TARGETED BROWNFIELDS ASSESSMENT

Phase II Environmental Site Assessment
Vacant Land
800 Block of North Velasco Street
Houston, Harris County, Texas 77003

Prepared by:

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Prepared for:

U.S. Army Corps of Engineers
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New Orleans, Louisiana
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October 2019

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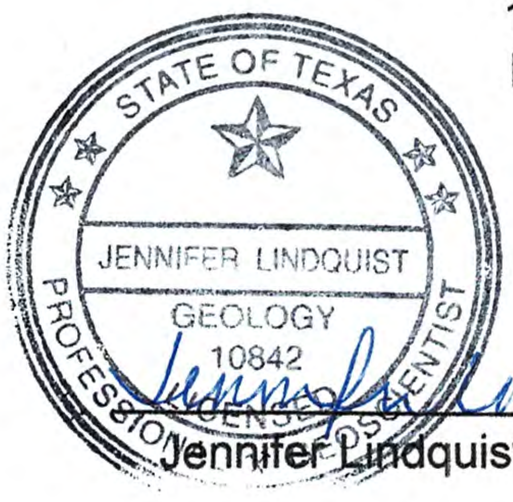

Prepared by:

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10/8/2019
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EXECUTIVE SUMMARY

On behalf of the U.S. Army Corps of Engineers – New Orleans District (USACE), JESCO Environmental and Geotechnical Services (JESCO)/Leaaf Environmental, LLC (Leaaf) have completed a Phase II Environmental Site Assessment (ESA) on vacant land that was formerly the Velasco Waste Incinerator property located at the 800 Block of North Velasco Street in Houston, Texas. This Phase II ESA was funded by the U.S. Environmental Protection Agency's (EPA's) Region 6 Targeted Brownfields Assessment (TBA) program. The property consists of a heavily overgrown vacant lot with no structures approximately 4.55 acres in size. A concrete slab approximately 100 feet by 250 feet is present in the southern portion of the site.

The site was the location of a municipal incineration facility in the 1950s and 1960s. Incinerator ash was likely placed onsite. A Limited Site investigation conducted by Terracon in 2006 characterized the nature and extent of the ash fill material onsite. The investigation concluded that metals and total petroleum hydrocarbons (TPH) exceeded applicable standards in soils at the property. Groundwater sampling indicated that lead, trichloroethene, and bis (2-ethylhexyl) phthalate exceeded applicable standards. The assumed source of contamination (ash fill material) remains in place.

JESCO Environmental & Geotechnical Services, Inc. and Leaaf Environmental, LLC (JESCO/Leaaf) were retained to collect and analyze of soil samples to characterize and quantify current constituents of concern (COCs) previously identified at the property. Additional COCs including polychlorinated biphenyls (PCBs), dioxins, and furans associated with past uses of the property but not previously analyzed were also sampled in this event.

Eight soil borings were advanced to eight feet below ground surface (bgs) and logged. Two soil samples were collected from each boring and analyzed for arsenic, mercury, lead, dioxins and furans, PCBs, trichloroethene, and bis (2-ethylhexyl) phthalate. Additionally, three of these borings (LB4, LB6, and LB8) were sampled at eight feet bgs and analyzed for arsenic, mercury, lead, dioxins and furans, bis (2-ethylhexyl) phthalate, and PCBs only. No groundwater was encountered.

The results of the soil sampling indicate that soils on the site contain elevated concentrations of arsenic, lead, mercury, PCBs, and dioxins and furans. Arsenic and lead concentrations exceeded both the human health and soil leaching Tier 1 PCLs. Mercury exceeded only the soil leaching Tier 1 PCL. PCBs and dioxins and furans toxicity equivalent quotients (TEQs) exceeded only the human health Tier 1 PCLs. JESCO/Leaaf recommend that site-specific risk evaluation be completed in order to develop PCLs to refine the area of impacted soil that may pose a risk to human health or the environment.

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1.0 INTRODUCTION

1.1 Purpose

JESCO Environmental & Geotechnical Services, Inc. and Leaaf Environmental, LLC (JESCO/Leaaf) were retained to conduct a Phase II Environmental Site Assessment (ESA) at vacant land that was formerly the Velasco Hazardous Waste Incinerator property. The site is located at the 800 Block of North Velasco Street in Houston, Texas. The site was the location of a municipal incineration facility in the 1950s and 1960s. Incinerator ash was likely placed onsite.

A Limited Site investigation conducted by Terracon in 2006 characterized the nature and extent of the ash fill material onsite. The investigation concluded that metals and total petroleum hydrocarbons (TPH) exceeded applicable standards in soils at the property. Groundwater sampling indicated that lead, trichloroethene (TCE), and bis (2-ethylhexyl) phthalate exceeded applicable standards. The assumed source of contamination (ash fill material) remains in place.

This Phase II ESA was provided through the EPA's Targeted Brownfields Assessment (TBA) program. This project was tasked to the U.S. Army Corps of Engineers (USACE), New Orleans District by the EPA Region 6 in response to a request from the City of Houston to assess the potential for environmental impact or impairment at this facility due to previous land use, site activity, or adjacent off-site activity.

EPA's Brownfields program empowers states, communities, and other stakeholders to work together to assess, clean up, and sustainably reuse Brownfields. A Brownfield is a property, expansion, redevelopment, or reuse of a property which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. The TBA program provides communities with environmental services such as environmental site assessments or investigations, and cleanup planning needed for revitalization projects at no cost to the stakeholders.

The objective of this Phase II ESA was to collect and analyze soil samples to characterize and quantify current constituents of concern (COCs) previously identified at the property. Additional COCs associated with past uses of the property but not previously analyzed (including polychlorinated biphenyls (PCBs), dioxins, and furans) were sampled.

1.2 Special Terms and Conditions

TBAs are available to public, quasi-public or non-profit entities such as municipalities, tribal governments, and community development organizations interested in redeveloping abandoned or underutilized properties. To qualify for an assessment, there must be a potential release of hazardous substances at the site, and the entity must have redevelopment plans for the site once the assessment is complete. Redevelopment can involve the creation of commercial, industrial, recreational or conservation uses.

1.3 Limiting Conditions and Methodology Used

JESCO/Leaaf has conducted this Phase II ESA in accordance with applicable portions of ASTM E1903-11 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process* and Texas Commission on Environmental Quality (TCEQ) *Texas Risk Reduction Program* (TRRP) Guidance Document.

2.0 BACKGROUND

2.1 Site Description and Features

The site entrance is located at N 29°45'31.87", W 95°20'9.32" in a mixed commercial and residential area of Houston, Texas (Figures 1 – 3, Appendix A). Buffalo Bayou is adjacent to the northern property boundary. Vacant land adjoins the site to the west. Commercial properties adjoin the site to the south and east. The site consists of a heavily overgrown vacant lot with no structures approximately 4.55 acres in size. A concrete slab approximately 100 feet by 250 feet exists in the southern portion of the site. The site was the location of a municipal incineration facility in the 1950s and 1960s. The facility is currently vacant.

2.2 Physical Setting

The property is located in Harris County. The elevation of the property is between approximately 30 feet and 45 feet above mean sea level (MSL) based on the topographic map (Figure 1, Appendix A). The topography is raised on the northern portion of the property and slopes toward the south.

2.3 Summary of Previous Assessments

A Limited Site Investigation was conducted by Terracon in 2006. During the 2006 investigation, 23 shallow soil borings were sampled, and six deeper borings were sampled and converted to monitor wells and groundwater samples were collected. Soil and groundwater samples were analyzed for Resource Conservation and Recovery Act (RCRA) metals, TPH (TX1005 only), volatile organic compounds (VOCs), and semivolatile organics compounds (SVOCs). The investigation concluded that metals and TPH exceeded applicable standards in soils at the property. Groundwater sampling indicated that lead, TCE, bis (2-ethylhexyl) phthalate exceeded applicable standards.

3.0 PHASE II ACTIVITIES

A Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP) was prepared for this site and was approved by EPA Region 6 in July 2019. This Phase II ESA was executed in accordance with the approved FSP/QAPP and in accordance with ASTM E 1903-11 and TCEQ's TRRP. All field work was conducted in accordance with a site-specific health and safety plan.

Prior to sampling, JESCO/Leaaf cleared pathways to the boring locations to provide access for the Geoprobe. Clearing was completed on August 30, 2019.

3.1 Soil Sampling

Eight soil borings were advanced to eight feet below ground surface (bgs) on September 10, 2019. Actual boring locations are depicted on Figure 3, Appendix A. Rationale for the boring placement is as follows:

- LB1 – at the southern extent of observed fill material (Terracon 2006).

- LB2-LB8 – placed in a grid pattern covering the center and boundaries of the fill at the site.

JESCO/Leaaf subcontracted the drilling services of Best Drilling Services, a Texas licensed Water Well Driller (4997-M), to advance the soil borings. Best Drilling Services utilized a remote operated Geoprobe direct push drill rig to advance the soil borings.

Soil samples were collected in 2-foot intervals during the advancement of each borehole. Soil boring logs were developed from observations, descriptions, and field screening results retrieved from each borehole. A portion of soil from each interval was placed in separate zip lock bags for at least 15 minutes to allow volatilization of possible organic vapors. A photoionization detector (PID) calibrated to 100 parts per million (ppm) isobutylene was then inserted into each bag. Organic vapor concentration measurements for each sample were then recorded on the soil boring logs. Refer to Appendix C for soil boring logs and PID results.

A maximum of three samples were retained for laboratory analysis from each boring as requested by EPA. Soil sample intervals were as follows:

- The surface soil interval (0-0.5 feet bgs).
- The soil interval at three feet bgs.
- The soil interval at eight feet bgs (3 borings only).

No elevated PID reading were recorded in any boring. Borings LB4, LB6, and LB8 were sampled at eight feet bgs because these borings contained fill material. Quality Assurance/Quality Control (QA/QC) samples were collected and analyzed in accordance with the approved FSP/QAPP.

Samples collected for VOC analyses were collected in accordance with SW-846 Method 5035 using Encore samplers. All sample containers were labeled with a unique identification number, and immediately placed in a cooler with sufficient ice to cool the sample to < 4°C. At a minimum, the sample label included the sample number, date, time, sample location, sampler's name, sample type, analysis to be performed and preservatives used. Clean nitrile gloves were worn during soil sampling to promote sample integrity and dermal protection. Samples selected for laboratory analysis were delivered to Pace Analytical National Center for Testing & Innovation (Pace National) in Mt. Juliet, TN following full chain of custody procedures. Requested analyses included:

- Metals – arsenic, mercury, and lead only (SW-846 Method 6010/7471)
- Dioxins and Furans (SW-846 Method 8290)
- PCBs (SW-846 Method 8082)
- VOCs -TCE only (SW-846 Method 8260)
- SVOCs – bis (2-ethylhexyl) phthalate only (SW-846 Method 8270)

Three samples from the deeper borings (eight feet bgs) were analyzed for metals, dioxins and furans, bis (2-ethylhexyl) phthalate only and PCBs only. Dioxins and furans were analyzed at Pace's Minneapolis, MN laboratory. Per the FSP/QAPP, bis (2-ethylhexyl) phthalate should not have been analyzed in the eight-foot samples; however, it was inadvertently requested and reported. One composite sample of investigation derived waste (IDW) was submitted for TCLP

(EPA SW-846 Method 1311) VOCs, SVOCs, and metals, and reactivity, corrosivity, and ignitability (RCI) (EPA SW-846 Methods 9012/9030/9034/1010/9045).

Decontamination of non-disposable sample equipment and stainless steel tools was performed to prevent the introduction of off-site contaminants into sampling points, to prevent cross contamination of sampling points, and to prevent the removal of contaminants from the site. All tools and sampling equipment were cleaned prior to arrival at the site. Between uses, all sampling instruments, including knives, spoons and bowls, were decontaminated by washing with Liquinox™ and rinsing with distilled or deionized water. Between sampling locations, all down-hole equipment that comes in direct contact with the sampled material or contaminants was cleaned by washing with Liquinox™ and rinsing with water. Wash water was collected and stored on-site for disposal.

Upon completion of sampling activities, borings were refilled to grade with clean fill material. IDW and decontamination water were drummed, labeled, and left on site. JESCO/Leaaf will properly dispose the IDW.

4.0 EVALUATION AND PRESENTATION OF RESULTS

Prior to collecting samples for laboratory analysis, each soil interval was field screened with a calibrated PID. The PID results are included on the boring logs provided in Appendix C. Elevated VOC concentrations as measured by the PID were not observed in any interval.

The results of the soil sampling were evaluated with respect to TRRP Tier 1 Residential protective concentrations levels (PCLs) for residential soil from a 0.5 acre source area ($^{Tot}Soil_{Comb}$) (which includes inhalation, ingestion, dermal, and vegetable consumption risk pathways) and the $^{GW}Soil_{Ing}$ (which includes soil leaching to Tier 1 or 2 groundwater) to determine whether detected COCs posed a risk to human health or the environment. The analytical results were compared to the more conservative of the $^{Tot}Soil_{Comb}$ and the $^{GW}Soil_{Ing}$ to determine the limiting standard. Because soil pH was not analyzed, the more conservative PCLs for mercury were used in the evaluation. Soil analytical results and PCLs are summarized in Table 1, Appendix B.

Toxicity equivalent quotients (TEQs) for dioxins and furans were calculated in accordance with TCEQ's TRRP §350.76 (e). Total congener concentrations reported by the laboratory were multiplied by the appropriate toxicity equivalency factor (TEF) in §350.76 (e) to calculate the TEQ for each congener. The laboratory calculated a total concentration for 1,2,3,7,8-Pentachlorodibenzofuran and 2,3,4,7,8-Pentachlorodibenzofuran; the more conservative TEF of 0.5 was used to calculate the TEQ for total Pentachlorodibenzofuran. TEQ calculations are included in Table 2, Appendix B.

COCs detected in excess of the limiting standard are summarized in the following table.

Parameter	Maximum Concentration Detection (mg/kg)	Maximum Concentration Location	Locations Detected > Limiting Standard
Arsenic	195	LB6-3	LB2-0, LB2-3, LB4-3, LB4-8, LB5-3, LB6-3, LB6-8, LB7-0, LB7-3, LB8-0, LB8-3
Lead	5640	LB8-8	All sampled locations

Mercury	0.838	LB7-3	All sampled locations except LB1-3
PCB 1248	1.23	LB5-0	LB5-0
PCB 1260	1.31	LB5-0	LB5-0
Dioxins and Furans TEQ	0.002058	LB5-0	LB5-0, LB6-8, LB7-3

Several sampled locations exceeded both the $^{Tot}Soil_{Comb}$ and the $^{GW}Soil_{Ing}$ concentrations for arsenic and lead. One location exceeded the $^{Tot}Soil_{Comb}$ for PCBs (1248 and 1260). Mercury concentrations exceeded the $^{GW}Soil_{Ing}$ only at all but one location. Dioxins and furans TEQs exceeded the $^{Tot}Soil_{Comb}$ at three sampled locations. No other analyzed COCs exceed Tier 1 PCLs. Concentrations exceeding Tier 1 PCLs are highlighted on Table 1, Appendix B. Elevated soil concentrations are mapped on Figures 4 through 8, Appendix A. The laboratory reports are included in Appendix D.

5.0 DISCUSSION OF FINDINGS

The results of the soil sampling indicate that soils on the site contain elevated concentrations of arsenic, lead, mercury, PCBs and dioxins/furans. All three metals exceeded Tier 1 PCLs at all three sampled depth intervals (surface, three, and eight feet bgs). Arsenic and lead concentrations exceeded both the human health and soil leaching Tier 1 PCLs. Mercury exceeded the soil leaching Tier 1 PCL only at all but one sampled location. PCBs (1248 and 1260) exceeded the human health Tier 1 PCL at one location. Dioxins and furans TEQs exceeded the human health Tier 1 PCL at three sampled locations, each at a different depth interval.

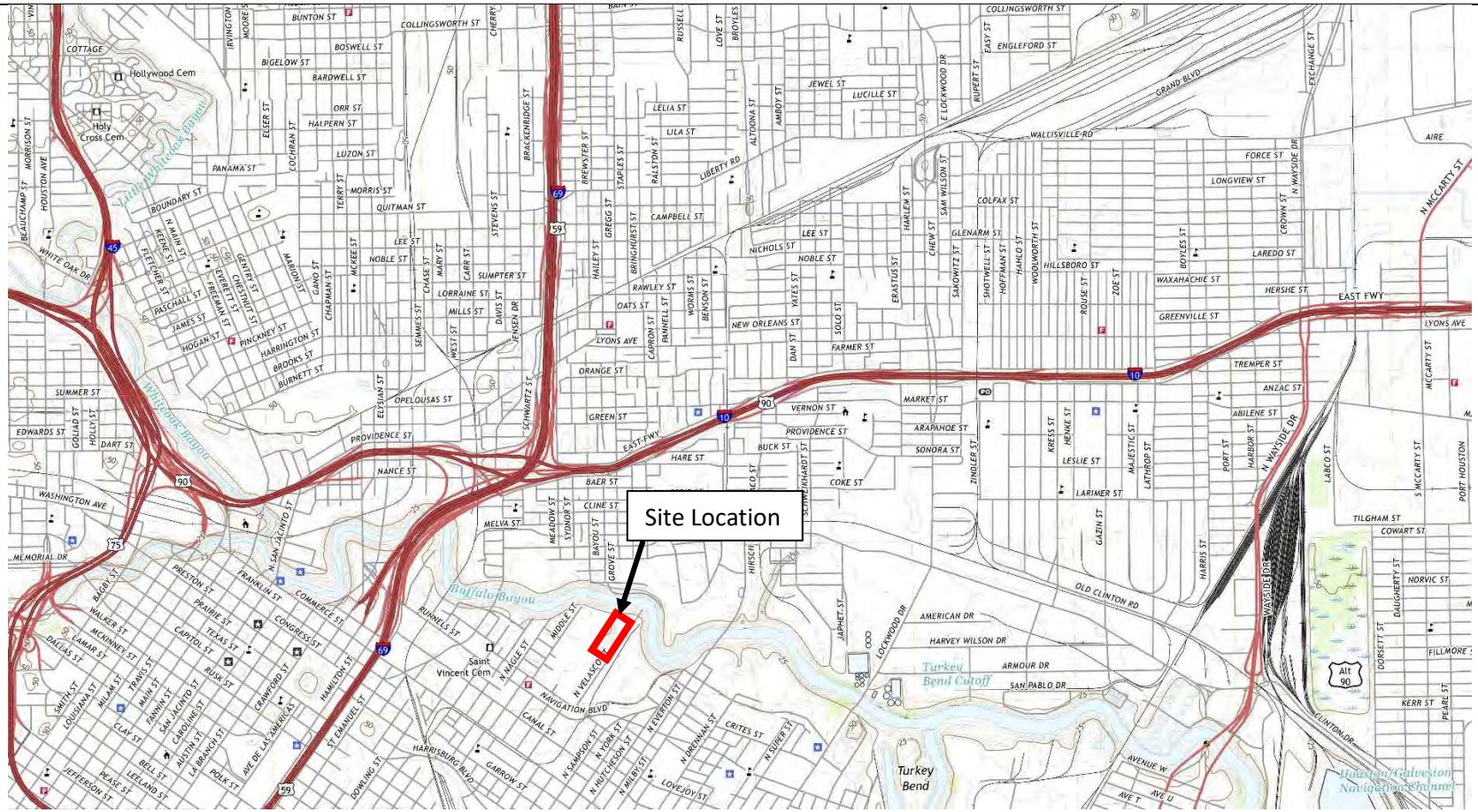
6.0 CONCLUSIONS AND RECOMMENDATIONS

JESCO/Leaaf have performed a Phase II ESA at vacant land that was formerly the Velasco Waste Incinerator property, located at the 800 Block of North Velasco Street in Houston, Texas in conformance with the scope and limitations of ASTM Practice E 1903-11 and for the following objective: characterize and quantify current COCs previously identified at the property. This objective was met.

The results of the soil sampling indicate that soils on the site contain elevated concentrations of arsenic, lead, mercury, PCBs, and dioxins and furans. Arsenic and lead concentrations exceeded both the human health and soil leaching Tier 1 PCLs. Mercury exceeded only the soil leaching Tier 1 PCL. PCBs and dioxins and furans TEQs exceeded only the human health Tier 1 PCLs. JESCO/Leaaf recommend that site-specific risk evaluation be completed in order to develop PCLs to refine the area of impacted soil that may pose a risk to human health or the environment.

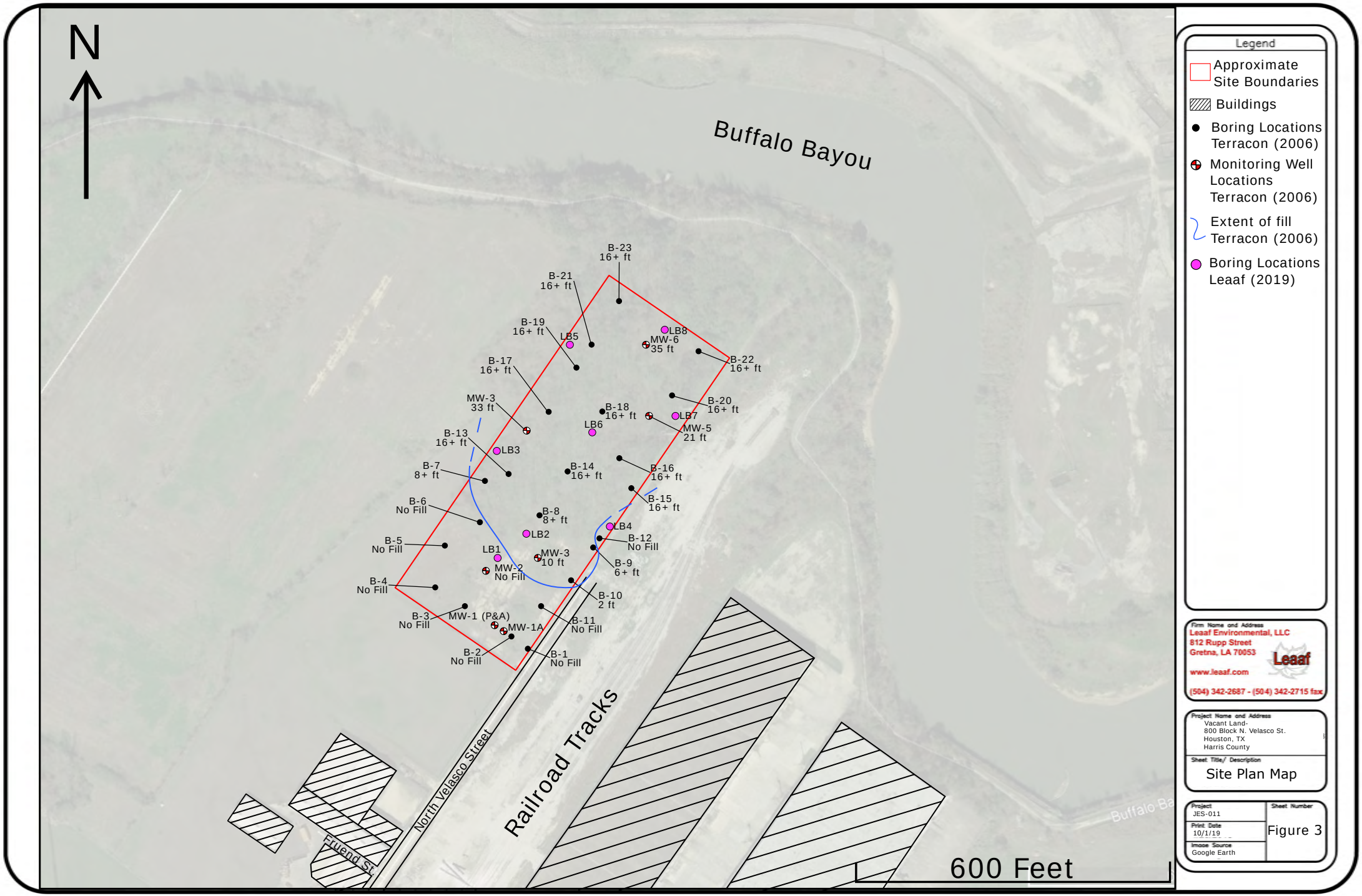
APPENDIX A

FIGURES



Leaaf Environmental, LLC www.leaaf.com	Source:	Property:	Figure 1:
	USGS 7.5-minute Settegast Quadrangle	800 Block of North Velasco Street. Houston, Texas	Site Location Map

Leaaf Environmental, LLC www.leaaf.com	Source:	Property:	Figure 2:
	Google Earth 2019	800 Block of North Velasco Street. Houston, Texas	Site Vicinity Map



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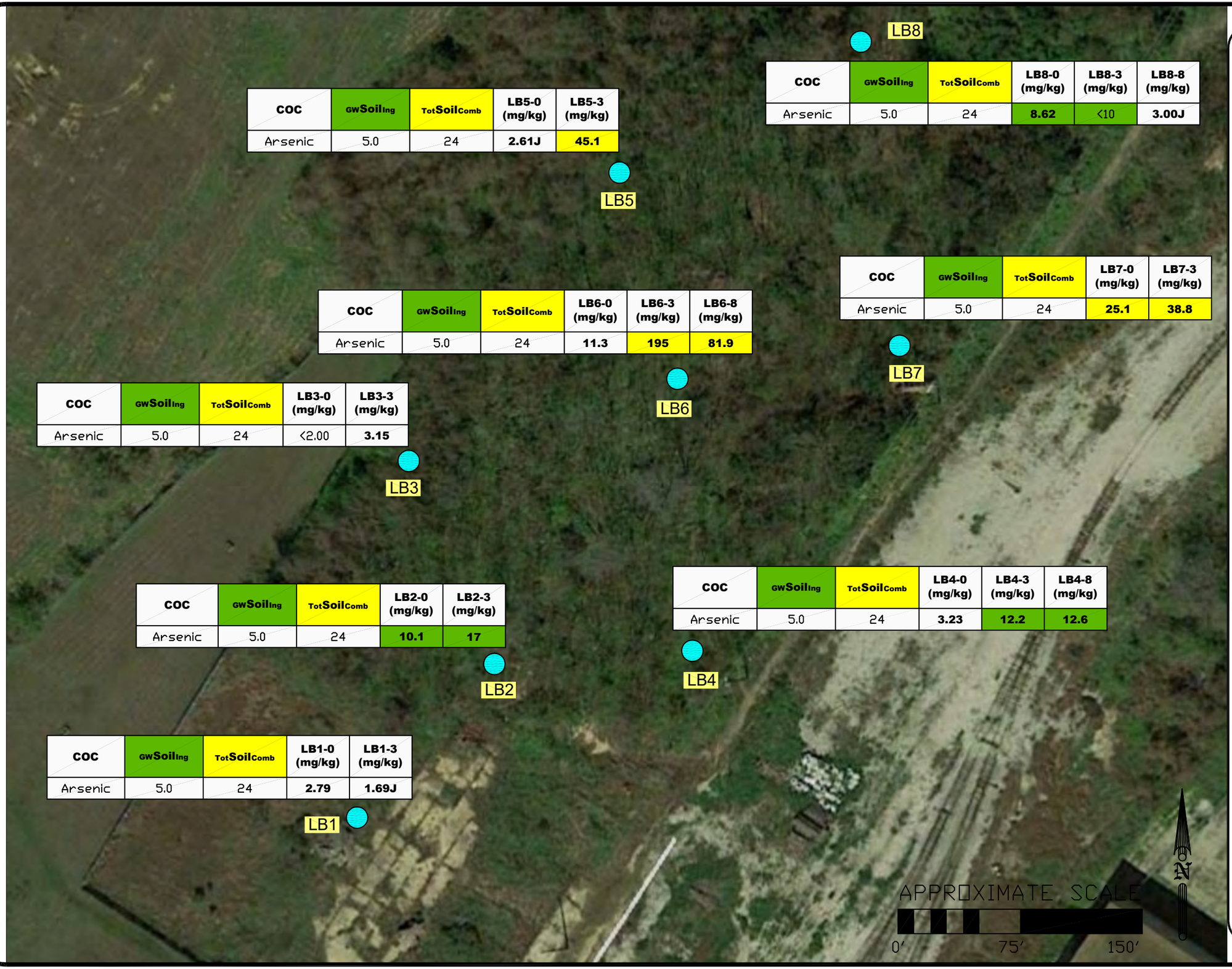
Sheet Title/ Description
Site Plan Map

Project	Sheet Number
JES-011	Figure 3
Print Date: 10/1/19	
Image Source: Google Earth	



COC	GWSoilIng	TotSoilComb	LB8-0 (mg/kg)	LB8-3 (mg/kg)	LB8-8 (mg/kg)
Arsenic	5.0	24	**8.62**	<10	**3.00J**

COC	GWSoilIng	TotSoilComb	LB5-0 (mg/kg)	LB5-3 (mg/kg)
Arsenic	5.0	24	**2.61J**	**45.1**

COC	GWSoilIng	TotSoilComb	LB6-0 (mg/kg)	LB6-3 (mg/kg)	LB6-8 (mg/kg)
Arsenic	5.0	24	**11.3**	**195**	**81.9**

COC	GWSoilIng	TotSoilComb	LB7-0 (mg/kg)	LB7-3 (mg/kg)
Arsenic	5.0	24	**25.1**	**38.8**

COC	GWSoilIng	TotSoilComb	LB3-0 (mg/kg)	LB3-3 (mg/kg)
Arsenic	5.0	24	<2.00	**3.15**

COC	GWSoilIng	TotSoilComb	LB2-0 (mg/kg)	LB2-3 (mg/kg)
Arsenic	5.0	24	**10.1**	**17**

COC	GWSoilIng	TotSoilComb	LB4-0 (mg/kg)	LB4-3 (mg/kg)	LB4-8 (mg/kg)
Arsenic	5.0	24	**3.23**	**12.2**	**12.6**

COC	GWSoilIng	TotSoilComb	LB1-0 (mg/kg)	LB1-3 (mg/kg)
Arsenic	5.0	24	**2.79**	**1.69J**

General Notes

Soil Boring Location

Note:
BOLDED concentrations indicate analyte was detected

BOLDED concentrations indicate analyte concentration exceeds TotSoilComb Tier 1 PCL

BOLDED concentrations indicate analyte concentration exceeds GWSoilIng Tier 1 PCL

J - The identification of the analyte is acceptable; the reported value is an estimate.

