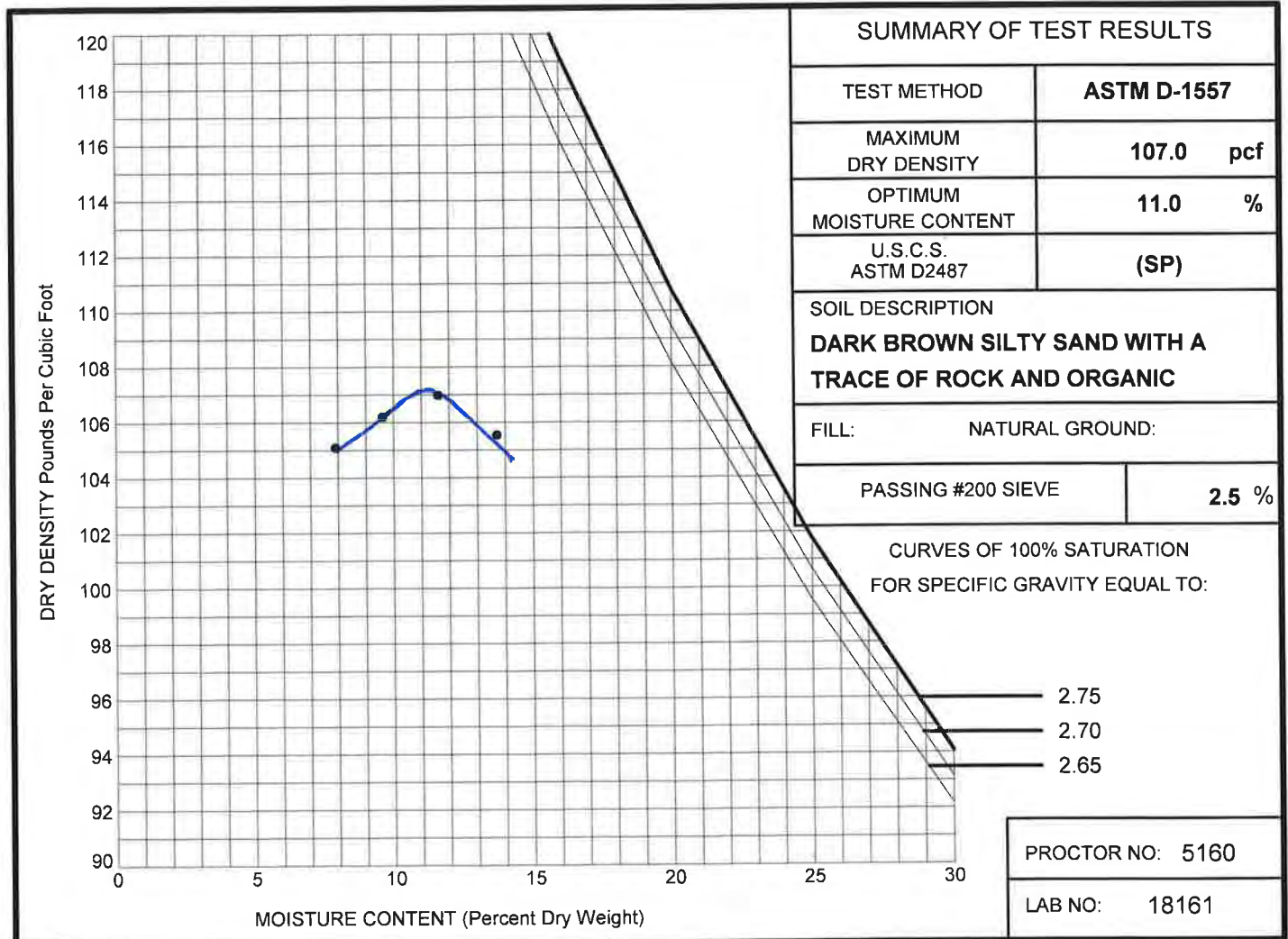
**Client:** BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT  
2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118  
VIERA FLORIDA 32940

