Technical Memorandum – Draft Final

To: **Georgia Baxter / JH Baxter & Co**

From: **Josh Bale / GSI Water Solutions, Inc.**
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Date: **September 3, 2020**

Re: **Off-site soil sampling investigation**

Background

The operating J.H. Baxter & Co. (Baxter) Wood Treating Facility (the Site) is located at 85 Baxter Street, on the corner of Baxter Street and Roosevelt Boulevard in Eugene, Oregon. The Site is on about 31 acres located in north Eugene in a mix of industrial, commercial, and residential properties. Roosevelt Boulevard and the Roosevelt Channel border the Site to the north and northwest. Commercial properties, including Yale Transport, Armored Transport, and Lile of Oregon, are located northeast of the facility along Roosevelt Boulevard. The Southern Pacific Railroad right-of-way (ROW) borders the Site to the south and there is a stormwater drainage channel along that property line. To the west is Zip-O-Log Mills, Inc., Cascade Plating & Machine, and Heli-Jet Heliport. To the east, is Pacific Recycling, Inc. Figure 1 shows the location of the Site. The Site is identified by Oregon Department of Environmental Quality (DEQ) as Environmental Cleanup Site Information (ECSI) No. 55.

A DEQ Record of Decision was completed for the Site in October 2019 (DEQ, 2019). The remedy includes capping about 16 acres of contaminated soil at the Site, continuing groundwater pumping for hydraulic containment of contaminated groundwater, removal of contaminated ditch sediments on the south side of the Site, and sampling of soil and sediments (referred to as soil throughout remainder of this Data Evaluation Report) in offsite areas that could reasonably have been impacted by contaminant discharges from the facility. The ditch on the south side of the Site accepts stormwater runoff from the east, along the railroad tracks and treated stormwater from the Site. Offsite areas with the highest potential to have been historically impacted are to the north and south of the Site, in the direction of the prevailing winds. Currently, Baxter is performing detailed air modeling for the Lane Regional Air Protection Agency to provide a more detailed assessment of annual emissions patterns and patterns of emission migration.

A February 2020 Sampling and Analysis Plan (SAP) summarized the approach, data collection, and evaluation methods to (1) update offsite data for site contaminants of concern (COCs) present in surface soil near offsite areas due to the age of the historical data collected previously

in 1996, (2) evaluate site COC concentrations in a drainage immediately downstream of the Site to determine potential impacts, and (3) collect background surface soil samples required to support the understanding of general area-wide COC concentrations present (GSI, 2020).

This TM summarizes the work that was completed in the field investigation and sampling on May 5th through 7th, 2020, including deviations to the original SAP, sample point locations, and results from the investigation.

Field Activities – Off-site Soil Sampling

Approach and Methodology

Samples were collected from locations identified in the attached Figure 2. The sample locations included six soil Incremental Sampling Methodology (ISM) sampling composite decision units (DUs) and two background ISM composite DU. Analytical testing included total metals (arsenic, chromium, copper, and zinc), polycyclic aromatic hydrocarbons (PAHs), pentachlorophenol (PCP), and dioxins/furans. In addition, at sediment sampling locations (3 samples), analytical testing included total solids and total organic carbon (TOC).

- Collected ISM samples from background locations (southeast of site in an undeveloped field and within the drainage ditch on the south side of Baxter's property but upstream of the stormwater treatment system point of discharge)
- Collected ISM sample from two drainage ditch locations downstream of where Baxter has permitted discharge (downstream of the stormwater treatment system point of discharge and downstream of the groundwater treatment system point of discharge)
- Collected ISM samples from north and south offsite locations in near site areas

ISM sampling is a structured composite sampling protocol that reduces data variability, increases sample representativeness, and reduces the chance of missing significant contamination in a volume of soil targeted for sampling (ITRC, 2012). ISM characterizes the average concentration of chemicals in a predefined area called a DU and is more representative of potential average exposure by receptors within the DU than discrete samples. The DU defines the area and depth of sampling units upon which risk decisions can be based. To conduct ISM sampling, numerous samples of soil (each called an increment) are collected and combined, processed (homogenized) in a laboratory to reduce potential variability in the final volume used for analysis, and subsampled according to specific protocols. Each DU for this event consisted of 30 increments (90 increments in DU-4).

The goal of this sampling approach was to update COC concentrations in specific offsite areas, while avoiding an iterative approach to characterization. The ISM approach provides high-quality data that help manage uncertainty and support risk management decisions.

ISM sampling DU boundaries are presented in Figure 1.

The sampling objective is to characterize the nature and distribution of chemicals of interest (COIs) in surface soil or sediment. Sampling depth was zero to 6 inches below ground surface (bgs) or below mudline (bml), which is considered to be the depth of possible air emission particulate deposition over time from site operations and is representative of surface sediment within the discharge channel.

Eight DUs, including two background DUs (Figure 2) were delineated in near-site locations; these areas includes the north bank of Roosevelt Channel, public right-of-way (ROW) areas in

neighborhood north of Roosevelt Channel, vegetated surface areas on the north side of West 1st Avenue, approximately 400 feet of the discharge channel in the southwest corner of the Site between the west property line and the discharge for Outfall #2, approximately 200 feet of discharge channel west of the Site below Outfall #1, a public park northeast of the Site, a background area within the south drainage channel upstream of where Outfall #2 enters the channel, and an industrial background area south of the Site beyond anticipated air emission impacts.

A split sample was analyzed by the laboratory staff after processing the background soil sampling unit composite and analyzed for dioxins/furans, allowing for a measure of replicability in sample means and the efficiency of homogenization.

Field Activities

The ISM sediment samples from the eight Decision Units (Figure 2) were collected by GSI on May 5th through 7th, 2020. Attachment A shows the field notes and Attachment B shows the final locations of all increments collected.

The soil descriptions for each DU include:

- **DU-1:** Silt (ML), brown, moist, medium stiff, few clay, more gravel near south side of park near fence, trace gravelly silt (two increments), ditch increments wet (two increments).
- **DU-2:** Loam/Topsoil, brown, stiff, damp to moist (few increments wet due to proximity to sprinkler), remove sod where applicable, appeared to be all non-native material.
- **DU-3:** Silt with Gravel, brown, moist to wet (bank to mid-channel), soft to stiff, gravel appears well-graded and rounded with up to 6" cobbles.
- **DU-4:** Silt and Silt with Gravel (ML), brown, moist to wet, medium stiff, voids, trace clay, few increments had methane gas/bubbles present (channel locations).
- **DU-5:** Topsoil/Silty Loam or Well-Graded Gravel (highly variable throughout DU), lower recovery where gravel present.
- **DU-6:** Silt (ML), brown, soft, moist, varied well-graded round gravel and sand also present in DU, voids and soft soil affecting recovery.
- **BKGD-1:** Silt to Silt with Gravel (ML), brown, stiff, damp, organics (root/grass debris), and gravel was 1.5" minus.
- **BKGD-2:** Silt (ML), brown, medium stiff, damp to moist, trace organics.

GSI collected samples from each DU using a stainless-steel push tube, hand trowel and a drill with a small auger bit. All increment sampling locations are shown in Attachment B, some increment locations were adjusted to avoid asphalt, concrete, or areas where access was limited. Each increment was then placed into a single one-gallon sample container provided by the laboratory and were homogenized and processed by Apex Laboratories, LLC (Apex) in Tigard, Oregon, as per the approved SAP (GSI, 2020). The samples were then analyzed by Apex for PCP by EPA Method 8041A, PAHs by EPA Method 8270D LL, TOC by EPA Method 5310B-Mod, Total Solids by EPA Method 2540G, and Metals (Arsenic, Chromium, Copper and Zinc) by EPA Method 6020A. Dioxins/Furans analysis by EPA Method 1613B was subcontracted to Cape Fear Analytical in Wilmington, North Carolina (Cape Fear). DU specific analyses are presented in the approved SAP (Table 1; GSI, 2020).

Location Positioning

Increment locations within each DU were selected on the basis of a stratified random approach using a square grid (using Esri ArcGIS 10 and Visual Sample Plan 7), each grid had one sample randomly placed within 30 of the grids generated (or 90 points for DU-4). This allowed for complete coverage of each DU using a randomized method.

Increment positions were pre-loaded into the global positioning system (GPS), several locations needed to be adjusted in the field due to ground cover obstructions (asphalt and concrete) and lack of access (locations near or in running water or on steep embankments). Sampling increment location changes were track in the field using ArcGIS Collector with a Real-time kinematic (RTK) positioning antenna When obtaining the coordinates of each sampling location, the projection method used was Horizontal Datum: North American Datum of 1983 (NAD83), State Plane Coordinate System, Oregon South Zone. Station accuracy may have been affected by satellite positioning and obstructions, such as high, steep banks or heavy cloud cover.

Quality Control Samples

Quality Control (QC) best practices were performed during sampling activities and as required by the SAP. This included field duplicate sample collection, equipment rinsate samples, and laboratory method blanks.

All method blank sample results were non-detect. Rinsate blanks were collected during the ISM sampling and erroneously not analyzed. Field staff followed EPA decontamination procedures while conducting field efforts. It does not appear that any cross contamination resulted from sampling procedures. Variability in organic compound analysis was evaluated by analysis of matrix spike (MS) and matrix spike duplicate (MSD) samples. Two MS recoveries were not within the acceptance limits (ISM-05_0520---After Processing and ISM-08_0520---After Processing). Failures were confirmed in the matrix spike duplicate and are attributed to matrix interference. One RPD sample (ISM-08_0520---After Processing) was outside the acceptance limits, the sample data was validated based on acceptable LCS/LCSD. Precision and accuracy information was generated for dioxins/furans using the ongoing precision and recovery samples run per the method.

Duplicate Samples

One field duplicate was collected from DU-4, parent and blind sample results were found to be comparable. Sample analytical variability and laboratory precision and accuracy was determined by the analysis of laboratory-generated sample split. The laboratory duplicate was collected from parent sample BKGD-01 (background composite), the relative percent difference (RPDs) between the parent and duplicate sample is 8%.

Triplicate Samples

Triplicate ISM samples were collected from DU-4 to assess the variability in average surface soil concentrations. DU-4 was selected for the triplicate samples to evaluate variability in the most likely DU to contribute to offsite atmospheric deposition from Site operations. However, this DU is also impacted by the high volume of commercial traffic that traverses Roosevelt Avenue adjacent to the channel, also contributing atmospheric deposition from heavy truck emissions.

The replicate sample increment locations were collected at different systematic random locations than initially used. This was accomplished by generating random points three time within DU-4. Unlike field and laboratory duplicate samples, which will be split off from the

initial multi-increment sample, the triplicate samples will follow the same procedures as other unique DU samples and be homogenized separately by Apex. The results are used to evaluate data variability representativeness of the primary sample within the decision unit. The relative standard deviation (RSD) between the primary, duplicate, and triplicate samples with Arsenic RSD at 15%, Chromium RSD 12%, Copper RSD 23%, Zinc RSD 27% and dioxin/furan TEQ RSD at 46%.

Soil Results

Laboratory reports are provided in Attachment C. Method descriptions for EPA Methods 8041A, 8270D LL, 2540G, 6020A and 1613B are available through https://www.epa.gov/esam/selected-analytical-methods-environmental-remediation-and-recovery-sam.

Pentachlorophenol

Table 1 summarizes the PCP concentrations generated by EPA Method 8041A for the ISM soil samples. Resulting concentrations ranged from 0.0139 milligrams per kilogram (mg/kg) to 2.86 mg/kg. DEQ Risk Based Decision Making (RBDM) values for Residential soil and Occupational soil exceedances are 1.0 mg/kg and 4.0 mg/kg respectively.

Concentrations of PCP in soil exceeded RBDM for Residential Soil in DU-03 and BKGD-2 (Table 1). All other DUs were below RBDM for Residential and Occupational soil. It should be noted that DU-03 is the southeast drainage ditch and is in not located in an area where residential receptors are present or anticipated to reside in the future.

Polycyclic Aromatic Hydrocarbons

Table 1 summarizes the PAH concentrations generated by EPA Method 8270D Low Level (LL). Detections were noted in several analytes, however, exceedances for RBDM for Residential and Occupational soil as well as the Site specific cleanup level was noted for Benzo(a)pyrene and Dibenz(a,h)anthracene. DEQ Risk Based Decision Making (RBDM) values for Residential soil and Occupational soil exceedances are 0.11 mg/kg and 2.1 mg/kg respectively and the site specific cleanup level is 0.27 mg/kg for Benzo(a)pyrene and Dibenz(a,h)anthracene.

Concentrations for Benzo(a)pyrene exceeded RBDM for Residential soil in DU-03 with a concentration of 0.121 mg/kg. Concentrations for Benzo(a)pyrene also exceeded RBDM for Residential soil and the site-specific cleanup level at BKGD-2 and DU-6 at 0.499 mg/kg and 0.359 mg/kg respectively. It should be noted that DU-03 is the southeast drainage ditch and is in not located in an area where residential receptors are present or anticipated to reside in the future.

Concentrations for Dibenz(a,h)anthracene exceeded RBDM for Residential soil in BKGD-2, DU-4 Duplicate and DU-4 Triplicate locations with a concentration of 0.138 mg/kg. Due to laboratory limitations, these locations were unable to achieve the lower detection limit generally associated with the 8270D LL analytical method, resulting in a higher detection limit of 0.138 mg/kg. Although the detection limit exceeded the RBDM for Residential soil, exceeding DU locations were all noted as not detected by the analytical laboratory.

Metals

Table 1 summarizes the metals concentrations generated by EPA Method 6020A.

Arsenic concentrations ranged from 6.05 mg/kg to 67.2 mg/kg. DEQ Background Concentrations in Soil for the South Willamette Valley for Arsenic is 18 mg/kg, the Site-Specific cleanup level is also 18 mg/kg. Exceedances to both background and Site cleanup levels were noted in DU-03, BKGD-2, and DU-6 at 59.7 mg/kg, 67.2 mg/kg and 41.6 mg/kg respectively.

Chromium concentrations ranged from 33.1 mg/kg to 110 mg/kg. DEQ Background in Soil for the South Willamette Valley for Chromium is 100 mg/kg, DU-6 exceeded the Background level.

Copper concentrations ranged from 35.3 mg/kg to 233 mg/kg. DEQ Background in Soil for the South Willamette Valley for Copper is 140 mg/kg, DU-03 and DU-6 exceeded the Background level.

Zinc concentrations ranged from 97.2 mg/kg to 560 mg/kg. DEQ Background in Soil for the South Willamette Valley for Zinc is 200 mg/kg, DU-03, BKGD-2, DU-6, DU-4, DU-4 Duplicate and DU-4 Triplicate samples exceeded the Background level.

Dioxins/Furans

Table 1 summarizes the Dioxins/Furans concentrations generated by EPA Method 1613B.

Detections were noted for most Dioxin/Furan congeners, RBDM for Residential and Occupational soil and the Site-Specific Cleanup Level are 4.7 picogram per gram (pg/g), 12 pg/g and 20 pg/g respectively. The Toxicity Equivalence (TEQ) World Health Organization (WHO) Estimated Maximum Potential Concentration (EMPCs) using ND values of 0.0 mg/kg and 0.5 mg/kg (TEQ WHO2005 ND=0,0.5 with EMPCs on Table 1) exceeded values for Residential and Occupational soil and the Site-Specific Cleanup Level at DU-03, BKGD-2, DU-6, DU-4, DU-05 and DU-02; BKGD-01 exceeded the RBDM for Residential and Occupational Soil but did not exceed the Site-Specific Cleanup level. TEQ values presented in Table 1 are calculated by multiplying the weight of each dioxin/furan congener by its Toxic Equivalent Factor (TEF) and summing the results for each congener.

Other Analytes

The ISM sediment samples were analyzed for total organic carbon (TOC) and total solids in support of the risk evaluation for the Site, results are presented in Table 1. Total solids concentrations in the samples collected ranged from 92.6% to 94.9% solids by weight. TOC concentrations ranged from 3.2% to 5.4%.

Data Validation

Third-party data validation was performed to ensure there were no significant data quality issues identified. Attachment D presents the findings from the data validator.

Conclusions and Recommendations

The Key findings of this memo indicate the following:

- Baxter completed the Data Quality Objectives (DQOs) outlined in the Offsite Soil Sampling and Analysis Plan (GSI, 2020) evaluating (1) surface soil dioxin/furan concentrations present in near offsite areas due to the age of the historical data collected previously, (2) site COC concentrations in a drainage immediately downstream of the Site to determine potential impacts, and (3) collecting background surface soil samples required to support the understanding of general area-wide COC concentrations present.

- Decision/Background units BKGD-1 and DU-2 experienced low-level impacts from PCDD/Fs and did not experience impacts from other contaminants of concern (COCs); in addition, DU-1 did not exceed screening levels for any of the COCs analyzed during this investigation. Low-level PCDD/Fs could be the result of the sampling locations proximity to busy and heavily trafficked haul/transportation roads. Heavy trucking traffic from diesel burning vehicles is linked to the emission of Dioxins/Furans (Gullet and Ryan, 1997). These sampling locations, in general, are the farthest away from the railway corridor and J.H. Baxter facility, potentially supporting the lower analytical results. Upon review of aerial photographs from 1936, 1978, 1994 and 2000 (Attachment E) the J. H. Baxter Facility and surrounding areas have undergone several iterations of filling, excavation, and development. BKGD-1, DU-2 and DU-1 appear least effected by the areas industrial and residential development activities, allowing these locations to be less affected by the deposition of potentially contaminated fill material.
- Decision/Background units DU-3, BKGD-2, DU-6, DU-4 and DU-5 have elevated concentrations of COCs upon comparison to BKGD-1, DU-1 and DU-2 locations (Table 1). Based on development and filling activities, proximity to a railway, a busy haul road, and the J. H. Baxter facility, elevated detected concentrations are likely an artifact of historical and current uses of the area. Based on current data, it is unlikely that the J. H. Baxter facility is the only potential source for all detected COCs noted in the off-site ISM soil sampling event.
- BKGD-2 is located up channel from the stormwater system outfall (Outfall 2) and the data results indicated arsenic and zinc concentrations greater than regional background levels. DU-3 also noted elevated levels of arsenic, copper, and zinc. Arsenic, copper and zinc and commonly found in railroad ballasts; ballasts were historically sourced from mine tailings, mill tailings and other mining related processing wastes which have been linked to containing heavy metals (Collins, 1984). In addition to railroad ballasts, rail car wheel/brake block dust has also been linked to producing airborne particulates containing copper and zinc (Abbasi et al., 2013). BKGD-2 and DU-3 are both located in a channel near a historically/presently active railway which receives runoff from the track line and downgradient from adjacent parcels which may have been involved with industrial activities associated with producing heavy metal related runoff and airborne particulate deposition. J. H. Baxter remains committed to clean-up of the upper 6" of soil below Outfall 001 (DEQ, 2019).
- DU-6 noted arsenic, chromium, copper and zinc concentrations greater than regional background levels (Table 1). Baxter has not had exceedances for metals in past Outfall 001 sampling (discharge from groundwater treatment system) at this location. Historically, the parcel located south of DU-6 was used as a plating mill facility. Based on the elevated metal concentrations, especially elevated chromium, J.H. Baxter recommends DEQ perform additional investigation south of DU-6 to determine if the source of elevated metals is from the historic plating facility.