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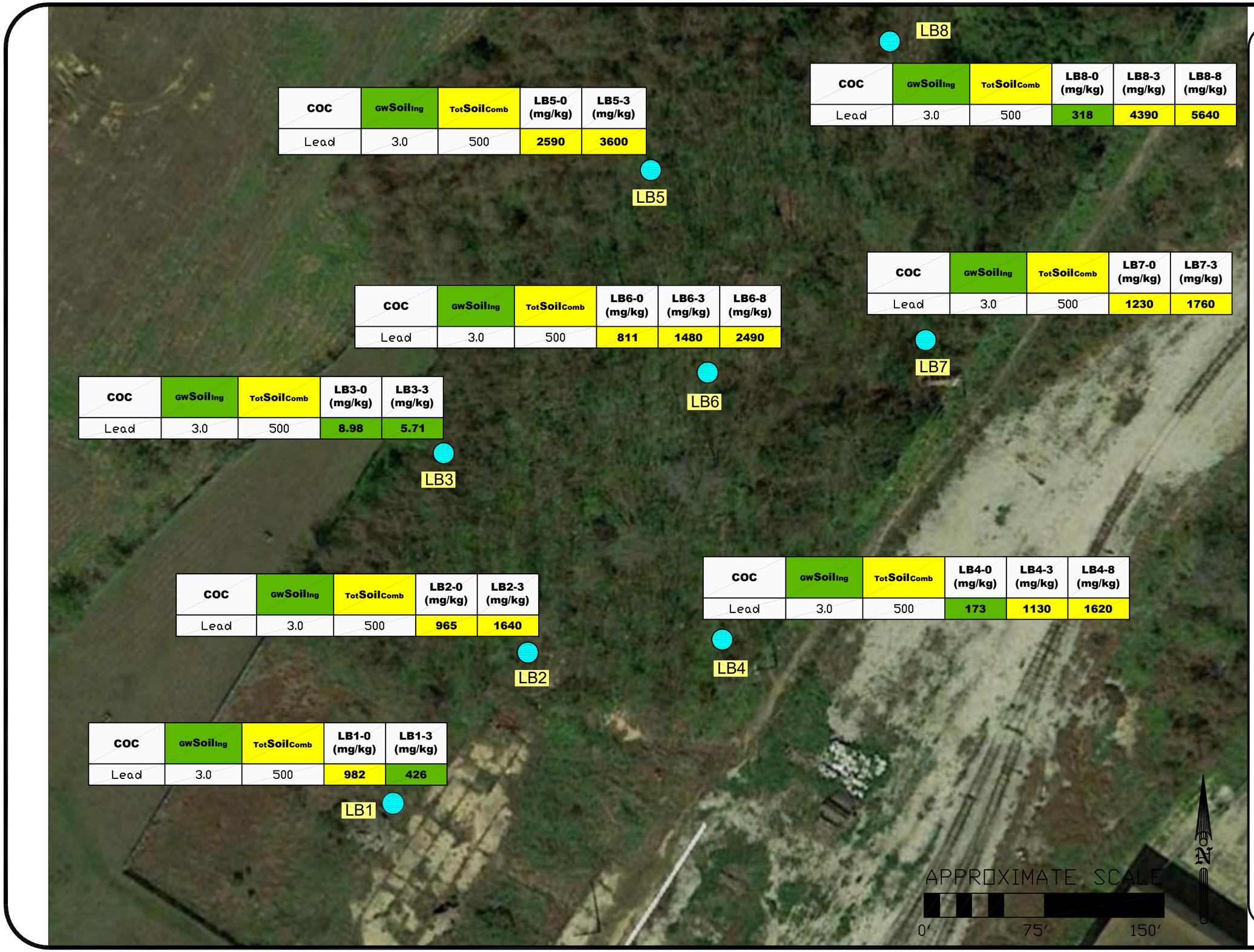
Arsenic Concentration Map

Project	Sheet
JES-011	Figure 4
Date: 10/1/2019	
Image Source: Google Earth	



COC	GWSoilIng	TotSoilComb	LB8-0 (mg/kg)	LB8-3 (mg/kg)	LB8-8 (mg/kg)
Lead	3.0	500	**318**	**4390**	**5640**

COC	GWSoilIng	TotSoilComb	LB5-0 (mg/kg)	LB5-3 (mg/kg)
Lead	3.0	500	**2590**	**3600**

COC	GWSoilIng	TotSoilComb	LB7-0 (mg/kg)	LB7-3 (mg/kg)
Lead	3.0	500	**1230**	**1760**

COC	GWSoilIng	TotSoilComb	LB6-0 (mg/kg)	LB6-3 (mg/kg)	LB6-8 (mg/kg)
Lead	3.0	500	**811**	**1480**	**2490**

COC	GWSoilIng	TotSoilComb	LB3-0 (mg/kg)	LB3-3 (mg/kg)
Lead	3.0	500	**8.98**	**5.71**

COC	GWSoilIng	TotSoilComb	LB4-0 (mg/kg)	LB4-3 (mg/kg)	LB4-8 (mg/kg)
Lead	3.0	500	**173**	**1130**	**1620**

COC	GWSoilIng	TotSoilComb	LB2-0 (mg/kg)	LB2-3 (mg/kg)
Lead	3.0	500	**965**	**1640**

COC	GWSoilIng	TotSoilComb	LB1-0 (mg/kg)	LB1-3 (mg/kg)
Lead	3.0	500	**982**	**426**

General Notes

Soil Boring Location

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BOLDED concentrations indicate analyte concentration exceeds TotSoilComb Tier 1 PCL

BOLDED concentrations indicate analyte concentration exceeds GWSoilIng Tier 1 PCL

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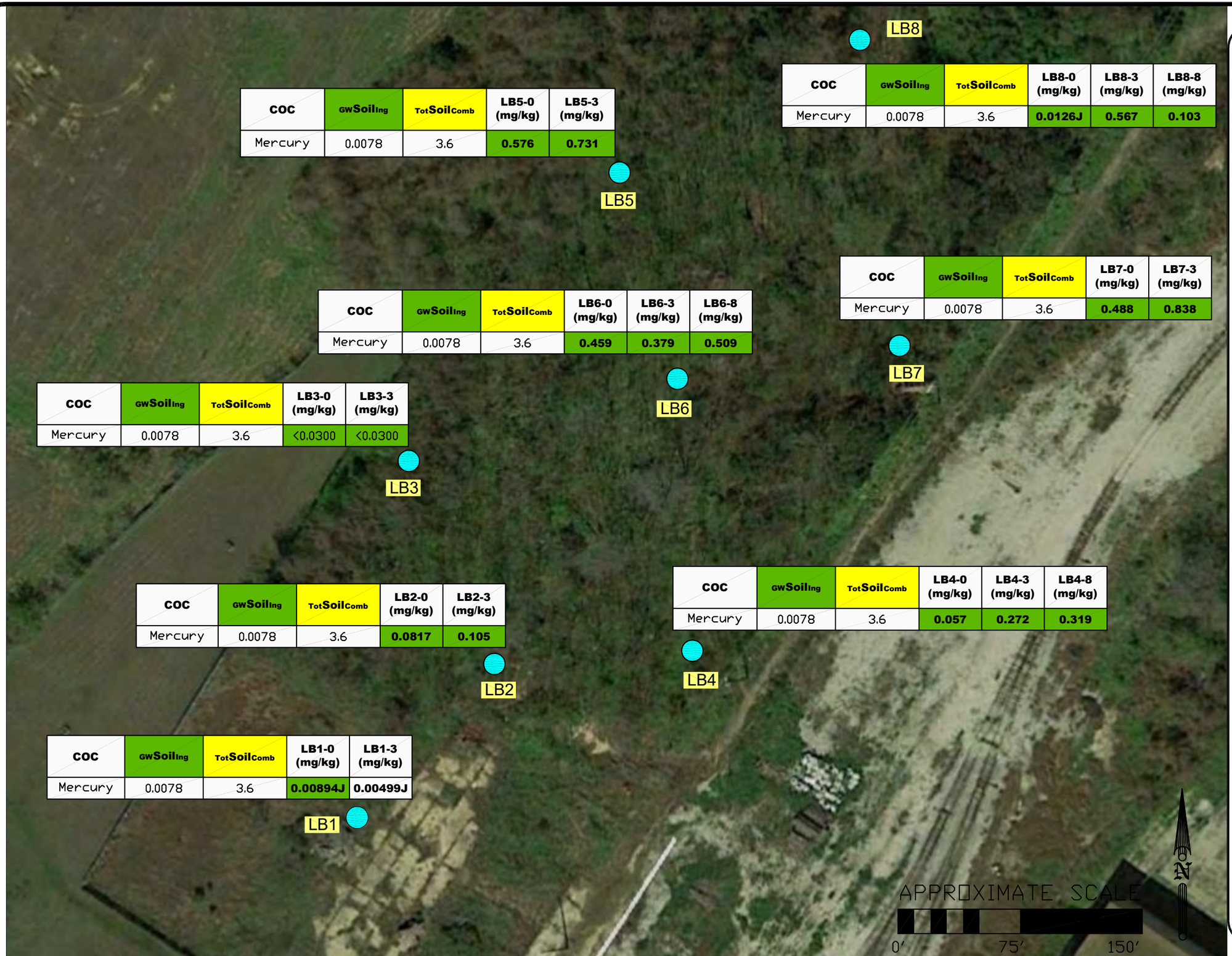
Lead Concentration Map

Project	Sheet
JES-011	Figure 5
Date: 10/1/2019	
Image Source: Google Earth	



COC	GWSoilIng	TotSoilComb	LB8-0 (mg/kg)	LB8-3 (mg/kg)	LB8-8 (mg/kg)
Mercury	0.0078	3.6	**0.0126J**	**0.567**	**0.103**

COC	GWSoilIng	TotSoilComb	LB5-0 (mg/kg)	LB5-3 (mg/kg)
Mercury	0.0078	3.6	**0.576**	**0.731**

COC	GWSoilIng	TotSoilComb	LB7-0 (mg/kg)	LB7-3 (mg/kg)
Mercury	0.0078	3.6	**0.488**	**0.838**

COC	GWSoilIng	TotSoilComb	LB6-0 (mg/kg)	LB6-3 (mg/kg)	LB6-8 (mg/kg)
Mercury	0.0078	3.6	**0.459**	**0.379**	**0.509**

COC	GWSoilIng	TotSoilComb	LB3-0 (mg/kg)	LB3-3 (mg/kg)
Mercury	0.0078	3.6	<0.0300	<0.0300

COC	GWSoilIng	TotSoilComb	LB4-0 (mg/kg)	LB4-3 (mg/kg)	LB4-8 (mg/kg)
Mercury	0.0078	3.6	**0.057**	**0.272**	**0.319**

COC	GWSoilIng	TotSoilComb	LB2-0 (mg/kg)	LB2-3 (mg/kg)
Mercury	0.0078	3.6	**0.0817**	**0.105**

COC	GWSoilIng	TotSoilComb	LB1-0 (mg/kg)	LB1-3 (mg/kg)
Mercury	0.0078	3.6	**0.00894J**	**0.00499J**

General Notes

Soil Boring Location

Note:
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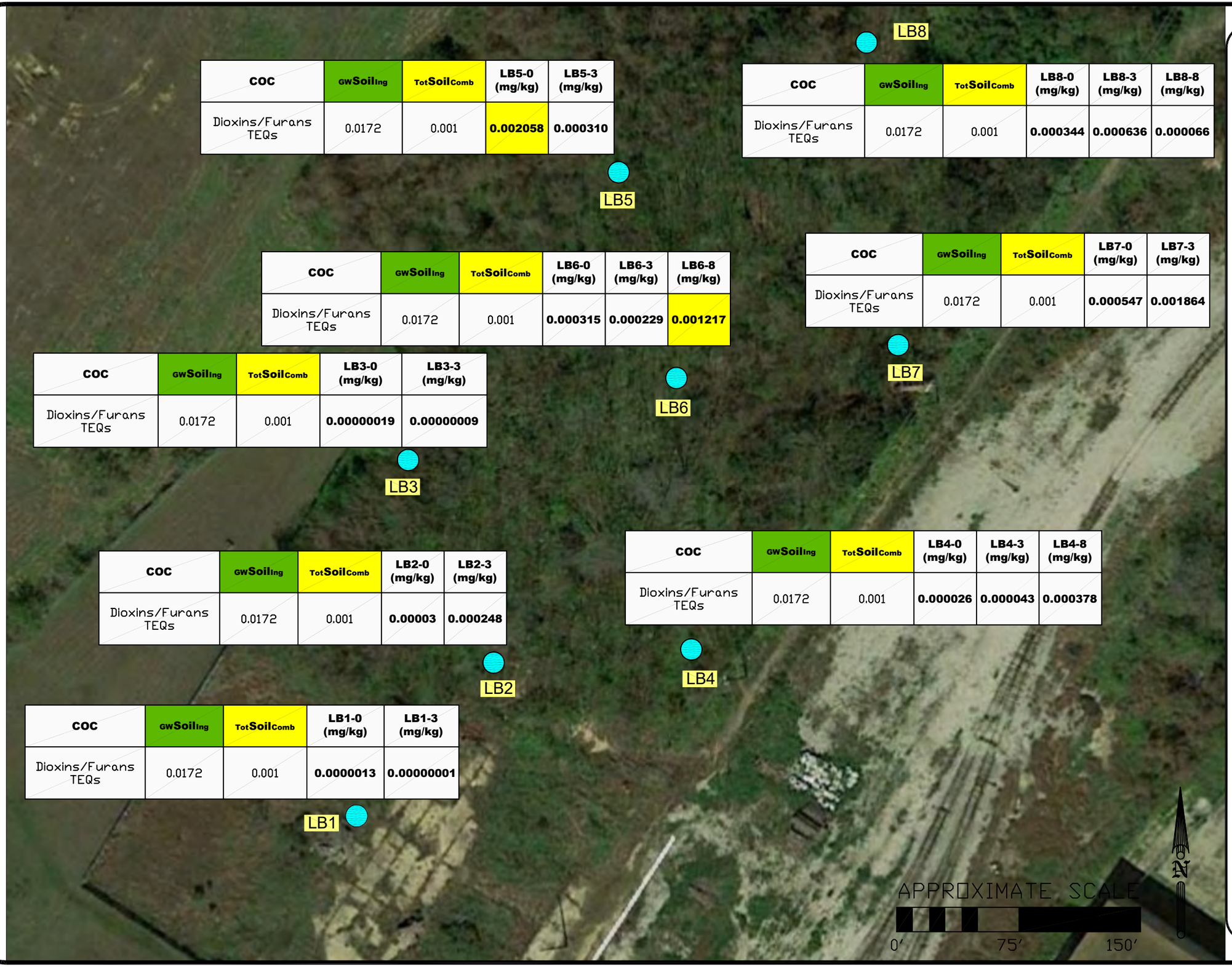
Mercury Concentration Map

Project: JES-011
Date: 10/1/2019
Image Source: Google Earth
Sheet: Figure 6



COC	GWSoilIng	TotSoilComb	LB5-0 (mg/kg)	LB5-3 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.002058**	**0.000310**

COC	GWSoilIng	TotSoilComb	LB8-0 (mg/kg)	LB8-3 (mg/kg)	LB8-8 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.000344**	**0.000636**	**0.000066**

COC	GWSoilIng	TotSoilComb	LB6-0 (mg/kg)	LB6-3 (mg/kg)	LB6-8 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.000315**	**0.000229**	**0.001217**

COC	GWSoilIng	TotSoilComb	LB7-0 (mg/kg)	LB7-3 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.000547**	**0.001864**

COC	GWSoilIng	TotSoilComb	LB3-0 (mg/kg)	LB3-3 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.00000019**	**0.00000009**

COC	GWSoilIng	TotSoilComb	LB2-0 (mg/kg)	LB2-3 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.00003**	**0.000248**

COC	GWSoilIng	TotSoilComb	LB4-0 (mg/kg)	LB4-3 (mg/kg)	LB4-8 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.000026**	**0.000043**	**0.000378**

COC	GWSoilIng	TotSoilComb	LB1-0 (mg/kg)	LB1-3 (mg/kg)
Dioxins/Furans TEQs	0.0172	0.001	**0.0000013**	**0.00000001**

General Notes

Soil Boring Location

Note:
BOLDED concentrations indicate analyte was detected

BOLDED concentrations indicate analyte concentration exceeds TotSoilComb Tier 1 PCL

BOLDED concentrations indicate analyte concentration exceeds GWSoilIng Tier 1 PCL

TEQ - 2,3,7,8-TCDD toxicity equivalent factor

Firm Name and Address
Leaaf Environmental, LLC
2301 Whitney Avenue
Gretna, LA 70056
www.leaaf.com
(504) 342-2687 - (504) 342-2715 fax

Project Name and Address
Vacant Land-
800 Block N. Velasco St.
Houston, TX
Harris County

Dioxin and Furan TEQ Concentration Map

Project: JES-011
Date: 10/1/2019
Image Source: Google Earth
Sheet: Figure 7

COC	GWSoilIng	TotSoilComb	LB5-0 (mg/kg)
PCB 1248	11	1.1	**1.23**
PCB 1260	11	1.1	**1.31**

LB8

LB5

LB7

LB6

LB3

LB4

LB2

LB1

APPROXIMATE SCALE

0′ 75′ 150′

N

General Notes

Soil Boring Location

Note:

BOLDED concentrations indicate analyte exceeds $_{Tot}Soil_{Comb}$ Tier 1 PCL.

Only concentrations that exceed $_{Tot}Soil_{Comb}$ Tier 1 PCL are depicted.

Firm Name and Address
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2301 Whitney Avenue
Gretna, LA 70056

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Project Name and Address
Vacant Land-
800 Block N. Velasco St.
Houston, TX
Harris County

PCB Concentration Map

Project	Sheet
JES-011	Figure 8
Date: 10/1/2019	
Image Source: Google Earth	

APPENDIX B

TABLES

Table 1. Soil Analytical Summary
Vacant Land, Houston, Texas

Lab Sample ID					L1137950-17		L1137950-18		L1137950-19		L1137950-20		L1137950-15		L1137950-16		L1137950-01		L1137950-02		L1137950-03		L1137950-13	
Sample ID					LB1-0		LB1-3		LB2-0		LB2-3		LB3-0		LB3-3		LB4-0		LB4-3		LB4-8		LB5-0	
Date Collected					09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019	
Method	Analyte	Units	$^{GW}Soil_{Ing}$	$^{Tot}Soil_{Comb}$	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
2540 G-2011	TOTAL SOLIDS	%			**81**		**90.8**		**87.4**		**87.2**		**83**		**80.9**		**90.7**		**92.6**		**92.7**		**82.9**	
6010B	ARSENIC	mg/kg	5.0	24	**2.79**		**1.69**	J	**10.1**		**17**		<2.00		**3.15**		**3.23**		**12.2**		**12.6**		**2.61**	J
6010B	LEAD	mg/kg	3.0	500	**982**		**426**		**965**		**1640**		**8.98**		**5.71**		**173**		**1130**		**1620**		**2590**	
7471A	MERCURY	mg/kg	0.0078	3.6	**0.00894**	J	**0.00499**	J	**0.0817**		**0.105**		<0.0300		<0.0300		**0.057**		**0.272**		**0.319**		**0.576**	
8082	PCB 1016	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1221	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1232	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1242	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1248	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		**1.23**	
8082	PCB 1254	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		**0.0589**		**0.132**		**0.9**		<0.0170	
8082	PCB 1260	mg/kg	11	1.1	<0.0170		<0.0170		**0.221**		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		**1.31**	
8260B	TRICHLOROETHENE	mg/kg	0.034	18	<0.00100		<0.00100		<0.00100		<0.00107		<0.00100		<0.00100		<0.00100		<0.00100		NS		<0.00142	
8270C	BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	160	43	<0.333		<0.333		<0.333		<0.333		<0.333		<0.333		**0.031**	J	**0.0454**	J	**0.0144**	J	**0.048**	J
8290	Dioxins/Furans (as 2,3,7,8-TCDD TEQs)	mg/kg	0.0172	0.001	**0.0000013**		**0.00000001**		**0.00003**		**0.000248**		**0.00000019**		**0.00000009**		**0.000026**		**0.000043**		**0.000378**		**0.002058**	

Lab Sample ID					L1137950-14		L1137950-04		L1137950-05		L1137950-06		L1137950-07		L1137950-09		L1137950-08		L1137950-10		L1137950-11		L1137950-12	
Sample ID					LB5-3		LB6-0		LB6-3		LB6-8		LB7-0		LB7A (Duplicate of LB7-0)		LB7-3		LB8-0		LB8-3		LB8-8	
Date Collected					09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019		09/10/2019	
Method	Analyte	Units	$^{GW}Soil_{Ing}$	$^{Tot}Soil_{Comb}$	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
2540 G-2011	TOTAL SOLIDS	%			**93.5**		**88.3**		**91.7**		**90.7**		**88.9**		**87.1**		**88.7**		**91.8**		**84.2**		**86.8**	
6010B	ARSENIC	mg/kg	5.0	24	**45.1**	O1	**11.3**		**195**		**81.9**		**25.1**		**6.36**		**38.8**		**8.62**		<10.0		**3.00**	J
6010B	LEAD	mg/kg	3.0	500	**3600**	J3 O1 V	**811**		**1480**		**2490**		**1230**		**377**		**1760**		**318**		**4390**		**5640**	
7471A	MERCURY	mg/kg	0.0078	3.6	**0.731**	J6 O1	**0.459**		**0.379**		**0.509**		**0.488**		**0.122**		**0.838**		**0.0126**	J	**0.567**		**0.103**	
8082	PCB 1016	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1221	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1232	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1242	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1248	mg/kg	11	1.1	<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170		<0.0170	
8082	PCB 1254	mg/kg	11	1.1	<0.0170		**0.0234**		**0.0474**		**0.246**	P	**0.00717**	J	<0.0170		**0.0876**		<0.0170		<0.0170		<0.0170	
8082	PCB 1260	mg/kg	11	1.1	**0.0978**		<0.0170		<0.0170		<0.0170		<0.0170		**0.0382**		<0.0170		**0.109**		**0.0131**	J P	<0.0170	
8260B	TRICHLOROETHENE	mg/kg	0.034	18	<0.00101		<0.00100		<0.00113		NS		<0.00100		<0.00100		<0.00108		<0.00100		<0.00108		NS	
8270C	BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	160	43	**0.137**	J J3	<0.333		**0.117**	J	**0.65**		<0.333		<3.33		**1.25**	J	<16.7		<0.666		<0.333	
8290	Dioxins/Furans (as 2,3,7,8-TCDD TEQs)	mg/kg	0.0172	0.001	**0.000310**		**0.000315**		**0.000229**		**0.001217**		**0.000547**		**0.000748**		**0.001864**		**0.000344**		**0.000636**		**0.000066**	

Qualifiers:
J: The identification of the analyte is acceptable; the reported value is an estimate.
J3: The associated batch QC was outside the established quality control range for precision.
J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low
O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P: RPD between the primary and confirmatory analysis exceeded 40%.
V: The sample concentration is too high to evaluate accurate spike recoveries.