**Project:** COCOA LANDFILL IMPORT FILL RESEARCH  
  
COCOA, FLORIDA

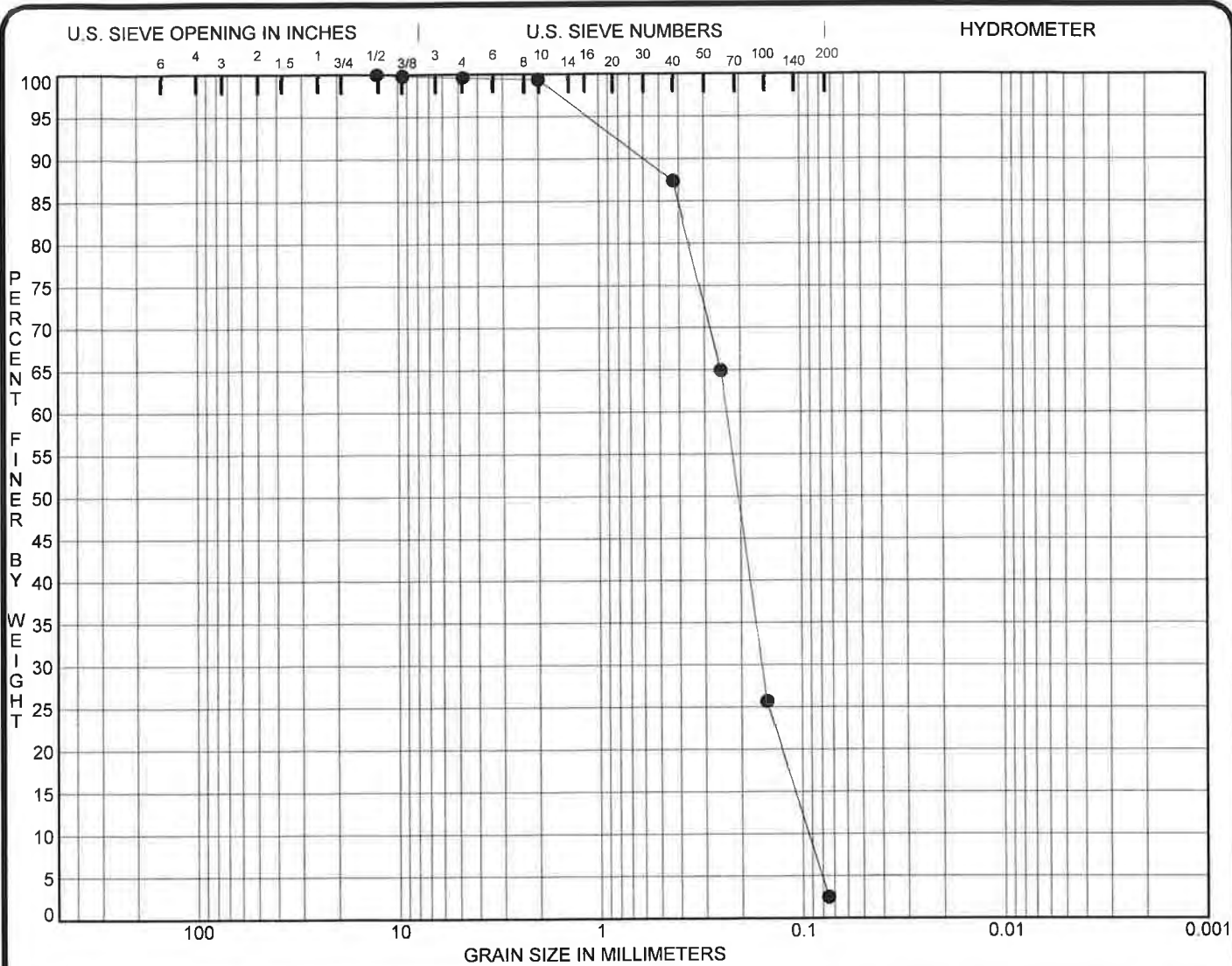
**Location:** FILL AND NATIVE - HUNTINGTON PIT

**Date Sampled:** 4/28/15

**Sampled By:** TIFFANY ENOS



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● 5160	DARK BROWN SILTY SAND WITH A TRACE OF ROCK AND ORGANIC (SP) FILL AND NATIVE - HUNTINGTON PIT					1.14	2.5
0							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 5160	12.70	0.23	0.159	0.0938	0.4	97.1	2.5	

1/2	3/8	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
100.0	99.8	99.6	99.4	87.4	64.9	25.7	2.5

Client: BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT Client No: 0310.1500146.0000  
 2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118 Report No: 18161  
 VIERA FLORIDA 32940 Date: 5/7/15

Project: COCOA LANDFILL IMPORT FILL RESEARCH

COCOA, FLORIDA

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**SOIL GRADATION CURVES**  
 (ASTM D422 & ASTM D4318)  
 UES  
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# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering -  
Environmental Sciences - Construction Materials Testing