- PCDD/Fs results were elevated in decision units located near Roosevelt Channel (DU-4, DU-4 Duplicate, DU-4 Triplicate, DU-5 and DU-6). These results are approximately one order of magnitude above the screening level for the site. Heavy truck traffic could be a contributing factor to detected concentrations, diesel emissions, especially those linked to the heavy trucking industry generate detectable amount of PCDD/Fs (Gullet and Ryan, 1997). Roosevelt Boulevard (adjacent to Roosevelt Channel) is heavily trafficked by diesel burning haul trucks associated with supporting the industry in the area. In

addition to diesel emissions, brake dust which is also associated with the automotive and heavy trucking industry is known to have elevated levels of Zinc (and other heavy metals) in brake dust particulate matter (Grigoratos and Martini, 2014) which could easily migrate to Roosevelt Channel through direct airborne particulate settling or migration through secondary surface runoff. As part of the Cleaner Air Oregon emission monitoring program, J.H. Baxter is currently performing air modeling studies which will better inform the wind direction and potential depositional patterns related to facility operations.

References

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Tables

Table 1. ISM Soil Analytical Results

J.H. Baxter Eugene Facility, Eugene, Oregon - Offsite Sampling

Method Group	Chemical Name	Unit	Background Metals: South Willamette Valley	RBDM for Residential Soil	RBDM for Occupational Soil	Site Cleanup Level	DU-03 (Ditch - SW Corner of Plant)	Flag	BKGD-2 (Ditch - SE Perimeter of Plant)	Flag	DU-6 (Ditch - NW Side of Plant)	Flag	DU-4 (North Side Roosevelt Channel)	Flag	DU-4 Dup (North Side Roosevelt Channel)	Flag	DU-4 Trip (North Side Roosevelt Channel)	Flag	DU-05 (Neighbor-hood north of Site)	Flag	DU-02 (South of Facility)	Flag	DU-01 (Bkgd: Lark City Park)	Flag	BKGD-01 (Bkgd: SE of Site)	Flag	BKGD-01 Lab Dup (Bkgd: SE of Site)	Flag
Dioxins/Furans[1]	1,2,3,4,6,7,8,9-OCDD	mg/kg	--	--	--	--	**2.34E-02**		--		**4.62E-02**		**1.13E-02**	**E**	**2.18E-02**		**3.50E-02**		**5.80E-03**	**E**	**8.28E-03**		**7.60E-04**		**4.46E-03**	**E**	**4.62E-03**	**E**
Dioxins/Furans[1]	1,2,3,4,6,7,8,9-OCDF	mg/kg	--	--	--	--	**1.60E-03**		--		**1.00E-03**		**9.91E-04**		**1.48E-03**		**2.55E-03**		**2.66E-04**		**2.77E-04**		**4.15E-05**		**5.24E-04**		**4.78E-04**	
Dioxins/Furans[1]	1,2,3,4,6,7,8-HpCDD	mg/kg	--	--	--	--	**2.31E-03**		--		**4.52E-03**		**1.41E-03**		**2.23E-03**		**3.72E-03**		**7.45E-04**		**6.75E-04**		**8.11E-05**		**4.44E-04**		**4.07E-04**	
Dioxins/Furans[1]	1,2,3,4,6,7,8-HpCDF	mg/kg	--	--	--	--	**3.89E-04**		--		**6.11E-04**		**3.39E-04**		**5.11E-04**		**8.77E-04**		**1.36E-04**		**1.27E-04**		**1.64E-05**		**1.40E-04**		**1.24E-04**	
Dioxins/Furans[1]	1,2,3,4,7,8,9-HpCDF	mg/kg	--	--	--	--	**3.08E-05**	**J**	--	**J**	**2.68E-05**	**J**	**1.87E-05**		**2.94E-05**	**J**	**4.81E-05**	**J**	**9.09E-06**		**9.92E-06**	**J**	**1.10E-06**	**JK**	**7.52E-06**		**6.93E-06**	
Dioxins/Furans[1]	1,2,3,4,7,8-HxCDD	mg/kg	--	--	--	--	**2.21E-05**	**J**	--	**J**	**2.81E-05**	**J**	**2.62E-05**		**3.43E-05**	**J**	**6.15E-05**	**J**	**8.05E-06**		**8.39E-06**	**JK**	**1.40E-06**	**J**	**4.64E-06**	**J**	**4.07E-06**	**J**
Dioxins/Furans[1]	1,2,3,4,7,8-HxCDF	mg/kg	--	--	--	--	**1.62E-05**	**J**	--	**J**	**4.11E-05**	**J**	**1.25E-05**		**1.86E-05**	**J**	**3.44E-05**	**J**	**2.27E-05**		**5.59E-06**	**BJK**	**8.22E-07**	**J**	**4.63E-06**	**J**	**4.24E-06**	**J**
Dioxins/Furans[1]	1,2,3,6,7,8-HxCDD	mg/kg	--	--	--	--	**8.93E-05**	**J**	--	**J**	**1.95E-04**	**J**	**6.37E-05**		**9.60E-05**		**1.52E-04**		**3.34E-05**		**3.08E-05**	**J**	**3.86E-06**	**J**	**1.80E-05**		**1.65E-05**	
Dioxins/Furans[1]	1,2,3,6,7,8-HxCDF	mg/kg	--	--	--	--	**1.21E-05**	**J**	--	**J**	**2.24E-05**	**J**	**1.20E-05**		**1.88E-05**	**JK**	**3.47E-05**	**J**	**9.31E-06**		**5.52E-06**	**J**	**6.56E-07**	**J**	**3.18E-06**	**J**	**2.71E-06**	**J**
Dioxins/Furans[1]	1,2,3,7,8,9-HxCDD	mg/kg	--	--	--	--	**4.69E-05**	**J**	--	**J**	**7.66E-05**	**J**	**4.41E-05**		**6.80E-05**		**1.12E-04**		**1.65E-05**		**1.20E-05**	**J**	**1.97E-06**	**JK**	**7.51E-06**		**6.51E-06**	
Dioxins/Furans[1]	1,2,3,7,8,9-HxCDF	mg/kg	--	--	--	--	9.59E-06	U	--	U	**1.86E-05**	**J**	**3.21E-06**	**J**	**6.04E-06**	**J**	**9.67E-06**	**J**	**5.43E-06**		3.04E-06	U	**4.16E-07**	**J**	**1.65E-06**	**J**	**1.51E-06**	**J**
Dioxins/Furans[1]	1,2,3,7,8-PeCDD	mg/kg	--	--	--	--	**1.25E-05**	**J**	--	**J**	**1.90E-05**	**J**	**1.50E-05**		**2.17E-05**	**J**	**3.40E-05**	**J**	**4.22E-06**	**J**	**5.49E-06**	**JK**	**8.60E-07**	**J**	**1.76E-06**	**JK**	**1.69E-06**	**J**
Dioxins/Furans[1]	1,2,3,7,8-PeCDF	mg/kg	--	--	--	--	**4.98E-06**	**J**	--	**J**	1.17E-05	U	**3.13E-06**	**J**	**5.23E-06**	**BJ**	**1.01E-05**	**JK**	**3.67E-06**	**J**	**4.13E-06**	**BJK**	**5.51E-07**	**BJ**	**2.18E-06**	**J**	**1.64E-06**	**J**
Dioxins/Furans[1]	2,3,4,6,7,8-HxCDF	mg/kg	--	--	--	--	**1.85E-05**	**J**	--	**J**	**2.95E-05**	**J**	**1.68E-05**		**2.47E-05**	**J**	**4.24E-05**	**J**	**1.06E-05**		**6.46E-06**	**JK**	**9.87E-07**	**J**	**4.68E-06**		**4.29E-06**	**J**
Dioxins/Furans[1]	2,3,4,7,8-PeCDF	mg/kg	--	--	--	--	**8.59E-06**	**JK**	--	**JK**	**1.82E-05**	**J**	**6.44E-06**		**9.61E-06**	**J**	**1.63E-05**	**J**	**8.14E-06**		**4.35E-06**	**BJK**	**7.24E-07**	**BJ**	**2.94E-06**	**J**	**2.82E-06**	**J**
Dioxins/Furans[1]	2,3,7,8-TCDD	mg/kg	--	--	--	--	4.20E-06	U	--	U	4.96E-06	U	**2.45E-06**		**4.73E-06**	**J**	**7.83E-06**	**J**	**2.54E-06**		3.56E-06	U	**5.14E-07**	**J**	**4.92E-07**	**J**	**4.75E-07**	**J**
Dioxins/Furans[1]	2,3,7,8-TCDF	mg/kg	--	--	--	--	3.75E-06	U	--	U	4.40E-06	U	**2.68E-06**		**2.23E-06**	**JK**	3.60E-06	U	**1.70E-06**		3.12E-06	U	2.51E-07	U	**1.16E-06**	**K**	**1.07E-06**	
Dioxins/Furans[1]	TEQ (ND=0 with EMPCs)	mg/kg	--	4.7E-06	1.2E-05	**2.0E-05**	**7.05E-05**	**J**	--	**J**	**1.31E-04**	**J**	**5.89E-05**	**J**	**9.10E-05**	**J**	**1.49E-04**	**J**	**3.08E-05**	**J**	**2.45E-05**	**J**	**3.85E-06**	**J**	**1.52E-05**	**J**	**1.41E-05**	**J**
Dioxins/Furans[1]	TEQ (ND=0.5 with EMPCs)	mg/kg	--	4.7E-06	1.2E-05	**2.0E-05**	**7.33E-05**	**J**	--	**J**	**1.34E-04**	**J**	**5.89E-05**	**J**	**9.10E-05**	**J**	**1.49E-04**	**J**	**3.08E-05**	**J**	**2.66E-05**	**J**	**3.86E-06**	**J**	**1.52E-05**	**J**	**1.41E-05**	**J**
Gen Chem[2]	Percent Solids	%	--	--	--	--	**92.6**		**93.6**		**93.4**		**93**		**94.9**		**93.3**		**94.6**		**94.2**		**94.8**		**94.6**		--	
Gen Chem[3]	Total Organic Carbon	%	--	--	--	--	**5.4**		--		**3.2**		--		--		--		--		--		--		--		--	
Metals[4]	Arsenic	mg/kg	18	0.43	1.9	**18**	**59.7**		**67.2**		**41.6**		**8.22**		**7.67**		**10.3**		--		**6.05**		**6.37**		**10.8**		--	
Metals[4]	Chromium	mg/kg	100	120,000	--	--	**47.7**		**75.1**		**110**		**50.4**		**46.2**		**58.9**		--		**33.1**		**42.9**		**45.7**		--	
Metals[4]	Copper	mg/kg	140	3,100	47,000	--	**218**		**84.3**		**233**		**86.2**		**84.3**		**125**		--		**35.3**		**38.2**		**46.8**		--	
Metals[4]	Zinc	mg/kg	200	--	--	--	**444**		**369**		**208**		**349**		**369**		**560**		**97.7**		**128**		**97.2**		**110**		--	
PAHs[5]	1-Methylnaphthalene	mg/kg	--	--	--	--	0.114	U	0.277	U	0.112	U	0.113	U	0.278	U	0.278	U	--	U	0.0280	U	0.0278	U	0.0111	U	--	
PAHs[5]	2-Methylnaphthalene	mg/kg	--	--	--	--	0.114	U	0.277	U	0.112	U	0.113	U	0.278	U	0.278	U	--	U	0.0280	U	0.0278	U	0.0111	U	--	
PAHs[5]	Acenaphthene	mg/kg	--	4,700	70,000	--	0.0568	U	0.138	U	0.0559	U	0.0564	U	0.138	U	0.138	U	--	U	0.0139	U	0.0139	U	0.00554	U	--	
PAHs[5]	Acenaphthylene	mg/kg	--	--	--	--	0.0568	U	0.138	U	0.0559	U	0.0564	U	0.138	U	0.138	U	--	U	0.0139	U	0.0139	U	0.00554	U	--	
PAHs[5]	Anthracene	mg/kg	--	23,000	350,000	--	**0.133**		**0.186**	J	**0.157**		0.0564	U	0.138	U	0.138	U	--		0.0139	U	0.0139	U	0.00554	U	--	
PAHs[5]	Benz(a)anthracene	mg/kg	--	1.1	21	--	**0.0822**		**0.244**	J	**0.39**		0.0564	U	0.138	U	0.138	U	--		0.0139	U	**0.0234**		**0.00581**		--	
PAHs[5]	Benzo(a)pyrene	mg/kg	--	0.11	2.1	**0.27**	**0.121**		**0.499**		**0.359**		**0.0953**		0.208	U	0.208	U	--		**0.0288**		**0.0454**		**0.00861**		--	
PAHs[5]	Benzo(b)fluoranthene	mg/kg	--	1.1	21	--	**0.377**		**0.928**		**0.725**		**0.113**		0.208	U	0.208	U	--		**0.0292**		**0.0472**		**0.00974**		--	
PAHs[5]	Benzo(ghi)perylene	mg/kg	--	--	--	--	**0.151**		**0.351**	J	**0.134**		**0.117**		**0.15**		**0.21**		--		0.0139	U	**0.0239**		**0.00686**		--	
PAHs[5]	Benzo(k)fluoranthene	mg/kg	--	11	210	--	**0.107**		**0.408**		**0.224**		0.0848	U	0.208	U	0.208	U	--		0.0209	U	**0.0264**		0.00834	U	--	
PAHs[5]	Carbazole	mg/kg	--	--	--	--	0.0855	U	**0.218**	**J**	0.084	U	0.0848	U	0.208	U	0.208	U	--	U	--		--		0.00834	U	--	
PAHs[5]	Chrysene	mg/kg	--	110	2,100	--	**0.237**		**0.510**		**0.67**		**0.109**		0.138	U	0.138	U	--		0.0139	U	**0.0229**		**0.00985**		--	
PAHs[5]	Dibenz(a,h)anthracene	mg/kg	--	0.11	2.1	**0.27**	0.0568	U	0.138	U	0.0559	U	0.0564	U	0.138	U	0.138	U	--	U	0.0139	U	0.0139	U	0.00554	U	--	
PAHs[5]	Dibenzofuran	mg/kg	--	--	--	--	0.0568	U	0.138	U	0.0559	U	0.0564	U	0.138	U	0.138	U	--	U	--		--		0.00554	U	--	
PAHs[5]	Fluoranthene	mg/kg	--	2,400	30,000	--	**0.153**		**0.484**		**0.618**		**0.0891**		**0.144**		**0.164**		--		**0.0257**		**0.0353**		**0.0129**		--	
PAHs[5]	Fluorene	mg/kg	--	3,100	47,000	--	0.0568	U	0.138	U	0.0559	U	0.0564	U	0.138	U	0.138	U	--	U	0.0139	U	0.0139	U	0.00554	U	--	
PAHs[5]	Indeno(1,2,3-cd)pyrene	mg/kg	--	1.1	21	--	**0.14**		**0.385**		**0.156**		**0.063**		0.138	U	0.138	U	--		0.0139	U	**0.0198**		**0.00606**		--	
PAHs[5]	Naphthalene	mg/kg	--	5.3	23	--	0.114	U	0.277	U	0.112	U	0.113	U	0.278	U	0.278	U	--	U	0.0280	U	0.0278	U	0.0111	U	--	
PAHs[6]	Pentachlorophenol	mg/kg	--	1.0	4.0	--	**1.65**		**2.86**		**0.996**		0.0564	U	1.38	U	1.38	U	--		**0.156**		0.0139	U	**0.071**		--	
PAHs[5]	Phenanthrene	mg/kg	--	--	--	--	**0.0907**		**0.289**		**0.0981**		**0.069**		0.138	U	0.138	U	--		**0.0227**		**0.0164**		**0.0134**		--	
PAHs[5]	Pyrene	mg/kg	--	1,800	23,000	--	**0.166**		**0.477**		**0.771**		**0.129**		**0.19**		**0.257**		--		**0.0236**		**0.0333**		**0.0113**		--	

Notes:

[1] Analysis by EPA Method 1613B.

[2] Analysis by EPA Method 2540G.

[3] Analysis by EPA Method 5310B-Mod.

[4] Analysis by EPA Method 6020A.

[5] Analysis by EPA Method 8270D Low Level.

[6] Analysis by EPA Method 8041A.

mg/kg = milligram per kilogram.

Table 1. ISM Soil Analytical Results

J.H. Baxter Eugene Facility, Eugene, Oregon - Offsite Sampling

Method Group	Chemical Name	Unit	Background Metals: South Willamette Valley	RBDM for Residential Soil	RBDM for Occupational Soil	Site Cleanup Level	DU-03 (Ditch - SW Corner of Plant)	Flag	BKGD-2 (Ditch - SE Perimeter of Plant)	Flag	DU-6 (Ditch - NW Side of Plant)	Flag	DU-4 (North Side Roosevelt Channel)	Flag	DU-4 Dup (North Side Roosevelt Channel)	Flag	DU-4 Trip (North Side Roosevelt Channel)	Flag	DU-05 (Neighbor-hood north of Site)	Flag	DU-02 (South of Facility)	Flag	DU-01 (Bkgd: Lark City Park)	Flag	BKGD-01 (Bkgd: SE of Site)	Flag	BKGD-01 Lab Dup (Bkgd: SE of Site)	Flag

J = Result is an estimated concentration that is less than the method reporting limit, but greater than or equal to the method detection limit.

U = Analyte was not detected above the sample method detection limit.

K = Estimated maximum posible concentration.

B = Analyte is found in the associated blank, as well as in the sample.

Analyte exceeds Background Metals: South Willamette Valley value

Analyte exceeds RBDM for Residential Soil value.

Analyte exceeds RBDM for Occupational Soil value.

Analyte exceeds Site-Specific Cleanup Level.