Bold	Analyte was detected
Higlighted	Concentration exceeds Tier 1 PCL
NS	not sampled
TEQ	toxicity equivalent quotients

Table 2. Dioxins and Furans TEQ Calculations
Vacant Land, Houston, Texas

Sample ID	Analyte	Result (ng/kg)	TEF	TEQ (ng/kg)
LB1-0	OCDF	ND	0.0001	0
LB1-0	OCDD	4600	0.0001	0.46
LB1-0	Total TCDF	2.9	0.1	0.29
LB1-0	Total TCDD	ND	1	0
LB1-0	Total PeCDF	ND	0.5	0
LB1-0	Total PeCDD	ND	1	0
LB1-0	Total HxCDF	ND	0.1	0
LB1-0	Total HxCDD	ND	0.1	0
LB1-0	Total HpCDF	ND	0.01	0
LB1-0	Total HpCDD	56	0.01	0.56
LB1-0	TEQ			1.3
LB2-0	OCDF	ND	0.0001	0
LB2-0	OCDD	6100	0.0001	0.61
LB2-0	Total TCDF	30	0.1	3
LB2-0	Total TCDD	2.8	1	2.8
LB2-0	Total PeCDF	33	0.5	16.5
LB2-0	Total PeCDD	ND	1	0
LB2-0	Total HxCDF	24	0.1	2.4
LB2-0	Total HxCDD	33	0.1	3.3
LB2-0	Total HpCDF	18	0.01	0.18
LB2-0	Total HpCDD	120	0.01	1.2
LB2-0	TEQ			30
LB3-0	OCDF	ND	0.0001	0
LB3-0	OCDD	330	0.0001	0.033
LB3-0	Total TCDF	ND	0.1	0
LB3-0	Total TCDD	ND	1	0
LB3-0	Total PeCDF	ND	0.5	0
LB3-0	Total PeCDD	ND	1	0
LB3-0	Total HxCDF	ND	0.1	0
LB3-0	Total HxCDD	ND	0.1	0
LB3-0	Total HpCDF	ND	0.01	0
LB3-0	Total HpCDD	16	0.01	0.16
LB3-0	TEQ			0.19
LB4-0	OCDF	45	0.0001	0.0045
LB4-0	OCDD	1200	0.0001	0.12
LB4-0	Total TCDF	24	0.1	2.4
LB4-0	Total TCDD	1.6	1	1.6
LB4-0	Total PeCDF	26	0.5	13
LB4-0	Total PeCDD	ND	1	0
LB4-0	Total HxCDF	23	0.1	2.3
LB4-0	Total HxCDD	24	0.1	2.4
LB4-0	Total HpCDF	48	0.01	0.48
LB4-0	Total HpCDD	320	0.01	3.2
LB4-0	TEQ			26
LB4-8	OCDF	71	0.0001	0.0071
LB4-8	OCDD	2700	0.0001	0.27
LB4-8	Total TCDF	370	0.1	37
LB4-8	Total TCDD	96	1	96
LB4-8	Total PeCDF	220	0.5	110
LB4-8	Total PeCDD	71	1	71
LB4-8	Total HxCDF	190	0.1	19
LB4-8	Total HxCDD	350	0.1	35
LB4-8	Total HpCDF	170	0.01	1.7
LB4-8	Total HpCDD	790	0.01	7.9
LB4-8	TEQ			378
LB5-3	OCDF	190	0.0001	0.019
LB5-3	OCDD	11000	0.0001	1.1
LB5-3	Total TCDF	310	0.1	31
LB5-3	Total TCDD	99	1	99
LB5-3	Total PeCDF	140	0.5	70
LB5-3	Total PeCDD	57	1	57
LB5-3	Total HxCDF	130	0.1	13
LB5-3	Total HxCDD	220	0.1	22
LB5-3	Total HpCDF	260	0.01	2.6
LB5-3	Total HpCDD	1400	0.01	14
LB5-3	TEQ			310

Sample ID	Analyte	Result (ng/kg)	TEF	TEQ (ng/kg)
LB1-3	OCDF	ND	0.0001	0
LB1-3	OCDD	120	0.0001	0.012
LB1-3	Total TCDF	ND	0.1	0
LB1-3	Total TCDD	ND	1	0
LB1-3	Total PeCDF	ND	0.5	0
LB1-3	Total PeCDD	ND	1	0
LB1-3	Total HxCDF	ND	0.1	0
LB1-3	Total HxCDD	ND	0.1	0
LB1-3	Total HpCDF	ND	0.01	0
LB1-3	Total HpCDD	ND	0.01	0
LB1-3	TEQ			0.01
LB2-3	OCDF	11	0.0001	0.0011
LB2-3	OCDD	910	0.0001	0.091
LB2-3	Total TCDF	170	0.1	17
LB2-3	Total TCDD	57	1	57
LB2-3	Total PeCDF	73	0.5	36.5
LB2-3	Total PeCDD	89	1	89
LB2-3	Total HxCDF	65	0.1	6.5
LB2-3	Total HxCDD	350	0.1	35
LB2-3	Total HpCDF	60	0.01	0.6
LB2-3	Total HpCDD	590	0.01	5.9
LB2-3	TEQ			248
LB3-3	OCDF	ND	0.0001	0
LB3-3	OCDD	230	0.0001	0.023
LB3-3	Total TCDF	ND	0.1	0
LB3-3	Total TCDD	ND	1	0
LB3-3	Total PeCDF	ND	0.5	0
LB3-3	Total PeCDD	ND	1	0
LB3-3	Total HxCDF	ND	0.1	0
LB3-3	Total HxCDD	ND	0.1	0
LB3-3	Total HpCDF	ND	0.01	0
LB3-3	Total HpCDD	6.5	0.01	0.065
LB3-3	TEQ			0.09
LB4-3	OCDF	16	0.0001	0.0016
LB4-3	OCDD	1500	0.0001	0.15
LB4-3	Total TCDF	41	0.1	4.1
LB4-3	Total TCDD	17	1	17
LB4-3	Total PeCDF	8.7	0.5	4.35
LB4-3	Total PeCDD	5.7	1	5.7
LB4-3	Total HxCDF	7.3	0.1	0.73
LB4-3	Total HxCDD	78	0.1	7.8
LB4-3	Total HpCDF	25	0.01	0.25
LB4-3	Total HpCDD	300	0.01	3
LB4-3	TEQ			43
LB5-0	OCDF	1300	0.0001	0.13
LB5-0	OCDD	13000	0.0001	1.3
LB5-0	Total TCDF	2700	0.1	270
LB5-0	Total TCDD	220	1	220
LB5-0	Total PeCDF	2200	0.5	1100
LB5-0	Total PeCDD	99	1	99
LB5-0	Total HxCDF	2200	0.1	220
LB5-0	Total HxCDD	610	0.1	61
LB5-0	Total HpCDF	5100	0.01	51
LB5-0	Total HpCDD	3600	0.01	36
LB5-0	TEQ			2058
LB6-0	OCDF	46	0.0001	0.0046
LB6-0	OCDD	1900	0.0001	0.19
LB6-0	Total TCDF	430	0.1	43
LB6-0	Total TCDD	79	1	79
LB6-0	Total PeCDF	220	0.5	110
LB6-0	Total PeCDD	49	1	49
LB6-0	Total HxCDF	130	0.1	13
LB6-0	Total HxCDD	140	0.1	14
LB6-0	Total HpCDF	96	0.01	0.96
LB6-0	Total HpCDD	570	0.01	5.7
LB6-0	TEQ			315

Table 2. Dioxins and Furans TEQ Calculations
Vacant Land, Houston, Texas

Sample ID	Analyte	Result (ng/kg)	TEF	TEQ (ng/kg)
LB6-3	OCDF	17	0.0001	0.0017
LB6-3	OCDD	4300	0.0001	0.43
LB6-3	Total TCDF	98	0.1	9.8
LB6-3	Total TCDD	120	1	120
LB6-3	Total PeCDF	20	0.5	10
LB6-3	Total PeCDD	52	1	52
LB6-3	Total HxCDF	18	0.1	1.8
LB6-3	Total HxCDD	210	0.1	21
LB6-3	Total HpCDF	44	0.01	0.44
LB6-3	Total HpCDD	1400	0.01	14
LB6-3	TEQ			229
LB7-0	OCDF	24	0.0001	0.0024
LB7-0	OCDD	4800	0.0001	0.48
LB7-0	Total TCDF	100	0.1	10
LB7-0	Total TCDD	300	1	300
LB7-0	Total PeCDF	15	0.5	7.5
LB7-0	Total PeCDD	140	1	140
LB7-0	Total HxCDF	29	0.1	2.9
LB7-0	Total HxCDD	620	0.1	62
LB7-0	Total HpCDF	36	0.01	0.36
LB7-0	Total HpCDD	2400	0.01	24
LB7-0	TEQ			547
LB7-3	OCDF	61	0.0001	0.0061
LB7-3	OCDD	13000	0.0001	1.3
LB7-3	Total TCDF	300	0.1	30
LB7-3	Total TCDD	1100	1	1100
LB7-3	Total PeCDF	77	0.5	38.5
LB7-3	Total PeCDD	440	1	440
LB7-3	Total HxCDF	140	0.1	14
LB7-3	Total HxCDD	1800	0.1	180
LB7-3	Total HpCDF	180	0.01	1.8
LB7-3	Total HpCDD	5800	0.01	58
LB7-3	TEQ			1864
LB8-3	OCDF	49	0.0001	0.0049
LB8-3	OCDD	17000	0.0001	1.7
LB8-3	Total TCDF	210	0.1	21
LB8-3	Total TCDD	120	1	120
LB8-3	Total PeCDF	82	0.5	41
LB8-3	Total PeCDD	230	1	230
LB8-3	Total HxCDF	97	0.1	9.7
LB8-3	Total HxCDD	1400	0.1	140
LB8-3	Total HpCDF	160	0.01	1.6
LB8-3	Total HpCDD	7100	0.01	71
LB8-3	TEQ			636

Sample ID	Analyte	Result (ng/kg)	TEF	TEQ (ng/kg)
LB6-8	OCDF	92	0.0001	0.0092
LB6-8	OCDD	5300	0.0001	0.53
LB6-8	Total TCDF	1700	0.1	170
LB6-8	Total TCDD	200	1	200
LB6-8	Total PeCDF	830	0.5	415
LB6-8	Total PeCDD	260	1	260
LB6-8	Total HxCDF	580	0.1	58
LB6-8	Total HxCDD	850	0.1	85
LB6-8	Total HpCDF	430	0.01	4.3
LB6-8	Total HpCDD	2400	0.01	24
LB6-8	TEQ			1217
LB7A	OCDF	28	0.0001	0.0028
LB7A	OCDD	5800	0.0001	0.58
LB7A	Total TCDF	120	0.1	12
LB7A	Total TCDD	420	1	420
LB7A	Total PeCDF	47	0.5	23.5
LB7A	Total PeCDD	190	1	190
LB7A	Total HxCDF	59	0.1	5.9
LB7A	Total HxCDD	720	0.1	72
LB7A	Total HpCDF	85	0.01	0.85
LB7A	Total HpCDD	2300	0.01	23
LB7A	TEQ			748
LB8-0	OCDF	150	0.0001	0.015
LB8-0	OCDD	8700	0.0001	0.87
LB8-0	Total TCDF	150	0.1	15
LB8-0	Total TCDD	110	1	110
LB8-0	Total PeCDF	98	0.5	49
LB8-0	Total PeCDD	76	1	76
LB8-0	Total HxCDF	130	0.1	13
LB8-0	Total HxCDD	520	0.1	52
LB8-0	Total HpCDF	200	0.01	2
LB8-0	Total HpCDD	2600	0.01	26
LB8-0	TEQ			344
LB8-8	OCDF	13	0.0001	0.0013
LB8-8	OCDD	110	0.0001	0.011
LB8-8	Total TCDF	290	0.1	29
LB8-8	Total TCDD	9.4	1	9.4
LB8-8	Total PeCDF	50	0.5	25
LB8-8	Total PeCDD	ND	1	0
LB8-8	Total HxCDF	9.8	0.1	0.98
LB8-8	Total HxCDD	12	0.1	1.2
LB8-8	Total HpCDF	14	0.01	0.14
LB8-8	Total HpCDD	36	0.01	0.36
LB8-8	TEQ			66

Notes:

ng/kg	nanograms/kilogram
TEF	toxicity equivalency factor (TCEQ, §§350.71-350.79)
TEQ	2,3,7,8-TCDD toxicity equivalent quotient
ND	not detected

APPENDIX C

BORING LOGS

Borehole LB1

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 33.76"N, 95° 20' 9.89"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
	LB1-0 1220 9/10/19	80%	0.5		Fill	Fill - Brown silty clay, dry, stiff.	
					Fill	Fill - Crushed grey rock and gravel, dry.	
0.2			1		Fill	Fill - Orange clayey sand, very fine-grained, dry, medium.	
			1.5				
			2				
			2.5				
	LB1-3 1225 9/10/19		3				
0.1			3.5				
			4				Bentonite Pellets
		80%	4.5				
0.1			5			5 feet - becomes white with orange mottling.	
			5.5				
			6				
			6.5				
0.0			7				
			7.5				
			8				
			8.5				
			9				
			9.5				

Borehole LB2

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 34.67"N, 95° 20' 9.02"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
0.1	LB2-0 1245 9/10/19	50%	0.5, 1, 1.5, 2, 2.5		Fill	Fill - Tan to brown silty clay with sparse gravel up to 0.5 inches, dry, stiff.	Bentonite Pellets
0.0	LB2-3 1250 9/10/19		3, 3.5				
		100%	4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8				
0.0							
0.0			8.5, 9, 9.5				

Borehole LB3

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 35.91"N, 95° 20' 9.59"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
0.0	LB3-0 1200 9/10/19	100%	0.5, 1, 1.5, 2, 2.5		Fill	Fill - Tan silty clay, dry, stiff, with 50% orange mottling	Bentonite Pellets
0.0	LB3-3 1205 9/10/19		3, 3.5, 4				
		100%	4.5		Fill	Fill - Brown silty clay, dry, crumbly, with up to 50% crushed glass and gravel.	
0.0			5, 5.5, 6, 6.5, 7				
0.0			7.5, 8, 8.5, 9, 9.5				

Borehole LB4

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 34.72"N, 95° 20' 7.64"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
0.1	LB4-0 0835 9/10/19	60%	0.5, 1, 1.5, 2, 2.5		Fill	Fill - Red orange silty clay with sand, dry, stiff, with angular gravel up to 1 inch.	
0.0	LB4-3 0840 9/10/19	60%	3, 3.5, 4, 4.5, 5		Ash	Fill - White and grey silty clay with ash, with crushed gravel and glass.	Bentonite Pellets
0.0			5.5, 6, 6.5, 7		Ash	Fill - Dark grey ash, dry, with rock and glass.	
0.0	LB4-8 0845 9/10/19		7.5, 8, 8.5, 9, 9.5				

Borehole LB5

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 37.61"N, 95° 20' 8.09"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
0.0	LB5-0 1110 9/10/19	60%	0.5, 1, 1.5		Fill	Fill - Brown to tan silty clay, dry, stiff, with crushed glass	
0.2	LB5-3 1115 9/10/19		2, 2.5, 3, 3.5, 4		Ash	Fill - Blank to brown ash, dry, crumbly, with crushed glass.	Bentonite Pellets
0.3		50%	4.5, 5, 5.5, 6, 6.5, 7				
0.0			7.5, 8, 8.5, 9, 9.5				

Borehole LB6

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 36.36"N, 95° 20' 7.71"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
	LB6-0 0900 9/10/19	50%	0.5			Top soil	
0.1			1		Ash	0.5 feet - 3 inch thick gravel layer Fill - Dark brown to grey ash, dry, crumbly, with crushed gravel and glass.	
			1.5				
			2				
			2.5				
	LB6-3 0905 9/10/19		3				
0.3			3.5				
			4				Bentonite Pellets
		NM	4.5				
			5				
0.0			5.5				
			6				
			6.5				
			7				
0.1	LB6-8 0910 9/10/19		7.5				
			8				
			8.5				
			9				
			9.5				

Borehole LB7

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 36.55"N, 95° 20' 6.16"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
0.1	LB7-0 1020 9/10/19	70%	0.5, 1, 1.5, 2, 2.5		Fill	Red orange silty clay, dry, stiff with crushed gravel and glass.	
0.0	LB7-3 1025 9/10/19		3, 3.5, 4		Ash	Brown to dark grey ash, dry, crumbly, with crushed gravel and glass and pieces of metal.	Bentonite Pellets
0.1		50%	4.5, 5, 5.5, 6, 6.5, 7				
0.0			7.5, 8, 8.5, 9, 9.5				

Borehole LB8

PROJECT NUMBER JES-011
PROJECT NAME Vacant Land
CLIENT US Army Corps of Engineers and EPA
ADDRESS 800 N. Velasco St. Houston TX
DRILLING DATE 9/10/19

DRILLING COMPANY Best Drilling
DRILLING METHOD Direct Push
DRILLER NUMBER 4997-M
DEPTH WATER ENCOUNTERED (ft) NA
DEPTH TO STATIC WATER LEVEL (ft) NA

TYPE OF WELL Soil Boring
TOTAL DEPTH (ft) 8
BOTTOM OF CASING DEPTH (ft) NA
BORING DIAMETER (in) 2.5
COORDINATES 29° 45' 38.41'N, 95° 20' 6.50"W

NM - Not Measured
NA - Not Applicable

LOGGED BY Michael Stevens
CHECKED BY Jennifer Lindquist

PID	Samples	% Recovery	Depth (ft)	Graphic Log	USCS	Material Description	Well Diagram
0.3	LB8-0 1050 9/10/19	70%	0.5, 1, 1.5		Fill	Tan to brown silty clay, dry, stiff with crushed gravel and glass.	
0.5	LB8-3 1055 9/10/19		2, 2.5, 3, 3.5, 4		Ash	Dark brown to dark grey ash, dry, crumbly, with crushed gravel and glass.	Bentonite Pellets
0.1		50%	4.5, 5, 5.5, 6, 6.5, 7				
0.0	LB8-8 1100 9/10/19		7.5, 8, 8.5, 9, 9.5				

APPENDIX D

LABORATORY REPORTS

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 19, 2019

Leaaf Environmental

Sample Delivery Group:	L1137950
Samples Received:	09/11/2019
Project Number:	JES-011
Description:	N. Velasco

Report To: Michael Stevens
812 Rupp Street
Gretna, LA 70053

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

TABLE OF CONTENTS

LB4-0 L1137950-01 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 08:35 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:19	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	1	09/11/19 20:08	09/13/19 10:15	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1	09/10/19 08:35	09/16/19 01:39	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 18:11	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344654	1	09/12/19 16:42	09/13/19 14:35	LEA	Mt. Juliet, TN

LB4-3 L1137950-02 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 08:40 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:26	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	5	09/11/19 20:08	09/13/19 13:30	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1	09/10/19 08:40	09/16/19 01:58	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 18:25	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344682	1	09/12/19 18:14	09/13/19 13:26	JNJ	Mt. Juliet, TN

LB4-8 L1137950-03 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 08:45 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:29	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	5	09/11/19 20:08	09/13/19 13:33	TRB	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 18:41	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344682	1	09/12/19 18:14	09/13/19 13:49	JNJ	Mt. Juliet, TN

LB6-0 L1137950-04 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 09:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:32	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	5	09/11/19 20:08	09/13/19 13:35	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1	09/10/19 09:00	09/16/19 02:17	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 18:55	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 04:31	LEA	Mt. Juliet, TN

LB6-3 L1137950-05 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 09:05 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:34	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344081	5	09/11/19 19:38	09/14/19 22:33	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1.13	09/10/19 09:05	09/16/19 02:36	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 19:55	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 03:45	LEA	Mt. Juliet, TN

LB6-8 L1137950-06 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 09:10 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:37	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344081	5	09/11/19 19:38	09/14/19 22:35	CCE	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 20:09	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/18/19 01:30	JNJ	Mt. Juliet, TN

LB7-0 L1137950-07 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 10:20 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	2	09/12/19 10:56	09/12/19 21:54	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344081	5	09/11/19 19:38	09/14/19 22:38	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1	09/10/19 10:20	09/16/19 02:55	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 20:24	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 04:08	LEA	Mt. Juliet, TN

LB7-3 L1137950-08 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 10:25 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:42	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344081	5	09/11/19 19:38	09/14/19 22:40	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1.08	09/10/19 10:25	09/16/19 03:14	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344146	1	09/12/19 07:21	09/12/19 20:39	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	10	09/13/19 06:30	09/14/19 07:34	LEA	Mt. Juliet, TN

LB7A L1137950-09 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 10:20 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:44	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344081	1	09/11/19 19:38	09/13/19 22:33	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1	09/10/19 10:20	09/16/19 03:32	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 19:14	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/13/19 17:14	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	10	09/13/19 06:30	09/14/19 07:11	LEA	Mt. Juliet, TN

LB8-0 L1137950-10 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 10:50 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346951	1	09/17/19 14:46	09/17/19 14:58	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344102	1	09/12/19 10:56	09/12/19 18:47	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344081	1	09/11/19 19:38	09/13/19 22:36	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346088	1	09/10/19 10:50	09/16/19 03:51	JHH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 19:27	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/13/19 17:28	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	50	09/13/19 06:30	09/14/19 07:57	LEA	Mt. Juliet, TN

LB8-3 L1137950-11 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 10:55 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:05	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344075	5	09/11/19 20:04	09/15/19 21:02	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1.08	09/10/19 10:55	09/16/19 05:57	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 19:39	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/13/19 17:42	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	2	09/13/19 06:30	09/14/19 05:40	LEA	Mt. Juliet, TN

LB8-8 L1137950-12 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 11:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:08	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344075	5	09/11/19 20:04	09/15/19 21:04	CCE	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 19:52	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 02:14	LEA	Mt. Juliet, TN

LB5-0 L1137950-13 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 11:10 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:10	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344075	5	09/11/19 20:04	09/15/19 21:07	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1.42	09/10/19 11:10	09/16/19 06:18	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 20:04	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/13/19 17:56	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	5	09/12/19 09:05	09/14/19 11:37	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	2	09/13/19 06:30	09/14/19 05:17	LEA	Mt. Juliet, TN

LB5-3 L1137950-14 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 11:15 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 14:22	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	1	09/11/19 20:08	09/13/19 09:28	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1.01	09/10/19 11:15	09/16/19 06:38	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 20:17	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/13/19 18:09	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	2	09/13/19 06:30	09/14/19 06:03	LEA	Mt. Juliet, TN

LB3-0 L1137950-15 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:13	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344075	1	09/11/19 20:04	09/14/19 20:44	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1	09/10/19 12:00	09/16/19 07:39	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 20:54	RAH	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

LB3-0 L1137950-15 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 01:05	LEA	Mt. Juliet, TN

LB3-3 L1137950-16 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:05 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:15	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	1	09/11/19 20:08	09/13/19 10:32	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1	09/10/19 12:05	09/16/19 08:00	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 21:07	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 01:28	LEA	Mt. Juliet, TN

LB1-0 L1137950-17 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:20 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:18	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	1	09/11/19 20:08	09/13/19 10:35	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1	09/10/19 12:20	09/16/19 08:20	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 21:19	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 03:00	LEA	Mt. Juliet, TN

LB1-3 L1137950-18 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:25 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:21	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	1	09/11/19 20:08	09/13/19 10:38	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1	09/10/19 12:25	09/16/19 08:41	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 21:31	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 01:51	LEA	Mt. Juliet, TN

LB2-0 L1137950-19 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:45 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:23	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	5	09/11/19 20:08	09/13/19 13:38	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346335	1	09/10/19 12:45	09/16/19 09:01	DWR	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/12/19 21:44	RAH	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344206	1	09/12/19 09:05	09/13/19 18:23	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 03:23	LEA	Mt. Juliet, TN

LB2-3 L1137950-20 Solid

Collected by: Michael Stevens | Collected date/time: 09/10/19 12:50 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1346988	1	09/17/19 14:36	09/17/19 14:45	KDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1344080	1	09/11/19 17:52	09/12/19 15:26	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1344079	1	09/11/19 20:08	09/13/19 10:43	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1347112	1.07	09/10/19 12:50	09/17/19 14:04	BMB	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1344613	1	09/12/19 16:32	09/13/19 11:57	RAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1344845	1	09/13/19 06:30	09/14/19 02:37	LEA	Mt. Juliet, TN

FB1 L1137950-21 GW

Collected by: Michael Stevens | Collected date/time: 09/10/19 09:15 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346228	1	09/16/19 05:35	09/16/19 05:35	ACG	Mt. Juliet, TN

RB1 L1137950-22 GW

Collected by: Michael Stevens | Collected date/time: 09/10/19 09:50 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1344096	1	09/11/19 21:21	09/12/19 14:18	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1343794	1	09/11/19 18:40	09/12/19 00:09	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346228	1	09/16/19 05:56	09/16/19 05:56	ACG	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1343934	1	09/11/19 17:19	09/12/19 12:48	RP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C	WG1344712	1	09/12/19 16:02	09/13/19 16:10	LEA	Mt. Juliet, TN

TB1 L1137950-23 GW

Collected by: Michael Stevens | Collected date/time: 09/10/19 00:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346228	1	09/16/19 00:26	09/16/19 00:26	ACG	Mt. Juliet, TN

TB2 L1137950-24 GW

Collected by: Michael Stevens | Collected date/time: 09/10/19 00:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346228	1	09/16/19 00:46	09/16/19 00:46	ACG	Mt. Juliet, TN

TB3 L1137950-25 GW

Collected by: Michael Stevens | Collected date/time: 09/10/19 00:00 | Received date/time: 09/11/19 08:45

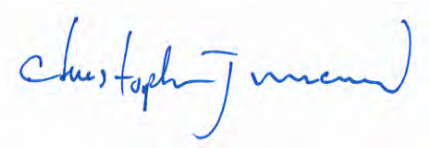
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346228	1	09/16/19 01:07	09/16/19 01:07	ACG	Mt. Juliet, TN

TB4 L1137950-26 GW

Collected by: Michael Stevens | Collected date/time: 09/10/19 00:00 | Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1346228	1	09/16/19 01:28	09/16/19 01:28	ACG	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.7		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0570		0.00280	0.0300	1	09/12/2019 18:19	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.23		0.460	2.00	1	09/13/2019 10:15	WG1344079
Lead	173		0.190	0.500	1	09/13/2019 10:15	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 01:39	WG1346088
(S) Toluene-d8	*104*			*75.0-131*		*09/16/2019 01:39*	WG1346088
(S) 4-Bromofluorobenzene	*99.2*			*67.0-138*		*09/16/2019 01:39*	WG1346088
(S) 1,2-Dichloroethane-d4	*83.4*			*70.0-130*		*09/16/2019 01:39*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 18:11	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 18:11	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 18:11	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 18:11	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 18:11	WG1344146
PCB 1254	0.0589		0.00472	0.0170	1	09/12/2019 18:11	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 18:11	WG1344146
(S) Decachlorobiphenyl	*54.1*			*10.0-135*		*09/12/2019 18:11*	WG1344146
(S) Tetrachloro-m-xylene	*56.0*			*10.0-139*		*09/12/2019 18:11*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.0310	J	0.0120	0.333	1	09/13/2019 14:35	WG1344654
(S) Nitrobenzene-d5	*52.7*			*10.0-122*		*09/13/2019 14:35*	WG1344654
(S) 2-Fluorobiphenyl	*65.5*			*15.0-120*		*09/13/2019 14:35*	WG1344654
(S) p-Terphenyl-d14	*74.0*			*10.0-120*		*09/13/2019 14:35*	WG1344654

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.6		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.272		0.00280	0.0300	1	09/12/2019 18:26	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	12.2		2.30	10.0	5	09/13/2019 13:30	WG1344079
Lead	1130		0.950	2.50	5	09/13/2019 13:30	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 01:58	WG1346088
(S) Toluene-d8	*105*			*75.0-131*		*09/16/2019 01:58*	WG1346088
(S) 4-Bromofluorobenzene	*99.9*			*67.0-138*		*09/16/2019 01:58*	WG1346088
(S) 1,2-Dichloroethane-d4	*79.1*			*70.0-130*		*09/16/2019 01:58*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 18:25	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 18:25	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 18:25	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 18:25	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 18:25	WG1344146
PCB 1254	0.132		0.00472	0.0170	1	09/12/2019 18:25	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 18:25	WG1344146
(S) Decachlorobiphenyl	*60.0*			*10.0-135*		*09/12/2019 18:25*	WG1344146
(S) Tetrachloro-m-xylene	*59.9*			*10.0-139*		*09/12/2019 18:25*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.0454	J	0.0120	0.333	1	09/13/2019 13:26	WG1344682
(S) Nitrobenzene-d5	*62.7*			*10.0-122*		*09/13/2019 13:26*	WG1344682
(S) 2-Fluorobiphenyl	*65.5*			*15.0-120*		*09/13/2019 13:26*	WG1344682
(S) p-Terphenyl-d14	*82.7*			*10.0-120*		*09/13/2019 13:26*	WG1344682

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.7		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.319		0.00280	0.0300	1	09/12/2019 18:29	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	12.6		2.30	10.0	5	09/13/2019 13:33	WG1344079
Lead	1620		0.950	2.50	5	09/13/2019 13:33	WG1344079

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 18:41	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 18:41	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 18:41	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 18:41	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 18:41	WG1344146
PCB 1254	0.900		0.00472	0.0170	1	09/12/2019 18:41	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 18:41	WG1344146
(S) Decachlorobiphenyl	*70.1*			*10.0-135*		*09/12/2019 18:41*	WG1344146
(S) Tetrachloro-m-xylene	*65.8*			*10.0-139*		*09/12/2019 18:41*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.0144	J	0.0120	0.333	1	09/13/2019 13:49	WG1344682
(S) Nitrobenzene-d5	*57.8*			*10.0-122*		*09/13/2019 13:49*	WG1344682
(S) 2-Fluorobiphenyl	*64.5*			*15.0-120*		*09/13/2019 13:49*	WG1344682
(S) p-Terphenyl-d14	*82.1*			*10.0-120*		*09/13/2019 13:49*	WG1344682

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.3		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.459		0.00280	0.0300	1	09/12/2019 18:32	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	11.3		2.30	10.0	5	09/13/2019 13:35	WG1344079
Lead	811		0.950	2.50	5	09/13/2019 13:35	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 02:17	WG1346088
(S) Toluene-d8	*105*			*75.0-131*		*09/16/2019 02:17*	WG1346088
(S) 4-Bromofluorobenzene	*102*			*67.0-138*		*09/16/2019 02:17*	WG1346088
(S) 1,2-Dichloroethane-d4	*84.5*			*70.0-130*		*09/16/2019 02:17*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 18:55	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 18:55	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 18:55	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 18:55	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 18:55	WG1344146
PCB 1254	0.0234		0.00472	0.0170	1	09/12/2019 18:55	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 18:55	WG1344146
(S) Decachlorobiphenyl	*68.0*			*10.0-135*		*09/12/2019 18:55*	WG1344146
(S) Tetrachloro-m-xylene	*70.5*			*10.0-139*		*09/12/2019 18:55*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 04:31	WG1344845
(S) Nitrobenzene-d5	*64.3*			*10.0-122*		*09/14/2019 04:31*	WG1344845
(S) 2-Fluorobiphenyl	*62.4*			*15.0-120*		*09/14/2019 04:31*	WG1344845
(S) p-Terphenyl-d14	*71.8*			*10.0-120*		*09/14/2019 04:31*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.7		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.379		0.00280	0.0300	1	09/12/2019 18:34	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	195		2.30	10.0	5	09/14/2019 22:33	WG1344081
Lead	1480		0.950	2.50	5	09/14/2019 22:33	WG1344081

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000452	0.00113	1.13	09/16/2019 02:36	WG1346088
(S) Toluene-d8	*106*			*75.0-131*		*09/16/2019 02:36*	WG1346088
(S) 4-Bromofluorobenzene	*100*			*67.0-138*		*09/16/2019 02:36*	WG1346088
(S) 1,2-Dichloroethane-d4	*82.7*			*70.0-130*		*09/16/2019 02:36*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 19:55	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 19:55	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 19:55	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 19:55	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 19:55	WG1344146
PCB 1254	0.0474		0.00472	0.0170	1	09/12/2019 19:55	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 19:55	WG1344146
(S) Decachlorobiphenyl	*70.0*			*10.0-135*		*09/12/2019 19:55*	WG1344146
(S) Tetrachloro-m-xylene	*62.7*			*10.0-139*		*09/12/2019 19:55*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.117	J	0.0120	0.333	1	09/14/2019 03:45	WG1344845
(S) Nitrobenzene-d5	*57.8*			*10.0-122*		*09/14/2019 03:45*	WG1344845
(S) 2-Fluorobiphenyl	*59.0*			*15.0-120*		*09/14/2019 03:45*	WG1344845
(S) p-Terphenyl-d14	*65.3*			*10.0-120*		*09/14/2019 03:45*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.7		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.509		0.00280	0.0300	1	09/12/2019 18:37	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	81.9		2.30	10.0	5	09/14/2019 22:35	WG1344081
Lead	2490		0.950	2.50	5	09/14/2019 22:35	WG1344081