Client No: 0310.1500146.0000

Date: May 8, 2015

820 Brevard Avenue - Rockledge, Florida 32955 - (321) 638-0808

## REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

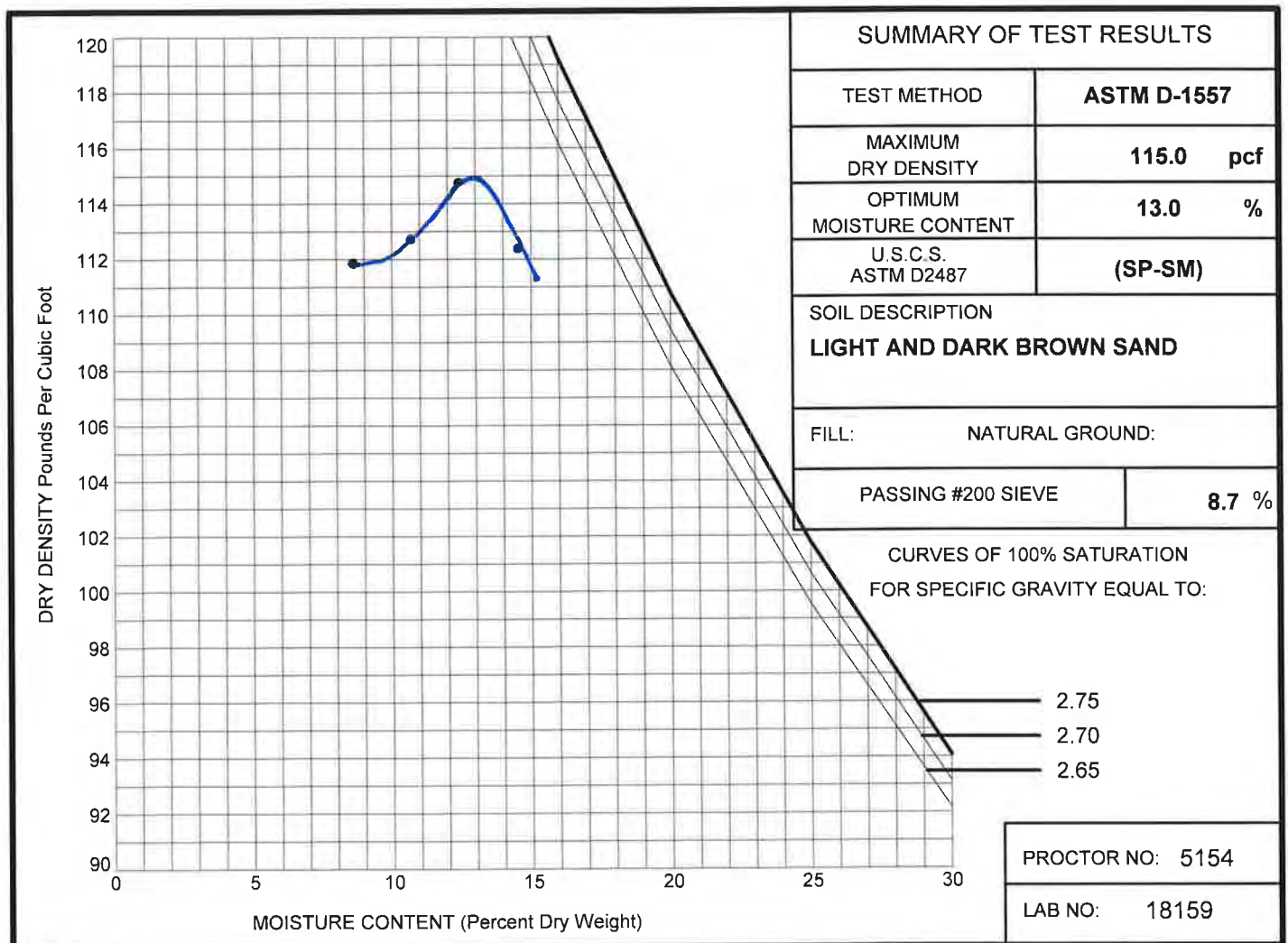
**Client:** BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT  
2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118  
VIERA FLORIDA 32940

**Project:** COCOA LANDFILL IMPORT FILL RESEARCH  
  
COCOA, FLORIDA

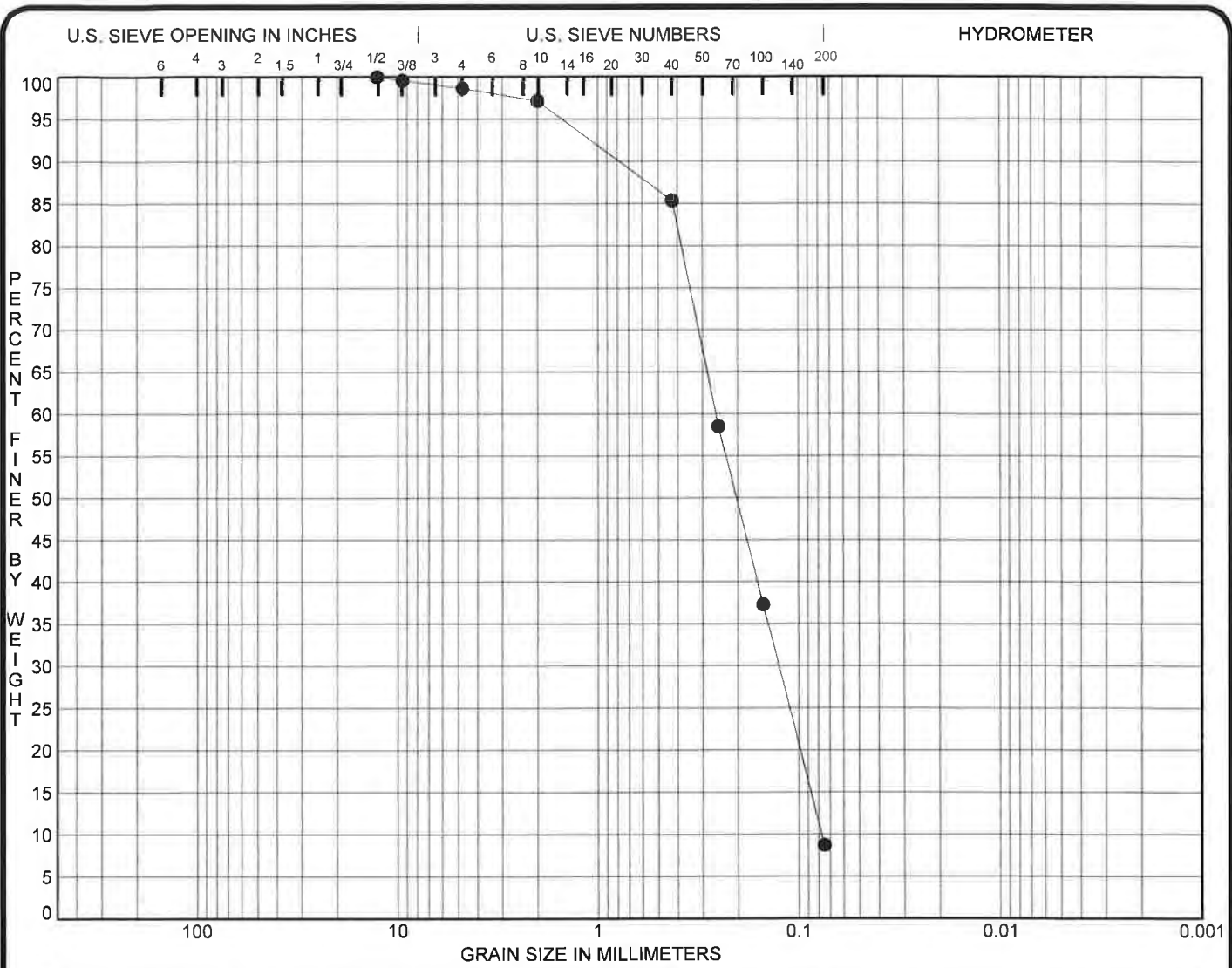
**Location:** NATIVE - STOCKPILE BRIAN DAVIS