Figures

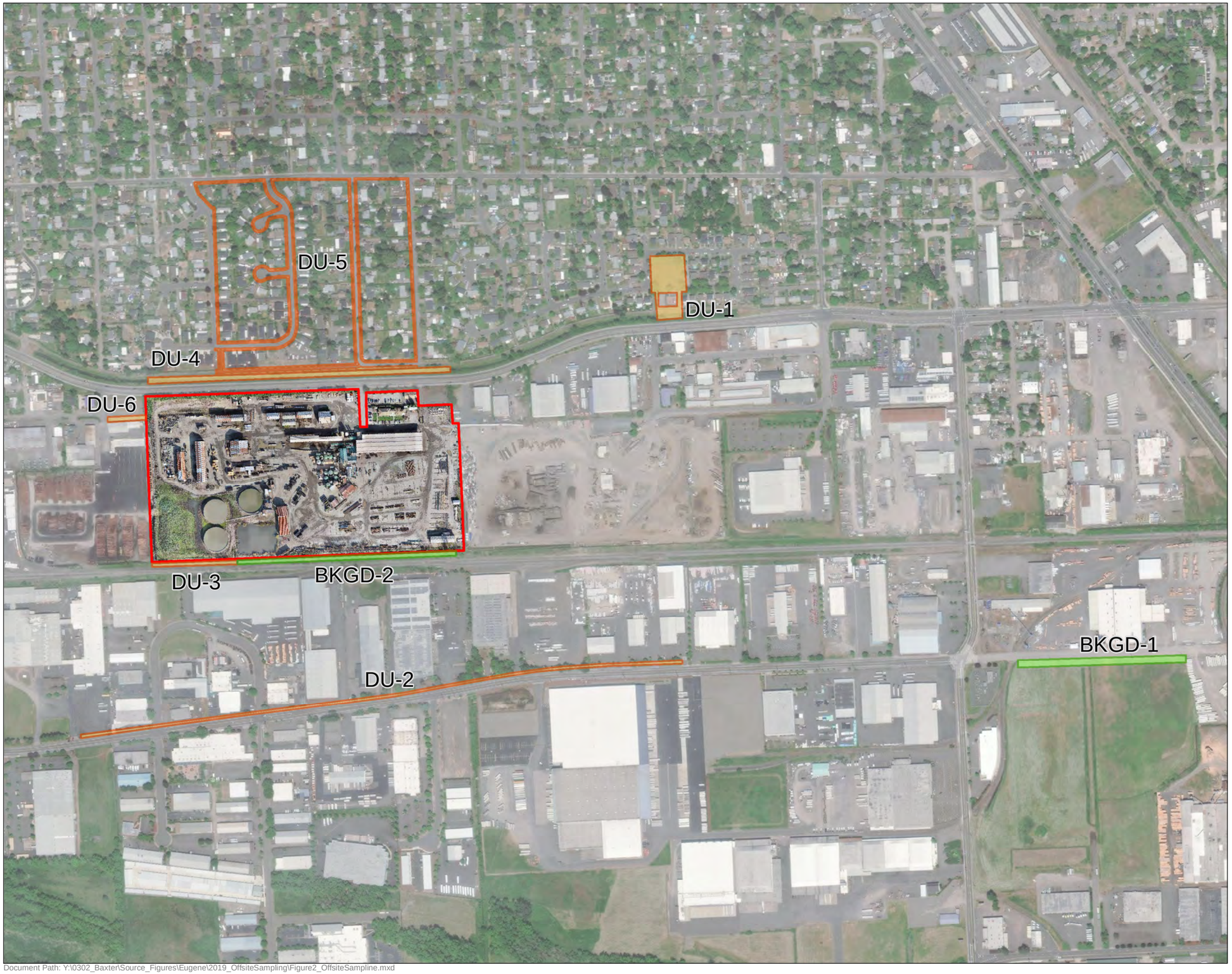

FIGURE 1

2020 Offsite Sampling Decision Units

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

Facility Boundary

ISM Sample Type

Offsite Sample Location

Background Sample Location

N

0 250 500 750

Feet

Date: August 24, 2020
Data Sources: Northstar Surveying, 2019

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Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2019_OffsiteSampling\Figure2_OffsiteSampline.mxd

Attachment A
Field Notes

Scale: 1 square = _____

Tuesday, ~~March~~ May 5, 2020

~~0800~~ - Renee onsite to meet Thomas to collect offsite soil ISM Simple

Discuss approach + H/S + COVID issues

Get Josh to send us updated Zoomed in figures of DU 3, DU 1, + DU 4 (residence, post roosevelt / triplicates).

930 - Wrap up @ JH Baxter office, pick up ice + go to DU 2

1030 - Start DU-2
increment #13 moved 6' (#1 on east side of DU, heading west) to east blc location in driveway. Didn't have new point blc have 6' buffer

Had to move another location

Scale: 1 square = _____

Rite in the Rain

further west due to driveway. Collected new point as location is >6' from marked ~~SP~~ increment.

Moved two more increments b/c of driveway + intersection. Moved so that a road separated the 2 new increment locations.

1230 - finish DU-2:
ISM general description:
brown, slightly moist, couple increments wet due to sprinkler system, loam / top soil, little to no native material, removes sod when applicable. 2-4 increments = ↓ recovery due to loose formation.

1130 = time for ISM-02-0520 Sample

decon ~~equipment~~, bathroom break, print hard copies of figures / locations

Scale: 1 square = _____

1325 - ~~Start~~ DU Background / or DU 7 (ISM-07)

Based on field testing, need 2 6" holes to get ~4 oz of soil for sample. Did this on previous DU (DU-2), too but forgot to record. All locations had 2 holes drilled

1455 - finished DU7 (Background)
- no locations moved
- all increments had top ~1" removed due to grass / roots. (~~ISM~~ DU in field)
- poor recovery on quite a few increments

General description
Silt to Silt w/ gravel, compact / tight formation, moist, dense, brown, gravel 1.5" minus

1430 = Sample time for ISM-07-0520

Scale: 1 square = _____

1540 - Start Bkgd 2 (ISM 08)
- moved all locations into ~~st~~ ditch so collecting sediment. Locations 10' to 20' south, almost to RR tracks
→ all locations saturated
- switch from drill to push tube sampler. Only 1 hole per increment (not 2)

General Description Bkgd 2
silt, med. dense, brown, moist to slightly moist, sparse organics

1725 - Finish ISM -~~80~~ 08-0520 (Bkgd 2)

1630 (1630) = Sample time for ISM-08-0520

Decon equip + pack up

1830 - offsite

Wednesday, May 6, 2020

810 - onsite @ park (DU1). Begin setting up.

825 - Thomas (Baxter) onsite to help

835 - Start DU1 ISM @ Lane Park

1030 - finish DU1

General Description
Silt, med dense, brown, few clay, gravel on South side of park fence (north of path) so ~~silty~~ gravelly silt in 2 increments. moist in all but 2 ~~locat~~ increments in ditch = wet.

930 = Sample time for ISM-01-0520

1130 - Start the 1st (purple dot/ 04) triplicate + 3rd triplicate (green dot/204) samples in DU4

1500 - Thomas offsite for break + check availability for tomorrow to finish work. Renee finishes collecting flagged increments in 1st + 3rd

Triplicates. 5 increments remaining in each + stop for Thomas to finish flagging. ~~Renee breaks for water + lunch~~

1515 - Renee breaks for water + lunch
1530 - Renee continues 1st + 3rd triplicates SW.
1545 - Thomas back onsite
1630 - Finish 1st + 3rd triplicates in DU 4. Locations on Roosevelt bank had to be moved to ~~off~~ Channel at both ends of DU b/c no safe place to cross. Able to cross in middle + grabbed Roosevelt increments on that bank when safe + reasonable (within 1/4 mile of channel crossing).

~~of~~ General Description - Pathway bank ~~silty sand~~ on upstream side transitioning to sandy silt ~~to~~ Silt w/ gravel on downstream side of DU. Moist to wet, clay (few increments) present, brown, med. dense

General Description - Roosevelt Bank
Silty gravel, gravel 2" minus, well rounded, silt was brown, gravel = well graded, all increments in this bank collected using hand trowel (not drill) due to high gravel content.

General Description - Channel
Silt, brown, wet, soft w/ air gaps, methane gas present some increments.

* Many locations had ↓ recovery due to ↑ gravel content or very loose compaction in channel

1300 = ISM-04_0520
1400 = ISM-204-0520

1700 - Start 2nd triplicate in DU 4
1900 - finish 2nd triplicate in DU 4
1800 = sample time for ISM-104-0520 2nd triplicate has same description

as other triplicates. Had a hard time w/ retention in gravels + compression (air pockets) in channel.

Decon equipment

1930 - offsite

Scale: 1 square = _____

Thursday, May 7, 2020

810 - Renee onsite @ DU 5

818 - Thomas onsite
Prep for sample collection

845 - Start ISM Sampling @ DU5

- Some locations moved b/c in asphalt.
- Couple increments relocated on Archie b/c sidewalk took up 4' of buffer + remaining 2' is a highway of utilities + including power. Call Josh to confirm okay to relocate across street.

1110 - finish DU 5

General Description

highly modified + different across all increments. Most increments in residential yards. Top soil often present. If top soil didn't penetrate all 6", gravel often present. Lack of topsoil gravel often found. Gravel = 1/2"

Scale: 1 square = _____

Rite in the Rain

gravel is well rounded + well graded

mixes with 10-50% silt, few sand. Topsoil = silty loam.
— Low recovery when gravel present

1000 = Sample time for ISM-05_0520

decon + move locations

1145 - Start DU 3. GPS is on RR tracks again so will relocate all ISM locations

FYI - no H2O run down ditch since April 30th from SW ~~Stg~~ system.

1315 - Finish DU 3

General Description

Silt w/ gravel. Some fine + med coarse present in 2/3 increments @ US end of DU. Clay present. brown, moist to wet (bank to mid-channel), ~~med~~ stiff stiff to soft, gravel is well rounded,

Scale: 1 square = _____

well graded, + up to cobble size 6")

— all increments in DU 3 collected with hand trowel. Attempted push probe but too much gravel present → drill would be not better.
- Fully penetrated 6" w/ hand trowel to get full depth + trimmed sides so all depths equally represented. Used 1" diameter as guide.

— Since all increments were relocated, increments do not necessarily match density of suggested locations. Some moved to property boundary + poison oak growing over top of ditch.

1230 = Sample time for ISM-03_0520

decon equipment ~~after~~ used on project for ease after next DU.

Scale: 1 square = _____

1350 - Collect EB-03-0520

Equipment blank collected on hand-trawl after routine deconing.

1425 - At DU6, DS of Baxter + US of Cascade Plating + Machine.

GPS locations do not match creek. Called Josh to confirm all locations should be in channel. Currently ~½ locations are up on bank / parking lot. Will to pick all new locations in channel but try to maintain density.

1440 - Start DU6
1630 - finish DU6
Worked DS to US. Nutria lives in canal + chased us for the first ~15 increments.

Scale: 1 square = _____

General Description (DU6)

Silt (generally), soft, lots of air gaps ~1" depth, high gravel on ~~bot~~ South side of channel - difficult to get increments on South side. Often not 6" after extruding b/c silt so soft + separated ~1" depth. Gravel is well rounded + well graded. Upper 20' of DU (US end) switched from silt to fine to coarse sand.

1550 = Sample time for ISM-06-0520 (1530)

Decon equipment

1715 - offsite to PDX

Scale: 1 square = _____

Rite in the Rain

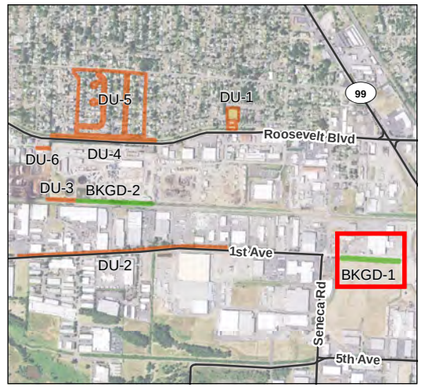
Attachment B
Sampling Locations

BKGD-1 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Background Sample Location



N

0 40 80 120
Feet

Date: April 27, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\BKGD-1.mxd

BKGD-2 Sample Locations Field Map

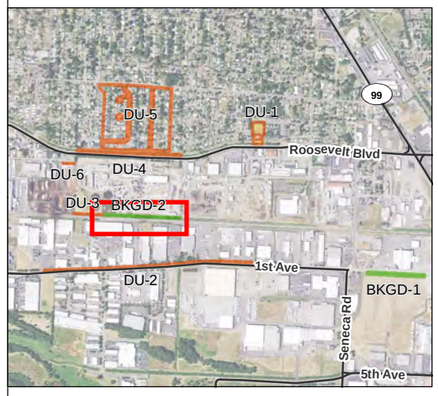
J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Facility Boundary

ISM Sample Type

- Offsite Sample Location
- Background Sample Location



N

0 25 50 75
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

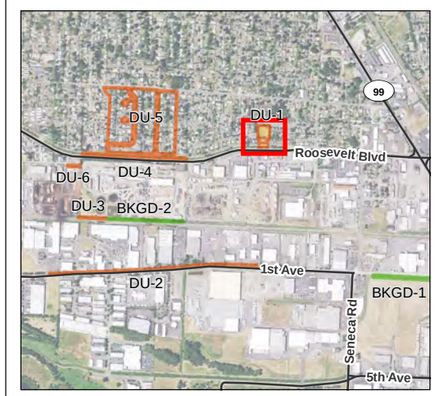
Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\BKGD-2_Adjusted_From_May_5_2020_Site_Visit.mxd

DU-1 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Offsite Sample Location



N

0 25 50 75
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

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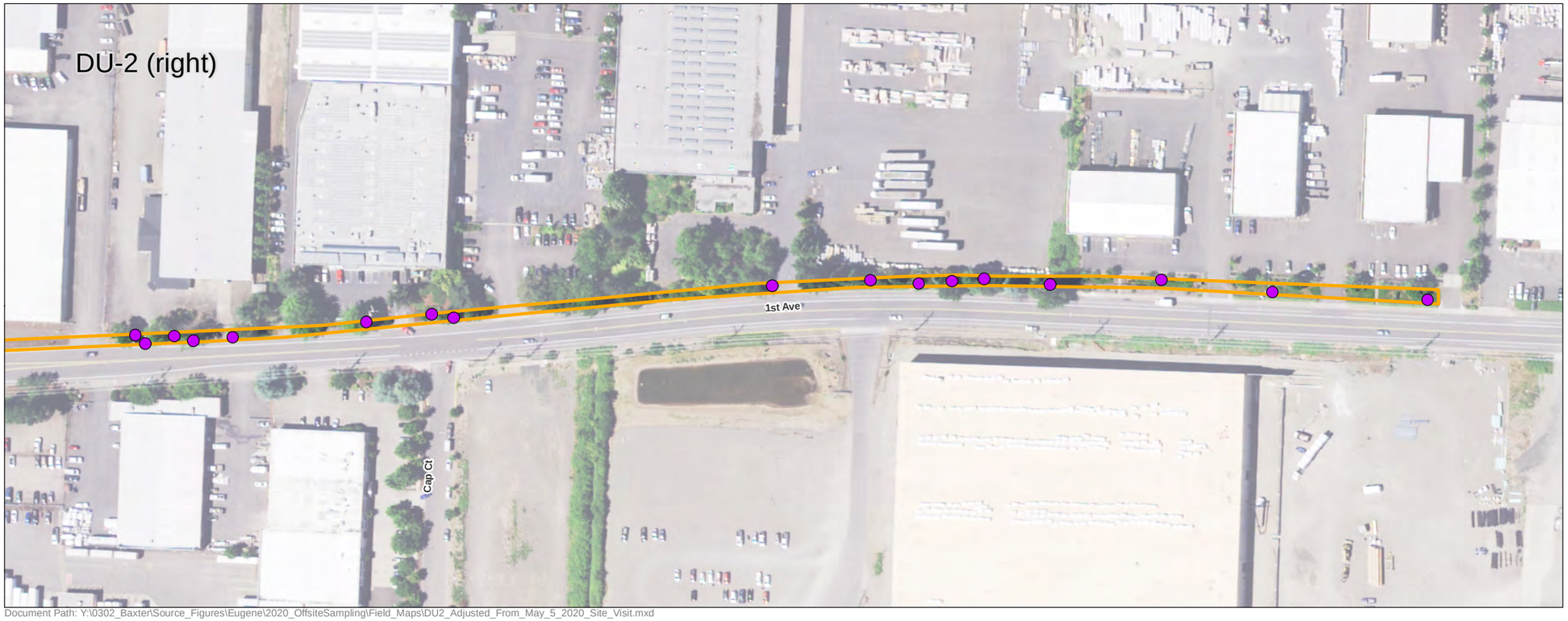
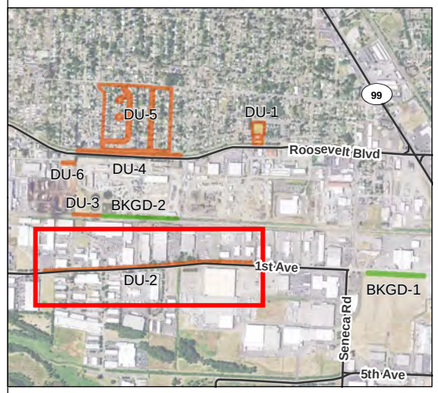


DU-2 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Offsite Sample Location



N

0 80 160 240
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU2_Adjusted_From_May_5_2020_Site_Visit.mxd

DU-3 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Facility Boundary

ISM Sample Type

- Offsite Sample Location
- Background Sample Location

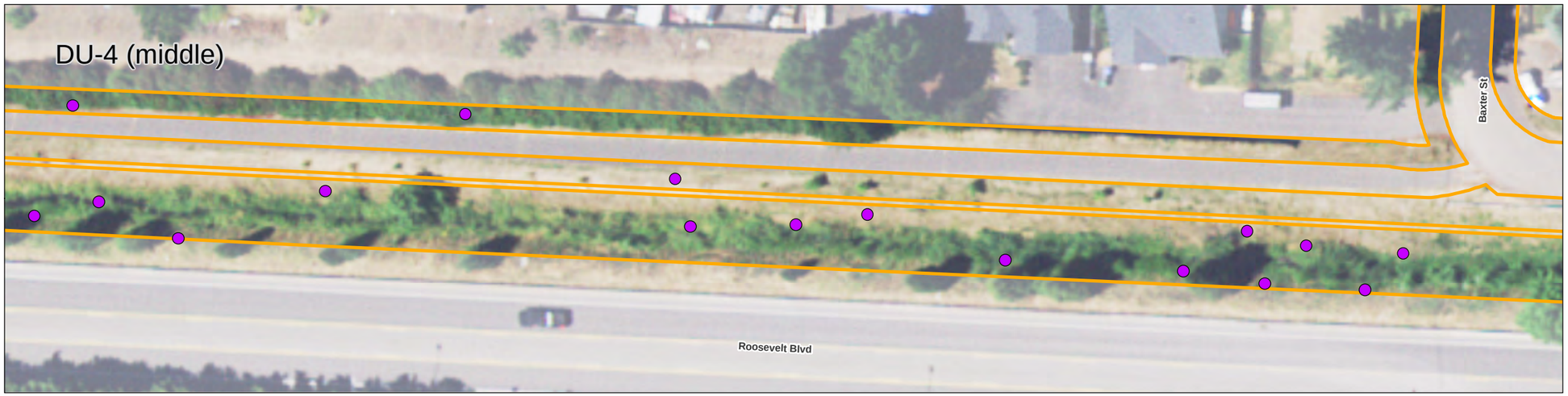
N

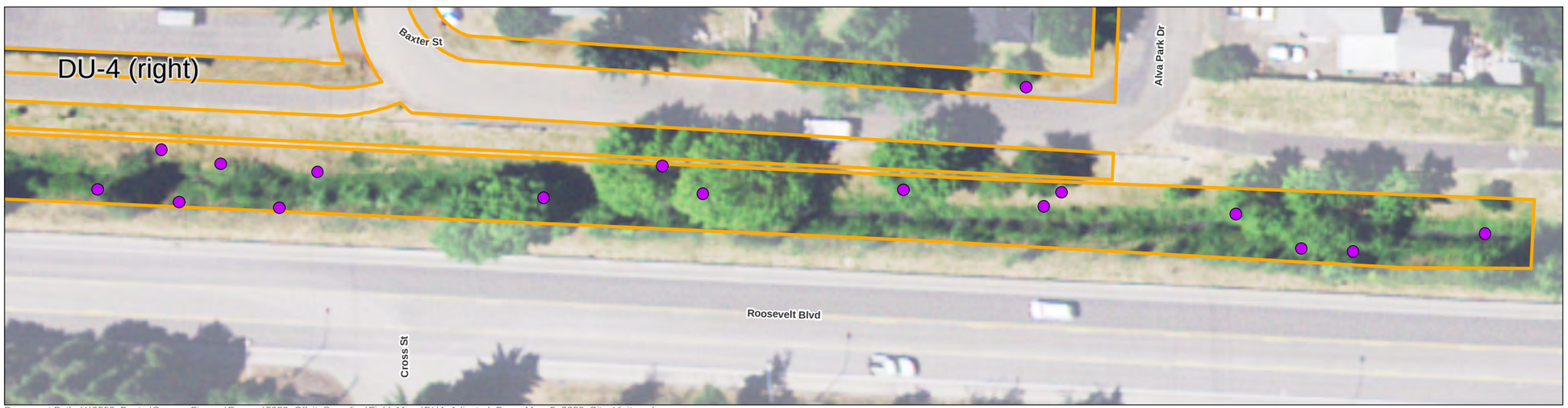
0 20 40 60
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU3_Adjusted_From_May_5_2020_Site_Visit.mxd