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 20:09	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 20:09	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 20:09	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 20:09	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 20:09	WG1344146
PCB 1254	0.246	P	0.00472	0.0170	1	09/12/2019 20:09	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 20:09	WG1344146
(S) Decachlorobiphenyl	*60.2*			*10.0-135*		*09/12/2019 20:09*	WG1344146
(S) Tetrachloro-m-xylene	*60.7*			*10.0-139*		*09/12/2019 20:09*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.650		0.0120	0.333	1	09/18/2019 01:30	WG1344845
(S) Nitrobenzene-d5	*48.0*			*10.0-122*		*09/18/2019 01:30*	WG1344845
(S) 2-Fluorobiphenyl	*55.9*			*15.0-120*		*09/18/2019 01:30*	WG1344845
(S) p-Terphenyl-d14	*67.0*			*10.0-120*		*09/18/2019 01:30*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.9		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.488		0.00560	0.0600	2	09/12/2019 21:54	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	25.1		2.30	10.0	5	09/14/2019 22:38	WG1344081
Lead	1230		0.950	2.50	5	09/14/2019 22:38	WG1344081

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 02:55	WG1346088
(S) Toluene-d8	*105*			*75.0-131*		*09/16/2019 02:55*	WG1346088
(S) 4-Bromofluorobenzene	*98.2*			*67.0-138*		*09/16/2019 02:55*	WG1346088
(S) 1,2-Dichloroethane-d4	*84.8*			*70.0-130*		*09/16/2019 02:55*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 20:24	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 20:24	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 20:24	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 20:24	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 20:24	WG1344146
PCB 1254	0.00717	J	0.00472	0.0170	1	09/12/2019 20:24	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 20:24	WG1344146
(S) Decachlorobiphenyl	*69.2*			*10.0-135*		*09/12/2019 20:24*	WG1344146
(S) Tetrachloro-m-xylene	*73.5*			*10.0-139*		*09/12/2019 20:24*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 04:08	WG1344845
(S) Nitrobenzene-d5	*57.8*			*10.0-122*		*09/14/2019 04:08*	WG1344845
(S) 2-Fluorobiphenyl	*53.2*			*15.0-120*		*09/14/2019 04:08*	WG1344845
(S) p-Terphenyl-d14	*53.2*			*10.0-120*		*09/14/2019 04:08*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.7		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.838		0.00280	0.0300	1	09/12/2019 18:42	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	38.8		2.30	10.0	5	09/14/2019 22:40	WG1344081
Lead	1760		0.950	2.50	5	09/14/2019 22:40	WG1344081

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000432	0.00108	1.08	09/16/2019 03:14	WG1346088
(S) Toluene-d8	*102*			*75.0-131*		*09/16/2019 03:14*	WG1346088
(S) 4-Bromofluorobenzene	*99.9*			*67.0-138*		*09/16/2019 03:14*	WG1346088
(S) 1,2-Dichloroethane-d4	*87.0*			*70.0-130*		*09/16/2019 03:14*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 20:39	WG1344146
PCB 1221	U		0.00537	0.0170	1	09/12/2019 20:39	WG1344146
PCB 1232	U		0.00417	0.0170	1	09/12/2019 20:39	WG1344146
PCB 1242	U		0.00318	0.0170	1	09/12/2019 20:39	WG1344146
PCB 1248	U		0.00315	0.0170	1	09/12/2019 20:39	WG1344146
PCB 1254	0.0876		0.00472	0.0170	1	09/12/2019 20:39	WG1344146
PCB 1260	U		0.00494	0.0170	1	09/12/2019 20:39	WG1344146
(S) Decachlorobiphenyl	*70.6*			*10.0-135*		*09/12/2019 20:39*	WG1344146
(S) Tetrachloro-m-xylene	*67.4*			*10.0-139*		*09/12/2019 20:39*	WG1344146

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	1.25	J	0.120	3.33	10	09/14/2019 07:34	WG1344845
(S) Nitrobenzene-d5	*58.6*			*10.0-122*		*09/14/2019 07:34*	WG1344845
(S) 2-Fluorobiphenyl	*57.0*			*15.0-120*		*09/14/2019 07:34*	WG1344845
(S) p-Terphenyl-d14	*61.1*			*10.0-120*		*09/14/2019 07:34*	WG1344845

Sample Narrative:

L1137950-08 WG1344845: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.1		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.122		0.00280	0.0300	1	09/12/2019 18:44	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	6.36		0.460	2.00	1	09/13/2019 22:33	WG1344081
Lead	377		0.190	0.500	1	09/13/2019 22:33	WG1344081

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 03:32	WG1346088
(S) Toluene-d8	*103*			*75.0-131*		*09/16/2019 03:32*	WG1346088
(S) 4-Bromofluorobenzene	*99.3*			*67.0-138*		*09/16/2019 03:32*	WG1346088
(S) 1,2-Dichloroethane-d4	*88.6*			*70.0-130*		*09/16/2019 03:32*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 19:14	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 19:14	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 19:14	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 19:14	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 19:14	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 19:14	WG1344206
PCB 1260	0.0382		0.00494	0.0170	1	09/13/2019 17:14	WG1344206
(S) Decachlorobiphenyl	*84.4*			*10.0-135*		*09/12/2019 19:14*	WG1344206
(S) Decachlorobiphenyl	*93.8*			*10.0-135*		*09/13/2019 17:14*	WG1344206
(S) Tetrachloro-m-xylene	*99.8*			*10.0-139*		*09/13/2019 17:14*	WG1344206
(S) Tetrachloro-m-xylene	*94.3*			*10.0-139*		*09/12/2019 19:14*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.120	3.33	10	09/14/2019 07:11	WG1344845
(S) Nitrobenzene-d5	*72.0*			*10.0-122*		*09/14/2019 07:11*	WG1344845
(S) 2-Fluorobiphenyl	*68.2*			*15.0-120*		*09/14/2019 07:11*	WG1344845
(S) p-Terphenyl-d14	*74.8*			*10.0-120*		*09/14/2019 07:11*	WG1344845

Sample Narrative:

L1137950-09 WG1344845: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.8		1	09/17/2019 14:58	WG1346951

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0126	J	0.00280	0.0300	1	09/12/2019 18:47	WG1344102

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	8.62		0.460	2.00	1	09/13/2019 22:36	WG1344081
Lead	318		0.190	0.500	1	09/13/2019 22:36	WG1344081

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 03:51	WG1346088
(S) Toluene-d8	*101*			*75.0-131*		*09/16/2019 03:51*	WG1346088
(S) 4-Bromofluorobenzene	*97.7*			*67.0-138*		*09/16/2019 03:51*	WG1346088
(S) 1,2-Dichloroethane-d4	*87.5*			*70.0-130*		*09/16/2019 03:51*	WG1346088

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 19:27	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 19:27	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 19:27	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 19:27	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 19:27	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 19:27	WG1344206
PCB 1260	0.109		0.00494	0.0170	1	09/13/2019 17:28	WG1344206
(S) Decachlorobiphenyl	*70.0*			*10.0-135*		*09/13/2019 17:28*	WG1344206
(S) Decachlorobiphenyl	*67.5*			*10.0-135*		*09/12/2019 19:27*	WG1344206
(S) Tetrachloro-m-xylene	*70.0*			*10.0-139*		*09/12/2019 19:27*	WG1344206
(S) Tetrachloro-m-xylene	*75.2*			*10.0-139*		*09/13/2019 17:28*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.600	16.7	50	09/14/2019 07:57	WG1344845
(S) Nitrobenzene-d5	*111*	J7		*10.0-122*		*09/14/2019 07:57*	WG1344845
(S) 2-Fluorobiphenyl	*82.4*	J7		*15.0-120*		*09/14/2019 07:57*	WG1344845
(S) p-Terphenyl-d14	*90.6*	J7		*10.0-120*		*09/14/2019 07:57*	WG1344845

Sample Narrative:

L1137950-10 WG1344845: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.2		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.567		0.00280	0.0300	1	09/12/2019 15:05	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	U		2.30	10.0	5	09/15/2019 21:02	WG1344075
Lead	4390		0.950	2.50	5	09/15/2019 21:02	WG1344075

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000432	0.00108	1.08	09/16/2019 05:57	WG1346335
(S) Toluene-d8	*103*			*75.0-131*		*09/16/2019 05:57*	WG1346335
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*09/16/2019 05:57*	WG1346335
(S) 1,2-Dichloroethane-d4	*95.7*			*70.0-130*		*09/16/2019 05:57*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 19:39	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 19:39	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 19:39	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 19:39	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 19:39	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 19:39	WG1344206
PCB 1260	0.0131	J P	0.00494	0.0170	1	09/13/2019 17:42	WG1344206
(S) Decachlorobiphenyl	*57.9*			*10.0-135*		*09/13/2019 17:42*	WG1344206
(S) Decachlorobiphenyl	*60.2*			*10.0-135*		*09/12/2019 19:39*	WG1344206
(S) Tetrachloro-m-xylene	*59.3*			*10.0-139*		*09/13/2019 17:42*	WG1344206
(S) Tetrachloro-m-xylene	*61.9*			*10.0-139*		*09/12/2019 19:39*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0240	0.666	2	09/14/2019 05:40	WG1344845
(S) Nitrobenzene-d5	*47.0*			*10.0-122*		*09/14/2019 05:40*	WG1344845
(S) 2-Fluorobiphenyl	*55.5*			*15.0-120*		*09/14/2019 05:40*	WG1344845
(S) p-Terphenyl-d14	*62.6*			*10.0-120*		*09/14/2019 05:40*	WG1344845

Sample Narrative:

L1137950-11 WG1344845: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.8		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.103		0.00280	0.0300	1	09/12/2019 15:08	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.00	J	2.30	10.0	5	09/15/2019 21:04	WG1344075
Lead	5640		0.950	2.50	5	09/15/2019 21:04	WG1344075

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 19:52	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 19:52	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 19:52	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 19:52	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 19:52	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 19:52	WG1344206
PCB 1260	U		0.00494	0.0170	1	09/12/2019 19:52	WG1344206
(S) Decachlorobiphenyl	*75.7*			*10.0-135*		*09/12/2019 19:52*	WG1344206
(S) Tetrachloro-m-xylene	*87.8*			*10.0-139*		*09/12/2019 19:52*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 02:14	WG1344845
(S) Nitrobenzene-d5	*61.8*			*10.0-122*		*09/14/2019 02:14*	WG1344845
(S) 2-Fluorobiphenyl	*62.7*			*15.0-120*		*09/14/2019 02:14*	WG1344845
(S) p-Terphenyl-d14	*71.0*			*10.0-120*		*09/14/2019 02:14*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.9		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.576		0.00280	0.0300	1	09/12/2019 15:10	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	2.61	J	2.30	10.0	5	09/15/2019 21:07	WG1344075
Lead	2590		0.950	2.50	5	09/15/2019 21:07	WG1344075

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000568	0.00142	1.42	09/16/2019 06:18	WG1346335
(S) Toluene-d8	*106*			*75.0-131*		*09/16/2019 06:18*	WG1346335
(S) 4-Bromofluorobenzene	*107*			*67.0-138*		*09/16/2019 06:18*	WG1346335
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*09/16/2019 06:18*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 20:04	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 20:04	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 20:04	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 20:04	WG1344206
PCB 1248	1.23		0.00315	0.0170	1	09/13/2019 17:56	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 20:04	WG1344206
PCB 1260	1.31		0.0247	0.0850	5	09/14/2019 11:37	WG1344206
(S) Decachlorobiphenyl	*75.3*			*10.0-135*		*09/13/2019 17:56*	WG1344206
(S) Decachlorobiphenyl	*76.5*			*10.0-135*		*09/14/2019 11:37*	WG1344206
(S) Decachlorobiphenyl	*71.8*			*10.0-135*		*09/12/2019 20:04*	WG1344206
(S) Tetrachloro-m-xylene	*79.3*			*10.0-139*		*09/12/2019 20:04*	WG1344206
(S) Tetrachloro-m-xylene	*72.9*			*10.0-139*		*09/14/2019 11:37*	WG1344206
(S) Tetrachloro-m-xylene	*78.7*			*10.0-139*		*09/13/2019 17:56*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.0480	J	0.0240	0.666	2	09/14/2019 05:17	WG1344845
(S) Nitrobenzene-d5	*64.2*			*10.0-122*		*09/14/2019 05:17*	WG1344845
(S) 2-Fluorobiphenyl	*60.6*			*15.0-120*		*09/14/2019 05:17*	WG1344845
(S) p-Terphenyl-d14	*67.0*			*10.0-120*		*09/14/2019 05:17*	WG1344845

Sample Narrative:

L1137950-13 WG1344845: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.5		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.731	J6 O1	0.00280	0.0300	1	09/12/2019 14:22	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	45.1	O1	0.460	2.00	1	09/13/2019 09:28	WG1344079
Lead	3600	J3 O1 V	0.190	0.500	1	09/13/2019 09:28	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000404	0.00101	1.01	09/16/2019 06:38	WG1346335
(S) Toluene-d8	*105*			*75.0-131*		*09/16/2019 06:38*	WG1346335
(S) 4-Bromofluorobenzene	*105*			*67.0-138*		*09/16/2019 06:38*	WG1346335
(S) 1,2-Dichloroethane-d4	*99.1*			*70.0-130*		*09/16/2019 06:38*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 20:17	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 20:17	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 20:17	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 20:17	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 20:17	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 20:17	WG1344206
PCB 1260	0.0978		0.00494	0.0170	1	09/13/2019 18:09	WG1344206
(S) Decachlorobiphenyl	*64.2*			*10.0-135*		*09/12/2019 20:17*	WG1344206
(S) Decachlorobiphenyl	*67.6*			*10.0-135*		*09/13/2019 18:09*	WG1344206
(S) Tetrachloro-m-xylene	*69.0*			*10.0-139*		*09/12/2019 20:17*	WG1344206
(S) Tetrachloro-m-xylene	*70.6*			*10.0-139*		*09/13/2019 18:09*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	0.137	J J3	0.0240	0.666	2	09/14/2019 06:03	WG1344845
(S) Nitrobenzene-d5	*64.9*			*10.0-122*		*09/14/2019 06:03*	WG1344845
(S) 2-Fluorobiphenyl	*65.8*			*15.0-120*		*09/14/2019 06:03*	WG1344845
(S) p-Terphenyl-d14	*74.1*			*10.0-120*		*09/14/2019 06:03*	WG1344845

Sample Narrative:

L1137950-14 WG1344845: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.0		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.00280	0.0300	1	09/12/2019 15:13	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	U		0.460	2.00	1	09/14/2019 20:44	WG1344075
Lead	8.98		0.190	0.500	1	09/14/2019 20:44	WG1344075

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 07:39	WG1346335
(S) Toluene-d8	*104*			*75.0-131*		*09/16/2019 07:39*	WG1346335
(S) 4-Bromofluorobenzene	*102*			*67.0-138*		*09/16/2019 07:39*	WG1346335
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*09/16/2019 07:39*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 20:54	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 20:54	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 20:54	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 20:54	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 20:54	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 20:54	WG1344206
PCB 1260	U		0.00494	0.0170	1	09/12/2019 20:54	WG1344206
(S) Decachlorobiphenyl	*61.3*			*10.0-135*		*09/12/2019 20:54*	WG1344206
(S) Tetrachloro-m-xylene	*67.4*			*10.0-139*		*09/12/2019 20:54*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 01:05	WG1344845
(S) Nitrobenzene-d5	*64.4*			*10.0-122*		*09/14/2019 01:05*	WG1344845
(S) 2-Fluorobiphenyl	*63.2*			*15.0-120*		*09/14/2019 01:05*	WG1344845
(S) p-Terphenyl-d14	*71.5*			*10.0-120*		*09/14/2019 01:05*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.9		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.00280	0.0300	1	09/12/2019 15:15	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.15		0.460	2.00	1	09/13/2019 10:32	WG1344079
Lead	5.71		0.190	0.500	1	09/13/2019 10:32	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 08:00	WG1346335
(S) Toluene-d8	*105*			*75.0-131*		*09/16/2019 08:00*	WG1346335
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*09/16/2019 08:00*	WG1346335
(S) 1,2-Dichloroethane-d4	*99.3*			*70.0-130*		*09/16/2019 08:00*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 21:07	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 21:07	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 21:07	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 21:07	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 21:07	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 21:07	WG1344206
PCB 1260	U		0.00494	0.0170	1	09/12/2019 21:07	WG1344206
(S) Decachlorobiphenyl	*83.2*			*10.0-135*		*09/12/2019 21:07*	WG1344206
(S) Tetrachloro-m-xylene	*91.9*			*10.0-139*		*09/12/2019 21:07*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 01:28	WG1344845
(S) Nitrobenzene-d5	*63.8*			*10.0-122*		*09/14/2019 01:28*	WG1344845
(S) 2-Fluorobiphenyl	*60.7*			*15.0-120*		*09/14/2019 01:28*	WG1344845
(S) p-Terphenyl-d14	*73.0*			*10.0-120*		*09/14/2019 01:28*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.0		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.00894	J	0.00280	0.0300	1	09/12/2019 15:18	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	2.79		0.460	2.00	1	09/13/2019 10:35	WG1344079
Lead	982		0.190	0.500	1	09/13/2019 10:35	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 08:20	WG1346335
(S) Toluene-d8	*105*			*75.0-131*		*09/16/2019 08:20*	WG1346335
(S) 4-Bromofluorobenzene	*103*			*67.0-138*		*09/16/2019 08:20*	WG1346335
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*09/16/2019 08:20*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 21:19	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 21:19	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 21:19	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 21:19	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 21:19	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 21:19	WG1344206
PCB 1260	U		0.00494	0.0170	1	09/12/2019 21:19	WG1344206
(S) Decachlorobiphenyl	*96.2*			*10.0-135*		*09/12/2019 21:19*	WG1344206
(S) Tetrachloro-m-xylene	*106*			*10.0-139*		*09/12/2019 21:19*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 03:00	WG1344845
(S) Nitrobenzene-d5	*66.9*			*10.0-122*		*09/14/2019 03:00*	WG1344845
(S) 2-Fluorobiphenyl	*66.0*			*15.0-120*		*09/14/2019 03:00*	WG1344845
(S) p-Terphenyl-d14	*73.3*			*10.0-120*		*09/14/2019 03:00*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.8		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.00499	J	0.00280	0.0300	1	09/12/2019 15:21	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	1.69	J	0.460	2.00	1	09/13/2019 10:38	WG1344079
Lead	426		0.190	0.500	1	09/13/2019 10:38	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 08:41	WG1346335
(S) Toluene-d8	*104*			*75.0-131*		*09/16/2019 08:41*	WG1346335
(S) 4-Bromofluorobenzene	*104*			*67.0-138*		*09/16/2019 08:41*	WG1346335
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*09/16/2019 08:41*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 21:31	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 21:31	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 21:31	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 21:31	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 21:31	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 21:31	WG1344206
PCB 1260	U		0.00494	0.0170	1	09/12/2019 21:31	WG1344206
(S) Decachlorobiphenyl	*73.6*			*10.0-135*		*09/12/2019 21:31*	WG1344206
(S) Tetrachloro-m-xylene	*81.1*			*10.0-139*		*09/12/2019 21:31*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 01:51	WG1344845
(S) Nitrobenzene-d5	*64.5*			*10.0-122*		*09/14/2019 01:51*	WG1344845
(S) 2-Fluorobiphenyl	*62.0*			*15.0-120*		*09/14/2019 01:51*	WG1344845
(S) p-Terphenyl-d14	*78.1*			*10.0-120*		*09/14/2019 01:51*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.4		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0817		0.00280	0.0300	1	09/12/2019 15:23	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	10.1		2.30	10.0	5	09/13/2019 13:38	WG1344079
Lead	965		0.950	2.50	5	09/13/2019 13:38	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000400	0.00100	1	09/16/2019 09:01	WG1346335
(S) Toluene-d8	*106*			*75.0-131*		*09/16/2019 09:01*	WG1346335
(S) 4-Bromofluorobenzene	*104*			*67.0-138*		*09/16/2019 09:01*	WG1346335
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*09/16/2019 09:01*	WG1346335

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/12/2019 21:44	WG1344206
PCB 1221	U		0.00537	0.0170	1	09/12/2019 21:44	WG1344206
PCB 1232	U		0.00417	0.0170	1	09/12/2019 21:44	WG1344206
PCB 1242	U		0.00318	0.0170	1	09/12/2019 21:44	WG1344206
PCB 1248	U		0.00315	0.0170	1	09/12/2019 21:44	WG1344206
PCB 1254	U		0.00472	0.0170	1	09/12/2019 21:44	WG1344206
PCB 1260	0.221		0.00494	0.0170	1	09/13/2019 18:23	WG1344206
(S) Decachlorobiphenyl	*56.0*			*10.0-135*		*09/13/2019 18:23*	WG1344206
(S) Decachlorobiphenyl	*57.9*			*10.0-135*		*09/12/2019 21:44*	WG1344206
(S) Tetrachloro-m-xylene	*64.5*			*10.0-139*		*09/12/2019 21:44*	WG1344206
(S) Tetrachloro-m-xylene	*65.0*			*10.0-139*		*09/13/2019 18:23*	WG1344206

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 03:23	WG1344845
(S) Nitrobenzene-d5	*59.0*			*10.0-122*		*09/14/2019 03:23*	WG1344845
(S) 2-Fluorobiphenyl	*59.6*			*15.0-120*		*09/14/2019 03:23*	WG1344845
(S) p-Terphenyl-d14	*63.0*			*10.0-120*		*09/14/2019 03:23*	WG1344845

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.2		1	09/17/2019 14:45	WG1346988

Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.105		0.00280	0.0300	1	09/12/2019 15:26	WG1344080

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	17.0		0.460	2.00	1	09/13/2019 10:43	WG1344079
Lead	1640		0.190	0.500	1	09/13/2019 10:43	WG1344079

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Trichloroethene	U		0.000428	0.00107	1.07	09/17/2019 14:04	WG1347112
(S) Toluene-d8	*116*			*75.0-131*		*09/17/2019 14:04*	WG1347112
(S) 4-Bromofluorobenzene	*98.0*			*67.0-138*		*09/17/2019 14:04*	WG1347112
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*09/17/2019 14:04*	WG1347112

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00350	0.0170	1	09/13/2019 11:57	WG1344613
PCB 1221	U		0.00537	0.0170	1	09/13/2019 11:57	WG1344613
PCB 1232	U		0.00417	0.0170	1	09/13/2019 11:57	WG1344613
PCB 1242	U		0.00318	0.0170	1	09/13/2019 11:57	WG1344613
PCB 1248	U		0.00315	0.0170	1	09/13/2019 11:57	WG1344613
PCB 1254	U		0.00472	0.0170	1	09/13/2019 11:57	WG1344613
PCB 1260	U		0.00494	0.0170	1	09/13/2019 11:57	WG1344613
(S) Decachlorobiphenyl	*70.1*			*10.0-135*		*09/13/2019 11:57*	WG1344613
(S) Tetrachloro-m-xylene	*72.5*			*10.0-139*		*09/13/2019 11:57*	WG1344613

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333	1	09/14/2019 02:37	WG1344845
(S) Nitrobenzene-d5	*66.2*			*10.0-122*		*09/14/2019 02:37*	WG1344845
(S) 2-Fluorobiphenyl	*64.0*			*15.0-120*		*09/14/2019 02:37*	WG1344845
(S) p-Terphenyl-d14	*71.7*			*10.0-120*		*09/14/2019 02:37*	WG1344845

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Trichloroethene	U		0.000398	0.00100	1	09/16/2019 05:35	WG1346228
(S) Toluene-d8	*104*			*80.0-120*		*09/16/2019 05:35*	WG1346228
(S) 4-Bromofluorobenzene	*97.9*			*77.0-126*		*09/16/2019 05:35*	WG1346228
(S) 1,2-Dichloroethane-d4	*96.6*			*70.0-130*		*09/16/2019 05:35*	WG1346228

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Mercury	U		0.0000490	0.000200	1	09/12/2019 14:18	WG1344096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Arsenic	U		0.00650	0.0100	1	09/12/2019 00:09	WG1343794
Lead	U		0.00190	0.00500	1	09/12/2019 00:09	WG1343794

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Trichloroethene	U		0.000398	0.00100	1	09/16/2019 05:56	WG1346228
(S) Toluene-d8	*104*			*80.0-120*		*09/16/2019 05:56*	WG1346228
(S) 4-Bromofluorobenzene	*98.3*			*77.0-126*		*09/16/2019 05:56*	WG1346228
(S) 1,2-Dichloroethane-d4	*97.6*			*70.0-130*		*09/16/2019 05:56*	WG1346228

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
PCB 1016	U		0.000100	0.000500	1	09/12/2019 12:48	WG1343934
PCB 1221	U		0.0000730	0.000500	1	09/12/2019 12:48	WG1343934
PCB 1232	U		0.0000420	0.000500	1	09/12/2019 12:48	WG1343934
PCB 1242	U		0.0000470	0.000500	1	09/12/2019 12:48	WG1343934
PCB 1248	U		0.0000860	0.000500	1	09/12/2019 12:48	WG1343934
PCB 1254	U		0.0000470	0.000500	1	09/12/2019 12:48	WG1343934
PCB 1260	U		0.000120	0.000500	1	09/12/2019 12:48	WG1343934
(S) Decachlorobiphenyl	*36.0*			*10.0-128*		*09/12/2019 12:48*	WG1343934
(S) Tetrachloro-m-xylene	*47.8*			*10.0-127*		*09/12/2019 12:48*	WG1343934

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300	1	09/13/2019 16:10	WG1344712
(S) Nitrobenzene-d5	*24.5*			*10.0-127*		*09/13/2019 16:10*	WG1344712
(S) 2-Fluorobiphenyl	*27.8*			*10.0-130*		*09/13/2019 16:10*	WG1344712
(S) p-Terphenyl-d14	*68.7*			*10.0-128*		*09/13/2019 16:10*	WG1344712

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Trichloroethene	U		0.000398	0.00100	1	09/16/2019 00:26	WG1346228
(S) Toluene-d8	*105*			*80.0-120*		*09/16/2019 00:26*	WG1346228
(S) 4-Bromofluorobenzene	*98.5*			*77.0-126*		*09/16/2019 00:26*	WG1346228
(S) 1,2-Dichloroethane-d4	*97.4*			*70.0-130*		*09/16/2019 00:26*	WG1346228

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Trichloroethene	U		0.000398	0.00100	1	09/16/2019 00:46	WG1346228
(S) Toluene-d8	*104*			*80.0-120*		*09/16/2019 00:46*	WG1346228
(S) 4-Bromofluorobenzene	*99.0*			*77.0-126*		*09/16/2019 00:46*	WG1346228
(S) 1,2-Dichloroethane-d4	*99.2*			*70.0-130*		*09/16/2019 00:46*	WG1346228

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Trichloroethene	U		0.000398	0.00100	1	09/16/2019 01:07	WG1346228
(S) Toluene-d8	*106*			*80.0-120*		*09/16/2019 01:07*	WG1346228
(S) 4-Bromofluorobenzene	*96.1*			*77.0-126*		*09/16/2019 01:07*	WG1346228
(S) 1,2-Dichloroethane-d4	*95.7*			*70.0-130*		*09/16/2019 01:07*	WG1346228

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Trichloroethene	U		0.000398	0.00100	1	09/16/2019 01:28	WG1346228
(S) Toluene-d8	*105*			*80.0-120*		*09/16/2019 01:28*	WG1346228
(S) 4-Bromofluorobenzene	*96.9*			*77.0-126*		*09/16/2019 01:28*	WG1346228
(S) 1,2-Dichloroethane-d4	*95.7*			*70.0-130*		*09/16/2019 01:28*	WG1346228

Method Blank (MB)

(MB) R3451794-1 09/17/19 14:58

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1137950-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1137950-04 09/17/19 14:58 • (DUP) R3451794-3 09/17/19 14:58

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	88.3	92.2	1	4.30		10

Laboratory Control Sample (LCS)

(LCS) R3451794-2 09/17/19 14:58

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3451789-1 09/17/19 14:45

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1137950-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1137950-14 09/17/19 14:45 • (DUP) R3451789-3 09/17/19 14:45

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.5	93.1	1	0.509		10

Laboratory Control Sample (LCS)

(LCS) R3451789-2 09/17/19 14:45

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	49.9	99.8	85.0-115	

Method Blank (MB)