**Date Sampled:** 4/28/15

**Sampled By:** CLIFF CHERRNAY



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● 5154	LIGHT AND DARK BROWN SAND (SP-SM) NATIVE - STOCKPILE BRIAN DAVIS					0.79	3.3
0							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 5154	12.70	0.26	0.126	0.0773	1.3	89.9	8.7	

1/2	3/8	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
100.0	99.6	98.7	97.2	85.4	58.5	37.3	8.7

Client: **BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT** Client No: 0310.1500146.0000  
 2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118 Report No: 18159  
 VIERA FLORIDA 32940 Date: 5/8/15

Project: **COCOA LANDFILL IMPORT FILL RESEARCH**  
**COCOA, FLORIDA**

Sampled in accordance with ASTM D-75, C-702. This report shall not be reproduced, except in full, without the written approval of Universal Engineering Sciences.

**SOIL GRADATION CURVES**  
 (ASTM D422 & ASTM D4318)  
**UES**  
 ROCKLEDGE, FLORIDA



# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering -  
Environmental Sciences - Construction Materials Testing

Client No: 0310.1500146.0000

Date: May 7, 2015

820 Brevard Avenue - Rockledge, Florida 32955 - (321) 638-0808

## REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

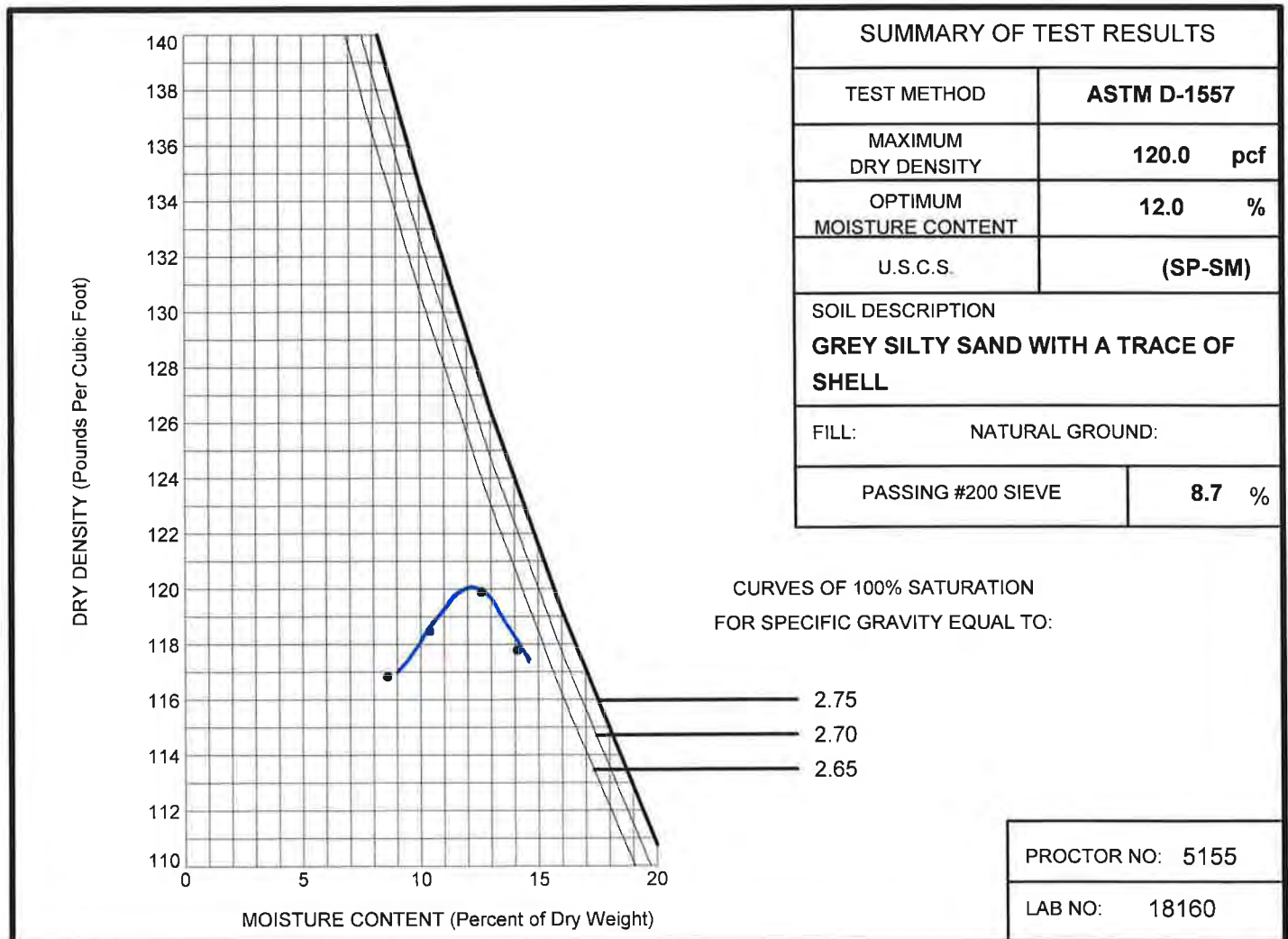
**Client:** BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT  
2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118  
VIERA FLORIDA 32940