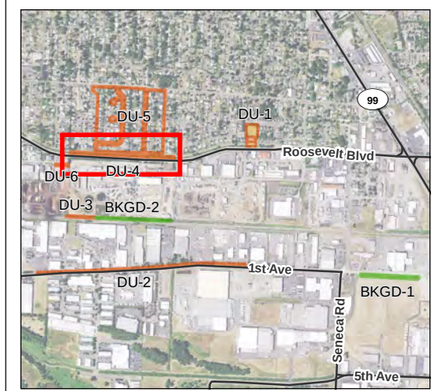


DU-4 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Offsite Sample Location



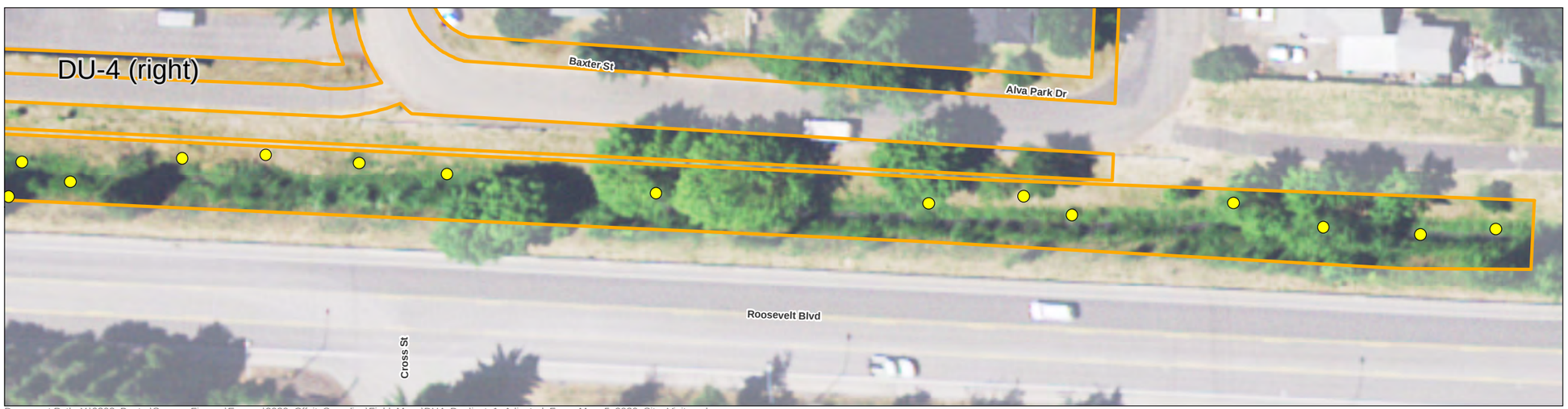
N

0 25 50 75
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, Digiglobe 2017.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU4_Adjusted_From_May_5_2020_Site_Visit.mxd

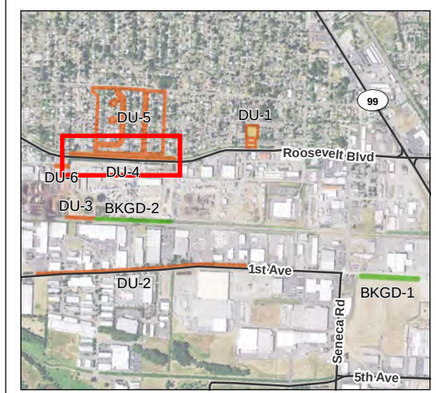


DU-4 Duplicate 1 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- DU-4 Duplicate 1 Sample Location
- Offsite Sample Location



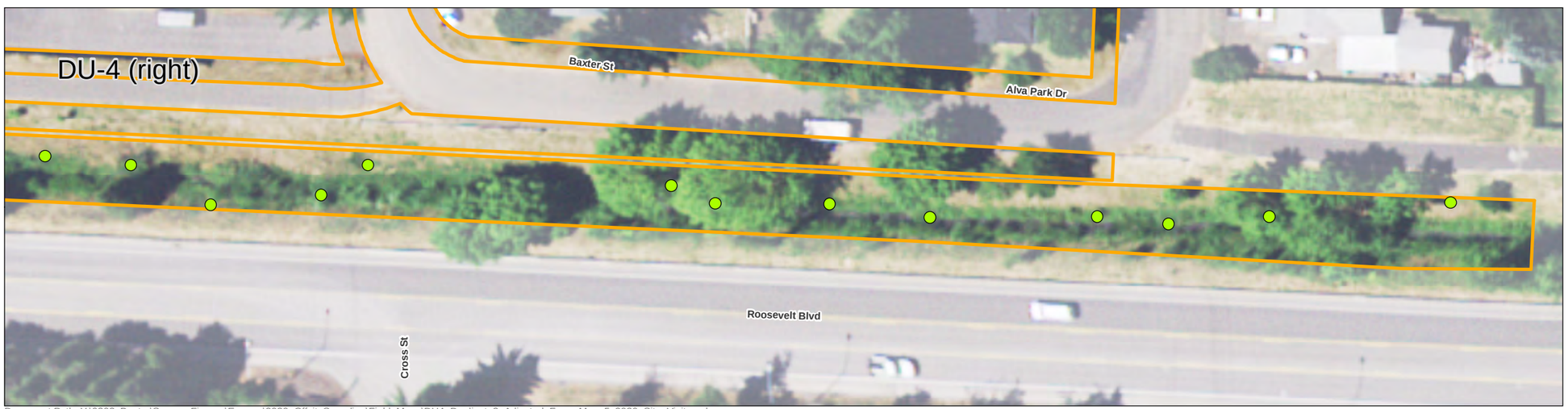
N

0 25 50 75
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, Digiglobe 2017.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU4_Duplicate1_Adjusted_From_May_5_2020_Site_Visit.mxd

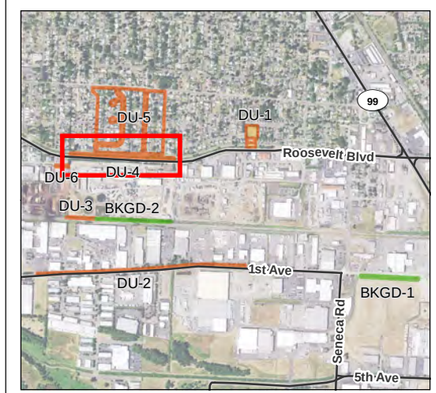


DU-4 Duplicate 2 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- DU-4 Duplicate 2 Sample Location
- Offsite Sample Location



N

0 25 50 75
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, Digiglobe 2017.

GSI Water Solutions, Inc.

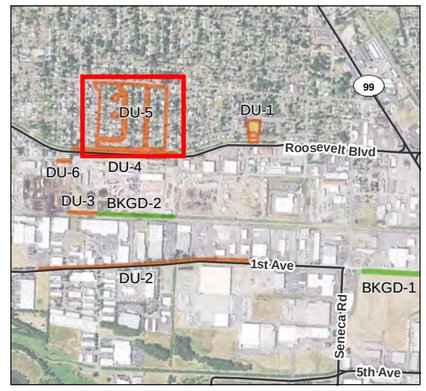
Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU4_Duplicate2_Adjusted_From_May_5_2020_Site_Visit.mxd

DU-5 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Offsite Sample Location



N

0 60 120 180
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU5_Adjusted_From_May_5_2020_Site_Visit.mxd

DU-6 Sample Locations Field Map

J.H. Baxter Wood Treating Facility
Eugene, Oregon

LEGEND

- Sample Point Location
- Facility Boundary

ISM Sample Type

- Offsite Sample Location
- Background Sample Location

N

0 20 40 60
Feet

Date: May 14, 2020
Data Sources: Northstar Surveying 2019, ESRI, OSIP, 2018.

GSI Water Solutions, Inc.

Document Path: Y:\0302_Baxter\Source_Figures\Eugene\2020_OffsiteSampling\Field_Maps\DU6_Adjusted_From_May_5_2020_Site_Visit.mxd

Attachment C
Analytical Report: Apex Laboratories

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

Monday, July 13, 2020

Josh Bale
GSI Water Solutions
55 SW Yamhill St, Ste 300
Portland, OR 97209

RE: A0E0214 - JH Baxter-Eugene_ISM - 302

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A0E0214, which was received by the laboratory on 5/8/2020 at 7:35:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample reciept, unless prior arrangements have been made.

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #1	2.6 degC	Cooler #2	4.2 degC
Cooler #3	3.2 degC		

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ISM-01_0520---As Received	A0E0214-01	Soil	05/06/20 09:30	05/08/20 07:35
ISM-01_0520---After Processing	A0E0214-02	Soil	05/06/20 18:00	05/08/20 07:35
ISM-02_0520---As Received	A0E0214-03	Soil	05/05/20 11:30	05/08/20 07:35
ISM-02_0520---After Processing	A0E0214-04	Soil	05/05/20 11:30	05/08/20 07:35
ISM-03_0520---As Received	A0E0214-05	Soil	05/07/20 12:30	05/08/20 07:35
ISM-03_0520---After Processing	A0E0214-06	Soil	05/07/20 12:30	05/08/20 07:35
ISM-04_0520---As Received	A0E0214-07	Soil	05/06/20 13:00	05/08/20 07:35
ISM-04_0520---After Processing	A0E0214-08	Soil	05/06/20 13:00	05/08/20 07:35
ISM-05_0520---As Received	A0E0214-09	Soil	05/07/20 10:00	05/08/20 07:35
ISM-05_0520---After Processing	A0E0214-10	Soil	05/07/20 10:00	05/08/20 07:35
ISM-06_0520---As Received	A0E0214-11	Soil	05/07/20 15:30	05/08/20 07:35
ISM-06_0520---After Processing	A0E0214-12	Soil	05/07/20 15:30	05/08/20 07:35
ISM-07_0520---As Received	A0E0214-13	Soil	05/05/20 14:30	05/08/20 07:35
ISM-07_0520---After Processing	A0E0214-14	Soil	05/05/20 14:30	05/08/20 07:35
ISM-08_0520---As Received	A0E0214-15	Soil	05/05/20 16:30	05/08/20 07:35
ISM-08_0520---After Processing	A0E0214-16	Soil	05/05/20 16:30	05/08/20 07:35
ISM-104_0520---As Received	A0E0214-17	Soil	05/06/20 18:00	05/08/20 07:35
ISM-104_0520---After Processing	A0E0214-18	Soil	05/06/20 18:00	05/08/20 07:35
ISM-204_0520---As Received	A0E0214-19	Soil	05/06/20 14:00	05/08/20 07:35
ISM-204_0520---After Processing	A0E0214-20	Soil	05/06/20 14:00	05/08/20 07:35
ISM-907_0520---After Processing	A0E0214-21	Soil	05/05/20 14:30	05/08/20 07:35
EB-03_0520	A0E0214-22	Water	05/07/20 13:50	05/08/20 07:35

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL CASE NARRATIVE

Work Order: A0E0214

Subcontract

This report is not complete without the attached subcontract laboratory report for Dioxins and Furans from Cape Fear.

Amended Report Revision 1:

This report supersedes all previous reports.

At the request of the client additional testing was added to samples, ISM-05_0520 and ISM-08_0520.

Lisa Domenighini
Client Services Manager
6/30/2020

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-01_0520---After Processing (A0E0214-02RE2)				**Matrix: Soil**		**Batch: 0050634**		
Acenaphthene	ND	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Acenaphthylene	ND	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Anthracene	ND	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Benz(a)anthracene	**0.0234**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	**J**
Benzo(a)pyrene	**0.0454**	0.0208	0.0417	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Benzo(b)fluoranthene	**0.0472**	0.0208	0.0417	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Benzo(k)fluoranthene	**0.0264**	0.0208	0.0417	mg/kg dry	10	05/21/20 18:10	EPA 8270E	**J**
Benzo(g,h,i)perylene	**0.0239**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	**J**
Chrysene	**0.0229**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	**J**
Dibenz(a,h)anthracene	ND	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Fluoranthene	**0.0353**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Fluorene	ND	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**0.0198**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	**J**
1-Methylnaphthalene	ND	0.0278	0.0555	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
2-Methylnaphthalene	ND	0.0278	0.0555	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Naphthalene	ND	0.0278	0.0555	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Phenanthrene	**0.0164**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	**J**
Pyrene	**0.0333**	0.0139	0.0278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Pentachlorophenol (PCP)	ND	0.139	0.278	mg/kg dry	10	05/21/20 18:10	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*46 %*	*Limits: 37-122 %*	*10*	*05/21/20 18:10*	*EPA 8270E*	
2-Fluorobiphenyl (Surr)			*53 %*	*44-120 %*	*10*	*05/21/20 18:10*	*EPA 8270E*	
Phenol-d6 (Surr)			*39 %*	*33-122 %*	*10*	*05/21/20 18:10*	*EPA 8270E*	
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*	*10*	*05/21/20 18:10*	*EPA 8270E*	
2-Fluorophenol (Surr)			*40 %*	*35-120 %*	*10*	*05/21/20 18:10*	*EPA 8270E*	
2,4,6-Tribromophenol (Surr)			*81 %*	*39-132 %*	*10*	*05/21/20 18:10*	*EPA 8270E*	*Q-41*
ISM-02_0520---After Processing (A0E0214-04RE2)				**Matrix: Soil**		**Batch: 0050634**		**R-04**
Acenaphthene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Acenaphthylene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Anthracene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Benz(a)anthracene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Benzo(a)pyrene	**0.0288**	0.0209	0.0419	mg/kg dry	10	05/21/20 18:45	EPA 8270E	**J**
Benzo(b)fluoranthene	**0.0292**	0.0209	0.0419	mg/kg dry	10	05/21/20 18:45	EPA 8270E	**J**
Benzo(k)fluoranthene	ND	0.0209	0.0419	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Benzo(g,h,i)perylene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Chrysene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Dibenz(a,h)anthracene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Fluoranthene	**0.0257**	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	**J**

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-02_0520---After Processing (A0E0214-04RE2)				**Matrix: Soil**		**Batch: 0050634**		**R-04**
Fluorene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Indeno(1,2,3-cd)pyrene	ND	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
1-Methylnaphthalene	ND	0.0280	0.0558	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
2-Methylnaphthalene	ND	0.0280	0.0558	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Naphthalene	ND	0.0280	0.0558	mg/kg dry	10	05/21/20 18:45	EPA 8270E	
Phenanthrene	**0.0227**	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	**J**
Pyrene	**0.0236**	0.0139	0.0280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	**J**
Pentachlorophenol (PCP)	**0.156**	0.139	0.280	mg/kg dry	10	05/21/20 18:45	EPA 8270E	**J**
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*63 %*	*Limits: 37-122 %*	*10*	*05/21/20 18:45*	*EPA 8270E*	
2-Fluorobiphenyl (Surr)			*72 %*	*44-120 %*	*10*	*05/21/20 18:45*	*EPA 8270E*	
Phenol-d6 (Surr)			*57 %*	*33-122 %*	*10*	*05/21/20 18:45*	*EPA 8270E*	
p-Terphenyl-d14 (Surr)			*85 %*	*54-127 %*	*10*	*05/21/20 18:45*	*EPA 8270E*	
2-Fluorophenol (Surr)			*57 %*	*35-120 %*	*10*	*05/21/20 18:45*	*EPA 8270E*	
2,4,6-Tribromophenol (Surr)			*104 %*	*39-132 %*	*10*	*05/21/20 18:45*	*EPA 8270E*	*Q-41*
ISM-03_0520---After Processing (A0E0214-06)				**Matrix: Soil**		**Batch: 0050634**		
Acenaphthene	ND	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Acenaphthylene	ND	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Anthracene	**0.133**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Benz(a)anthracene	**0.0822**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	**J**
Benzo(a)pyrene	**0.121**	0.0855	0.171	mg/kg dry	40	05/18/20 21:46	EPA 8270E	**J**
Benzo(b)fluoranthene	**0.377**	0.0855	0.171	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Benzo(k)fluoranthene	**0.107**	0.0855	0.171	mg/kg dry	40	05/18/20 21:46	EPA 8270E	**J**
Benzo(g,h,i)perylene	**0.151**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Chrysene	**0.237**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Dibenz(a,h)anthracene	ND	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Fluoranthene	**0.153**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Fluorene	ND	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**0.140**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
1-Methylnaphthalene	ND	0.114	0.228	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
2-Methylnaphthalene	ND	0.114	0.228	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Naphthalene	ND	0.114	0.228	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Phenanthrene	**0.0907**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	**J**
Pyrene	**0.166**	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Carbazole	ND	0.0855	0.171	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Dibenzofuran	ND	0.0568	0.114	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Pentachlorophenol (PCP)	**1.65**	0.568	1.14	mg/kg dry	40	05/18/20 21:46	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*37 %*	*Limits: 37-122 %*	*40*	*05/18/20 21:46*	*EPA 8270E*	*S-05*

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-03_0520---After Processing (A0E0214-06)				**Matrix: Soil**		**Batch: 0050634**		
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*50 %*	*Limits: 44-120 %*	*40*	*05/18/20 21:46*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)			*28 %*	*33-122 %*	*40*	*05/18/20 21:46*	*EPA 8270E*	*S-05*
p-Terphenyl-d14 (Surr)			*74 %*	*54-127 %*	*40*	*05/18/20 21:46*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)			*28 %*	*35-120 %*	*40*	*05/18/20 21:46*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)			*86 %*	*39-132 %*	*40*	*05/18/20 21:46*	*EPA 8270E*	*S-05*
ISM-04_0520---After Processing (A0E0214-08)				**Matrix: Soil**		**Batch: 0050634**		
Acenaphthene	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Acenaphthylene	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Anthracene	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Benz(a)anthracene	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Benzo(a)pyrene	**0.0953**	0.0848	0.170	mg/kg dry	40	05/18/20 22:19	EPA 8270E	**J**
Benzo(b)fluoranthene	**0.113**	0.0848	0.170	mg/kg dry	40	05/18/20 22:19	EPA 8270E	**J**
Benzo(k)fluoranthene	ND	0.0848	0.170	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Benzo(g,h,i)perylene	**0.117**	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Chrysene	**0.109**	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	**J**
Dibenz(a,h)anthracene	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Fluoranthene	**0.0891**	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	**J**
Fluorene	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**0.0630**	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	**J**
1-Methylnaphthalene	ND	0.113	0.226	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
2-Methylnaphthalene	ND	0.113	0.226	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Naphthalene	ND	0.113	0.226	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Phenanthrene	**0.0690**	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	**J**
Pyrene	**0.129**	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Carbazole	ND	0.0848	0.170	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Dibenzofuran	ND	0.0564	0.113	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Pentachlorophenol (PCP)	ND	0.564	1.13	mg/kg dry	40	05/18/20 22:19	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*66 %*	*Limits: 37-122 %*	*40*	*05/18/20 22:19*	*EPA 8270E*	*S-05*
2-Fluorobiphenyl (Surr)			*64 %*	*44-120 %*	*40*	*05/18/20 22:19*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)			*46 %*	*33-122 %*	*40*	*05/18/20 22:19*	*EPA 8270E*	*S-05*
p-Terphenyl-d14 (Surr)			*88 %*	*54-127 %*	*40*	*05/18/20 22:19*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)			*51 %*	*35-120 %*	*40*	*05/18/20 22:19*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)			*106 %*	*39-132 %*	*40*	*05/18/20 22:19*	*EPA 8270E*	*S-05*
ISM-06_0520---After Processing (A0E0214-12)				**Matrix: Soil**		**Batch: 0050634**		
Acenaphthene	ND	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Acenaphthylene	ND	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	