(MB) R3450084-1 09/12/19 13:58

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450084-2 09/12/19 14:00 • (LCSD) R3450084-3 09/12/19 14:02

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Mercury	0.00300	0.00286	0.00302	95.3	101	80.0-120			5.44	20

L1137948-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137948-01 09/12/19 14:05 • (MS) R3450084-4 09/12/19 14:11 • (MSD) R3450084-5 09/12/19 14:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.00300	ND	0.00268	0.00271	89.3	90.3	1	75.0-125			1.11	20

Method Blank (MB)

(MB) R3450077-1 09/12/19 14:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Mercury	U		0.00280	0.0300

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450077-2 09/12/19 14:17 • (LCSD) R3450077-5 09/12/19 15:47

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Mercury	0.500	0.495	0.489	98.9	97.8	80.0-120			1.20	20

L1137950-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137950-14 09/12/19 14:22 • (MS) R3450077-3 09/12/19 14:24 • (MSD) R3450077-4 09/12/19 14:27

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	0.731	1.00	0.842	54.7	22.3	1	75.0-125	J6	J6	17.6	20

Method Blank (MB)

(MB) R3450184-5 09/12/19 21:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0300

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450184-1 09/12/19 17:58 • (LCSD) R3450184-2 09/12/19 18:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	0.540	0.559	108	112	80.0-120			3.62	20

L1137984-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137984-01 09/12/19 18:04 • (MS) R3450184-3 09/12/19 18:06 • (MSD) R3450184-4 09/12/19 18:09

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.545	0.242	0.578	0.332	61.7	16.5	1	75.0-125	J6	J3 J6	54.1	20

Method Blank (MB)

(MB) R3449714-1 09/11/19 23:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Arsenic	U		0.00650	0.0100
Lead	U		0.00190	0.00500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3449714-2 09/11/19 23:24 • (LCSD) R3449714-3 09/11/19 23:26

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Arsenic	1.00	0.945	0.940	94.5	94.0	80.0-120			0.534	20
Lead	1.00	0.965	0.959	96.5	95.9	80.0-120			0.585	20

L1138045-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1138045-01 09/11/19 23:29 • (MS) R3449714-5 09/11/19 23:34 • (MSD) R3449714-6 09/11/19 23:37

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Arsenic	1.00	0.0208	0.998	0.997	97.7	97.7	1	75.0-125			0.0614	20
Lead	1.00	ND	0.966	0.962	96.6	96.2	1	75.0-125			0.440	20

Method Blank (MB)

(MB) R3450751-1 09/14/19 19:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Lead	U		0.190	0.500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450751-2 09/14/19 19:28 • (LCSD) R3450751-3 09/14/19 19:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	99.2	94.1	99.2	94.1	80.0-120			5.29	20
Lead	100	102	97.5	102	97.5	80.0-120			4.92	20

L1137908-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137908-04 09/14/19 19:33 • (MS) R3450751-6 09/14/19 19:41 • (MSD) R3450751-7 09/14/19 19:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	94.5	97.8	93.5	96.8	1	75.0-125			3.47	20
Lead	100	3.22	98.1	101	94.9	98.2	1	75.0-125			3.30	20

Method Blank (MB)

(MB) R3450446-1 09/13/19 09:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Arsenic	U		0.460	2.00
Lead	U		0.190	0.500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450446-2 09/13/19 09:22 • (LCSD) R3450446-3 09/13/19 09:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Arsenic	100	95.0	93.1	95.0	93.1	80.0-120			2.04	20
Lead	100	97.8	95.5	97.8	95.5	80.0-120			2.40	20

L1137950-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137950-14 09/13/19 09:28 • (MS) R3450446-6 09/13/19 09:36 • (MSD) R3450446-7 09/13/19 09:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	45.1	133	136	88.1	90.7	1	75.0-125			1.91	20
Lead	100	3600	2590	4200	0.000	599	1	75.0-125	V	J3 V	47.4	20

Method Blank (MB)

(MB) R3450584-1 09/13/19 21:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Lead	U		0.190	0.500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450584-2 09/13/19 21:47 • (LCSD) R3450584-3 09/13/19 21:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	91.0	91.3	91.0	91.3	80.0-120			0.338	20
Lead	100	94.6	94.7	94.6	94.7	80.0-120			0.136	20

L1137929-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137929-01 09/13/19 21:52 • (MS) R3450584-6 09/13/19 22:00 • (MSD) R3450584-7 09/13/19 22:03

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.43	108	106	103	102	1	75.0-125			1.34	20
Lead	100	11.1	122	123	111	112	1	75.0-125			0.628	20

Method Blank (MB)

(MB) R3451251-3 09/15/19 21:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Trichloroethene	U		0.000400	0.00100
(S) Toluene-d8	*106*			*75.0-131*
(S) 4-Bromofluorobenzene	*101*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*75.7*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3451251-1 09/15/19 20:19 • (LCSD) R3451251-2 09/15/19 20:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Trichloroethene	0.125	0.154	0.154	123	123	76.0-126			0.214	20
(S) Toluene-d8				*105*	*105*	*75.0-131*				
(S) 4-Bromofluorobenzene				*103*	*101*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*81.0*	*80.4*	*70.0-130*				

L1137922-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137922-21 09/15/19 22:31 • (MS) R3451251-4 09/16/19 04:10 • (MSD) R3451251-5 09/16/19 04:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Trichloroethene	0.125	0.00361	0.204	0.218	160	171	1	10.0-156	J5	J5	6.62	38
(S) Toluene-d8					*105*	*102*		*75.0-131*				
(S) 4-Bromofluorobenzene					*101*	*102*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*88.1*	*89.0*		*70.0-130*				

Method Blank (MB)

(MB) R3451354-3 09/16/19 02:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Trichloroethene	U		0.000400	0.00100
(S) Toluene-d8	*104*			*75.0-131*
(S) 4-Bromofluorobenzene	*104*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*99.8*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3451354-1 09/16/19 00:51 • (LCSD) R3451354-2 09/16/19 01:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Trichloroethene	0.125	0.131	0.138	104	110	76.0-126			5.28	20
(S) Toluene-d8				*108*	*104*	*75.0-131*				
(S) 4-Bromofluorobenzene				*107*	*106*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*103*	*101*	*70.0-130*				

L1137950-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137950-14 09/16/19 06:38 • (MS) R3451354-4 09/16/19 09:21 • (MSD) R3451354-5 09/16/19 09:42

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Trichloroethene	0.125	U	0.153	0.150	121	119	1.01	10.0-156			1.71	38
(S) Toluene-d8					*105*	*103*		*75.0-131*				
(S) 4-Bromofluorobenzene					*106*	*105*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*103*	*102*		*70.0-130*				

Method Blank (MB)

(MB) R3451682-2 09/17/19 10:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Trichloroethene	U		0.000400	0.00100
(S) Toluene-d8	*111*			*75.0-131*
(S) 4-Bromofluorobenzene	*94.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3451682-1 09/17/19 09:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Trichloroethene	0.125	0.137	110	76.0-126	
(S) Toluene-d8			*108*	*75.0-131*	
(S) 4-Bromofluorobenzene			*102*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*113*	*70.0-130*	

Method Blank (MB)

(MB) R3451617-2 09/15/19 23:44

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Trichloroethene	U		0.000398	0.00100
(S) Toluene-d8	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*97.7*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*97.7*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3451617-1 09/15/19 23:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Trichloroethene	0.0250	0.0238	95.1	78.0-124	
(S) Toluene-d8			*99.8*	*80.0-120*	
(S) 4-Bromofluorobenzene			*102*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*100*	*70.0-130*	

Method Blank (MB)

(MB) R3449948-1 09/12/19 10:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
PCB 1260	U		0.000120	0.000500
PCB 1016	U		0.000100	0.000500
PCB 1221	U		0.0000730	0.000500
PCB 1232	U		0.0000420	0.000500
PCB 1242	U		0.0000470	0.000500
PCB 1248	U		0.0000860	0.000500
PCB 1254	U		0.0000470	0.000500
(S) Decachlorobiphenyl	*22.3*			*10.0-128*
(S) Tetrachloro-m-xylene	*40.6*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3449948-2 09/12/19 11:13 • (LCSD) R3449948-3 09/12/19 11:28

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.00250	0.00178	0.00203	71.2	81.2	42.0-131			13.1	25
PCB 1016	0.00250	0.00130	0.00133	52.0	53.2	36.0-135			2.28	29
(S) Decachlorobiphenyl				*53.9*	*42.6*	*10.0-128*				
(S) Tetrachloro-m-xylene				*44.9*	*43.1*	*10.0-127*				

Method Blank (MB)

(MB) R3450143-1 09/12/19 14:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0170
PCB 1221	U		0.00537	0.0170
PCB 1232	U		0.00417	0.0170
PCB 1242	U		0.00318	0.0170
PCB 1248	U		0.00315	0.0170
PCB 1254	U		0.00472	0.0170
PCB 1260	U		0.00494	0.0170
(S) Decachlorobiphenyl	*97.9*			*10.0-135*
(S) Tetrachloro-m-xylene	*102*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3450143-2 09/12/19 14:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1260	0.167	0.0998	59.8	37.0-145	
PCB 1016	0.167	0.0967	57.9	36.0-141	
(S) Decachlorobiphenyl			*59.2*	*10.0-135*	
(S) Tetrachloro-m-xylene			*59.0*	*10.0-139*	

L1137569-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137569-07 09/12/19 15:41 • (MS) R3450143-3 09/12/19 15:57 • (MSD) R3450143-4 09/12/19 16:12

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	ND	0.119	0.0987	71.3	59.1	1	10.0-160			18.6	38
PCB 1016	0.167	ND	0.142	0.0960	85.0	57.5	1	10.0-160		J3	38.7	37
(S) Decachlorobiphenyl					*69.2*	*51.1*		*10.0-135*				
(S) Tetrachloro-m-xylene					*82.6*	*56.2*		*10.0-139*				

Method Blank (MB)

(MB) R3450531-1 09/12/19 16:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0170
PCB 1221	U		0.00537	0.0170
PCB 1232	U		0.00417	0.0170
PCB 1242	U		0.00318	0.0170
PCB 1248	U		0.00315	0.0170
PCB 1254	U		0.00472	0.0170
PCB 1260	U		0.00494	0.0170
(S) Decachlorobiphenyl	*64.9*			*10.0-135*
(S) Tetrachloro-m-xylene	*72.1*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3450531-2 09/12/19 17:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1260	0.167	0.102	61.1	37.0-145	
PCB 1016	0.167	0.109	65.3	36.0-141	
(S) Decachlorobiphenyl			*71.8*	*10.0-135*	
(S) Tetrachloro-m-xylene			*76.9*	*10.0-139*	

L1137950-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137950-14 09/12/19 20:17 • (MS) R3450531-3 09/12/19 20:29 • (MSD) R3450531-4 09/12/19 20:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.114	0.220	0.236	63.5	73.1	1	10.0-160			7.02	38
PCB 1016	0.167	U	0.177	0.177	106	106	1	10.0-160			0.000	37
(S) Decachlorobiphenyl					*83.8*	*79.6*		*10.0-135*				
(S) Tetrachloro-m-xylene					*88.3*	*86.2*		*10.0-139*				

Method Blank (MB)

(MB) R3450389-1 09/13/19 09:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0170
PCB 1221	U		0.00537	0.0170
PCB 1232	U		0.00417	0.0170
PCB 1242	U		0.00318	0.0170
PCB 1248	U		0.00315	0.0170
PCB 1254	U		0.00472	0.0170
PCB 1260	U		0.00494	0.0170
(S) Decachlorobiphenyl	*80.3*			*10.0-135*
(S) Tetrachloro-m-xylene	*82.9*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3450389-2 09/13/19 09:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1260	0.167	0.136	81.4	37.0-145	
PCB 1016	0.167	0.136	81.4	36.0-141	
(S) Decachlorobiphenyl			*79.6*	*10.0-135*	
(S) Tetrachloro-m-xylene			*81.1*	*10.0-139*	

L1137952-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137952-01 09/13/19 10:05 • (MS) R3450389-3 09/13/19 10:19 • (MSD) R3450389-4 09/13/19 10:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	ND	0.146	0.138	87.4	82.6	1	10.0-160			5.63	38
PCB 1016	0.167	ND	0.145	0.149	86.8	89.2	1	10.0-160			2.72	37
(S) Decachlorobiphenyl					*86.5*	*79.0*		*10.0-135*				
(S) Tetrachloro-m-xylene					*90.1*	*83.9*		*10.0-139*				

Method Blank (MB)

(MB) R3450351-3 09/13/19 10:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300
(S) Nitrobenzene-d5	*52.8*			*10.0-127*
(S) 2-Fluorobiphenyl	*54.8*			*10.0-130*
(S) p-Terphenyl-d14	*68.7*			*10.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3450351-1 09/13/19 10:14 • (LCSD) R3450351-2 09/13/19 10:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.0500	0.0401	0.0341	80.2	68.2	43.0-122			16.2	20
(S) Nitrobenzene-d5				*80.5*	*85.6*	*10.0-127*				
(S) 2-Fluorobiphenyl				*66.2*	*69.0*	*10.0-130*				
(S) p-Terphenyl-d14				*81.6*	*71.6*	*10.0-128*				

Method Blank (MB)

(MB) R3450828-2 09/13/19 09:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
(S) Nitrobenzene-d5	*58.6*			*10.0-122*
(S) 2-Fluorobiphenyl	*61.3*			*15.0-120*
(S) p-Terphenyl-d14	*94.6*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3450828-1 09/13/19 08:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bis(2-ethylhexyl)phthalate	0.666	0.736	111	41.0-120	
(S) Nitrobenzene-d5			*77.2*	*10.0-122*	
(S) 2-Fluorobiphenyl			*83.5*	*15.0-120*	
(S) p-Terphenyl-d14			*107*	*10.0-120*	

Method Blank (MB)

(MB) R3450829-2 09/13/19 08:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
(S) Nitrobenzene-d5	*62.5*			*10.0-122*
(S) 2-Fluorobiphenyl	*64.9*			*15.0-120*
(S) p-Terphenyl-d14	*81.1*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3450829-1 09/13/19 08:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bis(2-ethylhexyl)phthalate	0.666	0.673	101	41.0-120	
(S) Nitrobenzene-d5			*75.1*	*10.0-122*	
(S) 2-Fluorobiphenyl			*77.5*	*15.0-120*	
(S) p-Terphenyl-d14			*98.5*	*10.0-120*	

Method Blank (MB)

(MB) R3450612-2 09/14/19 00:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
(S) Nitrobenzene-d5	*71.5*			*10.0-122*
(S) 2-Fluorobiphenyl	*69.1*			*15.0-120*
(S) p-Terphenyl-d14	*82.0*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3450612-1 09/13/19 23:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bis(2-ethylhexyl)phthalate	0.666	0.698	105	41.0-120	
(S) Nitrobenzene-d5			*82.0*	*10.0-122*	
(S) 2-Fluorobiphenyl			*85.6*	*15.0-120*	
(S) p-Terphenyl-d14			*109*	*10.0-120*	

L1137950-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1137950-14 09/14/19 06:03 • (MS) R3450612-3 09/14/19 06:25 • (MSD) R3450612-4 09/14/19 06:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.632	0.137	0.676	0.488	85.3	55.2	2	17.0-126		J3	32.3	30
(S) Nitrobenzene-d5					*56.3*	*54.7*		*10.0-122*				
(S) 2-Fluorobiphenyl					*62.0*	*56.6*		*15.0-120*				
(S) p-Terphenyl-d14					*71.8*	*62.3*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P	RPD between the primary and confirmatory analysis exceeded 40%.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

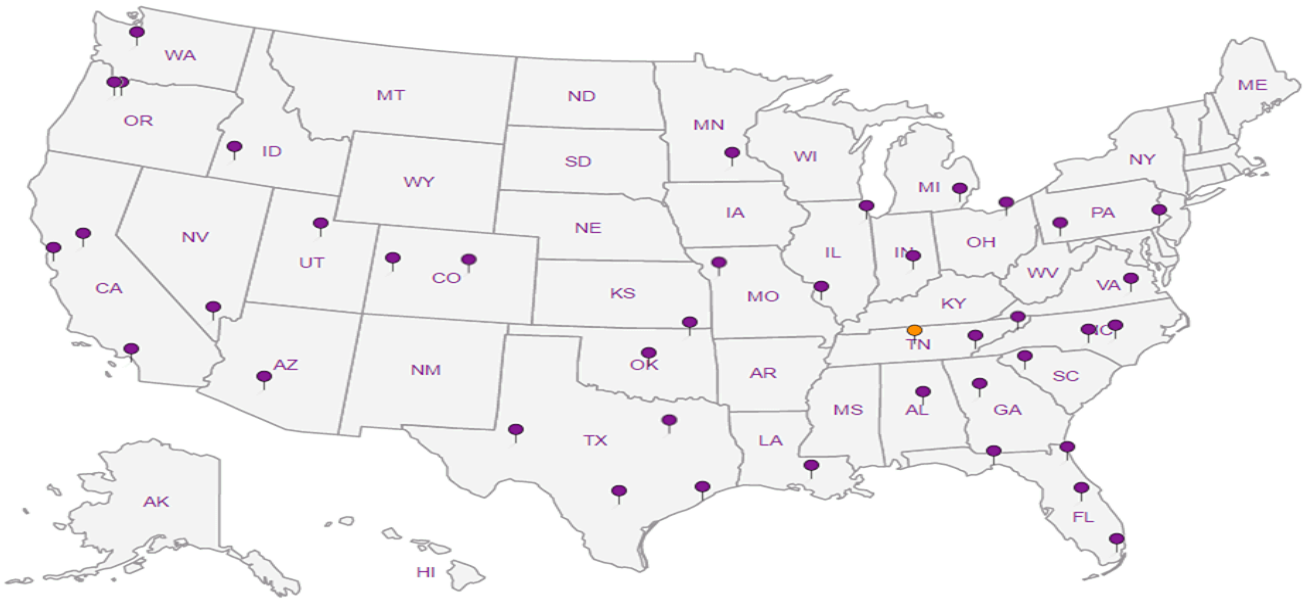
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Leaaf Environmental

812 Rupp Street
Gretna, LA 70053

Billing Information:
Accounts Payable
812 Rupp St.
Gretna, LA 70053

Pres Chk

Report to: Michael Stevens

Email To: mstevens@leaaf.com

Project Description: N. Velasco

City/State Collected:

Please Circle: PT MT CT ET

Phone: 504-342-2687
Fax:

Client Project # JES-011

Lab Project # LEAENVGLA-JES011

Collected by (print): Michael Stevens

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8082 100ml Amb-NoPres	8270PHTH 100ml Amb NoPres	ASICP,HG,PBICP 250mlHDPE-HNO3	ASICP,HG,PBICP 4ozClr-NoPres	SV8082 4ozClr-NoPres	SV8082,SV8270PHTH 4ozClr-NoPres	SV8290 1L-Amb-NoPres	SV8290 4ozClr-NoPres	TCE - 8260 40mlAmb-HCl	TCE - 8260 EnCore-5g	Remarks	Sample # (lab only)
LB4-0	G	SS		9/10/19	0835	4				X	X	X		X		X		-01
LB4-3	G	SS		9/10/19	0840	4				X	X	X		X		X		02
LB4-8	G	SS		9/10/19	0845	4 3 CM				X	X	X		X		X		03
LB6-0	G	SS		9/10/19	0900	4				X	X	X		X		X		04
LB6-3	G	SS		9/10/19	0905	4				X	X	X		X		X		05
LB6-8	G	SS		9/10/19	0910	4 3 CM				X	X	X		X		X		06
LB7-0	G	SS		9/10/19	1020	4				X	X	X		X		X		07
LB7-3	G	SS		9/10/19	1025	4				X	X	X		X		X		08
LB7A	G	SS		9/10/19	1020	4				X	X	X		X		X		09
LB8-0	G	SS		9/10/19	1050	4				X	X	X		X		X		10

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1137450
1067

Acctnum: LEAENVGLA
Template: T155428
Prelogin: P728919
PM: 526 - Chris McCord
PB: TB 9-4-19
Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Encores

RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 1203 5778 3670, 3648, 3660, 3659

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: ✓Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR
	9/10/19	1600		7
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: A2°C Bottles Received: 98
				0.3-.2=0.1
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/11/19 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF (OK)

Leaaf Environmental

812 Rupp Street
Gretna, LA 70053

Billing Information:
Accounts Payable
812 Rupp St.
Gretna, LA 70053

Pres Chk

Email To: mstevens@leaaf.com

Report to:
Michael Stevens

Project Description: **N. Velasco**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **504-342-2687**
Fax:

Client Project #
JES-011

Lab Project #
LEAENVGLA-JES011

Collected by (print): Michael Stevens

Site/Facility ID #

P.O. #

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Chain of Custody Page 4 of 5

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1137956

Table #

Acctnum: **LEAENVGLA**
Template: **T155428**
Prelogin: **P728919**
PM: **526 - Chris McCord**
PB: TG 9-4-19
Shipped Via: **FedEX Ground**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8082 100ml Amb-NoPres	8270PHTH 100ml Amb NoPres	ASICP,HG,PBICP 250mlHDPE-HNO3	ASICP,HG,PBICP 4ozClr-NoPres	SV8082 4ozClr-NoPres	SV8082,SV8270PHTH 4ozClr-NoPres	SV8290 1L-Amb-NoPres	SV8290 4ozClr-NoPres	TCE - 8260 40mlAmb-HCl	TCE - 8260 EnCore-5g	Remarks	Sample # (lab only)
LB8-3	G	SS		9/10/19	1055	4				X	X	X		X		X		-11
LB8-8	G	SS		9/10/19	1100	~~4~~ 3 CM				X	X	X		X		X		12
LB5-0	G	SS		9/10/19	1110	4				X	X	X		X		X		13
LB5-3	G	SS		9/10/19	1115	12				X	X	X		X		X	MS/MSD	14
LB3-0	G	SS		9/10/19	1200	4				X	X	X		X		X		15
LB3-3	G	SS		9/10/19	1205	4				X	X	X		X		X		16
LB1-0	G	SS		9/10/19	1220	4				X	X	X		X		X		17
LB1-3	G	SS		9/10/19	1225	4				X	X	X		X		X		18
LB2-0	G	SS		9/10/19	1245	4				X	X	X		X		X		19
LB2-3	G	SS		9/10/19	1250	4				X	X	X		X		X		20

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks: Encores

RAD SCREEN: <0.5 mR/hr

pH ______ Temp ______
Flow ______ Other ______

Samples returned via: __ UPS ✓ FedEx __ Courier ________

Tracking # Same

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: ✓Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
[signature]	9/10/19	1608			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: AIR °C 0.3=3.0 / Bottles Received: 98	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 9/11/19 Time: 8:45	Hold: / Condition: NCF / OK (circled)

Leaaf Environmental

812 Rupp Street
Gretna, LA 70053

Billing Information:
Accounts Payable
812 Rupp St.
Gretna, LA 70053

Report to: Michael Stevens

Email To: mstevens@leaaf.com

Project Description: N. Velasco

City/State Collected:

Please Circle: PT MT CT ET

Phone: 504-342-2687
Fax:

Client Project # JES-011

Lab Project # LEAENVGLA-JES011

Collected by (print): Michael Stevens

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8082 100ml Amb-NoPres	8270PHTH 100ml Amb NoPres	ASICP,HG,PBICP 250mlHDPE-HNO3	ASICP,HG,PBICP 4ozClr-NoPres	SV8082 4ozClr-NoPres	SV8082,SV8270PHTH 4ozClr-NoPres	SV8290 1L-Amb-NoPres	SV8290 4ozClr-NoPres	TCE - 8260 40mlAmb-HCl	TCE - 8260 EnCore-5g	Remarks	Sample # (lab only)
FB1		SS		9/10/19	0915	3	X	X	X	MK5			X		X			-21
RB1		SS		9/10/19	0950	10	X	X	X				X		X			22
TB1		SS		9/10/19	—	2									X			23
TB2		SS		9/10/19	—	2									X			24
TB3		SS		9/10/19	—	2									X			25
TB4		GW		9/10/19	—	2									X			26
		GW																
		GW																

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: FB1 → only 8260

RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS X FedEx __ Courier _____

Tracking # Same

Relinquished by : (Signature) — Date: 9/10/19 — Time: 1600 — Received by: (Signature)

Trip Blank Received: Yes / No — HCl / MeoH — TBR

Relinquished by : (Signature) — Date: — Time: — Received by: (Signature)

Temp: 2.0 °C — Bottles Received: 98

0.3+2=0.1

If preservation required by Login: Date/Time

Relinquished by : (Signature) — Date: — Time: — Received for lab by: (Signature)

Date: 9/11/19 — Time: 8:45

Hold:

Condition: NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Chain of Custody Page 2 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1137950

Table #

Acctnum: LEAENVGLA

Template: T155428

Prelogin: P728919

PM: 526 - Chris McCord

PB: TB 9-4-19

Shipped Via: FedEX Ground

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Benita Miller
Pace Analytical National
12065 Lebanon Road
Mount Juliet TN 37122

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10491154
Sample Receipt Date: 09/12/2019
Client Project #: JES-011
Client Sub PO #: S26326
State Cert #: T104704192

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Nathan Boberg, your Pace Project Manager.

This report has been reviewed by:

October 02, 2019

Nathan Boberg, Project Manager
612-360-0728
(612) 607-6444 (fax)
nathan.boberg@pacelabs.com

Report Prepared Date:
October 2, 2019

Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on twenty-one samples submitted by a representative of Pace Analytical National. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. Estimated Maximum Possible Concentration (EMPC) values were treated as positives in the toxic equivalence calculations. The reporting limits were set to correspond to the lowest calibration points and nominal 10-gram or 1-Liter sample amounts, and the sensitivity was verified by signal-to-noise measurements. The quantitation limits, adjusted for sample extraction amount, may be somewhat higher or lower than the reporting limits provided in this report.

Second column confirmation analyses of 2,3,7,8-TCDF values obtained from the primary (DB5-MS) column are performed only when specifically requested for a project and only when the values are above the concentration of the lowest calibration standard. Typical resolution for this isomer using the DB5-MS column ranges from 25-30%.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 37-106%. Except for four low values, which were flagged "R" on the results tables, the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained or "P" where polychlorinated diphenyl ethers were present. Concentrations above the calibration range were flagged "E" and should be regarded as estimates. Matrix interferences precluded measurement of the labeled cleanup standard in sample LB5-0; this standard in this sample was reported as "NC" (Not Calculated).

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks to be free of PCDDs and PCDFs at the reporting limits.

Laboratory and matrix spike samples were also prepared using clean reference matrix or sample matrix that had been fortified with native standard materials. The results show that the spiked native compounds were generally recovered at 74-122% with relative percent differences of 0.9-17.9%. The background-subtracted recovery values obtained for 1,2,3,4,6,7,8-HpCDF, HpCDD, OCDF, and OCDD in the matrix spike and/or matrix spike duplicate were below the 70-130% target range, possibly due to the levels of these congeners in the sample material and/or sample inhomogeneity. Matrix spikes were prepared with the remaining solid sample batch using sample material from a separate project; results from these analyses will be provided upon request. Matrix spikes were not prepared with the water sample batch.

The responses obtained for selected labeled congeners in calibration standard analyses U190919B_17 and U190926B_16 were outside the target range. As specified in our procedures for this method, the averages of the daily response factors for these compounds were used in the calculations for the samples from these runshifts. The affected values were flagged "Y" on the results tables. It should be noted that the accuracy of the native congener determinations was not impacted by these deviations.