**Project:** COCOA LANDFILL IMPORT FILL RESEARCH  
  
COCOA, FLORIDA

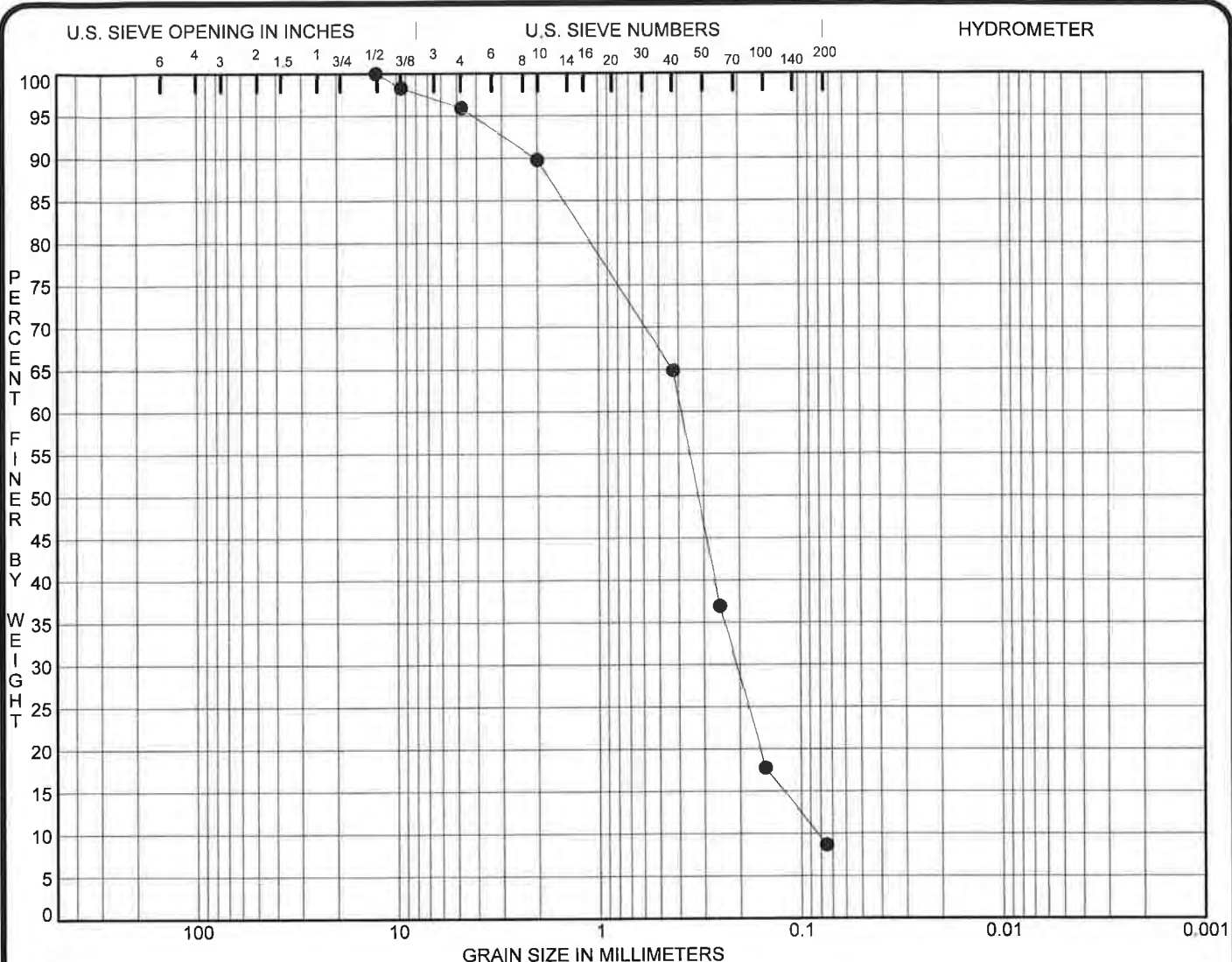
**Location:** FILL AND NATIVE - PLATT PIT

**Date Sampled:** 4/28/15

**Sampled By:** TIFFANY ENOS



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● 5155	GREY SILTY SAND WITH A TRACE OF SHELL (SP-SM) FILL AND NATIVE - PLATT PIT					1.34	4.7
0							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 5155	12.70	0.39	0.208	0.0830	4.1	87.3	8.7	

1/2	3/8	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
100.0	98.3	95.9	89.8	64.9	36.9	17.7	8.7

Client: **BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT** Client No: 0310.1500146.0000  
 2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118 Report No: 18160  
 VIERA FLORIDA 32940 Date: 5/7/15

Project: **COCOA LANDFILL IMPORT FILL RESEARCH**  
  
**COCOA, FLORIDA**

Sampled in accordance with ASTM D-75, C-702. This report shall not be reproduced except in full, without the written approval of Universal Engineering Sciences.