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Lisa Domenighini, Client Services Manager

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ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-06_0520---After Processing (A0E0214-12)				**Matrix: Soil**		**Batch: 0050634**		
Anthracene	**0.157**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Benz(a)anthracene	**0.390**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Benzo(a)pyrene	**0.359**	0.0840	0.168	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Benzo(b)fluoranthene	**0.725**	0.0840	0.168	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Benzo(k)fluoranthene	**0.224**	0.0840	0.168	mg/kg dry	40	05/18/20 22:53	EPA 8270E	**M-05**
Benzo(g,h,i)perylene	**0.134**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Chrysene	**0.670**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Dibenz(a,h)anthracene	ND	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Fluoranthene	**0.618**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Fluorene	ND	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**0.156**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
1-Methylnaphthalene	ND	0.112	0.224	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
2-Methylnaphthalene	ND	0.112	0.224	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Naphthalene	ND	0.112	0.224	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Phenanthrene	**0.0981**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	**J**
Pyrene	**0.771**	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Carbazole	ND	0.0840	0.168	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Dibenzofuran	ND	0.0559	0.112	mg/kg dry	40	05/18/20 22:53	EPA 8270E	
Pentachlorophenol (PCP)	**0.996**	0.559	1.12	mg/kg dry	40	05/18/20 22:53	EPA 8270E	**J**
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*67 %*	*Limits: 37-122 %*	*40*	*05/18/20 22:53*	*EPA 8270E*	*S-05*
2-Fluorobiphenyl (Surr)			*67 %*	*44-120 %*	*40*	*05/18/20 22:53*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)			*46 %*	*33-122 %*	*40*	*05/18/20 22:53*	*EPA 8270E*	*S-05*
p-Terphenyl-d14 (Surr)			*86 %*	*54-127 %*	*40*	*05/18/20 22:53*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)			*51 %*	*35-120 %*	*40*	*05/18/20 22:53*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)			*95 %*	*39-132 %*	*40*	*05/18/20 22:53*	*EPA 8270E*	*S-05*
ISM-07_0520---After Processing (A0E0214-14RE1)				**Matrix: Soil**		**Batch: 0050634**		
Acenaphthene	ND	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Acenaphthylene	ND	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Anthracene	ND	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Benz(a)anthracene	**0.00581**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
Benzo(a)pyrene	**0.00861**	0.00834	0.0167	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
Benzo(b)fluoranthene	**0.00974**	0.00834	0.0167	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
Benzo(k)fluoranthene	ND	0.00834	0.0167	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Benzo(g,h,i)perylene	**0.00686**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
Chrysene	**0.00985**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
Dibenz(a,h)anthracene	ND	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Fluoranthene	**0.0129**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	

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ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-07_0520---After Processing (A0E0214-14RE1)				**Matrix: Soil**		**Batch: 0050634**		
Fluorene	ND	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**0.00606**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
1-Methylnaphthalene	ND	0.0111	0.0222	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
2-Methylnaphthalene	ND	0.0111	0.0222	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Naphthalene	ND	0.0111	0.0222	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Phenanthrene	**0.0134**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Pyrene	**0.0113**	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Carbazole	ND	0.00834	0.0167	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Dibenzofuran	ND	0.00554	0.0111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	
Pentachlorophenol (PCP)	**0.0710**	0.0554	0.111	mg/kg dry	4	05/18/20 17:09	EPA 8270E	**J**
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*59 %*	*Limits: 37-122 %*	*4*	*05/18/20 17:09*	*EPA 8270E*	
2-Fluorobiphenyl (Surr)			*75 %*	*44-120 %*	*4*	*05/18/20 17:09*	*EPA 8270E*	
Phenol-d6 (Surr)			*45 %*	*33-122 %*	*4*	*05/18/20 17:09*	*EPA 8270E*	
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*	*4*	*05/18/20 17:09*	*EPA 8270E*	
2-Fluorophenol (Surr)			*47 %*	*35-120 %*	*4*	*05/18/20 17:09*	*EPA 8270E*	
2,4,6-Tribromophenol (Surr)			*74 %*	*39-132 %*	*4*	*05/18/20 17:09*	*EPA 8270E*	
ISM-08_0520---After Processing (A0E0214-16RE2)				**Matrix: Soil**		**Batch: 0060509**		**H-08**
Acenaphthene	ND	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Acenaphthylene	ND	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Anthracene	**0.186**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**J, Q-42**
Benz(a)anthracene	**0.244**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**J, Q-42**
Benzo(a)pyrene	**0.499**	0.207	0.415	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Benzo(b)fluoranthene	**0.928**	0.207	0.415	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Benzo(k)fluoranthene	**0.351**	0.207	0.415	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**J, Q-42**
Benzo(g,h,i)perylene	**0.408**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Chrysene	**0.510**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Dibenz(a,h)anthracene	ND	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Fluoranthene	**0.484**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Fluorene	ND	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**0.385**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
1-Methylnaphthalene	ND	0.277	0.553	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
2-Methylnaphthalene	ND	0.277	0.553	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Naphthalene	ND	0.277	0.553	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Phenanthrene	**0.289**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Pyrene	**0.477**	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**Q-42**
Carbazole	**0.218**	0.207	0.415	mg/kg dry	100	06/16/20 20:53	EPA 8270E	**J, Q-42**
Dibenzofuran	ND	0.138	0.277	mg/kg dry	100	06/16/20 20:53	EPA 8270E	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-08_0520---After Processing (A0E0214-16RE2)				**Matrix: Soil**		**Batch: 0060509**		**H-08**
Pentachlorophenol (PCP)	**2.86**	1.38	2.77	mg/kg dry	100	06/16/20 20:53	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*4 %*	*Limits: 37-122 %*	*100*	*06/16/20 20:53*	*EPA 8270E*	*S-05*
2-Fluorobiphenyl (Surr)			*64 %*	*44-120 %*	*100*	*06/16/20 20:53*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)			*36 %*	*33-122 %*	*100*	*06/16/20 20:53*	*EPA 8270E*	*S-05*
p-Terphenyl-d14 (Surr)			*78 %*	*54-127 %*	*100*	*06/16/20 20:53*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)			*28 %*	*35-120 %*	*100*	*06/16/20 20:53*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)			*203 %*	*39-132 %*	*100*	*06/16/20 20:53*	*EPA 8270E*	*S-05*
ISM-104_0520---After Processing (A0E0214-18)				**Matrix: Soil**		**Batch: 0050634**		**R-04**
Acenaphthene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Acenaphthylene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Anthracene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Benz(a)anthracene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Benzo(a)pyrene	ND	0.208	0.416	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Benzo(b)fluoranthene	ND	0.208	0.416	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Benzo(k)fluoranthene	ND	0.208	0.416	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Benzo(g,h,i)perylene	**0.150**	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	**J**
Chrysene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Dibenz(a,h)anthracene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Fluoranthene	**0.144**	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	**J**
Fluorene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Indeno(1,2,3-cd)pyrene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
1-Methylnaphthalene	ND	0.278	0.554	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
2-Methylnaphthalene	ND	0.278	0.554	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Naphthalene	ND	0.278	0.554	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Phenanthrene	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Pyrene	**0.190**	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	**J**
Carbazole	ND	0.208	0.416	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Dibenzofuran	ND	0.138	0.278	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Pentachlorophenol (PCP)	ND	1.38	2.78	mg/kg dry	40	05/18/20 19:29	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*89 %*	*Limits: 37-122 %*	*40*	*05/18/20 19:29*	*EPA 8270E*	*S-05*
2-Fluorobiphenyl (Surr)			*71 %*	*44-120 %*	*40*	*05/18/20 19:29*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)			*50 %*	*33-122 %*	*40*	*05/18/20 19:29*	*EPA 8270E*	*S-05*
p-Terphenyl-d14 (Surr)			*102 %*	*54-127 %*	*40*	*05/18/20 19:29*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)			*54 %*	*35-120 %*	*40*	*05/18/20 19:29*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)			*134 %*	*39-132 %*	*40*	*05/18/20 19:29*	*EPA 8270E*	*S-05*
ISM-204_0520---After Processing (A0E0214-20)				**Matrix: Soil**		**Batch: 0050634**		**R-04**

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-204_0520---After Processing (A0E0214-20)				**Matrix: Soil**		**Batch: 0050634**		**R-04**
Acenaphthene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Acenaphthylene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Anthracene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Benz(a)anthracene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Benzo(a)pyrene	ND	0.208	0.416	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Benzo(b)fluoranthene	ND	0.208	0.416	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Benzo(k)fluoranthene	ND	0.208	0.416	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Benzo(g,h,i)perylene	**0.210**	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	**J**
Chrysene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Dibenz(a,h)anthracene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Fluoranthene	**0.164**	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	**J**
Fluorene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Indeno(1,2,3-cd)pyrene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
1-Methylnaphthalene	ND	0.278	0.555	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
2-Methylnaphthalene	ND	0.278	0.555	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Naphthalene	ND	0.278	0.555	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Phenanthrene	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Pyrene	**0.257**	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	**J**
Carbazole	ND	0.208	0.416	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Dibenzofuran	ND	0.138	0.278	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Pentachlorophenol (PCP)	ND	1.38	2.78	mg/kg dry	40	05/18/20 20:03	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*85 %*	*Limits:* *37-122 %*	*40*	*05/18/20 20:03*	*EPA 8270E*	*S-05*
2-Fluorobiphenyl (Surr)			*79 %*	*44-120 %*	*40*	*05/18/20 20:03*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)			*56 %*	*33-122 %*	*40*	*05/18/20 20:03*	*EPA 8270E*	*S-05*
p-Terphenyl-d14 (Surr)			*100 %*	*54-127 %*	*40*	*05/18/20 20:03*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)			*61 %*	*35-120 %*	*40*	*05/18/20 20:03*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)			*137 %*	*39-132 %*	*40*	*05/18/20 20:03*	*EPA 8270E*	*S-05*

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-01_0520---After Processing (A0E0214-02)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**6.37**	0.554	1.11	mg/kg dry	10	05/27/20 16:39	EPA 6020A	
Chromium	**42.9**	0.554	1.11	mg/kg dry	10	05/27/20 16:39	EPA 6020A	
Copper	**38.2**	1.11	2.22	mg/kg dry	10	05/27/20 16:39	EPA 6020A	
Zinc	**97.2**	2.22	4.43	mg/kg dry	10	05/27/20 16:39	EPA 6020A	
ISM-02_0520---After Processing (A0E0214-04)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**6.05**	0.555	1.11	mg/kg dry	10	05/27/20 16:54	EPA 6020A	
Chromium	**33.1**	0.555	1.11	mg/kg dry	10	05/27/20 16:54	EPA 6020A	
Copper	**35.3**	1.11	2.22	mg/kg dry	10	05/27/20 16:54	EPA 6020A	
Zinc	**128**	2.22	4.44	mg/kg dry	10	05/27/20 16:54	EPA 6020A	
ISM-03_0520---After Processing (A0E0214-06)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**59.7**	0.588	1.18	mg/kg dry	10	05/27/20 16:59	EPA 6020A	
Chromium	**47.7**	0.588	1.18	mg/kg dry	10	05/27/20 16:59	EPA 6020A	
Copper	**218**	1.18	2.35	mg/kg dry	10	05/27/20 16:59	EPA 6020A	
Zinc	**444**	2.35	4.71	mg/kg dry	10	05/27/20 16:59	EPA 6020A	
ISM-04_0520---After Processing (A0E0214-08)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**8.22**	0.570	1.14	mg/kg dry	10	05/27/20 17:04	EPA 6020A	
Chromium	**50.4**	0.570	1.14	mg/kg dry	10	05/27/20 17:04	EPA 6020A	
Copper	**86.2**	1.14	2.28	mg/kg dry	10	05/27/20 17:04	EPA 6020A	
Zinc	**349**	2.28	4.56	mg/kg dry	10	05/27/20 17:04	EPA 6020A	
ISM-05_0520---After Processing (A0E0214-10)				**Matrix: Soil**				
Batch: 0060591								
Zinc	**97.7**	2.24	4.49	mg/kg dry	10	06/18/20 16:27	EPA 6020A	
ISM-06_0520---After Processing (A0E0214-12)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**41.6**	0.522	1.04	mg/kg dry	10	05/27/20 17:09	EPA 6020A	
Chromium	**110**	0.522	1.04	mg/kg dry	10	05/27/20 17:09	EPA 6020A	
Copper	**233**	1.04	2.09	mg/kg dry	10	05/27/20 17:09	EPA 6020A	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-06_0520---After Processing (A0E0214-12)				**Matrix: Soil**				
Zinc	**208**	2.09	4.17	mg/kg dry	10	05/27/20 17:09	EPA 6020A	
ISM-07_0520---After Processing (A0E0214-14RE1)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**10.8**	0.582	1.16	mg/kg dry	10	05/28/20 13:37	EPA 6020A	
Chromium	**45.7**	0.582	1.16	mg/kg dry	10	05/28/20 13:37	EPA 6020A	
Copper	**46.8**	1.16	2.33	mg/kg dry	10	05/28/20 13:37	EPA 6020A	
Zinc	**110**	2.33	4.66	mg/kg dry	10	05/28/20 13:37	EPA 6020A	
ISM-08_0520---After Processing (A0E0214-16)				**Matrix: Soil**				
Batch: 0060591								
Arsenic	**67.2**	0.547	1.09	mg/kg dry	10	06/18/20 16:42	EPA 6020A	
Chromium	**75.1**	0.547	1.09	mg/kg dry	10	06/18/20 16:42	EPA 6020A	
Copper	**333**	1.09	2.19	mg/kg dry	10	06/18/20 16:42	EPA 6020A	
Zinc	**580**	2.19	4.38	mg/kg dry	10	06/18/20 16:42	EPA 6020A	
ISM-104_0520---After Processing (A0E0214-18)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**7.67**	0.563	1.13	mg/kg dry	10	05/27/20 18:10	EPA 6020A	
Chromium	**46.2**	0.563	1.13	mg/kg dry	10	05/27/20 18:10	EPA 6020A	
Copper	**84.3**	1.13	2.25	mg/kg dry	10	05/27/20 18:10	EPA 6020A	
Zinc	**369**	2.25	4.50	mg/kg dry	10	05/27/20 18:10	EPA 6020A	
ISM-204_0520---After Processing (A0E0214-20)				**Matrix: Soil**				
Batch: 0050946								
Arsenic	**10.3**	0.579	1.16	mg/kg dry	10	05/27/20 18:15	EPA 6020A	
Chromium	**58.9**	0.579	1.16	mg/kg dry	10	05/27/20 18:15	EPA 6020A	
Copper	**125**	1.16	2.31	mg/kg dry	10	05/27/20 18:15	EPA 6020A	
Zinc	**560**	2.31	4.63	mg/kg dry	10	05/27/20 18:15	EPA 6020A	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Demand Parameters

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-03_0520---After Processing (A0E0214-06RE1)				**Matrix: Soil**				
Batch: 0050720								
Total Organic Carbon	**5.4**	0.020	0.020	%	1	05/21/20 12:07	PSEP/SM 5310B MOD	**B-02**
ISM-06_0520---After Processing (A0E0214-12)				**Matrix: Soil**				
Batch: 0050720								
Total Organic Carbon	**3.2**	0.020	0.020	%	1	05/20/20 20:44	PSEP/SM 5310B MOD	**B-02**

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-01_0520---After Processing (A0E0214-02)				**Matrix: Soil**		**Batch: 0051032**		
% Solids	**94.8**	1.00	1.00	%	1	05/29/20 08:46	EPA 8000C	
ISM-02_0520---After Processing (A0E0214-04)				**Matrix: Soil**		**Batch: 0051032**		
% Solids	**94.2**	1.00	1.00	%	1	05/29/20 08:46	EPA 8000C	
ISM-03_0520---After Processing (A0E0214-06)				**Matrix: Soil**		**Batch: 0050724**		
% Solids	**92.6**	1.00	1.00	%	1	05/21/20 07:30	EPA 8000C	
ISM-04_0520---After Processing (A0E0214-08)				**Matrix: Soil**		**Batch: 0051032**		
% Solids	**93.0**	1.00	1.00	%	1	05/29/20 08:46	EPA 8000C	
ISM-05_0520---After Processing (A0E0214-10)				**Matrix: Soil**		**Batch: 0060584**		
% Solids	**94.6**	1.00	1.00	%	1	06/18/20 08:16	EPA 8000C	
ISM-06_0520---After Processing (A0E0214-12)				**Matrix: Soil**		**Batch: 0051032**		
% Solids	**93.4**	1.00	1.00	%	1	05/29/20 08:46	EPA 8000C	
ISM-07_0520---After Processing (A0E0214-14)				**Matrix: Soil**		**Batch: 0050635**		
% Solids	**94.6**	1.00	1.00	%	1	05/19/20 09:00	EPA 8000C	
ISM-08_0520---After Processing (A0E0214-16)				**Matrix: Soil**		**Batch: 0060584**		
% Solids	**93.6**	1.00	1.00	%	1	06/18/20 08:16	EPA 8000C	
ISM-104_0520---After Processing (A0E0214-18)				**Matrix: Soil**		**Batch: 0051032**		
% Solids	**94.9**	1.00	1.00	%	1	05/29/20 08:46	EPA 8000C	
ISM-204_0520---After Processing (A0E0214-20)				**Matrix: Soil**		**Batch: 0051032**		
% Solids	**93.3**	1.00	1.00	%	1	05/29/20 08:46	EPA 8000C	