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Minnesota - Pet	1240
Alabama	40770	Mississippi	MN00064
Alaska - DW	MN00064	Missouri - DW	10100
Alaska - UST	17-009	Montana	CERT0092
Arizona	AZ0014	Nebraska	NE-OS-18-06
Arkansas - DW	MN00064	Nevada	MN00064
Arkansas - WW	88-0680	New Hampshire	2081
CNMI Saipan	MP0003	New Jersey (NE	MN002
California	2929	New York	11647
Colorado	MN00064	North Carolina	27700
Connecticut	PH-0256	North Carolina -	27700
EPA Region 8+	via MN 027-053	North Carolina -	530
Florida (NELAP	E87605	North Dakota	R-036
Georgia	959	Ohio - DW	41244
Guam	17-001r	Ohio - VAP	CL101
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon - Primar	MN300001
Illinois	200011	Oregon - Secon	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky - DW	90062	South Dakota	NA
Kentucky - WW	90062	Tennessee	TN02818
Louisiana - DE	03086	Texas	T104704192
Louisiana - DW	MN00064	Utah (NELAP)	MN00064
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts	M-MN064	West Virginia -	382
Michigan	9909	West Virginia -	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota - De	via MN 027-053	Wyoming - UST	2926.01

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Report No....10491154_8290FC_DFR

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Pace Analytical National	Report To:	Pace Analytical National Subout Team	Attention:	Michael Stevens
Address:	12065 Lebanon Road	Copy To:		Company Name:	
Mount Juliet, TN 37122				Address:	
Email:	SuboutTeam@pacenational.com	Purchase Order #:	L1137968	Pace Quote:	
Phone:	(615)773-9756 Fax: (615)758-5859	Project Name:	N. Velasco	Pace Project Manager:	Nathan Boberg
Requested Due Date:	25-Sep	Project #:	JES-011	Pace Profile #:	38076

Regulatory Agency

State / Location: LA

WO# : 10491154

10491154

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Dioxins and Furans	
1	LB4-0	SL				10-Sep	8:35		1	1									X	001
2	LB4-3	SL				10-Sep	8:40		1	1									X	002
3	LB4-8	SL				10-Sep	8:45		1	1									X	003
4	LB6-0	SL				10-Sep	9:00		1	1									X	004
5	LB6-3	SL				10-Sep	9:05		1	1									X	005
6	LB6-8	SL				10-Sep	9:10		1	1									X	006
7	LB7-0	SL				10-Sep	10:20		1	1									X	007
8	LB7-3	SL				10-Sep	10:25		1	1									X	008
9	LB7A	SL				10-Sep	10:20		1	1									X	009
10	LB8-0	SL				10-Sep	10:50		1	1									X	010
11	LB8-3	SL				10-Sep	10:55		1	1									X	011
12	LB8-8	SL				10-Sep	11:00		1	1									X	012

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Benita Miller	11-Sep	15:01	IJ-PACE	9/12/12	8:35	0.8	Y	Y	Y
Pace Analytical National Batch: WG1343945										
Pace Analytical National SDGs: L1137968										
Location: Minneapolis, MN 55414										

(-14) LB5-3 is the MS/MSD collected in Houston, TX Harris County

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 2 Of 2

Section A
Required Client Information:

Company:	Pace Analytical National
Address:	12065 Lebanon Road
	Mount Juliet, TN 37122
Email:	SuboutTeam@pacenational.com
Phone:	(615)773-9756 Fax (615)758-5859
Requested Due Date:	25-Sep

Section B
Required Project Information:

Report To:	Pace Analytical National Subout Team
Copy To:	
Purchase Order #:	L1137968
Project Name:	N. Velasco
Project #:	JES-011

Section C
Invoice Information:

Attention:	Michael Stevens
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	Nathan Boberg
Pace Profile #:	38076

Regulatory Agency
State / Location
LA

SAMPLE ID — One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Dioxins and Furans	Residual Chlorine (Y/N)	
1	LB5-0	SL				10-Sep	11:10		1	1									X		013
2	LB5-3	SL				10-Sep	11:15		1	1									X		014
3	LB3-0	SL				10-Sep	12:00		1	1									X		015
4	LB3-3	SL				10-Sep	12:05		1	1									X		016
5	LB1-0	SL				10-Sep	12:20		1	1									X		017
6	LB1-3	SL				10-Sep	12:25		1	1									X		018
7	LB2-0	SL				10-Sep	12:45		1	1									X		019
8	LB2-3	SL				10-Sep	12:50		1	1									X		020
9	RB1	WT				10-Sep	9:50		2	2									X		021
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Benita Miller BM	11-Sep	15:01	TJ - PACE	9/12/19	8:35	0.5	Y	Y	Y
Pace Analytical National Batch: WG1343945										
Pace Analytical National SDGs: L1137968										
Location: Minneapolis, MN 55414										

(-14) LB5-3 is the MS/MSD

Collected in Houston, TX Harris County

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: **DATE Signed:**

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Sub-Contract Chain of Custody

Batch Date/Time: 09/11/19 14:44
Sub-Contract Lab: PACEMN
Address: 1700 Elm Street Suite 200
City/State: Minneapolis, MN 55414
Contact:
Nathan.Boberg@pacelabs.com

WO: WG1343945
Results Due Date: 09/25/19
ESC Purchase Order #: L1137968
Send Reports to: Benita Miller
Email: SuboutTeam@esclabsciences.com

Pace Analytical®
National Center for Testing & Innovation
12065 Lebanon Rd.
Mt. Juliet, TN 37122
call:(615)773-9756

Sample ID Container ID	Matrix	State	Collect Date	Description	Method	Sample Number Lab Use Only	Sample Comments Lab Use Only
LB4-0 S29218294	SS	LA	09/10/19 08:35	Dioxins and Furans	8290	1. L1137968-01	
LB4-3 29285350	SS	LA	09/10/19 08:40	Dioxins and Furans	8290	2. L1137968-02	
LB4-8 29285351	SS	LA	09/10/19 08:45	Dioxins and Furans	8290	3. L1137968-03	
LB6-0 29285352	SS	LA	09/10/19 09:00	Dioxins and Furans	8290	4. L1137968-04	
LB6-3 29285353	SS	LA	09/10/19 09:05	Dioxins and Furans	8290	5. L1137968-05	
LB6-8 29285354	SS	LA	09/10/19 09:10	Dioxins and Furans	8290	6. L1137968-06	
LB7-0 29285355	SS	LA	09/10/19 10:20	Dioxins and Furans	8290	7. L1137968-07	
LB7-3 29285356	SS	LA	09/10/19 10:25	Dioxins and Furans	8290	8. L1137968-08	
LB7A 29285357	SS	LA	09/10/19 10:20	Dioxins and Furans	8290	9. L1137968-09	
LB8-0 29285358	SS	LA	09/10/19 10:50	Dioxins and Furans	8290	10. L1137968-10	
LB8-3 29285359	SS	LA	09/10/19 10:55	Dioxins and Furans	8290	11. L1137968-11	
LB8-8 29285360	SS	LA	09/10/19 11:00	Dioxins and Furans	8290	12. L1137968-12	
LB5-0 29285361	SS	LA	09/10/19 11:10	Dioxins and Furans	8290	13. L1137968-13	
LB5-3 29285362	SS	LA	09/10/19 11:15	Dioxins and Furans	8290	14. L1137968-14	ms/msd
LB3-0 29285363	SS	LA	09/10/19 12:00	Dioxins and Furans	8290	15. L1137968-15	
LB3-3 29285364	SS	LA	09/10/19 12:05	Dioxins and Furans	8290	16. L1137968-16	
LB1-0 29285365	SS	LA	09/10/19 12:20	Dioxins and Furans	8290	17. L1137968-17	
LB1-3 29285366	SS	LA	09/10/19 12:25	Dioxins and Furans	8290	18. L1137968-18	
LB2-0 29285367	SS	LA	09/10/19 12:45	Dioxins and Furans	8290	19. L1137968-19	
LB2-3 29285368	SS	LA	09/10/19 12:50	Dioxins and Furans	8290	20. L1137968-20	
RB1 29285371 29285372	GW	LA	09/10/19 09:50	Dioxins and Furans	8290	21. L1137968-21	

*= Container used for multiple Samples and/or Analyses

Relinquished by:_____ **Date**_____

Recieved by:_____ **Date**_____

Relinquished by:_____ **Date**_____

Recieved by:_____ **Date**_____

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Aug2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.29	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt **Client Name:** PACE National **Project #:** WO#: 10491154

PM: NB3 Due Date: 09/26/19

CLIENT: ESC_TN

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exceptions ☐

Tracking Number: 1203 5780 6469

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1(0461) ☑ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 0.5 °C **Average Corrected Temp (no temp blank only):** ☐ See Exceptions

Correction Factor: 0.0 **Cooler Temp Corrected w/temp blank:** 0.5 °C ☐ 1 Container

USDA Regulated Soil: (☐ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 9/12/19 LJ

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☑ Yes ☐ No 9/12/19 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8. 3 for sample 14 LBS-3
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other _____	☑ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	13. **See Exception** ☐
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Nathan Boberg **Date:** 9/12/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: LJ

USDA REGULATED SOIL CHECKLIST

To Be Completed by SR Staff:

WO: 10491154 Date: 9/12/19 Initials: DR

Sample Origin (circle one): (DOMESTIC) QUARANTINED FOREIGN

(Note: soil samples from Hawaii, Guam, Puerto Rico and the US Virgin Islands are considered to be of a Foreign Source)

If Domestic, circle State of Origin: AL AR CA FL GA (LA) MS NC NM NY OK OR SC TN TX VA

(Includes: IFA, SOD, Golden Nematode, Karnal Bunt and Witchweed) List County: Harris

(USDA Permit/Compliance Agreement authorizes movement of samples from these domestic regulated zones)

If Quarantined, circle State of Origin: FL ID TX CA List County: _____

(Includes Fruit Fly, Giant African Snail and Pale Cyst Nematode)

(Movement is not authorized for Pale Cyst Nematode [ID or Giant African Snail [FL], remaining quarantines require additional paperwork)

If Foreign, list Country of Origin: _____

(Movement from some Canadian Providences is not allowed. Refer to CS-232 Regulated Soil Flow Chart)

REQUIREMENT	ACTION	COMPLETED
PPQ-530 Paperwork must be included for any samples from counties with a Fruit Fly Quarantine in TX. Refer to **MN-S063** through **MN-S065**	Scan PPQ-530 to the corresponding Project folder on the x drive. If PPQ-530 is not present, contact the Waste Coordinator and do not continue processing samples.	YES NO (N/A)
Samples from ID may not be moved from the quarantined region. Refer to **MN-S055**	If samples originated in a quarantined zone, contact the Waste Coordinator and do not continue processing samples.	YES NO (N/A)
Samples from Giant African Snail Quarantine in FL may not be moved from the quarantined region. Refer to **MN-S068**	If samples originated in a quarantined zone, contact the Waste Coordinator and do not continue processing samples.	YES NO (N/A)

REQUIREMENT	ACTION	COMPLETED
"Special Handling" stickers are to be placed on all samples.	Did "special handling" stickers get placed on all sample containers?	(YES) NO
Samples must be segregated and stored in designated bins, shelves and coolers.	Were samples placed in a designated cooler, containers and shelves?	(YES) NO
Samples must be double contained to prevent accidental release.	Were there any signs of breakage or leakage (check for broken glass and/or loose soil in the cooler)? *If NO, ice and melt water can be disposed of by normal process (down the drain).*	YES (NO)
	If **YES**, were ice and melt water separated from the cooler and disposed of properly?	YES NO (N/A)
	Any broken glass and/or loose soil are to be bagged and placed in a USDA Regulated satellite container or active drum (see Waste Coordinator). **Ice and melt water should be baked at a temperature range of 121-154°F for 2 hours and then cooled before going down the drain.**	
Equipment and supplies that have come into contact samples must be decontaminated.	Was the cooler(s) and/or countertop(s) decontaminated using either a fresh 10% bleach solution or 70% ethanol? *(Gloves and other lab supplies will be bagged and placed in the USDA Regulated satellite container or active drum).*	(YES) NO

Comments: _____

To Be Completed by PM and/or PC:

Sample Analysis to be conducted (circle all that apply): MN Subcontract Lab

Name of Subcontract Lab (s): _____

REQUIREMENT	ACTION	COMPLETED
Permission to ship untreated soil must be on file prior to shipping to any subcontract lab, including iR Pace Labs.	Go to: J:\SHARE\PRJ_MGR\10_Client Services Department Documents\Regulated Soils Permits – if permission to ship letter is not there, contact the Waste Coordinator.	YES NO N/A
Shipment must include a valid copy of the receiving lab's permit as well as permission to ship letter.	Is a copy of all needed paperwork included with the COC? Do **NOT** ship samples until all necessary paperwork is compiled.	YES NO N/A

Comments: _____

Project Manager Signature: Nathan Boberg Date: 9/12/19

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB4-0		
Lab Sample ID	10491154001		
Filename	U190923A_07		
Injected By	SMT		
Total Amount Extracted	10.5 g	Matrix	Solid
% Moisture	8.5	Dilution	NA
Dry Weight Extracted	9.64 g	Collected	09/10/2019 08:35
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190923A_03 & U190923A_19	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/23/2019 16:33

Native Isomers	**Conc** ng/Kg	**EMPC** ng/Kg	**RL** ng/Kg	**Internal Standards**	**ng's Added**	**Percent Recovery**
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	68
Total TCDF	24	-----	1.0	2,3,7,8-TCDD-13C	2.00	68
				1,2,3,7,8-PeCDF-13C	2.00	72
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	71
Total TCDD	1.6	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	79
				1,2,3,4,7,8-HxCDF-13C	2.00	63
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	68
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	26	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	62
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	58
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	54
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	23	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	71
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	24	-----	5.0			
1,2,3,4,6,7,8-HpCDF	20	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 2.4 ng/Kg		
Total HpCDF	48	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	92	-----	5.0			
Total HpCDD	320	-----	5.0			
OCDF	45	-----	10			
OCDD	1200	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB4-3		
Lab Sample ID	10491154002		
Filename	U190923A_08		
Injected By	SMT		
Total Amount Extracted	12.4 g	Matrix	Solid
% Moisture	10.6	Dilution	NA
Dry Weight Extracted	11.1 g	Collected	09/10/2019 08:40
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190923A_03 & U190923A_19	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/23/2019 17:18

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	2.6	-----	1.0	2,3,7,8-TCDF-13C	2.00	90
Total TCDF	41	-----	1.0	2,3,7,8-TCDD-13C	2.00	89
				1,2,3,7,8-PeCDF-13C	2.00	99
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	100
Total TCDD	17	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	106
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	88
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	89
Total PeCDF	8.7	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	90
				1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	84
Total PeCDD	5.7	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	76
				1,2,3,4,7,8,9-HpCDF-13C	2.00	81
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	76
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	71
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	7.3	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	7.2	-----	5.0			
1,2,3,7,8,9-HxCDD	5.8	-----	5.0			
Total HxCDD	78	-----	5.0			
1,2,3,4,6,7,8-HpCDF	12	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 4.5 ng/Kg		
Total HpCDF	25	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	140	-----	5.0			
Total HpCDD	300	-----	5.0			
OCDF	16	-----	10			
OCDD	1500	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB4-8		
Lab Sample ID	10491154003		
Filename	U190923A_09		
Injected By	SMT		
Total Amount Extracted	11.3 g	Matrix	Solid
% Moisture	7.1	Dilution	NA
Dry Weight Extracted	10.5 g	Collected	09/10/2019 08:45
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190923A_03 & U190923A_19	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/23/2019 18:03

Native Isomers	**Conc** ng/Kg	**EMPC** ng/Kg	**RL** ng/Kg		**Internal Standards**	**ng's Added**	**Percent Recovery**
2,3,7,8-TCDF	19	-----	1.0		2,3,7,8-TCDF-13C	2.00	87
Total TCDF	370	-----	1.0		2,3,7,8-TCDD-13C	2.00	86
					1,2,3,7,8-PeCDF-13C	2.00	100
2,3,7,8-TCDD	2.9	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	96
Total TCDD	96	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	106
					1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	10.0	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	91
2,3,4,7,8-PeCDF	18	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	91
Total PeCDF	220	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	94
					1,2,3,4,7,8-HxCDD-13C	2.00	85
1,2,3,7,8-PeCDD	-----	7.5	5.0	I	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	71	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	71
					1,2,3,4,7,8,9-HpCDF-13C	2.00	74
1,2,3,4,7,8-HxCDF	18	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	77
1,2,3,6,7,8-HxCDF	18	-----	5.0		OCDD-13C	4.00	70
2,3,4,6,7,8-HxCDF	17	-----	5.0				
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	190	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	7.9	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	35	-----	5.0				
1,2,3,7,8,9-HxCDD	29	-----	5.0				
Total HxCDD	350	-----	5.0				
1,2,3,4,6,7,8-HpCDF	100	-----	5.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	7.0	-----	5.0		Equivalence: 39 ng/Kg		
Total HpCDF	170	-----	5.0		(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	430	-----	5.0				
Total HpCDD	790	-----	5.0				
OCDF	71	-----	10				
OCDD	2700	-----	10				

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I = Interference present

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB6-0		
Lab Sample ID	10491154004		
Filename	U190923A_10		
Injected By	SMT		
Total Amount Extracted	12.4 g	Matrix	Solid
% Moisture	15.3	Dilution	NA
Dry Weight Extracted	10.5 g	Collected	09/10/2019 09:00
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190923A_03 & U190923A_19	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/23/2019 18:48

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	25	-----	1.0		2,3,7,8-TCDF-13C	2.00	74
Total TCDF	430	-----	1.0		2,3,7,8-TCDD-13C	2.00	73
					1,2,3,7,8-PeCDF-13C	2.00	80
2,3,7,8-TCDD	-----	1.8	1.0	I	2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	79	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	88
					1,2,3,4,7,8-HxCDF-13C	2.00	71
1,2,3,7,8-PeCDF	9.4	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	18	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	220	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	78
					1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	ND	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	65
Total PeCDD	49	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	60
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	16	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	61
1,2,3,6,7,8-HxCDF	11	-----	5.0		OCDD-13C	4.00	53
2,3,4,6,7,8-HxCDF	14	-----	5.0				
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	130	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,6,7,8-HxCDD	14	-----	5.0				
1,2,3,7,8,9-HxCDD	11	-----	5.0				
Total HxCDD	140	-----	5.0				
1,2,3,4,6,7,8-HpCDF	62	-----	5.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0		Equivalence: 26 ng/Kg		
Total HpCDF	96	-----	5.0		(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	290	-----	5.0				
Total HpCDD	570	-----	5.0				
OCDF	46	-----	10				
OCDD	1900	-----	10				

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB6-3		
Lab Sample ID	10491154005		
Filename	U190923A_11		
Injected By	SMT		
Total Amount Extracted	12.2 g	Matrix	Solid
% Moisture	10.9	Dilution	NA
Dry Weight Extracted	10.8 g	Collected	09/10/2019 09:05
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190923A_03 & U190923A_19	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/23/2019 19:34

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	6.9	-----	1.0	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	98	-----	1.0	2,3,7,8-TCDD-13C	2.00	82
				1,2,3,7,8-PeCDF-13C	2.00	91
2,3,7,8-TCDD	1.4	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	90
Total TCDD	120	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	100
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	75
Total PeCDF	20	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	81
				1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	69
Total PeCDD	52	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	61
				1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	65
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	58
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	18	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	26	-----	5.0			
1,2,3,7,8,9-HxCDD	16	-----	5.0			
Total HxCDD	210	-----	5.0			
1,2,3,4,6,7,8-HpCDF	19	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 19 ng/Kg		
Total HpCDF	44	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	830	-----	5.0			
Total HpCDD	1400	-----	5.0			
OCDF	17	-----	10			
OCDD	4300	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB6-8		
Lab Sample ID	10491154006		
Filename	U190923A_12		
Injected By	SMT		
Total Amount Extracted	12.1 g	Matrix	Solid
% Moisture	6.8	Dilution	NA
Dry Weight Extracted	11.3 g	Collected	09/10/2019 09:10
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190923A_03 & U190923A_19	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/23/2019 20:19

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	220	-----	1.0	2,3,7,8-TCDF-13C	2.00	73
Total TCDF	1700	-----	1.0	2,3,7,8-TCDD-13C	2.00	74
				1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	4.9	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	200	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	88
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	63	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	81	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	830	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	81
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	22	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	260	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	63
				1,2,3,4,7,8,9-HpCDF-13C	2.00	69
1,2,3,4,7,8-HxCDF	67	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	69
1,2,3,6,7,8-HxCDF	42	-----	5.0	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	65	-----	5.0			
1,2,3,7,8,9-HxCDF	12	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	580	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	21	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	83	-----	5.0			
1,2,3,7,8,9-HxCDD	68	-----	5.0			
Total HxCDD	850	-----	5.0			
1,2,3,4,6,7,8-HpCDF	290	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	14	-----	5.0	Equivalence: 140 ng/Kg		
Total HpCDF	430	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	1300	-----	5.0			
Total HpCDD	2400	-----	5.0			
OCDF	92	-----	10			
OCDD	5300	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
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Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB7-0		
Lab Sample ID	10491154007		
Filename	U190926B_06		
Injected By	SMT		
Total Amount Extracted	12.2 g	Matrix	Solid
% Moisture	16.3	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	09/10/2019 10:20
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 00:34

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	17	-----	1.0	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	100	-----	1.0	2,3,7,8-TCDD-13C	2.00	73
				1,2,3,7,8-PeCDF-13C	2.00	93
2,3,7,8-TCDD	3.8	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	86
Total TCDD	300	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	92
				1,2,3,4,7,8-HxCDF-13C	2.00	89
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	85
Total PeCDF	15	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	38 R
				1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	11	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	62
Total PeCDD	140	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	59 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	62 Y
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	57 Y
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	73 Y
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	29	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	15	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	85
1,2,3,6,7,8-HxCDD	72	-----	5.0			
1,2,3,7,8,9-HxCDD	41	-----	5.0			
Total HxCDD	620	-----	5.0			
1,2,3,4,6,7,8-HpCDF	36	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 41 ng/Kg		
Total HpCDF	36	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	1200	-----	5.0			
Total HpCDD	2400	-----	5.0			
OCDF	24	-----	10			
OCDD	4800	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
R = Recovery outside target range
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB7-3		
Lab Sample ID	10491154008		
Filename	U190926B_07		
Injected By	SMT		
Total Amount Extracted	12.3 g	Matrix	Solid
% Moisture	9.9	Dilution	NA
Dry Weight Extracted	11.1 g	Collected	09/10/2019 10:25
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 01:19

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	44	-----	1.0		2,3,7,8-TCDF-13C	2.00	84	
Total TCDF	300	-----	1.0		2,3,7,8-TCDD-13C	2.00	63	
					1,2,3,7,8-PeCDF-13C	2.00	83	
2,3,7,8-TCDD	6.1	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	72	
Total TCDD	1100	-----	1.0	E	1,2,3,7,8-PeCDD-13C	2.00	74	
					1,2,3,4,7,8-HxCDF-13C	2.00	81	
1,2,3,7,8-PeCDF	13	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	77	
2,3,4,7,8-PeCDF	16	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	69	
Total PeCDF	77	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	44	
					1,2,3,4,7,8-HxCDD-13C	2.00	60	
1,2,3,7,8-PeCDD	22	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	54	
Total PeCDD	440	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	49	Y
					1,2,3,4,7,8,9-HpCDF-13C	2.00	45	Y
1,2,3,4,7,8-HxCDF	15	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	47	Y
1,2,3,6,7,8-HxCDF	12	-----	5.0		OCDD-13C	4.00	57	Y
2,3,4,6,7,8-HxCDF	14	-----	5.0					
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	140	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	26	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	77	
1,2,3,6,7,8-HxCDD	180	-----	5.0					
1,2,3,7,8,9-HxCDD	97	-----	5.0					
Total HxCDD	1800	-----	5.0					
1,2,3,4,6,7,8-HpCDF	100	-----	5.0		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0		Equivalence: 110 ng/Kg			
Total HpCDF	180	-----	5.0		(Lower-bound - Using ITE Factors)			
1,2,3,4,6,7,8-HpCDD	3300	-----	5.0					
Total HpCDD	5800	-----	5.0					
OCDF	61	-----	10					
OCDD	13000	-----	10	E				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

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E = Exceeds calibration range
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB7A		
Lab Sample ID	10491154009		
Filename	U190926B_08		
Injected By	SMT		
Total Amount Extracted	12.6 g	Matrix	Solid
% Moisture	13.8	Dilution	NA
Dry Weight Extracted	10.9 g	Collected	09/10/2019 10:20
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 02:04

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	9.6	-----	1.0		2,3,7,8-TCDF-13C	2.00	95	
Total TCDF	120	-----	1.0		2,3,7,8-TCDD-13C	2.00	78	
					1,2,3,7,8-PeCDF-13C	2.00	95	
2,3,7,8-TCDD	3.2	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	89	
Total TCDD	420	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	90	
					1,2,3,4,7,8-HxCDF-13C	2.00	91	
1,2,3,7,8-PeCDF	ND	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	95	
2,3,4,7,8-PeCDF	5.4	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	90	
Total PeCDF	47	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	89	
					1,2,3,4,7,8-HxCDD-13C	2.00	82	
1,2,3,7,8-PeCDD	11	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	72	
Total PeCDD	190	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	63	Y
					1,2,3,4,7,8,9-HpCDF-13C	2.00	62	Y
1,2,3,4,7,8-HxCDF	5.2	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	68	Y
1,2,3,6,7,8-HxCDF	ND	-----	5.0		OCDD-13C	4.00	74	Y
2,3,4,6,7,8-HxCDF	ND	-----	5.0					
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	59	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	14	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	83	
1,2,3,6,7,8-HxCDD	73	-----	5.0					
1,2,3,7,8,9-HxCDD	41	-----	5.0					
Total HxCDD	720	-----	5.0					
1,2,3,4,6,7,8-HpCDF	45	-----	5.0		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0		Equivalence: 45 ng/Kg			
Total HpCDF	85	-----	5.0		(Lower-bound - Using ITE Factors)			
1,2,3,4,6,7,8-HpCDD	1300	-----	5.0					
Total HpCDD	2300	-----	5.0					
OCDF	28	-----	10					
OCDD	5800	-----	10	E				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB8-0		
Lab Sample ID	10491154010		
Filename	U190926B_09		
Injected By	SMT		
Total Amount Extracted	12.3 g	Matrix	Solid
% Moisture	9.8	Dilution	NA
Dry Weight Extracted	11.1 g	Collected	09/10/2019 10:50
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 02:48

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	10	-----	1.0		2,3,7,8-TCDF-13C	2.00	92	
Total TCDF	150	-----	1.0		2,3,7,8-TCDD-13C	2.00	76	
					1,2,3,7,8-PeCDF-13C	2.00	81	
2,3,7,8-TCDD	2.6	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	75	
Total TCDD	110	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	75	
					1,2,3,4,7,8-HxCDF-13C	2.00	89	
1,2,3,7,8-PeCDF	5.6	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	95	
2,3,4,7,8-PeCDF	9.2	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	83	
Total PeCDF	98	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	83	
					1,2,3,4,7,8-HxCDD-13C	2.00	73	
1,2,3,7,8-PeCDD	6.7	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	71	
Total PeCDD	76	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	48	Y
					1,2,3,4,7,8,9-HpCDF-13C	2.00	43	Y
1,2,3,4,7,8-HxCDF	8.4	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	45	Y
1,2,3,6,7,8-HxCDF	8.3	-----	5.0		OCDD-13C	4.00	43	Y
2,3,4,6,7,8-HxCDF	8.2	-----	5.0					
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	130	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	7.7	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	77	
1,2,3,6,7,8-HxCDD	47	-----	5.0					
1,2,3,7,8,9-HxCDD	25	-----	5.0					
Total HxCDD	520	-----	5.0					
1,2,3,4,6,7,8-HpCDF	86	-----	5.0		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	5.3	-----	5.0		Equivalence: 45 ng/Kg			
Total HpCDF	200	-----	5.0		(Lower-bound - Using ITE Factors)			
1,2,3,4,6,7,8-HpCDD	1300	-----	5.0					
Total HpCDD	2600	-----	5.0					
OCDF	150	-----	10					
OCDD	8700	-----	10	E				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB8-3		
Lab Sample ID	10491154011		
Filename	U190926B_10		
Injected By	SMT		
Total Amount Extracted	12.2 g	Matrix	Solid
% Moisture	13.1	Dilution	NA
Dry Weight Extracted	10.6 g	Collected	09/10/2019 10:55
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 03:33

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	20	-----	1.0		2,3,7,8-TCDF-13C	2.00	69	
Total TCDF	210	-----	1.0		2,3,7,8-TCDD-13C	2.00	58	
					1,2,3,7,8-PeCDF-13C	2.00	67	
2,3,7,8-TCDD	4.0	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	63	
Total TCDD	120	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	65	
					1,2,3,4,7,8-HxCDF-13C	2.00	67	
1,2,3,7,8-PeCDF	5.9	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	68	
2,3,4,7,8-PeCDF	7.9	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	66	
Total PeCDF	82	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	68	
					1,2,3,4,7,8-HxCDD-13C	2.00	60	
1,2,3,7,8-PeCDD	17	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	51	
Total PeCDD	230	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	43	Y
					1,2,3,4,7,8,9-HpCDF-13C	2.00	39	RY
1,2,3,4,7,8-HxCDF	6.3	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	42	Y
1,2,3,6,7,8-HxCDF	5.9	-----	5.0		OCDD-13C	4.00	39	RY
2,3,4,6,7,8-HxCDF	7.0	-----	5.0					
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	97	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	51	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	61	
1,2,3,6,7,8-HxCDD	110	-----	5.0					
1,2,3,7,8,9-HxCDD	66	-----	5.0					
Total HxCDD	1400	-----	5.0					
1,2,3,4,6,7,8-HpCDF	74	-----	5.0		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0		Equivalence: 99 ng/Kg			
Total HpCDF	160	-----	5.0		(Lower-bound - Using ITE Factors)			
1,2,3,4,6,7,8-HpCDD	3800	-----	5.0					
Total HpCDD	7100	-----	5.0					
OCDF	49	-----	10					
OCDD	17000	-----	10	E				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB8-8		
Lab Sample ID	10491154012		
Filename	U190926B_11		
Injected By	SMT		
Total Amount Extracted	12.2 g	Matrix	Solid
% Moisture	15.2	Dilution	NA
Dry Weight Extracted	10.4 g	Collected	09/10/2019 11:00
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 04:17