**SOIL GRADATION CURVES**  
 (ASTM D422 & ASTM D4318)  
**UES**  
 ROCKLEDGE, FLORIDA



**REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL**

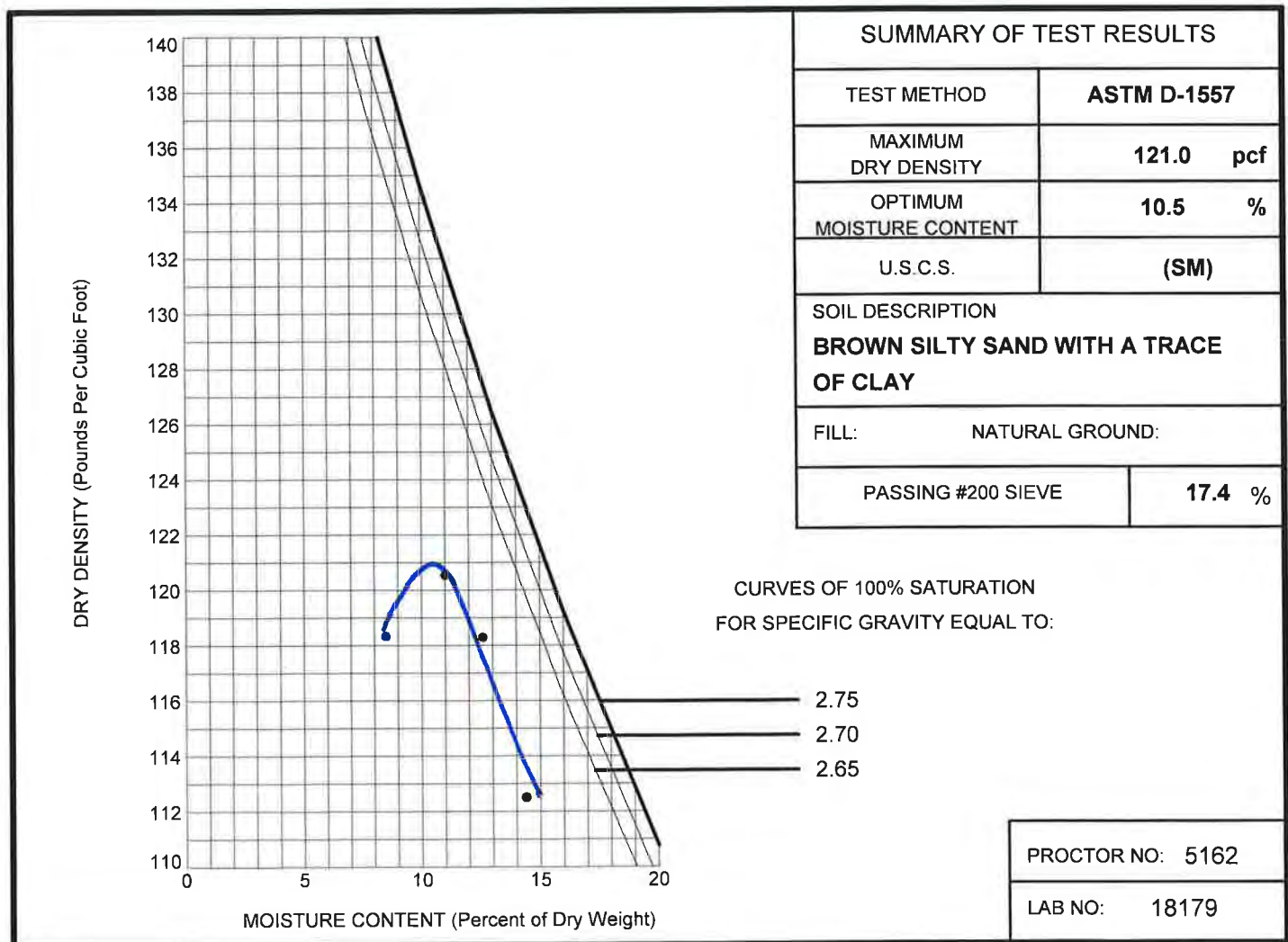
**Client: BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT  
2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118  
VIERA FLORIDA 32940**