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ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050634 - EPA 3546							**Soil**					
Blank (0050634-BLK2)		Prepared: 05/18/20 10:51	Analyzed: 05/18/20 15:21									
EPA 8270E												
Acenaphthene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.00250	0.00500	mg/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.00250	0.00500	mg/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	0.00250	0.00500	mg/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0125	0.0250	mg/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)		*Recovery: 83 %*	*Limits: 37-122 %*		*Dilution: 1x*							
2-Fluorobiphenyl (Surr)		*89 %*	*44-120 %*		*"*							
Phenol-d6 (Surr)		*81 %*	*33-122 %*		*"*							
p-Terphenyl-d14 (Surr)		*98 %*	*54-127 %*		*"*							
2-Fluorophenol (Surr)		*77 %*	*35-120 %*		*"*							
2,4,6-Tribromophenol (Surr)		*83 %*	*39-132 %*		*"*							
LCS (0050634-BS2)		Prepared: 05/18/20 10:51	Analyzed: 05/18/20 15:55									
EPA 8270E												
Acenaphthene	0.506	0.00532	0.0107	mg/kg wet	4	0.533	---	95	40 - 123%	---	---	
Acenaphthylene	0.513	0.00532	0.0107	mg/kg wet	4	0.533	---	96	32 - 132%	---	---	
Anthracene	0.546	0.00532	0.0107	mg/kg wet	4	0.533	---	102	47 - 123%	---	---	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050634 - EPA 3546							**Soil**					
LCS (0050634-BS2)		Prepared: 05/18/20 10:51		Analyzed: 05/18/20 15:55								
Benz(a)anthracene	0.508	0.00532	0.0107	mg/kg wet	4	0.533	---	95	49 - 126%	---	---	
Benzo(a)pyrene	0.542	0.00800	0.0160	mg/kg wet	4	0.533	---	102	45 - 129%	---	---	
Benzo(b)fluoranthene	0.531	0.00800	0.0160	mg/kg wet	4	0.533	---	100	45 - 132%	---	---	
Benzo(k)fluoranthene	0.567	0.00800	0.0160	mg/kg wet	4	0.533	---	106	47 - 132%	---	---	
Benzo(g,h,i)perylene	0.535	0.00532	0.0107	mg/kg wet	4	0.533	---	100	43 - 134%	---	---	
Chrysene	0.509	0.00532	0.0107	mg/kg wet	4	0.533	---	95	50 - 124%	---	---	
Dibenz(a,h)anthracene	0.524	0.00532	0.0107	mg/kg wet	4	0.533	---	98	45 - 134%	---	---	
Fluoranthene	0.541	0.00532	0.0107	mg/kg wet	4	0.533	---	101	50 - 127%	---	---	
Fluorene	0.530	0.00532	0.0107	mg/kg wet	4	0.533	---	99	43 - 125%	---	---	
Indeno(1,2,3-cd)pyrene	0.497	0.00532	0.0107	mg/kg wet	4	0.533	---	93	45 - 133%	---	---	
1-Methylnaphthalene	0.513	0.0107	0.0213	mg/kg wet	4	0.533	---	96	40 - 120%	---	---	
2-Methylnaphthalene	0.514	0.0107	0.0213	mg/kg wet	4	0.533	---	96	38 - 122%	---	---	
Naphthalene	0.495	0.0107	0.0213	mg/kg wet	4	0.533	---	93	35 - 123%	---	---	
Phenanthrene	0.519	0.00532	0.0107	mg/kg wet	4	0.533	---	97	50 - 121%	---	---	
Pyrene	0.539	0.00532	0.0107	mg/kg wet	4	0.533	---	101	47 - 127%	---	---	
Carbazole	0.552	0.00800	0.0160	mg/kg wet	4	0.533	---	103	50 - 123%	---	---	
Dibenzofuran	0.520	0.00532	0.0107	mg/kg wet	4	0.533	---	97	44 - 120%	---	---	
Pentachlorophenol (PCP)	0.506	0.0532	0.107	mg/kg wet	4	0.533	---	95	25 - 133%	---	---	
Surr: Nitrobenzene-d5 (Surr)		*Recovery: 88 %*		*Limits: 37-122 %*			*Dilution: 4x*					
2-Fluorobiphenyl (Surr)		*104 %*		*44-120 %*			*"*					
Phenol-d6 (Surr)		*92 %*		*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)		*102 %*		*54-127 %*			*"*					
2-Fluorophenol (Surr)		*85 %*		*35-120 %*			*"*					
2,4,6-Tribromophenol (Surr)		*101 %*		*39-132 %*			*"*					
Duplicate (0050634-DUP2)		Prepared: 05/18/20 10:51		Analyzed: 05/18/20 17:45								
QC Source Sample: ISM-07_0520---After Processing_(A0E0214-14RE1)												
EPA 8270E												
Acenaphthene	ND	0.00551	0.0111	mg/kg dry	4	---	ND	---	---	---	30%	
Acenaphthylene	ND	0.00551	0.0111	mg/kg dry	4	---	ND	---	---	---	30%	
Anthracene	ND	0.00551	0.0111	mg/kg dry	4	---	ND	---	---	---	30%	
Benz(a)anthracene	**0.00570**	0.00551	0.0111	mg/kg dry	4	---	0.00581	---	---	2	30%	J
Benzo(a)pyrene	**0.00876**	0.00829	0.0166	mg/kg dry	4	---	0.00861	---	---	2	30%	J
Benzo(b)fluoranthene	**0.00923**	0.00829	0.0166	mg/kg dry	4	---	0.00974	---	---	5	30%	J

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Lisa Domenighini, Client Services Manager

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ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050634 - EPA 3546							**Soil**					
Duplicate (0050634-DUP2)		Prepared: 05/18/20 10:51	Analyzed: 05/18/20 17:45									
QC Source Sample: ISM-07_0520---After Processing_(A0E0214-14RE1)												
Benzo(k)fluoranthene	ND	0.00829	0.0166	mg/kg dry	4	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**0.00764**	0.00551	0.0111	mg/kg dry	4	---	0.00686	---	---	11	30%	J
Chrysene	**0.0116**	0.00551	0.0111	mg/kg dry	4	---	0.00985	---	---	16	30%	
Dibenz(a,h)anthracene	ND	0.00551	0.0111	mg/kg dry	4	---	ND	---	---	---	30%	
Fluoranthene	**0.0138**	0.00551	0.0111	mg/kg dry	4	---	0.0129	---	---	7	30%	
Fluorene	ND	0.00551	0.0111	mg/kg dry	4	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	0.00551	0.0111	mg/kg dry	4	---	0.00606	---	---	***	**30%**	Q-05
1-Methylnaphthalene	ND	0.0111	0.0221	mg/kg dry	4	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	0.0111	0.0221	mg/kg dry	4	---	ND	---	---	---	30%	
Naphthalene	ND	0.0111	0.0221	mg/kg dry	4	---	ND	---	---	---	30%	
Phenanthrene	**0.0171**	0.00551	0.0111	mg/kg dry	4	---	0.0134	---	---	24	30%	
Pyrene	**0.0129**	0.00551	0.0111	mg/kg dry	4	---	0.0113	---	---	13	30%	
Carbazole	ND	0.00829	0.0166	mg/kg dry	4	---	ND	---	---	---	30%	
Dibenzofuran	ND	0.00551	0.0111	mg/kg dry	4	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	**0.0664**	0.0551	0.111	mg/kg dry	4	---	0.0710	---	---	7	30%	J
Surr: Nitrobenzene-d5 (Surr)		*Recovery: 64 %*	*Limits: 37-122 %*		*Dilution: 4x*							
2-Fluorobiphenyl (Surr)		*76 %*	*44-120 %*		*"*							
Phenol-d6 (Surr)		*49 %*	*33-122 %*		*"*							
p-Terphenyl-d14 (Surr)		*84 %*	*54-127 %*		*"*							
2-Fluorophenol (Surr)		*51 %*	*35-120 %*		*"*							
2,4,6-Tribromophenol (Surr)		*85 %*	*39-132 %*		*"*							
Matrix Spike (0050634-MS2)		Prepared: 05/18/20 10:51	Analyzed: 05/18/20 18:19									
QC Source Sample: ISM-07_0520---After Processing_(A0E0214-14RE1)												
EPA 8270E												
Acenaphthene	0.438	0.00552	0.0111	mg/kg dry	4	0.553	ND	79	40 - 123%	---	---	
Acenaphthylene	0.446	0.00552	0.0111	mg/kg dry	4	0.553	ND	81	32 - 132%	---	---	
Anthracene	0.476	0.00552	0.0111	mg/kg dry	4	0.553	ND	86	47 - 123%	---	---	
Benz(a)anthracene	0.420	0.00552	0.0111	mg/kg dry	4	0.553	0.00581	75	49 - 126%	---	---	
Benzo(a)pyrene	0.432	0.00830	0.0166	mg/kg dry	4	0.553	0.00861	77	45 - 129%	---	---	
Benzo(b)fluoranthene	0.440	0.00830	0.0166	mg/kg dry	4	0.553	0.00974	78	45 - 132%	---	---	
Benzo(k)fluoranthene	0.447	0.00830	0.0166	mg/kg dry	4	0.553	ND	81	47 - 132%	---	---	
Benzo(g,h,i)perylene	0.369	0.00552	0.0111	mg/kg dry	4	0.553	0.00686	65	43 - 134%	---	---	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050634 - EPA 3546							**Soil**					
Matrix Spike (0050634-MS2)		Prepared: 05/18/20 10:51		Analyzed: 05/18/20 18:19								
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
Chrysene	0.438	0.00552	0.0111	mg/kg dry	4	0.553	0.00985	77	50 - 124%	---	---	
Dibenz(a,h)anthracene	0.394	0.00552	0.0111	mg/kg dry	4	0.553	ND	71	45 - 134%	---	---	
Fluoranthene	0.466	0.00552	0.0111	mg/kg dry	4	0.553	0.0129	82	50 - 127%	---	---	
Fluorene	0.461	0.00552	0.0111	mg/kg dry	4	0.553	ND	83	43 - 125%	---	---	
Indeno(1,2,3-cd)pyrene	0.348	0.00552	0.0111	mg/kg dry	4	0.553	0.00606	62	45 - 133%	---	---	
1-Methylnaphthalene	0.454	0.0111	0.0221	mg/kg dry	4	0.553	ND	82	40 - 120%	---	---	
2-Methylnaphthalene	0.462	0.0111	0.0221	mg/kg dry	4	0.553	ND	83	38 - 122%	---	---	
Naphthalene	0.427	0.0111	0.0221	mg/kg dry	4	0.553	ND	77	35 - 123%	---	---	
Phenanthrene	0.461	0.00552	0.0111	mg/kg dry	4	0.553	0.0134	81	50 - 121%	---	---	
Pyrene	0.463	0.00552	0.0111	mg/kg dry	4	0.553	0.0113	82	47 - 127%	---	---	
Carbazole	0.533	0.00830	0.0166	mg/kg dry	4	0.553	ND	96	50 - 123%	---	---	
Pentachlorophenol (PCP)	0.567	0.0552	0.111	mg/kg dry	4	0.553	0.0710	90	25 - 133%	---	---	
Surr: Nitrobenzene-d5 (Surr)		*Recovery: 78 %*		*Limits: 37-122 %*			*Dilution: 4x*					
2-Fluorobiphenyl (Surr)		*85 %*		*44-120 %*			*"*					
Phenol-d6 (Surr)		*70 %*		*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)		*88 %*		*54-127 %*			*"*					
2-Fluorophenol (Surr)		*63 %*		*35-120 %*			*"*					
2,4,6-Tribromophenol (Surr)		*95 %*		*39-132 %*			*"*					
Matrix Spike Dup (0050634-MSD2)		Prepared: 05/18/20 10:51		Analyzed: 05/18/20 18:54								
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
EPA 8270E												
Acenaphthene	0.401	0.00556	0.0112	mg/kg dry	4	0.558	ND	72	40 - 123%	9	30%	
Acenaphthylene	0.409	0.00556	0.0112	mg/kg dry	4	0.558	ND	73	32 - 132%	9	30%	
Anthracene	0.436	0.00556	0.0112	mg/kg dry	4	0.558	ND	78	47 - 123%	9	30%	
Benz(a)anthracene	0.383	0.00556	0.0112	mg/kg dry	4	0.558	0.00581	68	49 - 126%	9	30%	
Benzo(a)pyrene	0.401	0.00837	0.0167	mg/kg dry	4	0.558	0.00861	70	45 - 129%	7	30%	
Benzo(b)fluoranthene	0.407	0.00837	0.0167	mg/kg dry	4	0.558	0.00974	71	45 - 132%	8	30%	
Benzo(k)fluoranthene	0.408	0.00837	0.0167	mg/kg dry	4	0.558	ND	73	47 - 132%	9	30%	
Benzo(g,h,i)perylene	0.329	0.00556	0.0112	mg/kg dry	4	0.558	0.00686	58	43 - 134%	11	30%	
Chrysene	0.401	0.00556	0.0112	mg/kg dry	4	0.558	0.00985	70	50 - 124%	9	30%	
Dibenz(a,h)anthracene	0.356	0.00556	0.0112	mg/kg dry	4	0.558	ND	64	45 - 134%	10	30%	
Fluoranthene	0.427	0.00556	0.0112	mg/kg dry	4	0.558	0.0129	74	50 - 127%	9	30%	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050634 - EPA 3546							**Soil**					
Matrix Spike Dup (0050634-MSD2)	Prepared: 05/18/20 10:51 Analyzed: 05/18/20 18:54											
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
Fluorene	0.426	0.00556	0.0112	mg/kg dry	4	0.558	ND	76	43 - 125%	8	30%	
Indeno(1,2,3-cd)pyrene	0.326	0.00556	0.0112	mg/kg dry	4	0.558	0.00606	57	45 - 133%	7	30%	
1-Methylnaphthalene	0.409	0.0112	0.0223	mg/kg dry	4	0.558	ND	73	40 - 120%	10	30%	
2-Methylnaphthalene	0.411	0.0112	0.0223	mg/kg dry	4	0.558	ND	74	38 - 122%	12	30%	
Naphthalene	0.382	0.0112	0.0223	mg/kg dry	4	0.558	ND	69	35 - 123%	11	30%	
Phenanthrene	0.422	0.00556	0.0112	mg/kg dry	4	0.558	0.0134	73	50 - 121%	9	30%	
Pyrene	0.421	0.00556	0.0112	mg/kg dry	4	0.558	0.0113	73	47 - 127%	10	30%	
Carbazole	0.466	0.00837	0.0167	mg/kg dry	4	0.558	ND	84	50 - 123%	13	30%	
Dibenzofuran	0.415	0.00556	0.0112	mg/kg dry	4	0.558	ND	74	44 - 120%	8	30%	
Pentachlorophenol (PCP)	0.522	0.0556	0.112	mg/kg dry	4	0.558	0.0710	81	25 - 133%	8	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 69 %*			*Limits: 37-122 %*			*Dilution: 4x*			
2-Fluorobiphenyl (Surr)			*77 %*			*44-120 %*			*"*			
Phenol-d6 (Surr)			*61 %*			*33-122 %*			*"*			
p-Terphenyl-d14 (Surr)			*83 %*			*54-127 %*			*"*			
2-Fluorophenol (Surr)			*55 %*			*35-120 %*			*"*			
2,4,6-Tribromophenol (Surr)			*87 %*			*39-132 %*			*"*			

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0060509 - EPA 3546							**Soil**					
Blank (0060509-BLK1)		Prepared: 06/15/20 10:33		Analyzed: 06/15/20 16:53								
EPA 8270E												
Acenaphthene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.00250	0.00500	mg/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.00250	0.00500	mg/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	0.00250	0.00500	mg/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	0.00188	0.00375	mg/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.00125	0.00250	mg/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.0188	0.0375	mg/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.0125	0.0250	mg/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	ND	0.0125	0.0250	mg/kg wet	1	---	---	---	---	---	---	
Dimethylphthalate	ND	0.0125	0.0250	mg/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.0125	0.0250	mg/kg wet	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.0125	0.0250	mg/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)		*Recovery: 77 %*		*Limits: 37-122 %*			*Dilution: 1x*					
2-Fluorobiphenyl (Surr)		*72 %*		*44-120 %*			*"*					
Phenol-d6 (Surr)		*76 %*		*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)		*95 %*		*54-127 %*			*"*					
2-Fluorophenol (Surr)		*72 %*		*35-120 %*			*"*					
2,4,6-Tribromophenol (Surr)		*77 %*		*39-132 %*			*"*					Q-41

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0060509 - EPA 3546							**Soil**					
LCS (0060509-BS1)		Prepared: 06/15/20 10:33		Analyzed: 06/15/20 17:29								
EPA 8270E												
Acenaphthene	0.394	0.00133	0.00267	mg/kg wet	1	0.533	---	74	40 - 123%	---	---	
Acenaphthylene	0.417	0.00133	0.00267	mg/kg wet	1	0.533	---	78	32 - 132%	---	---	
Anthracene	0.436	0.00133	0.00267	mg/kg wet	1	0.533	---	82	47 - 123%	---	---	
Benz(a)anthracene	0.453	0.00133	0.00267	mg/kg wet	1	0.533	---	85	49 - 126%	---	---	
Benzo(a)pyrene	0.460	0.00200	0.00400	mg/kg wet	1	0.533	---	86	45 - 129%	---	---	
Benzo(b)fluoranthene	0.443	0.00200	0.00400	mg/kg wet	1	0.533	---	83	45 - 132%	---	---	
Benzo(k)fluoranthene	0.436	0.00200	0.00400	mg/kg wet	1	0.533	---	82	47 - 132%	---	---	
Benzo(g,h,i)perylene	0.461	0.00133	0.00267	mg/kg wet	1	0.533	---	86	43 - 134%	---	---	
Chrysene	0.435	0.00133	0.00267	mg/kg wet	1	0.533	---	82	50 - 124%	---	---	
Dibenz(a,h)anthracene	0.460	0.00133	0.00267	mg/kg wet	1	0.533	---	86	45 - 134%	---	---	
Fluoranthene	0.478	0.00133	0.00267	mg/kg wet	1	0.533	---	90	50 - 127%	---	---	
Fluorene	0.443	0.00133	0.00267	mg/kg wet	1	0.533	---	83	43 - 125%	---	---	
Indeno(1,2,3-cd)pyrene	0.458	0.00133	0.00267	mg/kg wet	1	0.533	---	86	45 - 133%	---	---	
1-Methylnaphthalene	0.459	0.00267	0.00533	mg/kg wet	1	0.533	---	86	40 - 120%	---	---	
2-Methylnaphthalene	0.451	0.00267	0.00533	mg/kg wet	1	0.533	---	84	38 - 122%	---	---	
Naphthalene	0.387	0.00267	0.00533	mg/kg wet	1	0.533	---	72	35 - 123%	---	---	
Phenanthrene	0.393	0.00133	0.00267	mg/kg wet	1	0.533	---	74	50 - 121%	---	---	
Pyrene	0.468	0.00133	0.00267	mg/kg wet	1	0.533	---	88	47 - 127%	---	---	
Carbazole	0.417	0.00200	0.00400	mg/kg wet	1	0.533	---	78	50 - 123%	---	---	
Dibenzofuran	0.415	0.00133	0.00267	mg/kg wet	1	0.533	---	78	44 - 120%	---	---	
Bis(2-ethylhexyl)phthalate	0.427	0.0200	0.0400	mg/kg wet	1	0.533	---	80	51 - 133%	---	---	
Butyl benzyl phthalate	0.444	0.0133	0.0267	mg/kg wet	1	0.533	---	83	48 - 132%	---	---	
Diethylphthalate	0.476	0.0133	0.0267	mg/kg wet	1	0.533	---	89	50 - 124%	---	---	
Dimethylphthalate	0.461	0.0133	0.0267	mg/kg wet	1	0.533	---	86	48 - 124%	---	---	
Di-n-butylphthalate	0.457	0.0133	0.0267	mg/kg wet	1	0.533	---	86	51 - 128%	---	---	
Di-n-octyl phthalate	0.454	0.0133	0.0267	mg/kg wet	1	0.533	---	85	45 - 140%	---	---	
Surr: Nitrobenzene-d5 (Surr)		*Recovery: 94 %*		*Limits: 37-122 %*			*Dilution: 1x*					
2-Fluorobiphenyl (Surr)		*72 %*		*44-120 %*			*"*					
Phenol-d6 (Surr)		*88 %*		*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)		*92 %*		*54-127 %*			*"*					
2-Fluorophenol (Surr)		*76 %*		*35-120 %*			*"*					
2,4,6-Tribromophenol (Surr)		*99 %*		*39-132 %*			*"*					Q-41