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	19	-----	1.0	2,3,7,8-TCDF-13C	2.00	96
Total TCDF	290	-----	1.0	2,3,7,8-TCDD-13C	2.00	84
				1,2,3,7,8-PeCDF-13C	2.00	96
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	94
Total TCDD	9.4	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	5.4	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	5.2	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	86
Total PeCDF	50	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	83
				1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	68
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	52 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	50 Y
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	52 Y
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	37 RY
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	9.8	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	12	-----	5.0			
1,2,3,4,6,7,8-HpCDF	14	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 5.2 ng/Kg		
Total HpCDF	14	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	20	-----	5.0			
Total HpCDD	36	-----	5.0			
OCDF	13	-----	10			
OCDD	110	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
R = Recovery outside target range
Y = Calculated using average of daily RFs

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB5-0		
Lab Sample ID	10491154013		
Filename	U190926B_12		
Injected By	SMT		
Total Amount Extracted	13.0 g	Matrix	Solid
% Moisture	15.2	Dilution	NA
Dry Weight Extracted	11.1 g	Collected	09/10/2019 11:10
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 05:02

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	370	-----	1.0		2,3,7,8-TCDF-13C	2.00	81	
Total TCDF	2700	-----	1.0	E	2,3,7,8-TCDD-13C	2.00	70	
					1,2,3,7,8-PeCDF-13C	2.00	88	
2,3,7,8-TCDD	-----	3.7	1.0	I	2,3,4,7,8-PeCDF-13C	2.00	95	
Total TCDD	220	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	84	
					1,2,3,4,7,8-HxCDF-13C	2.00	61	
1,2,3,7,8-PeCDF	170	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	61	
2,3,4,7,8-PeCDF	-----	640	5.0	P	2,3,4,6,7,8-HxCDF-13C	2.00	69	
Total PeCDF	2200	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	66	
					1,2,3,4,7,8-HxCDD-13C	2.00	56	
1,2,3,7,8-PeCDD	25	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	51	
Total PeCDD	99	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	48	Y
					1,2,3,4,7,8,9-HpCDF-13C	2.00	42	Y
1,2,3,4,7,8-HxCDF	920	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	50	Y
1,2,3,6,7,8-HxCDF	170	-----	5.0		OCDD-13C	4.00	41	Y
2,3,4,6,7,8-HxCDF	170	-----	5.0					
1,2,3,7,8,9-HxCDF	95	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	2200	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	13	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	NC	
1,2,3,6,7,8-HxCDD	65	-----	5.0					
1,2,3,7,8,9-HxCDD	51	-----	5.0					
Total HxCDD	610	-----	5.0					
1,2,3,4,6,7,8-HpCDF	2800	-----	5.0		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	400	-----	5.0		Equivalence: 590 ng/Kg			
Total HpCDF	5100	-----	5.0		(Lower-bound - Using ITE Factors)			
1,2,3,4,6,7,8-HpCDD	1600	-----	5.0					
Total HpCDD	3600	-----	5.0					
OCDF	1300	-----	10					
OCDD	13000	-----	10	E				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
P = PCDE Interference
E = Exceeds calibration range
I = Interference present
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB5-3		
Lab Sample ID	10491154014		
Filename	U190926B_13		
Injected By	SMT		
Total Amount Extracted	12.1 g	Matrix	Solid
% Moisture	6.6	Dilution	NA
Dry Weight Extracted	11.3 g	Collected	09/10/2019 11:15
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 05:47

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	19	-----	1.0		2,3,7,8-TCDF-13C	2.00	84	
Total TCDF	310	-----	1.0		2,3,7,8-TCDD-13C	2.00	73	
					1,2,3,7,8-PeCDF-13C	2.00	87	
2,3,7,8-TCDD	2.5	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	83	
Total TCDD	99	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	85	
					1,2,3,4,7,8-HxCDF-13C	2.00	78	
1,2,3,7,8-PeCDF	9.5	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	81	
2,3,4,7,8-PeCDF	14	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	80	
Total PeCDF	140	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	84	
					1,2,3,4,7,8-HxCDD-13C	2.00	69	
1,2,3,7,8-PeCDD	5.5	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	76	I
Total PeCDD	57	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	55	Y
					1,2,3,4,7,8,9-HpCDF-13C	2.00	55	Y
1,2,3,4,7,8-HxCDF	17	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	84	IY
1,2,3,6,7,8-HxCDF	10	-----	5.0		OCDD-13C	4.00	54	Y
2,3,4,6,7,8-HxCDF	10	-----	5.0					
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	130	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	5.5	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	77	
1,2,3,6,7,8-HxCDD	22	-----	5.0					
1,2,3,7,8,9-HxCDD	13	-----	5.0					
Total HxCDD	220	-----	5.0					
1,2,3,4,6,7,8-HpCDF	110	-----	5.0		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	6.7	-----	5.0		Equivalence: 43 ng/Kg			
Total HpCDF	260	-----	5.0		(Lower-bound - Using ITE Factors)			
1,2,3,4,6,7,8-HpCDD	840	-----	5.0					
Total HpCDD	1400	-----	5.0					
OCDF	190	-----	10					
OCDD	11000	-----	10	E				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB3-0		
Lab Sample ID	10491154015		
Filename	U190926B_14		
Injected By	SMT		
Total Amount Extracted	14.3 g	Matrix	Solid
% Moisture	15.8	Dilution	NA
Dry Weight Extracted	12.0 g	Collected	09/10/2019 12:00
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190926A_18 & U190926B_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/27/2019 06:31

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	84
Total TCDF	ND	-----	1.0	2,3,7,8-TCDD-13C	2.00	71
				1,2,3,7,8-PeCDF-13C	2.00	87
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	ND	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	85
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	82
Total PeCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	84
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	65
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	59 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	57 Y
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	60 Y
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	51 Y
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	ND	-----	5.0			
1,2,3,4,6,7,8-HpCDF	ND	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 0.39 ng/Kg		
Total HpCDF	ND	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	5.6	-----	5.0			
Total HpCDD	16	-----	5.0			
OCDF	ND	-----	10			
OCDD	330	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB3-3		
Lab Sample ID	10491154016		
Filename	U190928A_03		
Injected By	BAL		
Total Amount Extracted	13.7 g	Matrix	Solid
% Moisture	17.6	Dilution	NA
Dry Weight Extracted	11.3 g	Collected	09/10/2019 12:05
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190927B_16 & U190928A_16	Extracted	09/19/2019 14:30
Method Blank ID	BLANK-73503	Analyzed	09/28/2019 12:56

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	67
Total TCDF	ND	-----	1.0	2,3,7,8-TCDD-13C	2.00	70
				1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	64
Total TCDD	ND	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	56
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	62
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	53
Total PeCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	58
				1,2,3,4,7,8-HxCDD-13C	2.00	59
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	56
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	43
				1,2,3,4,7,8,9-HpCDF-13C	2.00	41
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	49
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	49
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	ND	-----	5.0			
1,2,3,4,6,7,8-HpCDF	ND	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 0.23 ng/Kg		
Total HpCDF	ND	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	5.0			
Total HpCDD	6.5	-----	5.0			
OCDF	ND	-----	10			
OCDD	230	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB1-0		
Lab Sample ID	10491154017		
Filename	U190928A_04		
Injected By	BAL		
Total Amount Extracted	12.8 g	Matrix	Solid
% Moisture	11.7	Dilution	NA
Dry Weight Extracted	11.3 g	Collected	09/10/2019 12:20
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190927B_16 & U190928A_16	Extracted	09/20/2019 17:15
Method Blank ID	BLANK-73521	Analyzed	09/28/2019 13:40

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	77
Total TCDF	2.9	-----	1.0	2,3,7,8-TCDD-13C	2.00	73
				1,2,3,7,8-PeCDF-13C	2.00	85
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	ND	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	89
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	89
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	86
Total PeCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	86
				1,2,3,4,7,8-HxCDD-13C	2.00	77
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	69
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	48
				1,2,3,4,7,8,9-HpCDF-13C	2.00	56
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	52
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	ND	-----	5.0			
1,2,3,4,6,7,8-HpCDF	ND	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 4.8 ng/Kg		
Total HpCDF	ND	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	26	-----	5.0			
Total HpCDD	56	-----	5.0			
OCDF	ND	-----	10			
OCDD	4600	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB1-3		
Lab Sample ID	10491154018		
Filename	U190928A_05		
Injected By	BAL		
Total Amount Extracted	14.8 g	Matrix	Solid
% Moisture	25.4	Dilution	NA
Dry Weight Extracted	11.1 g	Collected	09/10/2019 12:25
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190927B_16 & U190928A_16	Extracted	09/20/2019 17:15
Method Blank ID	BLANK-73521	Analyzed	09/28/2019 14:25

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	71
Total TCDF	ND	-----	1.0	2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	77
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	62
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	53
				1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	57
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	ND	-----	5.0			
1,2,3,4,6,7,8-HpCDF	ND	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 0.12 ng/Kg		
Total HpCDF	ND	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	5.0			
Total HpCDD	ND	-----	5.0			
OCDF	ND	-----	10			
OCDD	120	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB2-0		
Lab Sample ID	10491154019		
Filename	U190928A_06		
Injected By	BAL		
Total Amount Extracted	13.1 g	Matrix	Solid
% Moisture	13.1	Dilution	NA
Dry Weight Extracted	11.4 g	Collected	09/10/2019 12:45
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190927B_16 & U190928A_16	Extracted	09/20/2019 17:15
Method Blank ID	BLANK-73521	Analyzed	09/28/2019 15:10

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	2.2	-----	1.0		2,3,7,8-TCDF-13C	2.00	80
Total TCDF	30	-----	1.0		2,3,7,8-TCDD-13C	2.00	74
					1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	ND	-----	1.0		2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	2.8	-----	1.0		1,2,3,7,8-PeCDD-13C	2.00	86
					1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	-----	5.0		1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	-----	5.0		2,3,4,6,7,8-HxCDF-13C	2.00	82
Total PeCDF	33	-----	5.0		1,2,3,7,8,9-HxCDF-13C	2.00	83
					1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	-----	5.0		1,2,3,6,7,8-HxCDD-13C	2.00	67
Total PeCDD	ND	-----	5.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	45
					1,2,3,4,7,8,9-HpCDF-13C	2.00	55
1,2,3,4,7,8-HxCDF	ND	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	52
1,2,3,6,7,8-HxCDF	ND	-----	5.0		OCDD-13C	4.00	59
2,3,4,6,7,8-HxCDF	ND	-----	5.0				
1,2,3,7,8,9-HxCDF	ND	-----	5.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	24	-----	5.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0		2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	ND	-----	5.0				
1,2,3,7,8,9-HxCDD	ND	-----	5.0				
Total HxCDD	33	-----	5.0				
1,2,3,4,6,7,8-HpCDF	11	-----	5.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0		Equivalence: 7.1 ng/Kg		
Total HpCDF	18	-----	5.0		(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	68	-----	5.0				
Total HpCDD	120	-----	5.0				
OCDF	ND	-----	10				
OCDD	6100	-----	10	E			

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E = Exceeds calibration range

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	LB2-3		
Lab Sample ID	10491154020		
Filename	U190928A_07		
Injected By	BAL		
Total Amount Extracted	12.8 g	Matrix	Solid
% Moisture	10.5	Dilution	NA
Dry Weight Extracted	11.5 g	Collected	09/10/2019 12:50
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190927B_16 & U190928A_16	Extracted	09/20/2019 17:15
Method Blank ID	BLANK-73521	Analyzed	09/28/2019 15:54

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	11	-----	1.0	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	170	-----	1.0	2,3,7,8-TCDD-13C	2.00	76
				1,2,3,7,8-PeCDF-13C	2.00	81
2,3,7,8-TCDD	3.2	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	57	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	7.5	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	88
Total PeCDF	73	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	87
				1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	9.3	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	68
Total PeCDD	89	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	46
				1,2,3,4,7,8,9-HpCDF-13C	2.00	57
1,2,3,4,7,8-HxCDF	7.0	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	53
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	6.2	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	65	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	7.6	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	37	-----	5.0			
1,2,3,7,8,9-HxCDD	30	-----	5.0			
Total HxCDD	350	-----	5.0			
1,2,3,4,6,7,8-HpCDF	43	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 26 ng/Kg		
Total HpCDF	60	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	360	-----	5.0			
Total HpCDD	590	-----	5.0			
OCDF	11	-----	10			
OCDD	910	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	RB1		
Lab Sample ID	10491154021		
Filename	U190919B_16		
Injected By	SMT		
Total Amount Extracted	1030 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	09/10/2019 09:50
ICAL ID	U190909	Received	09/12/2019 08:35
CCal Filename(s)	U190919B_01 & U190919B_17	Extracted	09/13/2019 11:00
Method Blank ID	BLANK-73396	Analyzed	09/20/2019 04:06

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	10	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	ND	-----	10	2,3,7,8-TCDD-13C	2.00	74
				1,2,3,7,8-PeCDF-13C	2.00	85
2,3,7,8-TCDD	ND	-----	10	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	ND	-----	10	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	-----	50	1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	ND	-----	50	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	-----	50	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	71
1,2,3,7,8-PeCDD	ND	-----	50	1,2,3,6,7,8-HxCDD-13C	2.00	63
Total PeCDD	ND	-----	50	1,2,3,4,6,7,8-HpCDF-13C	2.00	65 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64 Y
1,2,3,4,7,8-HxCDF	ND	-----	50	1,2,3,4,6,7,8-HpCDD-13C	2.00	58
1,2,3,6,7,8-HxCDF	ND	-----	50	OCDD-13C	4.00	55 Y
2,3,4,6,7,8-HxCDF	ND	-----	50			
1,2,3,7,8,9-HxCDF	ND	-----	50	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	50	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	50	2,3,7,8-TCDD-37Cl4	0.40	79
1,2,3,6,7,8-HxCDD	ND	-----	50			
1,2,3,7,8,9-HxCDD	ND	-----	50			
Total HxCDD	ND	-----	50			
1,2,3,4,6,7,8-HpCDF	ND	-----	50	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	50	Equivalence: 0.00 pg/L		
Total HpCDF	ND	-----	50	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	50			
Total HpCDD	ND	-----	50			
OCDF	ND	-----	100			
OCDD	ND	-----	100			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Y = Calculated using average of daily RFs

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Fax: 612- 607-6444

Method 8290 Blank Analysis Results

Lab Sample Name	DFBLKBB		
Lab Sample ID	BLANK-73396	Matrix	Water
Filename	F190917A_04	Dilution	NA
Total Amount Extracted	987 mL	Extracted	09/13/2019 11:00
ICAL ID	F190916	Analyzed	09/17/2019 14:14
CCal Filename(s)	F190916C_17 & F190917A_05	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	10	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	ND	-----	10	2,3,7,8-TCDD-13C	2.00	81
				1,2,3,7,8-PeCDF-13C	2.00	89
2,3,7,8-TCDD	ND	-----	10	2,3,4,7,8-PeCDF-13C	2.00	87
Total TCDD	ND	-----	10	1,2,3,7,8-PeCDD-13C	2.00	98
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	-----	50	1,2,3,6,7,8-HxCDF-13C	2.00	78
2,3,4,7,8-PeCDF	ND	-----	50	2,3,4,6,7,8-HxCDF-13C	2.00	82
Total PeCDF	ND	-----	50	1,2,3,7,8,9-HxCDF-13C	2.00	81
				1,2,3,4,7,8-HxCDD-13C	2.00	84
1,2,3,7,8-PeCDD	ND	-----	50	1,2,3,6,7,8-HxCDD-13C	2.00	72
Total PeCDD	ND	-----	50	1,2,3,4,6,7,8-HpCDF-13C	2.00	71
				1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	ND	-----	50	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	ND	-----	50	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	ND	-----	50			
1,2,3,7,8,9-HxCDF	ND	-----	50	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	50	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	50	2,3,7,8-TCDD-37Cl4	0.40	92
1,2,3,6,7,8-HxCDD	ND	-----	50			
1,2,3,7,8,9-HxCDD	ND	-----	50			
Total HxCDD	ND	-----	50			
1,2,3,4,6,7,8-HpCDF	ND	-----	50	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	50	Equivalence: 0.00 pg/L		
Total HpCDF	ND	-----	50	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	50			
Total HpCDD	ND	-----	50			
OCDF	ND	-----	100			
OCDD	ND	-----	100			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

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Method 8290 Blank Analysis Results

Lab Sample Name	DFBLKCI		
Lab Sample ID	BLANK-73503	Matrix	Solid
Filename	U190923A_06	Dilution	NA
Total Amount Extracted	10.2 g	Extracted	09/19/2019 14:30
ICAL ID	U190909	Analyzed	09/23/2019 15:48
CCal Filename(s)	U190923A_03 & U190923A_19	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	70
Total TCDF	ND	-----	1.0	2,3,7,8-TCDD-13C	2.00	71
				1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	65
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	68
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	66
				1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	65
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	51
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	82
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	ND	-----	5.0			
1,2,3,4,6,7,8-HpCDF	ND	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	5.0			
Total HpCDD	ND	-----	5.0			
OCDF	ND	-----	10			
OCDD	ND	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Blank Analysis Results

Lab Sample Name	DFBLKCO		
Lab Sample ID	BLANK-73521	Matrix	Solid
Filename	F190924B_14	Dilution	NA
Total Amount Extracted	10.4 g	Extracted	09/20/2019 17:15
ICAL ID	F190924	Analyzed	09/24/2019 20:22
CCal Filename(s)	F190924B_07 & F190924B_23	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.0	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	-----	1.0	2,3,7,8-TCDD-13C	2.00	68
				1,2,3,7,8-PeCDF-13C	2.00	66
2,3,7,8-TCDD	ND	-----	1.0	2,3,4,7,8-PeCDF-13C	2.00	58
Total TCDD	ND	-----	1.0	1,2,3,7,8-PeCDD-13C	2.00	71
				1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	ND	-----	5.0	1,2,3,6,7,8-HxCDF-13C	2.00	71
2,3,4,7,8-PeCDF	ND	-----	5.0	2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	-----	5.0	1,2,3,6,7,8-HxCDD-13C	2.00	62
Total PeCDD	ND	-----	5.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	64
				1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	ND	-----	5.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	74
1,2,3,6,7,8-HxCDF	ND	-----	5.0	OCDD-13C	4.00	50
2,3,4,6,7,8-HxCDF	ND	-----	5.0			
1,2,3,7,8,9-HxCDF	ND	-----	5.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	5.0	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	ND	-----	5.0			
1,2,3,7,8,9-HxCDD	ND	-----	5.0			
Total HxCDD	ND	-----	5.0			
1,2,3,4,6,7,8-HpCDF	ND	-----	5.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	5.0	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	-----	5.0	(Lower-bound - Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	5.0			
Total HpCDD	ND	-----	5.0			
OCDF	ND	-----	10			
OCDD	ND	-----	10			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.

REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-73397		
Filename	F190917A_01	Matrix	Water
Total Amount Extracted	1010 mL	Dilution	NA
ICAL ID	F190916	Extracted	09/13/2019 11:00
CCal Filename(s)	F190916C_17 & F190917A_05	Analyzed	09/17/2019 11:57
Method Blank ID	BLANK-73396	Injected By	SMT

Native Isomers	**Qs** (ng)	**Qm** (ng)	% Rec.	**Internal Standards**	**ng's Added**	**Percent Recovery**
2,3,7,8-TCDF	0.20	0.21	103	2,3,7,8-TCDF-13C	2.0	90
Total TCDF				2,3,7,8-TCDD-13C	2.0	86
				1,2,3,7,8-PeCDF-13C	2.0	97
2,3,7,8-TCDD	0.20	0.21	105	2,3,4,7,8-PeCDF-13C	2.0	95
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	103
				1,2,3,4,7,8-HxCDF-13C	2.0	83
1,2,3,7,8-PeCDF	1.0	1.0	103	1,2,3,6,7,8-HxCDF-13C	2.0	85
2,3,4,7,8-PeCDF	1.0	1.1	105	2,3,4,6,7,8-HxCDF-13C	2.0	89
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	93
				1,2,3,4,7,8-HxCDD-13C	2.0	83
1,2,3,7,8-PeCDD	1.0	0.96	96	1,2,3,6,7,8-HxCDD-13C	2.0	77
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	74
				1,2,3,4,7,8,9-HpCDF-13C	2.0	82
1,2,3,4,7,8-HxCDF	1.0	1.1	111	1,2,3,4,6,7,8-HpCDD-13C	2.0	84
1,2,3,6,7,8-HxCDF	1.0	1.1	106	OCDD-13C	4.0	75
2,3,4,6,7,8-HxCDF	1.0	1.0	102			
1,2,3,7,8,9-HxCDF	1.0	0.98	98	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	108	2,3,7,8-TCDD-37Cl4	0.40	93
1,2,3,6,7,8-HxCDD	1.0	1.1	114			
1,2,3,7,8,9-HxCDD	1.0	1.1	111			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	108			
1,2,3,4,7,8,9-HpCDF	1.0	1.0	101			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.96	96			
Total HpCDD						
OCDF	2.0	2.3	114			
OCDD	2.0	2.2	112			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-73504		
Filename	U190923A_04	Matrix	Solid
Total Amount Extracted	10.2 g	Dilution	NA
ICAL ID	U190909	Extracted	09/19/2019 14:30
CCal Filename(s)	U190923A_03 & U190923A_19	Analyzed	09/23/2019 14:19
Method Blank ID	BLANK-73503	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	105	2,3,7,8-TCDF-13C	2.0	77
Total TCDF				2,3,7,8-TCDD-13C	2.0	79
				1,2,3,7,8-PeCDF-13C	2.0	81
2,3,7,8-TCDD	0.20	0.20	101	2,3,4,7,8-PeCDF-13C	2.0	81
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	88
				1,2,3,4,7,8-HxCDF-13C	2.0	74
1,2,3,7,8-PeCDF	1.0	0.95	95	1,2,3,6,7,8-HxCDF-13C	2.0	78
2,3,4,7,8-PeCDF	1.0	0.99	99	2,3,4,6,7,8-HxCDF-13C	2.0	81
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	80
				1,2,3,4,7,8-HxCDD-13C	2.0	77
1,2,3,7,8-PeCDD	1.0	0.91	91	1,2,3,6,7,8-HxCDD-13C	2.0	76
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	74
				1,2,3,4,7,8,9-HpCDF-13C	2.0	70
1,2,3,4,7,8-HxCDF	1.0	1.0	105	1,2,3,4,6,7,8-HpCDD-13C	2.0	75
1,2,3,6,7,8-HxCDF	1.0	1.0	104	OCDD-13C	4.0	51
2,3,4,6,7,8-HxCDF	1.0	0.99	99			
1,2,3,7,8,9-HxCDF	1.0	1.0	100	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.00	100	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	1.0	1.1	111			
1,2,3,7,8,9-HxCDD	1.0	1.1	108			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.0	100			
1,2,3,4,7,8,9-HpCDF	1.0	0.94	94			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.95	95			
Total HpCDD						
OCDF	2.0	2.2	111			
OCDD	2.0	2.3	114			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-73522		
Filename	F190924B_11	Matrix	Solid
Total Amount Extracted	10.9 g	Dilution	NA
ICAL ID	F190924	Extracted	09/20/2019 17:15
CCal Filename(s)	F190924B_07 & F190924B_23	Analyzed	09/24/2019 18:05
Method Blank ID	BLANK-73521	Injected By	SMT

Native Isomers	**Qs** (ng)	**Qm** (ng)	% Rec.	**Internal Standards**	**ng's Added**	**Percent Recovery**
2,3,7,8-TCDF	0.20	0.18	90	2,3,7,8-TCDF-13C	2.0	71
Total TCDF				2,3,7,8-TCDD-13C	2.0	73
				1,2,3,7,8-PeCDF-13C	2.0	72
2,3,7,8-TCDD	0.20	0.19	94	2,3,4,7,8-PeCDF-13C	2.0	65
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	76
				1,2,3,4,7,8-HxCDF-13C	2.0	75
1,2,3,7,8-PeCDF	1.0	0.93	93	1,2,3,6,7,8-HxCDF-13C	2.0	73
2,3,4,7,8-PeCDF	1.0	1.0	101	2,3,4,6,7,8-HxCDF-13C	2.0	78
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	76
				1,2,3,4,7,8-HxCDD-13C	2.0	80
1,2,3,7,8-PeCDD	1.0	0.91	91	1,2,3,6,7,8-HxCDD-13C	2.0	68
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	68
				1,2,3,4,7,8,9-HpCDF-13C	2.0	61
1,2,3,4,7,8-HxCDF	1.0	1.1	106	1,2,3,4,6,7,8-HpCDD-13C	2.0	80
1,2,3,6,7,8-HxCDF	1.0	1.0	102	OCDD-13C	4.0	54
2,3,4,6,7,8-HxCDF	1.0	0.95	95			
1,2,3,7,8,9-HxCDF	1.0	0.96	96	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	0.98	98	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,6,7,8-HxCDD	1.0	1.1	111			
1,2,3,7,8,9-HxCDD	1.0	1.0	102			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.0	102			
1,2,3,4,7,8,9-HpCDF	1.0	0.99	99			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.92	92			
Total HpCDD						
OCDF	2.0	1.8	90			
OCDD	2.0	2.1	103			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCSD-73398		
Filename	F190917A_02	Matrix	Water
Total Amount Extracted	1030 mL	Dilution	NA
ICAL ID	F190916	Extracted	09/13/2019 11:00
CCal Filename(s)	F190916C_17 & F190917A_05	Analyzed	09/17/2019 12:42
Method Blank ID	BLANK-73396	Injected By	SMT

Native Isomers	**Qs** (ng)	**Qm** (ng)	% Rec.	**Internal Standards**	**ng's Added**	**Percent Recovery**
2,3,7,8-TCDF	0.20	0.20	100	2,3,7,8-TCDF-13C	2.0	84
Total TCDF				2,3,7,8-TCDD-13C	2.0	79
				1,2,3,7,8-PeCDF-13C	2.0	90
2,3,7,8-TCDD	0.20	0.21	103	2,3,4,7,8-PeCDF-13C	2.0	89
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	94
				1,2,3,4,7,8-HxCDF-13C	2.0	78
1,2,3,7,8-PeCDF	1.0	0.98	98	1,2,3,6,7,8-HxCDF-13C	2.0	84
2,3,4,7,8-PeCDF	1.0	1.0	102	2,3,4,6,7,8-HxCDF-13C	2.0	86
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	90
				1,2,3,4,7,8-HxCDD-13C	2.0	78
1,2,3,7,8-PeCDD	1.0	0.95	95	1,2,3,6,7,8-HxCDD-13C	2.0	71
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	69
				1,2,3,4,7,8,9-HpCDF-13C	2.0	59
1,2,3,4,7,8-HxCDF	1.0	1.1	112	1,2,3,4,6,7,8-HpCDD-13C	2.0	75
1,2,3,6,7,8-HxCDF	1.0	0.98	98	OCDD-13C	4.0	63
2,3,4,6,7,8-HxCDF	1.0	1.0	101			
1,2,3,7,8,9-HxCDF	1.0	0.96	96	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	109	2,3,7,8-TCDD-37Cl4	0.40	87
1,2,3,6,7,8-HxCDD	1.0	1.2	116			
1,2,3,7,8,9-HxCDD	1.0	1.1	114			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	105			
1,2,3,4,7,8,9-HpCDF	1.0	0.97	97			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.94	94			
Total HpCDD						
OCDF	2.0	2.3	115			
OCDD	2.0	2.2	111			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
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Method 8290

Spike Recovery Relative Percent Difference (RPD) Results

Client	Pace Analytical National		
Spike 1 ID	LCS-73397	Spike 2 ID	LCSD-73398
Spike 1 Filename	F190917A_01	Spike 2 Filename	F190917A_02

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	103	100	3.0
2,3,7,8-TCDD	105	103	1.9
1,2,3,7,8-PeCDF	103	98	5.0
2,3,4,7,8-PeCDF	105	102	2.9
1,2,3,7,8-PeCDD	96	95	1.0
1,2,3,4,7,8-HxCDF	111	112	0.9
1,2,3,6,7,8-HxCDF	106	98	7.8
2,3,4,6,7,8-HxCDF	102	101	1.0
1,2,3,7,8,9-HxCDF	98	96	2.1
1,2,3,4,7,8-HxCDD	108	109	0.9
1,2,3,6,7,8-HxCDD	114	116	1.7
1,2,3,7,8,9-HxCDD	111	114	2.7
1,2,3,4,6,7,8-HpCDF	108	105	2.8
1,2,3,4,7,8,9-HpCDF	101	97	4.0
1,2,3,4,6,7,8-HpCDD	96	94	2.1
OCDF	114	115	0.9
OCDD	112	111	0.9