**Project: COCOA LANDFILL IMPORT FILL RESEARCH  
  
COCOA, FLORIDA**

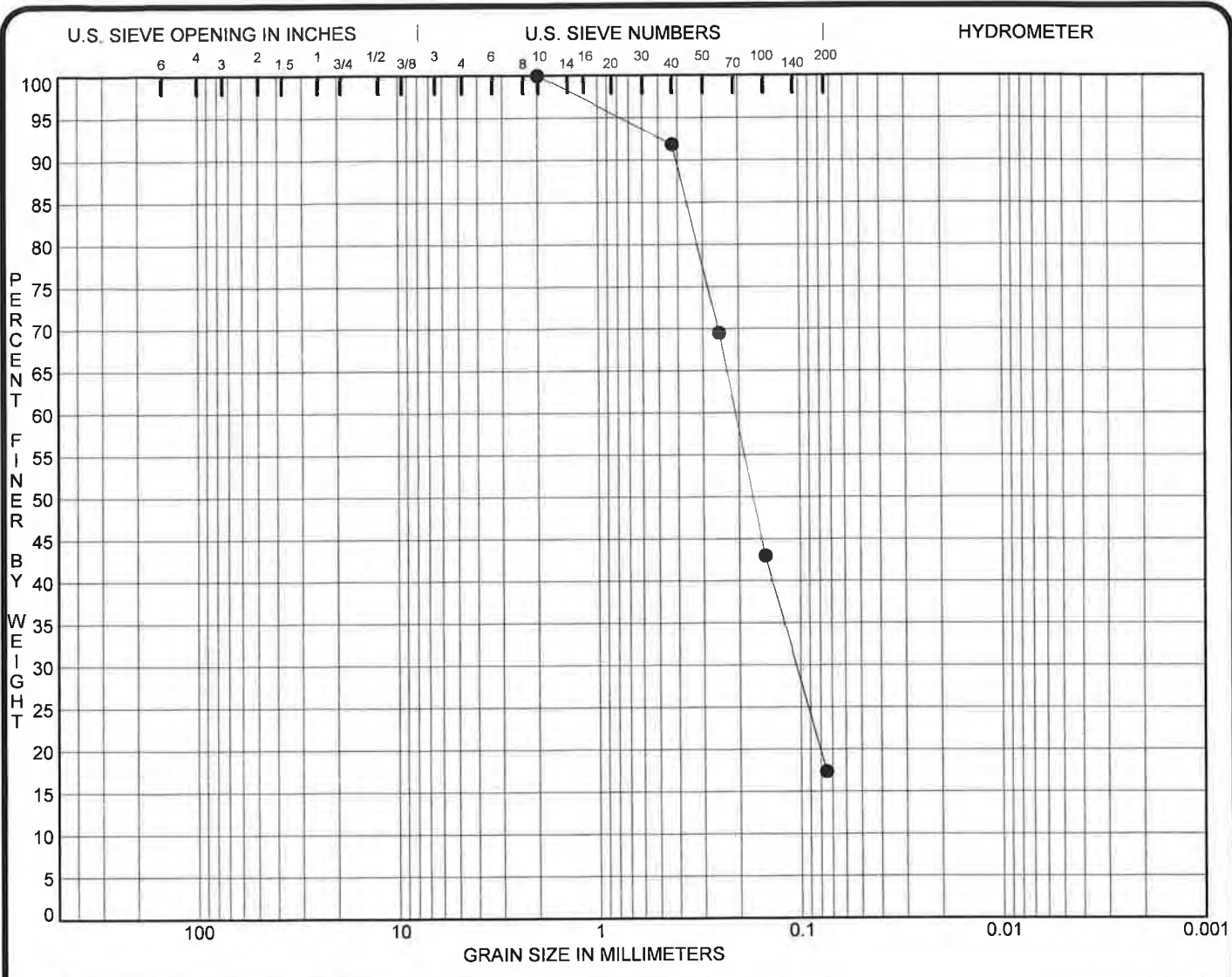
**Location: NATIVE - REED PIT**

**Date Sampled: 4/29/15**

**Sampled By: TIFFANY ENOS**



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● 5162	<b>BROWN SILTY SAND WITH A TRACE OF CLAY (SM) NATIVE - REED PIT</b>						
0							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 5162	2.00	0.21	0.106		0.0	82.6	17.4	

1/2	3/8	NO. 4	NO. 10	NO. 40	NO. 60	NO. 100	NO. 200
			100.0	91.9	69.5	43.0	17.4

**Client:** BREVARD COUNTY SOLID WASTE MANAGEMENT DEPARTMENT Client No: 0310.1500146.0000  
 2725 JUDGE FRAN JAMIESON WAY, BUILDING A, SUITE 118 Report No: 18179  
 VIERA FLORIDA 32940 Date: 5/8/15

**Project:** COCOA LANDFILL IMPORT FILL RESEARCH  
  
 COCOA, FLORIDA

Sampled in accordance with ASTM D-75, C-702. This report shall not be reproduced, except in full, without the written approval of Universal Engineering Sciences.

**SOIL GRADATION CURVES**  
 (ASTM D422 & ASTM D4318)  
 UES  
 ROCKLEDGE, FLORIDA





# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

UES Project No: 0310.1500146.0000  
UES Report No: 18159-18161 ORG  
Date: 04/28/15

## Report on Organic Content/ pH Content

<b>Client:</b>	Brevard County Solid Waste Management Department 2725 Judge Fran Jamieson Way, Bldg. A, Suite 118 Viera, FL 32940
<b>Project:</b>	Cocoa Landfill Import Fill Research Cocoa, Brevard County, FL
<b>Date Sampled:</b>	04/28/15
<b>Date Tested:</b>	5/4/15

### TEST RESULTS

Sample Number	Location	Description	Organic Content	pH Content
18159	Brian Davis Pit	Light to dark brown sand [SP-SM]	0.5	7.7
18160	Platt Pit	Grey silty sand with traces of shell [SP-SM]	0.3	7.5
18161	Huntington Pit	Dark brown silty sand with traces of rock and organics [SP]	0.9	7.7
18112	Hamilton Pit	Grey sand with shell [SP]	0.5	7.1
18179	Reed Pit	Brown silty sand with traces clay [SM]	1.7	5.8

This test was performed without deviation from ASTM procedure.

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# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

820 Brevard Avenue • Rockledge, FL • 32955  
321.638.0808 Fax: 321.638.0978

**Project No:** 0310.1500146.0000  
**Report No:** 18159-18161 Perm  
**Lab No:** 18159, 18160, 18161  
**Date Issued:** 04/28/15

## Report On Constant Head Permeability Test , Wash 200 & Soluble Salts

<b>Client:</b>	Brevard County Solid Waste Management Department 2725 Judge Fran Jamieson Way, Bldg. A, Suite 118 Viera, FL 32940
<b>Project:</b>	Cocoa Landfill Import Fill Research Cocoa, Brevard County, FL
<b>Location:</b>	Native Stockpile
<b>Sampled By:</b>	C. Bush
<b>Date Sampled:</b>	4/28/15
<b>Date Tested:</b>	5/7/15

### TEST RESULTS

Sample Number	Soil Type	Permeability Rate K (ft/day)	Passing #200 Sieve(%)	Soluble Salts (IFAS) PPM
18159	Light to dark brown sand [SP-SM]	2.1	8.7	480
18160	Grey silty sand with traces of shell [SP-SM]	9.6	8.7	230
18161	Dark brown silty sand with traces of rock and organics [SP]	26.8	2.5	920
18112	Grey sand with shell [SP]	26.9	1.5	170
18179	Brown silty sand with traces clay [SM]	5.7	17.4	300

This test was performed without deviation from ASTM procedure.

This report shall not be reproduced, except in full, without the written approval of Universal Engineering Sciences.

JULY 2015  
BACKFILL DENSITY TESTING  
FIELD AND LABORATORY REPORT



# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

#### LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Kissimmee
- Leesburg
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- Tampa
- West Palm Beach

Project No.: 0310.1500274.0000

Date Typed: August 4, 2015

## Field and Laboratory Report Transmittal Sheet

Client: Florida Environmental Compliance Corp (FECC)  
3652 Old Winter Garden Road  
Orlando, FL 32805

Project: NASA HQ Tank Backfill - FECC#397  
1st Street  
Kennedy Space Center, FL

---

As requested, a representative of Universal Engineering Sciences, Inc. (UES) was at the referenced project to provide construction materials testing services.

The results of the observations and/or tests are summarized on the attached sheets. The reports are numbered as follows: **42813 ARD1**, **42813 DT1**. We trust this information is sufficient for your immediate needs. If you have any questions, please do not hesitate to contact the undersigned.

Reviewed By:  
**Universal Engineering Sciences, Inc.**  
Certificate of Authorization No. 549

Richard E. Hoaglin, P.E.  
**STATE OF FLORIDA**  
Licensed Professional Engineer No. 48796

ICC Email: [aippolito@feccorporation.com](mailto:aippolito@feccorporation.com)

---

820 Brevard Avenue, Rockledge, Florida 32955 (321) 638-0808 Fax (321) 638-0978  
[www.UniversalEngineering.com](http://www.UniversalEngineering.com)



# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

820 Brevard Avenue • Rockledge, FL • 32955  
321.638.0808 Fax: 321.638.0978

UES Project No: 0310.1500274.0000

UES Report No: 42813 ARD1 072015

**On-Site Time (hrs):** 1.15  
**Lab Time (hrs):** 0.00  
**Travel Time (hrs):** 0.50  
**Total Time (hrs):** 1.65

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## Activity Record

**Client:** Florida Environmental Compliance Corp (FECC)  
3652 Old Winter Garden Road  
Orlando, FL 32805

**Project:** NASA HQ Tank Backfill - FECC#397  
1st Street, Kennedy Space Center, Brevard County, FL

**Date of Activity:** Monday, July 20, 2015

**Technician:** Jacob Begley

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As requested, a Universal Engineering Sciences Technician was present at the above referenced project site for the purpose of earthwork testing for the excavation backfill.

While on site, the technician observed the general condition of the areas to be tested and performed 4 density test(s) for excavation backfill. All test(s) were performed in accordance with the ASTM D-6938 Nuclear Gauge Method and were found to meet the project compaction requirements of 98% of the maximum dry density per ASTM D-1557.

The Contractor was notified of the test results or a copy was left for their records.

*This test(s) was performed without deviation from ASTM procedure.*

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## In-Place Density Test Report

**Client:** Florida Environmental Compliance Corp (FECC)  
3652 Old Winter Garden Road  
Orlando, FL 32805

**Project:** NASA HQ Tank Backfill - FECC#397  
1st Street, Kennedy Space Center, Brevard County, FL

**Area Tested:** Excavation backfill

**Type of Test:** Field: ASTM D-6938 Nuclear Gauge Method  
Lab: ASTM D-1557

**Technician:** Jacob Begley

**Date of Test:** 07/20/2015

**Requirements:** 98% of Proctor maximum dry density. These tests apply to the fill and/or surficial soil conditions only and do not address the condition of the underlying soils below the tested depths.

Test #	Location of Test	Range (FT)	Depth (IN)	Proctor (2)	Field Dry Density (PCF)	Field Moisture %	% Compaction	Comments (3)
1	2E-1	0-1	12.00	18195	106.4	9.6	99	A
2	2E-2	0-1	12.00	18195	107.5	9.9	100	A
3	2E-3	0-1	12.00	18195	107.2	6.1	99	A
4	2E-4	0-1	12.00	18195	105.9	6.9	98	A

(1) Ref. Datum: 0 = Top of Final Grade

(2)

Proctor #	Maximum Dry Density	Optimum Moisture Content
18195	108.0	10.5

### (3) Comments Key

- A. Compaction meets min. requirements
- B. Compaction does not meet min. requirements
- C. Moisture does not meet requirements
- D. Recompanction required
- E. Recompancted, Retested, Meets Requirements

*This test was performed without deviation from ASTM procedures.*

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