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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Method 8290 Spiked Sample Report

Client - Pace Analytical National

Client's Sample ID	LB5-3-MS		
Lab Sample ID	10491154014-MS		
Filename	U190926B_01	Matrix	Solid
Total Amount Extracted	12.2 g	Dilution	NA
ICAL ID	U190909	Extracted	09/19/2019 14:30
CCal Filename(s)	U190926A_18 & U190926B_16	Analyzed	09/26/2019 20:51
Method Blank ID	BLANK-73503	Injected By	SMT

Native Isomers	**Qs** (ng)	**Qm** (ng)	% Rec.	**Internal Standards**	**ng's Added**	**Percent Recovery**
2,3,7,8-TCDF	0.20	0.36	180	2,3,7,8-TCDF-13C	2.00	78
				2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	0.20	0.24	119	2,3,4,7,8-PeCDF-13C	2.00	84
				1,2,3,7,8-PeCDD-13C	2.00	91
				1,2,3,4,7,8-HxCDF-13C	2.00	65
1,2,3,7,8-PeCDF	1.00	1.01	101	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	1.00	1.09	109	2,3,4,6,7,8-HxCDF-13C	2.00	71
				1,2,3,7,8,9-HxCDF-13C	2.00	78
				1,2,3,4,7,8-HxCDD-13C	2.00	63
1,2,3,7,8-PeCDD	1.00	1.05	105	1,2,3,6,7,8-HxCDD-13C	2.00	61
				1,2,3,4,6,7,8-HpCDF-13C	2.00	58 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63 Y
1,2,3,4,7,8-HxCDF	1.00	1.16	116	1,2,3,4,6,7,8-HpCDD-13C	2.00	63 Y
1,2,3,6,7,8-HxCDF	1.00	0.96	96	OCDD-13C	4.00	65 Y
2,3,4,6,7,8-HxCDF	1.00	1.05	105			
1,2,3,7,8,9-HxCDF	1.00	1.01	101	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.18	118	2,3,7,8-TCDD-37Cl4	0.20	72
1,2,3,6,7,8-HxCDD	1.00	1.29	129			
1,2,3,7,8,9-HxCDD	1.00	1.22	122			
1,2,3,4,6,7,8-HpCDF	1.00	1.78	178			
1,2,3,4,7,8,9-HpCDF	1.00	1.10	110			
1,2,3,4,6,7,8-HpCDD	1.00	5.11	511			
OCDF	2.00	2.90	145			
OCDD	2.00	26.14	1307			

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent)

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
Y = Calculated using average of daily RFs

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Method 8290 Spiked Sample Report

Client - Pace Analytical National

Client's Sample ID	LB5-3-MSD		
Lab Sample ID	10491154014-MSD		
Filename	U190926B_02	Matrix	Solid
Total Amount Extracted	12.2 g	Dilution	NA
ICAL ID	U190909	Extracted	09/19/2019 14:30
CCal Filename(s)	U190926A_18 & U190926B_16	Analyzed	09/26/2019 21:36
Method Blank ID	BLANK-73503	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.42	208	2,3,7,8-TCDF-13C	2.00	79
				2,3,7,8-TCDD-13C	2.00	67
				1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	0.20	0.27	136	2,3,4,7,8-PeCDF-13C	2.00	80
				1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	1.00	1.14	114	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	1.00	1.24	124	2,3,4,6,7,8-HxCDF-13C	2.00	73
				1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	1.00	1.18	118	1,2,3,6,7,8-HxCDD-13C	2.00	61
				1,2,3,4,6,7,8-HpCDF-13C	2.00	52 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	55 Y
1,2,3,4,7,8-HxCDF	1.00	1.33	133	1,2,3,4,6,7,8-HpCDD-13C	2.00	57 Y
1,2,3,6,7,8-HxCDF	1.00	1.06	106	OCDD-13C	4.00	62 Y
2,3,4,6,7,8-HxCDF	1.00	1.16	116			
1,2,3,7,8,9-HxCDF	1.00	1.12	112	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.27	127	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	1.00	1.46	146			
1,2,3,7,8,9-HxCDD	1.00	1.31	131			
1,2,3,4,6,7,8-HpCDF	1.00	2.05	205			
1,2,3,4,7,8,9-HpCDF	1.00	1.25	125			
1,2,3,4,6,7,8-HpCDD	1.00	6.11	611			
OCDF	2.00	3.10	155			
OCDD	2.00	31.28	1564			

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent)

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Spike Sample Results

Client - Pace Analytical National

Client Sample ID	LB5-3			Dry Weights	
Lab Sample ID	10491154014	Sample Filename	U190926B_13	Sample Amount	11.3 g
MS ID	10491154014-MS	MS Filename	U190926B_01	MS Amount	11.4 g
MSD ID	10491154014-MSD	MSD Filename	U190926B_02	MSD Amount	11.4 g

Analyte	Sample Conc. ng/Kg	MS/MSD Qs (ng)	MS Qm (ng)	MSD Qm (ng)	RPD	Background Subtracted MS % Rec.	MSD % Rec.	RPD
2,3,7,8-TCDF	18.586	0.20	0.36	0.42	14.5	74	102	32.0
2,3,7,8-TCDD	2.547	0.20	0.24	0.27	13.2	105	122	14.9
1,2,3,7,8-PeCDF	9.472	1.00	1.01	1.14	12.2	90	103	13.6
2,3,4,7,8-PeCDF	13.897	1.00	1.09	1.24	13.2	93	109	15.3
1,2,3,7,8-PeCDD	5.547	1.00	1.05	1.18	12.1	98	112	12.8
1,2,3,4,7,8-HxCDF	16.568	1.00	1.16	1.33	13.7	97	114	16.1
1,2,3,6,7,8-HxCDF	10.161	1.00	0.96	1.06	10.1	84	94	11.4
2,3,4,6,7,8-HxCDF	10.337	1.00	1.05	1.16	10.3	93	105	11.5
1,2,3,7,8,9-HxCDF	0.000	1.00	1.01	1.12	10.8	98	109	11.1
1,2,3,4,7,8-HxCDD	5.478	1.00	1.18	1.27	7.9	111	121	8.4
1,2,3,6,7,8-HxCDD	22.318	1.00	1.29	1.46	12.8	103	121	15.7
1,2,3,7,8,9-HxCDD	12.704	1.00	1.22	1.31	7.6	107	117	8.6
1,2,3,4,6,7,8-HpCDF	110.618	1.00	1.78	2.05	13.8	52	79	40.4
1,2,3,4,7,8,9-HpCDF	6.715	1.00	1.10	1.25	12.8	103	118	13.7
1,2,3,4,6,7,8-HpCDD	835.312	1.00	5.11	6.11	17.9	0	0	0.0
OCDF	192.528	2.00	2.90	3.10	6.6	36	46	24.6
OCDD	11168.432	2.00	26.14	31.28	17.9	0	0	0.0

Definitions

MS = Matrix Spike
MSD = Matrix Spike Duplicate
Qm = Quantity Measured
Qs = Quantity Spiked
% Rec. = Percent Recovery
RPD = Relative Percent Difference
NA = Not Applicable
NC = Not Calculated

CDD = Chlorinated dibenzo-p-dioxin
CDF = Chlorinated dibenzo-p-furan
T = Tetra
Pe = Penta
Hx = Hexa
Hp = Hepta
O = Octa

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 19, 2019

Leaaf Environmental

Sample Delivery Group:	L1138060
Samples Received:	09/11/2019
Project Number:	JES-011
Description:	N. Velasco

Report To: Michael Stevens
812 Rupp Street
Gretna, LA 70053

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

TABLE OF CONTENTS

IDW L1138060-01 Waste

Collected by: Michael Stevens
Collected date/time: 09/09/19 13:30
Received date/time: 09/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1346481	1	09/16/19 10:14	09/16/19 10:14	BAA	Mt. Juliet, TN
Preparation by Method 1311	WG1346665	1	09/16/19 15:40	09/16/19 15:40	IDW	Mt. Juliet, TN
Wet Chemistry by Method 9012 B	WG1347371	1	09/12/19 14:00	09/17/19 15:38	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1344284	1	09/12/19 16:00	09/12/19 16:00	BAM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1344072	1	09/11/19 17:39	09/11/19 20:00	EEM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1344278	1	09/12/19 16:48	09/12/19 16:48	MJA	Mt. Juliet, TN
Mercury by Method 7470A	WG1347284	1	09/17/19 15:01	09/17/19 22:25	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1347393	1	09/18/19 09:50	09/18/19 12:18	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1347048	1	09/17/19 15:40	09/17/19 15:40	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1347601	1	09/18/19 06:40	09/18/19 15:36	LEA	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris McCord
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.

All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		9/16/2019 3:40:36 PM	WG1346665
TCLP ZHE Extraction	-		9/16/2019 10:14:41 AM	WG1346481
Fluid	1		9/16/2019 3:40:36 PM	WG1346665
Initial pH	8.58		9/16/2019 3:40:36 PM	WG1346665
Final pH	6.10		9/16/2019 3:40:36 PM	WG1346665

Wet Chemistry by Method 9012 B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Reactive Cyanide	ND		0.250	1	09/17/2019 15:38	WG1347371

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Reactive Sulfide	ND		25.0	1	09/12/2019 16:00	WG1344284

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
Corrosivity by pH	8.93	T8	1	09/11/2019 20:00	WG1344072

Sample Narrative:

L1138060-01 WG1344072: 8.93 at 23.3C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	Deg. F				
Ignitability	DNI at 170		1	09/12/2019 16:48	WG1344278

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Mercury	ND		0.0100	0.20	1	09/17/2019 22:25	WG1347284

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Arsenic	ND		0.100	5	1	09/18/2019 12:18	WG1347393
Barium	0.840		0.100	100	1	09/18/2019 12:18	WG1347393
Cadmium	ND		0.100	1	1	09/18/2019 12:18	WG1347393
Chromium	ND		0.100	5	1	09/18/2019 12:18	WG1347393
Lead	0.117		0.100	5	1	09/18/2019 12:18	WG1347393
Selenium	ND		0.100	1	1	09/18/2019 12:18	WG1347393
Silver	ND		0.100	5	1	09/18/2019 12:18	WG1347393

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Benzene	0.0643	B	0.0500	0.50	1	09/17/2019 15:40	WG1347048
Carbon tetrachloride	ND		0.0500	0.50	1	09/17/2019 15:40	WG1347048
Chlorobenzene	ND		0.0500	100	1	09/17/2019 15:40	WG1347048
Chloroform	ND		0.250	6	1	09/17/2019 15:40	WG1347048

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,2-Dichloroethane	ND		0.0500	0.50	1	09/17/2019 15:40	WG1347048
1,1-Dichloroethene	ND		0.0500	0.70	1	09/17/2019 15:40	WG1347048
2-Butanone (MEK)	ND		0.500	200	1	09/17/2019 15:40	WG1347048
Tetrachloroethene	ND		0.0500	0.70	1	09/17/2019 15:40	WG1347048
Trichloroethene	ND		0.0500	0.50	1	09/17/2019 15:40	WG1347048
Vinyl chloride	ND		0.0500	0.20	1	09/17/2019 15:40	WG1347048
(S) Toluene-d8	*108*		*80.0-120*			*09/17/2019 15:40*	WG1347048
(S) 4-Bromofluorobenzene	*111*		*77.0-126*			*09/17/2019 15:40*	WG1347048
(S) 1,2-Dichloroethane-d4	*113*		*70.0-130*			*09/17/2019 15:40*	WG1347048

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	09/18/2019 15:36	WG1347601
2,4-Dinitrotoluene	ND		0.100	0.13	1	09/18/2019 15:36	WG1347601
Hexachlorobenzene	ND		0.100	0.13	1	09/18/2019 15:36	WG1347601
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	09/18/2019 15:36	WG1347601
Hexachloroethane	ND		0.100	3	1	09/18/2019 15:36	WG1347601
Nitrobenzene	ND		0.100	2	1	09/18/2019 15:36	WG1347601
Pyridine	ND		0.100	5	1	09/18/2019 15:36	WG1347601
3&4-Methyl Phenol	ND		0.100	400	1	09/18/2019 15:36	WG1347601
2-Methylphenol	ND		0.100	200	1	09/18/2019 15:36	WG1347601
Pentachlorophenol	ND		0.100	100	1	09/18/2019 15:36	WG1347601
2,4,5-Trichlorophenol	ND		0.100	400	1	09/18/2019 15:36	WG1347601
2,4,6-Trichlorophenol	ND		0.100	2	1	09/18/2019 15:36	WG1347601
(S) 2-Fluorophenol	*57.0*		*10.0-120*			*09/18/2019 15:36*	WG1347601
(S) Phenol-d5	*34.9*		*10.0-120*			*09/18/2019 15:36*	WG1347601
(S) Nitrobenzene-d5	*70.8*		*10.0-127*			*09/18/2019 15:36*	WG1347601
(S) 2-Fluorobiphenyl	*76.3*		*10.0-130*			*09/18/2019 15:36*	WG1347601
(S) 2,4,6-Tribromophenol	*79.5*		*10.0-155*			*09/18/2019 15:36*	WG1347601
(S) p-Terphenyl-d14	*75.9*		*10.0-128*			*09/18/2019 15:36*	WG1347601

Method Blank (MB)

(MB) R3451639-1 09/17/19 15:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Reactive Cyanide	U		0.0390	0.250

L1137890-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1137890-01 09/17/19 16:10 • (DUP) R3451639-3 09/17/19 15:37

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3451639-2 09/17/19 15:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	2.50	2.55	102	50.0-150	

L1138168-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1138168-01 09/17/19 15:45 • (MS) R3451639-4 09/17/19 15:46 • (MSD) R3451639-5 09/17/19 15:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	1.67	ND	ND	ND	0.000	0.000	1	75.0-125	J6	J6	0.000	20

Method Blank (MB)

(MB) R3450131-1 09/12/19 16:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Reactive Sulfide	U		7.63	25.0

L1137890-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1137890-01 09/12/19 16:00 • (DUP) R3450131-3 09/12/19 16:00

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3450131-2 09/12/19 16:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	100	91.2	91.2	70.0-130	

L1138060-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1138060-01 09/11/19 20:00 • (DUP) R3449748-3 09/11/19 20:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
Corrosivity by pH	8.93	8.91	1	0.224		1

Sample Narrative:

OS: 8.93 at 23.3C

DUP: 8.91 at 23.1C

Laboratory Control Sample (LCS)

(LCS) R3449748-1 09/11/19 20:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 23C

L1136036-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1136036-02 09/12/19 16:48 • (DUP) R3450133-2 09/12/19 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	Deg. F	Deg. F		%		%
Ignitability	DNI at 170	DNI at 170	1	0.000		10

L1138217-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1138217-02 09/12/19 16:48 • (DUP) R3450133-3 09/12/19 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	Deg. F	Deg. F		%		%
Ignitability	DNI at 170	DNI at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3450133-1 09/12/19 16:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	Deg. F	Deg. F	%	%	
Ignitability	82.0	82.6	101	96.0-104	

Method Blank (MB)

(MB) R3451701-1 09/17/19 22:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.00330	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3451701-2 09/17/19 22:03 • (LCSD) R3451701-3 09/17/19 22:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	0.0265	0.0308	88.3	103	80.0-120			15.0	20

L1139031-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1139031-01 09/17/19 22:08 • (MS) R3451701-4 09/17/19 22:10 • (MSD) R3451701-5 09/17/19 22:16

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0293	0.0288	97.7	96.0	1	75.0-125			1.72	20

L1139320-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1139320-02 09/17/19 22:19 • (MS) R3451701-6 09/17/19 22:21 • (MSD) R3451701-7 09/17/19 22:23

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0304	0.0292	101	97.3	1	75.0-125			4.03	20

Method Blank (MB)

(MB) R3451974-1 09/18/19 12:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.0333	0.100
Barium	U		0.0333	0.100
Cadmium	U		0.0333	0.100
Chromium	U		0.0333	0.100
Lead	U		0.0333	0.100
Selenium	0.0779	J	0.0333	0.100
Silver	U		0.0333	0.100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3451974-2 09/18/19 12:13 • (LCSD) R3451974-3 09/18/19 12:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	9.90	9.90	99.0	99.0	80.0-120			0.0312	20
Barium	10.0	9.80	9.83	98.0	98.3	80.0-120			0.253	20
Cadmium	10.0	10.0	10.0	100	100	80.0-120			0.294	20
Chromium	10.0	9.56	9.73	95.6	97.3	80.0-120			1.74	20
Lead	10.0	9.93	9.98	99.3	99.8	80.0-120			0.509	20
Selenium	10.0	10.5	10.7	105	107	80.0-120			1.35	20
Silver	2.00	1.86	1.87	93.0	93.4	80.0-120			0.519	20

L1138060-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1138060-01 09/18/19 12:18 • (MS) R3451974-5 09/18/19 12:23 • (MSD) R3451974-6 09/18/19 12:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	10.2	10.1	10.2	10.1	1	75.0-125			1.09	20
Barium	10.0	0.840	10.7	10.6	98.7	98.1	1	75.0-125			0.570	20
Cadmium	10.0	ND	10.1	10.1	101	101	1	75.0-125			0.125	20
Chromium	10.0	ND	9.68	9.66	96.8	96.6	1	75.0-125			0.218	20
Lead	10.0	0.117	10.2	10.1	101	100	1	75.0-125			0.728	20
Selenium	10.0	ND	10.9	10.6	108	106	1	75.0-125			2.13	20
Silver	2.00	ND	1.89	1.88	94.5	94.0	1	75.0-125			0.594	20

L1139031-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1139031-01 09/18/19 12:29 • (MS) R3451974-7 09/18/19 12:32 • (MSD) R3451974-8 09/18/19 12:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	9.89	9.71	9.89	9.71	1	75.0-125			1.87	20
Barium	10.0	0.138	10.2	10.1	101	99.7	1	75.0-125			1.16	20
Cadmium	10.0	ND	10.0	9.90	100	99.0	1	75.0-125			1.30	20
Chromium	10.0	ND	9.90	9.76	99.0	97.6	1	75.0-125			1.46	20
Lead	10.0	ND	10.0	9.85	100	98.5	1	75.0-125			1.93	20
Silver	2.00	ND	1.88	1.84	93.8	92.2	1	75.0-125			1.73	20

Method Blank (MB)

(MB) R3451566-3 09/17/19 13:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	0.499		0.0165	0.0500
Carbon tetrachloride	U		0.0165	0.0500
Chlorobenzene	U		0.0165	0.0500
Chloroform	U		0.0825	0.250
1,2-Dichloroethane	U		0.0165	0.0500
1,1-Dichloroethene	U		0.0165	0.0500
2-Butanone (MEK)	U		0.165	0.500
Tetrachloroethene	U		0.0165	0.0500
Trichloroethene	U		0.0165	0.0500
Vinyl chloride	U		0.0165	0.0500
(S) Toluene-d8	*106*			*80.0-120*
(S) 4-Bromofluorobenzene	*105*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3451566-1 09/17/19 09:30 • (LCSD) R3451566-2 09/17/19 09:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0231	0.0239	92.3	95.5	70.0-123			3.43	20
Carbon tetrachloride	0.0250	0.0219	0.0228	87.5	91.0	68.0-126			3.93	20
Chlorobenzene	0.0250	0.0220	0.0229	87.8	91.7	80.0-121			4.27	20
Chloroform	0.0250	0.0236	0.0241	94.4	96.5	73.0-120			2.15	20
1,2-Dichloroethane	0.0250	0.0237	0.0244	94.7	97.8	70.0-128			3.18	20
1,1-Dichloroethene	0.0250	0.0221	0.0226	88.5	90.5	71.0-124			2.16	20
2-Butanone (MEK)	0.125	0.131	0.137	105	109	44.0-160			3.91	20
Tetrachloroethene	0.0250	0.0214	0.0220	85.8	88.1	72.0-132			2.62	20
Trichloroethene	0.0250	0.0219	0.0224	87.4	89.6	78.0-124			2.48	20
Vinyl chloride	0.0250	0.0228	0.0238	91.3	95.1	67.0-131			4.13	20
(S) Toluene-d8				*105*	*108*	*80.0-120*				
(S) 4-Bromofluorobenzene				*104*	*104*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*111*	*114*	*70.0-130*				

L1139031-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1139031-01 09/17/19 19:43 • (MS) R3451566-4 09/17/19 20:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Benzene	1.25	ND	1.23	97.9	1	17.0-158	
Carbon tetrachloride	1.25	ND	1.25	100	1	23.0-159	
Chlorobenzene	1.25	ND	1.14	91.5	1	33.0-152	
Chloroform	1.25	ND	1.27	102	1	29.0-154	
1,2-Dichloroethane	1.25	ND	1.24	98.9	1	29.0-151	
1,1-Dichloroethene	1.25	ND	1.21	96.6	1	11.0-160	
2-Butanone (MEK)	6.25	ND	7.01	112	1	10.0-160	
Tetrachloroethene	1.25	ND	1.12	89.5	1	10.0-160	
Trichloroethene	1.25	ND	1.15	91.8	1	10.0-160	
Vinyl chloride	1.25	ND	1.25	100	1	10.0-160	
(S) Toluene-d8				*105*		*80.0-120*	
(S) 4-Bromofluorobenzene				*102*		*77.0-126*	
(S) 1,2-Dichloroethane-d4				*117*		*70.0-130*	

L1139320-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1139320-02 09/17/19 20:07 • (MS) R3451566-6 09/17/19 20:56 • (MSD) R3451566-7 09/17/19 21:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	1.25	ND	1.22	1.24	96.1	98.0	1	17.0-158			1.87	27
Carbon tetrachloride	1.25	ND	1.24	1.24	98.9	98.8	1	23.0-159			0.0655	28
Chlorobenzene	1.25	ND	1.16	1.15	92.5	92.0	1	33.0-152			0.569	27
Chloroform	1.25	ND	1.27	1.27	101	101	1	29.0-154			0.0327	28
1,2-Dichloroethane	1.25	ND	1.23	1.23	98.2	98.5	1	29.0-151			0.233	27
1,1-Dichloroethene	1.25	ND	1.22	1.22	97.5	97.9	1	11.0-160			0.492	29
2-Butanone (MEK)	6.25	ND	6.58	6.55	105	105	1	10.0-160			0.595	32
Tetrachloroethene	1.25	ND	1.13	1.11	90.5	88.8	1	10.0-160			1.81	27
Trichloroethene	1.25	ND	1.14	1.16	91.5	92.8	1	10.0-160			1.39	25
Vinyl chloride	1.25	ND	1.24	1.28	99.4	102	1	10.0-160			2.73	27
(S) Toluene-d8					*106*	*104*		*80.0-120*				
(S) 4-Bromofluorobenzene					*105*	*106*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*113*	*114*		*70.0-130*				

Method Blank (MB)

(MB) R3452042-2 09/18/19 12:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
Pyridine	U		0.0333	0.100
(S) 2-Fluorophenol	*59.0*			*10.0-120*
(S) Phenol-d5	*35.0*			*10.0-120*
(S) Nitrobenzene-d5	*76.6*			*10.0-127*
(S) 2-Fluorobiphenyl	*84.5*			*10.0-130*
(S) 2,4,6-Tribromophenol	*88.5*			*10.0-155*
(S) p-Terphenyl-d14	*88.5*			*10.0-128*

Laboratory Control Sample (LCS)

(LCS) R3452042-1 09/18/19 12:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.389	77.8	18.0-120	
2,4-Dinitrotoluene	0.500	0.487	97.4	49.0-124	
Hexachlorobenzene	0.500	0.426	85.2	44.0-120	
Hexachloro-1,3-butadiene	0.500	0.367	73.4	19.0-120	
Hexachloroethane	0.500	0.366	73.2	15.0-120	
Nitrobenzene	0.500	0.382	76.4	27.0-120	
2-Methylphenol	0.500	0.382	76.4	28.0-120	
3&4-Methyl Phenol	0.500	0.380	76.0	31.0-120	
Pentachlorophenol	0.500	0.512	102	23.0-120	
2,4,5-Trichlorophenol	0.500	0.485	97.0	44.0-120	
2,4,6-Trichlorophenol	0.500	0.459	91.8	42.0-120	
Pyridine	0.500	0.258	51.6	10.0-120	
(S) 2-Fluorophenol			*60.5*	*10.0-120*	
(S) Phenol-d5			*35.7*	*10.0-120*	
(S) Nitrobenzene-d5			*67.9*	*10.0-127*	

Laboratory Control Sample (LCS)

(LCS) R3452042-1 09/18/19 12:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2-Fluorobiphenyl			*84.6*	*10.0-130*	
(S) 2,4,6-Tribromophenol			*96.5*	*10.0-155*	
(S) p-Terphenyl-d14			*89.9*	*10.0-128*	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

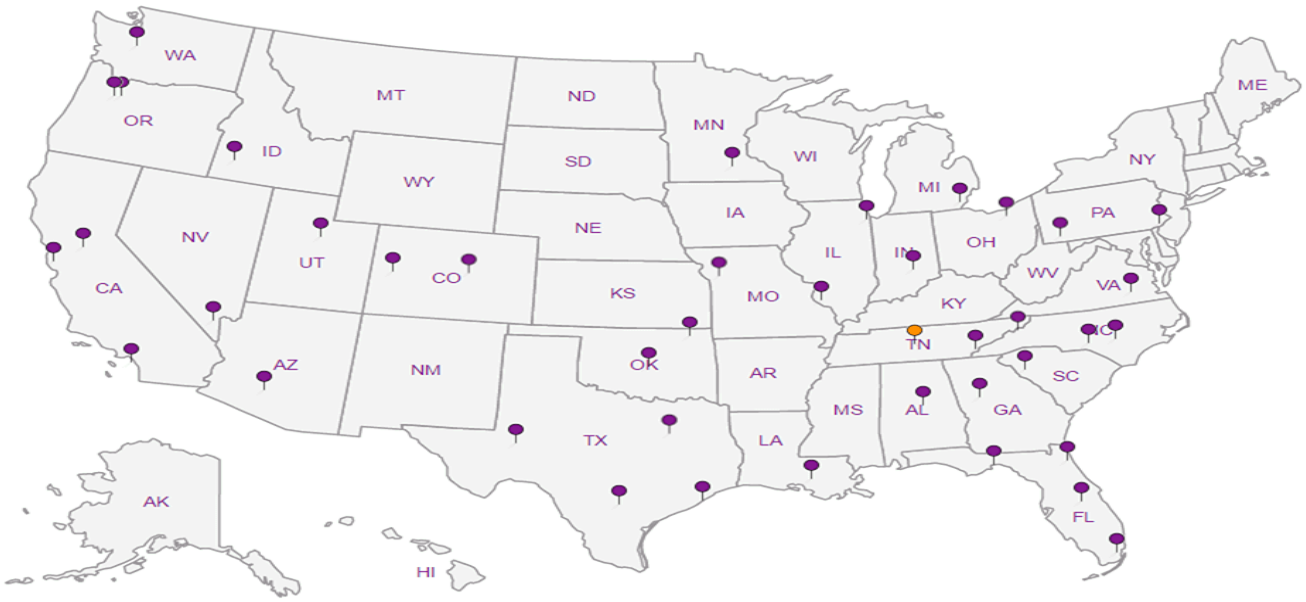
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Leaaf Environmental

812 Rupp Street
Gretna, LA 70053

Billing Information:
Accounts Payable
812 Rupp St.
Gretna, LA 70053

Pres Chk

Report to: Michael Stevens

Email To: mstevens@leaaf.com

Project Description: N. Velasco

City/State Collected:

Please Circle: PT MT CT ET

Phone: 504-342-2687
Fax:

Client Project # JES-011

Lab Project # LEAENVGLA-JES011

Collected by (print): Michael Stevens

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RCI 4ozClr-NoPres	TCLP w/o Pest/Herbs 1L-Clr-NoPres										
IDW	Comp	SS		9/10/19	1330	2	X	X										-01

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
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Phone: 800-767-5859
Fax: 615-758-5859

SDG # 113826 0
B235
Ta
Acctnum: LEAENVGLA
Template: T155429
Prelogin: P728920
PM: 526 - Chris McCord
PB: TB 9-4-19
Shipped Via: FedEX Ground

Remarks | Sample # (lab only)

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 1203 5778 3730

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: X Y __N

	Date:	Time:		
Relinquished by : (Signature)	9/10/19	1600	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.6-1.1-1.7 °C Bottles Received: 2
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/11/19 Time: 8:45

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

APPENDIX E

References

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