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0060509 - EPA 3546							**Soil**					
Duplicate (0060509-DUP2)		Prepared: 06/15/20 10:33		Analyzed: 06/16/20 21:30								**H-08, R-04**
QC Source Sample: ISM-08_0520---After Processing (A0E0214-16RE2)												
EPA 8270E												
Acenaphthene	ND	0.138	0.276	mg/kg dry	100	---	ND	---	---	---	30%	
Acenaphthylene	ND	0.138	0.276	mg/kg dry	100	---	ND	---	---	---	30%	
Anthracene	ND	0.138	0.276	mg/kg dry	100	---	0.186	---	---	***	**30%**	Q-04
Benz(a)anthracene	ND	0.138	0.276	mg/kg dry	100	---	0.244	---	---	***	**30%**	Q-04
Benzo(a)pyrene	**0.270**	0.207	0.414	mg/kg dry	100	---	0.499	---	---	**59**	**30%**	Q-04, J
Benzo(b)fluoranthene	**0.350**	0.207	0.414	mg/kg dry	100	---	0.928	---	---	**90**	**30%**	Q-04, J
Benzo(k)fluoranthene	**0.209**	0.207	0.414	mg/kg dry	100	---	0.351	---	---	**51**	**30%**	Q-04, J
Benzo(g,h,i)perylene	ND	0.138	0.276	mg/kg dry	100	---	0.408	---	---	***	**30%**	Q-04
Chrysene	ND	0.138	0.276	mg/kg dry	100	---	0.510	---	---	***	**30%**	Q-04
Dibenz(a,h)anthracene	ND	0.138	0.276	mg/kg dry	100	---	ND	---	---	---	30%	
Fluoranthene	ND	0.138	0.276	mg/kg dry	100	---	0.484	---	---	***	**30%**	Q-04
Fluorene	ND	0.138	0.276	mg/kg dry	100	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	0.138	0.276	mg/kg dry	100	---	0.385	---	---	***	**30%**	Q-04
1-Methylnaphthalene	ND	0.276	0.552	mg/kg dry	100	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	0.276	0.552	mg/kg dry	100	---	ND	---	---	---	30%	
Naphthalene	ND	0.276	0.552	mg/kg dry	100	---	ND	---	---	---	30%	
Phenanthrene	ND	0.138	0.276	mg/kg dry	100	---	0.289	---	---	***	**30%**	Q-04
Pyrene	**0.139**	0.138	0.276	mg/kg dry	100	---	0.477	---	---	**110**	**30%**	Q-04, J
Carbazole	ND	0.207	0.414	mg/kg dry	100	---	0.218	---	---	***	**30%**	Q-04
Dibenzofuran	ND	0.138	0.276	mg/kg dry	100	---	ND	---	---	---	30%	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 15 %*	*Limits: 37-122 %*	*Dilution: 100x*	S-05
2-Fluorobiphenyl (Surr)	*20 %*	*44-120 %*	*"*	S-05
Phenol-d6 (Surr)	*3 %*	*33-122 %*	*"*	S-05
p-Terphenyl-d14 (Surr)	*27 %*	*54-127 %*	*"*	S-05
2-Fluorophenol (Surr)	*3 %*	*35-120 %*	*"*	S-05
2,4,6-Tribromophenol (Surr)	*160 %*	*39-132 %*	*"*	S-05

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Lisa Domenighini, Client Services Manager

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ORELAP ID: OR100062

AMENDED REPORT

GSI Water Solutions	Project: JH Baxter-Eugene ISM	
55 SW Yamhill St, Ste 300	Project Number: 302	Report ID:
Portland, OR 97209	Project Manager: Josh Bale	A0E0214 - 07 13 20 0843

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050946 - EPA 3051A							Soil					
Blank (0050946-BLK1)		Prepared: 05/27/20 09:44	Analyzed: 05/27/20 16:24									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.962	1.92	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (0050946-BS1)		Prepared: 05/27/20 09:44	Analyzed: 05/27/20 16:34									
EPA 6020A												
Arsenic	47.7	0.500	1.00	mg/kg wet	10	50.0	---	95	80 - 120%	---	---	
Chromium	45.3	0.500	1.00	mg/kg wet	10	50.0	---	91	80 - 120%	---	---	
Copper	47.3	1.00	2.00	mg/kg wet	10	50.0	---	95	80 - 120%	---	---	
Zinc	45.9	2.00	4.00	mg/kg wet	10	50.0	---	92	80 - 120%	---	---	
Duplicate (0050946-DUP1)		Prepared: 05/27/20 09:44	Analyzed: 05/27/20 17:19									
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
EPA 6020A												
Arsenic	**9.94**	0.528	1.06	mg/kg dry	10	---	10.8	---	---	8	40%	
Chromium	**37.5**	0.528	1.06	mg/kg dry	10	---	45.7	---	---	20	40%	
Copper	**42.0**	1.06	2.11	mg/kg dry	10	---	46.8	---	---	11	40%	
Zinc	**101**	2.11	4.23	mg/kg dry	10	---	110	---	---	8	40%	
Duplicate (0050946-DUP2)		Prepared: 05/27/20 09:44	Analyzed: 05/27/20 17:24									
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
EPA 6020A												
Arsenic	**10.0**	0.534	1.07	mg/kg dry	10	---	10.8	---	---	7	40%	
Chromium	**40.4**	0.534	1.07	mg/kg dry	10	---	45.7	---	---	12	40%	
Copper	**43.3**	1.07	2.13	mg/kg dry	10	---	46.8	---	---	8	40%	
Zinc	**103**	2.13	4.27	mg/kg dry	10	---	110	---	---	6	40%	
Matrix Spike (0050946-MS1)		Prepared: 05/27/20 09:44	Analyzed: 05/28/20 12:46									
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
EPA 6020A												
Arsenic	59.4	0.517	1.03	mg/kg dry	10	51.7	10.8	94	75 - 125%	---	---	
Chromium	88.2	0.517	1.03	mg/kg dry	10	51.7	45.7	82	75 - 125%	---	---	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050946 - EPA 3051A							**Soil**					
Matrix Spike (0050946-MS1)		Prepared: 05/27/20 09:44		Analyzed: 05/28/20 12:46								
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14RE1)												
Copper	95.0	1.03	2.07	mg/kg dry	10	51.7	46.8	93	75 - 125%	---	---	
Zinc	156	2.07	4.14	mg/kg dry	10	51.7	110	90	75 - 125%	---	---	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0060591 - EPA 3051A							Soil					
Blank (0060591-BLK1)		Prepared: 06/17/20 10:25		Analyzed: 06/18/20 16:11								
EPA 6020A												
Arsenic	ND	0.500	1.00	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	1.00	2.00	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	mg/kg wet	10	---	---	---	---	---	---	
LCS (0060591-BS1)		Prepared: 06/17/20 10:25		Analyzed: 06/18/20 16:22								
EPA 6020A												
Arsenic	50.6	0.500	1.00	mg/kg wet	10	50.0	---	101	80 - 120%	---	---	
Chromium	47.2	0.500	1.00	mg/kg wet	10	50.0	---	94	80 - 120%	---	---	
Copper	50.5	1.00	2.00	mg/kg wet	10	50.0	---	101	80 - 120%	---	---	
Zinc	47.2	2.00	4.00	mg/kg wet	10	50.0	---	94	80 - 120%	---	---	

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Demand Parameters

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050720 - PSEP-5310B TOC								Soil				
Blank (0050720-BLK1)		Prepared: 05/20/20 08:53		Analyzed: 05/20/20 19:50								
PSEP/SM 5310B MOD												
Total Organic Carbon	ND	0.020	0.020	%	1	---	---	---	---	---	---	B-02
Blank (0050720-BLK2)		Prepared: 05/20/20 08:53		Analyzed: 05/21/20 20:36								
PSEP/SM 5310B MOD												
Total Organic Carbon	ND	0.020	0.020	%	1	---	---	---	---	---	---	
LCS (0050720-BS1)		Prepared: 05/20/20 08:53		Analyzed: 05/20/20 20:01								
PSEP/SM 5310B MOD												
Total Organic Carbon	10000			mg/kg	1	10000	---	102	90 - 110%	---	---	B-02
Duplicate (0050720-DUP3)		Prepared: 05/20/20 08:53		Analyzed: 05/21/20 12:18								
QC Source Sample: ISM-03_0520---After Processing_(A0E0214-06RE1)												
PSEP/SM 5310B MOD												
Total Organic Carbon	**5.5**	0.020	0.020	%	1	---	5.4	---	---	3	20%	B-02, Q-16
Duplicate (0050720-DUP4)		Prepared: 05/20/20 08:53		Analyzed: 05/21/20 12:29								
QC Source Sample: ISM-03_0520---After Processing_(A0E0214-06RE1)												
PSEP/SM 5310B MOD												
Total Organic Carbon	**5.6**	0.020	0.020	%	1	---	5.4	---	---	4	20%	B-02, Q-16

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GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050635 - Total Solids (Dry Weight)									**Soil**			
Duplicate (0050635-DUP5)		Prepared: 05/18/20 18:47		Analyzed: 05/19/20 09:00								
QC Source Sample: ISM-07_0520---After Processing (A0E0214-14)												
EPA 8000C												
% Solids	**94.7**	1.00	1.00	%	1	---	94.6	---	---	0.06	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0050724 - Total Solids (Dry Weight)												**Soil**

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0051032 - Total Solids (Dry Weight)									**Soil**			
Duplicate (0051032-DUP1)		Prepared: 05/28/20 15:43		Analyzed: 05/29/20 08:46								
QC Source Sample: ISM-01_0520---After Processing (A0E0214-02)												
EPA 8000C												
% Solids	**94.8**	1.00	1.00	%	1	---	94.8	---	---	0.03	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0060584 - Total Solids (Dry Weight)									**Soil**			
Duplicate (0060584-DUP1)		Prepared: 06/17/20 08:54 Analyzed: 06/18/20 08:16										
QC Source Sample: ISM-05_0520---After Processing (A0E0214-10)												
EPA 8000C												
% Solids	**94.6**	1.00	1.00	%	1	---	94.6	---	---	0.01	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
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Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270E

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0050634							
A0E0214-02RE2	Soil	EPA 8270E	05/06/20 18:00	05/18/20 10:51	15.19g/2mL	15g/2mL	0.99
A0E0214-04RE2	Soil	EPA 8270E	05/05/20 11:30	05/18/20 10:51	15.21g/2mL	15g/2mL	0.99
A0E0214-06	Soil	EPA 8270E	05/07/20 12:30	05/18/20 10:51	15.16g/2mL	15g/2mL	0.99
A0E0214-08	Soil	EPA 8270E	05/06/20 13:00	05/18/20 10:51	15.22g/2mL	15g/2mL	0.99
A0E0214-12	Soil	EPA 8270E	05/07/20 15:30	05/18/20 10:51	15.29g/2mL	15g/2mL	0.98
A0E0214-14RE1	Soil	EPA 8270E	05/05/20 14:30	05/18/20 10:51	15.21g/2mL	15g/2mL	0.99
A0E0214-18	Soil	EPA 8270E	05/06/20 18:00	05/18/20 10:51	15.21g/5mL	15g/2mL	2.47
A0E0214-20	Soil	EPA 8270E	05/06/20 14:00	05/18/20 10:51	15.44g/5mL	15g/2mL	2.43
Batch: 0060509							
A0E0214-16RE2	Soil	EPA 8270E	05/05/20 16:30	06/15/20 10:35	15.45g/2mL	15g/2mL	0.97

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0050946							
A0E0214-02	Soil	EPA 6020A	05/06/20 18:00	05/27/20 09:44	0.476g/50mL	0.5g/50mL	1.05
A0E0214-04	Soil	EPA 6020A	05/05/20 11:30	05/27/20 09:44	0.478g/50mL	0.5g/50mL	1.05
A0E0214-06	Soil	EPA 6020A	05/07/20 12:30	05/27/20 09:44	0.459g/50mL	0.5g/50mL	1.09
A0E0214-08	Soil	EPA 6020A	05/06/20 13:00	05/27/20 09:44	0.472g/50mL	0.5g/50mL	1.06
A0E0214-12	Soil	EPA 6020A	05/07/20 15:30	05/27/20 09:44	0.513g/50mL	0.5g/50mL	0.98
A0E0214-14RE1	Soil	EPA 6020A	05/05/20 14:30	05/27/20 09:44	0.454g/50mL	0.5g/50mL	1.10
A0E0214-18	Soil	EPA 6020A	05/06/20 18:00	05/27/20 09:44	0.468g/50mL	0.5g/50mL	1.07
A0E0214-20	Soil	EPA 6020A	05/06/20 14:00	05/27/20 09:44	0.463g/50mL	0.5g/50mL	1.08
Batch: 0060591							
A0E0214-10	Soil	EPA 6020A	05/07/20 10:00	06/17/20 10:25	0.471g/50mL	0.5g/50mL	1.06
A0E0214-16	Soil	EPA 6020A	05/05/20 16:30	06/17/20 10:25	0.488g/50mL	0.5g/50mL	1.02

Demand Parameters

Prep: PSEP-5310B TOC

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0050720							
A0E0214-06RE1	Soil	PSEP/SM 5310B MOD	05/07/20 12:30	05/20/20 08:53			NA

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

SAMPLE PREPARATION INFORMATION

Demand Parameters

Prep: PSEP-5310B TOC

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A0E0214-12	Soil	PSEP/SM 5310B MOD	05/07/20 15:30	05/20/20 08:53			NA

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0050635							
A0E0214-14	Soil	EPA 8000C	05/05/20 14:30	05/18/20 18:47			NA
Batch: 0050724							
A0E0214-06	Soil	EPA 8000C	05/07/20 12:30	05/20/20 19:27			NA
Batch: 0051032							
A0E0214-02	Soil	EPA 8000C	05/06/20 18:00	05/28/20 15:43			NA
A0E0214-04	Soil	EPA 8000C	05/05/20 11:30	05/28/20 15:43			NA
A0E0214-08	Soil	EPA 8000C	05/06/20 13:00	05/28/20 15:43			NA
A0E0214-12	Soil	EPA 8000C	05/07/20 15:30	05/28/20 15:43			NA
A0E0214-18	Soil	EPA 8000C	05/06/20 18:00	05/28/20 15:43			NA
A0E0214-20	Soil	EPA 8000C	05/06/20 14:00	05/28/20 15:43			NA
Batch: 0060584							
A0E0214-10	Soil	EPA 8000C	05/07/20 10:00	06/17/20 08:57			NA
A0E0214-16	Soil	EPA 8000C	05/05/20 16:30	06/17/20 08:57			NA

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
H-08	Sample hold time extended by freezing at -18 degrees C. Total time at 4 degrees C was less than the standard hold time.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-16	Reanalysis of an original Batch QC sample.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-04	Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

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AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported.

RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) are not included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

Apex Laboratories

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

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Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation)
EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene_ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

APEX LABS — CHAIN OF CUSTODY

6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

Lab # A0E0214 COC 1 of 2

Company: GSI | Project Mgr: ~~Baxter~~ Josh Bale | Project Name: Baxter | Project #: 302

Address: 55 SW Yamhill St, Portland, OR 97204 | Phone: 503.239.8799 | Email: jbale@gsiws.com | PO #

Sampled by: GSI / Baxter

Site Location: (OR) WA CA AK ID ___

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn (6020 A) TOTAL DISS. TCLP	TCLP Metals (8)	Archive	ISM-Japanese Slapcake	8041A-PCP	5310B-Mod (TOC)	2540G-Total Solids	1613B-D/F	Archive
ISM-01_0520		5/6/20	930	S	1								X						X			X	X			X	
ISM-02_0520		5/5/20	1130	S	1								X						X			X	X			X	
ISM-03_0520		5/7/20	1230	S	1								X						X			X	X	X	X	X	
ISM-04_0520		5/6/20	1300	S	1								X						X			X	X			X	
ISM-05_0520		5/7/20	1000	S	1																X	X*					
ISM-06_0520		5/7/20	1530	S	1								X						X			X	X	X	X	X	
ISM-07-0520		~~5/3/20~~	~~1533~~	S	1	5/5/20 @ 1430							X						X			X	X			X	
ISM-08_0520		5/5/20	1630	S	1																X	X*					
ISM-104_0520		5/6/20	1800	S	1								X						X			X	X			X	
ISM-204_0520		5/6/20	1400	S	1								X						X			X	X			X	

Normal Turn Around Time (TAT) = (10 Business Days)

TAT Requested (circle): 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: ______

SPECIAL INSTRUCTIONS:
• ISM-05-0520 + ISM-08_0520: Please perform Japanese Slapcake (X*) only if needed for archival

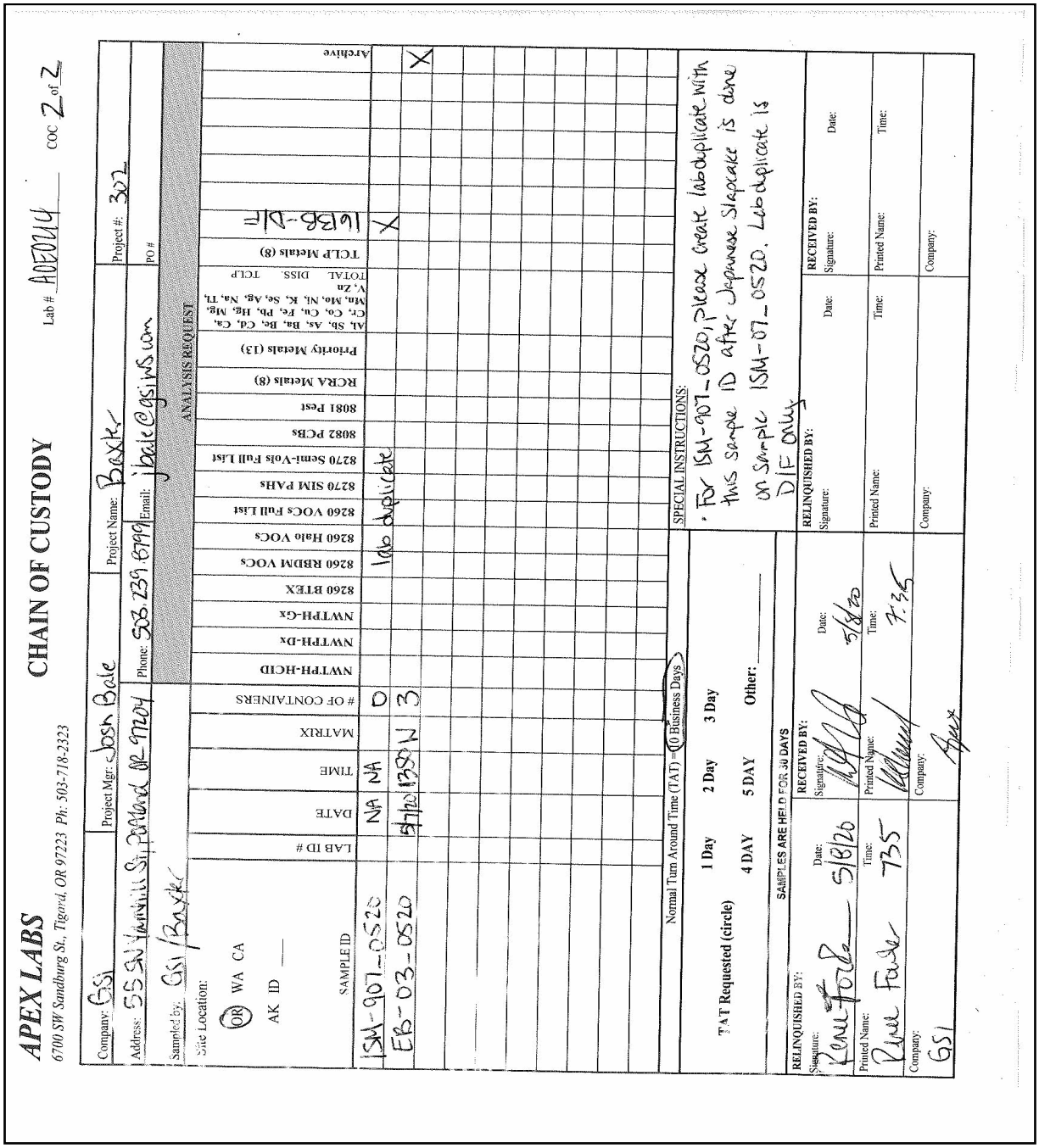
SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Renee Fowler Date: 5/8/20	Signature: [signature] Date: 5/8/20	Signature: Date:	Signature: Date:
Printed Name: Renee Fowler Time: 735	Printed Name: [signature] Time: 7:35	Printed Name: Time:	Printed Name: Time:
Company: GSI	Company: Apex	Company:	Company:

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**



APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A0E0214 COC 2 of 2

Company: GSI | Project Mgr: Josh Bale | Project Name: Baxter | Project #: 302
Address: 55 SW Yamhill St, Portland, OR 97204 | Phone: 503.239.6799 | Email: jbale@gsiws.com | PO #
Sampled by: GSI / Baxter

Site Location: (OR) WA CA AK ID ___

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Archive
ISM-907-0520		NA	NA		0						lab duplicate										X
EB-03-0520		5/8/20	1350	W	3																

Normal Turn Around Time (TAT) = (10 Business Days)

TAT Requested (circle)
1 Day 2 Day 3 Day
4 DAY 5 DAY Other: ___

SAMPLES ARE HELD FOR 30 DAYS

SPECIAL INSTRUCTIONS:
- For ISM-907-0520, Please create lab duplicate with this sample ID after Japanese Stagcake is done on Sample ISM-07-0520. Lab duplicate is DIF only

RELINQUISHED BY:	Date:	RECEIVED BY:	Date:	RELINQUISHED BY:	Date:	RECEIVED BY:	Date:
Signature:		Signature:		Signature:		Signature:	
Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:
Company:		Company:		Company:		Company:	
GSI	735	Apex					

Apex Laboratories

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Lisa Domenighini, Client Services Manager

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Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

AMENDED REPORT

GSI Water Solutions	Project: **JH Baxter-Eugene ISM**	
55 SW Yamhill St, Ste 300	Project Number: **302**	**Report ID:**
Portland, OR 97209	Project Manager: **Josh Bale**	**A0E0214 - 07 13 20 0843**

APEX LABS COOLER RECEIPT FORM

Client: GSI Element WO#: A0 E0214

Project/Project #: Baxter 302

Delivery Info:

Date/time received: 5/8/20 @ 7:35 By: MS

Delivered by: Apex____Client X ESS____FedEx____UPS____Swift____Senvoy____SDS____Other_____

Cooler Inspection Date/time inspected: 5/8/20 @ 7:35 By: MS

Chain of Custody included? Yes X No___ Custody seals? Yes_____ No X

Signed/dated by client? Yes X No___

Signed/dated by Apex? Yes ✓ No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	2.6	4.2	3.2				
Received on ice? (Y/N)	Y	Y	Y				
Temp. blanks? (Y/N)	Y	Y	Y				
Ice type: (Gel/Real/Other)	Real	Real	Real				
Condition:	Good	Good	Good				

Cooler out of temp? (Y/(N)) Possible reason why:

If some coolers are in temp and some out, were green dots applied to out of temperature samples? Yes/No/(NA)

Out of temperature samples form initiated? Yes/No/(NA)

Samples Inspection: Date/time inspected: 5/8/20 @ 1515 By: (8)

All samples intact? Yes X No ___ Comments:

Bottle labels/COCs agree? Yes X No ___ Comments:

COC/container discrepancies form initiated? Yes ___ No X

Containers/volumes received appropriate for analysis? Yes X No ___ Comments:

Do VOA vials have visible headspace? Yes ___ No ___ NA X

Comments

Water samples: pH checked: Yes X No___NA___ pH appropriate? Yes X No___NA___

Comments:

Additional information:

Labeled by: (8) Witness: 1428 Cooler Inspected by: (8) See Project Contact Form: Y

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

June 10, 2020

Mr. Philip Nerenberg
Apex Laboratories
6700 SW Sandburg Street
Portland, Oregon 97223

Re: 2018 DXN & PCB IDIQ
Work Order: 16561
SDG: A0E0214

Dear Mr. Nerenberg:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 20, 2020. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Enclosures

SUBCONTRACT ORDER

Apex Laboratories

A0E0214

5/14/2020

SENDING LABORATORY:

Apex Laboratories
6700 S.W. Sandburg Street
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 336-0745
Project Manager: Lisa Domenighini

RECEIVING LABORATORY:

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd Suite 120
Wilmington, NC 28405
Phone :(910) 795-0421
Fax: -

CFA WO# 16561

Sample Name: ISM-01_0520---After Processing **Soil** **Sampled: 05/06/20 18:00** (A0E0214-02)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 18:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-02_0520---After Processing **Soil** **Sampled: 05/05/20 11:30** (A0E0214-04)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/01/20 11:30	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-03_0520---After Processing **Soil** **Sampled: 05/07/20 12:30** (A0E0214-06)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/03/20 12:30	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-04_0520---After Processing **Soil** **Sampled: 05/06/20 13:00** (A0E0214-08)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 13:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Standard TAT

temp. = 3.4°C

Released By	Date	Received By	Date
	5/18/20 15:40	Fed Ex (Shipper)	
Fed Ex (Shipper)			
Released By	Date	Received By	Date
			5/20/20 10:0

SUBCONTRACT ORDER

Apex Laboratories

A0E0214

CFA WO#16561

Sample Name: ISM-06_0520---After Processing **Soil** **Sampled: 05/07/20 15:30** (A0E0214-12)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/03/20 15:30	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-07_0520---After Processing **Soil** **Sampled: 05/05/20 14:30** (A0E0214-14)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/01/20 14:30	lab duplicate for 214-21
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-104_0520---After Processing **Soil** **Sampled: 05/06/20 18:00** (A0E0214-18)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 18:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-204_0520---After Processing **Soil** **Sampled: 05/06/20 14:00** (A0E0214-20)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 14:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Create from sample 13

Sample Name: ISM-907_0520---After Processing **Soil** **Sampled: 05/05/20 14:30** (A0E0214-21)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/01/20 14:30	
Containers Supplied:			
(A)2 oz Glass Jar			

5/18/20 15:40

Released By Date

Fed Ex (Shipper)

Received By Date

Fed Ex (Shipper)

Released By Date

Received By

5/20/20 10:30

Date

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: Apex	Work Order: 16561
Shipping Company: FedEx	Date/Time Received: 5/20/20 1015

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

Air Sample Receipt Specifics	Yes	NA	No
Air sample in shipment?			✓

Air Witness: _____

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe) ✓
2	Custody seal/s present on cooler?			✓	Seal intact? Yes No
3	Chain of Custody documents included with shipment?	✓			
4	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: (ice bags) blue ice dry ice none other (describe) 3.2 +0.2 = 3.4° Temperature Blank present: (Yes) No
5	Aqueous samples found to have visible solids?		✓		Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: Received 9 - 2oz clear
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: _____ Date: 5/20/20

CF-UD-F-7

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Apex Laboratories (APEX)
SDG A0E0214
Work Order 16561

Method/Analysis Information

Product:	**Dioxins/Furans by EPA 1613B-3546 in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	EPA Method 1613B-3546
Analytical Batch Number:	43904, 43953
Clean Up Batch Number:	43903, 43952
Extraction Batch Number:	43902, 43951

Sample Analysis

Samples were received at 3.4°C (16561001, 16561002, 16561003, 16561004, 16561005, 16561006, 16561007, 16561008, 16561009). The following samples were analyzed using the analytical protocol as established in Method 1613B:

Sample ID	Client ID
12026685	Method Blank (MB)
12026686	Laboratory Control Sample (LCS)
12026687	Laboratory Control Sample Duplicate (LCSD)
12026716	Method Blank (MB)
12026717	Laboratory Control Sample (LCS)
12026718	Laboratory Control Sample Duplicate (LCSD)
12026719	16561002(ISM-02_0520---After Processing) Matrix Spike (MS)
12026720	16561002(ISM-02_0520---After Processing) Matrix Spike Duplicate (MSD)
16561001	ISM-01_0520---After Processing
16561002	ISM-02_0520---After Processing
16561003	ISM-03_0520---After Processing
16561004	ISM-04_0520---After Processing
16561005	ISM-06_0520---After Processing
16561006	ISM-07_0520---After Processing
16561007	ISM-104_0520---After Processing
16561008	ISM-204_0520---After Processing
16561009	ISM-907_0520---After Processing

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 16.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2009 TNI Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
Sample 16561002 (ISM-02_0520---After Processing)- Batch 43953 was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
One analyte recovered outside the acceptance limits. 12026720 (ISM-02_0520---After Processing)- Batch 43953.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples required dilutions due to over-range target analytes. Sample extracts were diluted 50x and re-spiked with surrogates; sample concentrations are not recovery-corrected. 16561003 (ISM-03_0520---After Processing) and 16561005 (ISM-06_0520---After Processing)- Batch 43904.

Sample Re-extraction/Re-analysis
The samples in Batch 43953 were re-extracted in order to confirm surrogate failures. A 1g aliquot was used for the re-extraction due to over-range target analytes. Batch 43953.

Miscellaneous Information

Nonconformance (NCR) Documentation
A NCR was not required for this SDG.

Manual Integrations
Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

Sample preparation
No difficulties were encountered during sample preparation.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These

hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Qualifier Definition Report
for

APEX001 Apex Laboratories

Client SDG: A0E0214 CFA Work Order: 16561

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B The target analyte was detected in the associated blank.

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for, but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature:  **Name: Heather Patterson**

Date: 10 JUN 2020 **Title: Group Leader**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561001**	**Date Collected:**	**05/06/2020 18:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**42.7**
Client ID:	**ISM-01_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/03/2020 16:10**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A03JUN20A_2-2**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**18.94 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.514	pg/g	0.190	0.921
40321-76-4	1,2,3,7,8-PeCDD	J	0.860	pg/g	0.162	4.61
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.40	pg/g	0.354	4.61
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.86	pg/g	0.339	4.61
19408-74-3	1,2,3,7,8,9-HxCDD	JK	1.97	pg/g	0.352	4.61
35822-46-9	1,2,3,4,6,7,8-HpCDD		81.1	pg/g	0.484	4.61
3268-87-9	1,2,3,4,6,7,8,9-OCDD		760	pg/g	0.857	9.21
51207-31-9	2,3,7,8-TCDF	U	0.251	pg/g	0.251	0.921
57117-41-6	1,2,3,7,8-PeCDF	BJ	0.551	pg/g	0.201	4.61
57117-31-4	2,3,4,7,8-PeCDF	BJ	0.724	pg/g	0.195	4.61
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.822	pg/g	0.144	4.61
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.656	pg/g	0.153	4.61
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.416	pg/g	0.197	4.61
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.987	pg/g	0.152	4.61
67562-39-4	1,2,3,4,6,7,8-HpCDF		16.4	pg/g	0.273	4.61
55673-89-7	1,2,3,4,7,8,9-HpCDF	JK	1.10	pg/g	0.359	4.61
39001-02-0	1,2,3,4,6,7,8,9-OCDF		41.5	pg/g	0.326	9.21
41903-57-5	Total TeCDD	JK	1.51	pg/g	0.190	0.921
36088-22-9	Total PeCDD	JK	4.33	pg/g	0.162	4.61
34465-46-8	Total HxCDD	JK	23.5	pg/g	0.339	4.61
37871-00-4	Total HpCDD		163	pg/g	0.484	4.61
30402-14-3	Total TeCDF	JK	1.27	pg/g	0.251	0.921
30402-15-4	Total PeCDF	JK	9.25	pg/g	0.0479	4.61
55684-94-1	Total HxCDF	J	25.0	pg/g	0.144	4.61
38998-75-3	Total HpCDF	JK	51.0	pg/g	0.273	4.61
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		3.85	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		3.86	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		74.0	184	pg/g	40.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		86.5	184	pg/g	47.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		74.8	184	pg/g	40.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		76.7	184	pg/g	41.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		89.0	184	pg/g	48.3	(23%-140%)
13C-OCDD		148	368	pg/g	40.2	(17%-157%)
13C-2,3,7,8-TCDF		80.9	184	pg/g	43.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		89.4	184	pg/g	48.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		83.9	184	pg/g	45.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		74.9	184	pg/g	40.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		71.8	184	pg/g	39.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		76.7	184	pg/g	41.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		77.7	184	pg/g	42.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561001**	**Date Collected:**	**05/06/2020 18:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**42.7**
Client ID:	**ISM-01_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/03/2020 16:10**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A03JUN20A_2-2**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**18.94 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		76.5	184	pg/g	41.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		85.1	184	pg/g	46.2	(26%-138%)
37Cl-2,3,7,8-TCDD		15.2	18.4	pg/g	82.4	(35%-197%)

Comments:

B **The target analyte was detected in the associated blank.**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561002**	**Date Collected:**	**05/05/2020 11:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**24.5**
Client ID:	**ISM-02_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/08/2020 23:23**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-10**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.07 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	3.56	pg/g	3.56	12.4
40321-76-4	1,2,3,7,8-PeCDD	JK	5.49	pg/g	4.55	61.9
39227-28-6	1,2,3,4,7,8-HxCDD	JK	8.39	pg/g	2.62	61.9
57653-85-7	1,2,3,6,7,8-HxCDD	J	30.8	pg/g	2.45	61.9
19408-74-3	1,2,3,7,8,9-HxCDD	J	12.0	pg/g	2.57	61.9
35822-46-9	1,2,3,4,6,7,8-HpCDD		675	pg/g	4.43	61.9
3268-87-9	1,2,3,4,6,7,8,9-OCDD		8280	pg/g	7.47	124
51207-31-9	2,3,7,8-TCDF	U	3.12	pg/g	3.12	12.4
57117-41-6	1,2,3,7,8-PeCDF	BJK	4.13	pg/g	2.57	61.9
57117-31-4	2,3,4,7,8-PeCDF	BJK	4.35	pg/g	2.72	61.9
70648-26-9	1,2,3,4,7,8-HxCDF	BJK	5.59	pg/g	2.40	61.9
57117-44-9	1,2,3,6,7,8-HxCDF	J	5.52	pg/g	2.47	61.9
72918-21-9	1,2,3,7,8,9-HxCDF	U	3.04	pg/g	3.04	61.9
60851-34-5	2,3,4,6,7,8-HxCDF	JK	6.46	pg/g	2.32	61.9
67562-39-4	1,2,3,4,6,7,8-HpCDF		127	pg/g	2.43	61.9
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	9.92	pg/g	3.04	61.9
39001-02-0	1,2,3,4,6,7,8,9-OCDF		277	pg/g	4.11	124
41903-57-5	Total TeCDD	K	19.7	pg/g	3.56	12.4
36088-22-9	Total PeCDD	JK	21.4	pg/g	4.55	61.9
34465-46-8	Total HxCDD	JK	154	pg/g	2.45	61.9
37871-00-4	Total HpCDD		1300	pg/g	4.43	61.9
30402-14-3	Total TeCDF	U	3.12	pg/g	3.12	12.4
30402-15-4	Total PeCDF	JK	54.7	pg/g	0.963	61.9
55684-94-1	Total HxCDF	JK	159	pg/g	2.32	61.9
38998-75-3	Total HpCDF	J	366	pg/g	2.43	61.9
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		24.5	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		26.6	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1800	2470	pg/g	72.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		1690	2470	pg/g	68.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1980	2470	pg/g	80.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1780	2470	pg/g	71.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2220	2470	pg/g	89.7	(23%-140%)
13C-OCDD		3860	4950	pg/g	77.9	(17%-157%)
13C-2,3,7,8-TCDF		2020	2470	pg/g	81.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		1690	2470	pg/g	68.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		1610	2470	pg/g	65.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1810	2470	pg/g	73.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1660	2470	pg/g	67.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1860	2470	pg/g	75.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1920	2470	pg/g	77.4	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561002**	**Date Collected:**	**05/05/2020 11:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**24.5**
Client ID:	**ISM-02_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/08/2020 23:23**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-10**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.07 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1860	2470	pg/g	75.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2080	2470	pg/g	84.2	(26%-138%)
37Cl-2,3,7,8-TCDD		201	247	pg/g	81.3	(35%-197%)

Comments:

B **The target analyte was detected in the associated blank.**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561003**	**Date Collected:**	**05/07/2020 12:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**31.9**
Client ID:	**ISM-03_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/05/2020 01:13**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A04JUN20A_2-3**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**.301 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	4.20	pg/g	4.20	48.8
40321-76-4	1,2,3,7,8-PeCDD	J	12.5	pg/g	6.21	244
39227-28-6	1,2,3,4,7,8-HxCDD	J	22.1	pg/g	10.1	244
57653-85-7	1,2,3,6,7,8-HxCDD	J	89.3	pg/g	9.70	244
19408-74-3	1,2,3,7,8,9-HxCDD	J	46.9	pg/g	10.1	244
35822-46-9	1,2,3,4,6,7,8-HpCDD		2310	pg/g	28.2	244
3268-87-9	1,2,3,4,6,7,8,9-OCDD		23400	pg/g	74.4	488
51207-31-9	2,3,7,8-TCDF	U	3.75	pg/g	3.75	48.8
57117-41-6	1,2,3,7,8-PeCDF	J	4.98	pg/g	3.98	244
57117-31-4	2,3,4,7,8-PeCDF	JK	8.59	pg/g	3.74	244
70648-26-9	1,2,3,4,7,8-HxCDF	J	16.2	pg/g	7.54	244
57117-44-9	1,2,3,6,7,8-HxCDF	J	12.1	pg/g	7.21	244
72918-21-9	1,2,3,7,8,9-HxCDF	U	9.59	pg/g	9.59	244
60851-34-5	2,3,4,6,7,8-HxCDF	J	18.5	pg/g	7.10	244
67562-39-4	1,2,3,4,6,7,8-HpCDF		389	pg/g	13.5	244
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	30.8	pg/g	18.9	244
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1600	pg/g	24.3	488
41903-57-5	Total TeCDD	U	4.20	pg/g	4.20	48.8
36088-22-9	Total PeCDD	JK	47.1	pg/g	6.21	244
34465-46-8	Total HxCDD	J	534	pg/g	9.70	244
37871-00-4	Total HpCDD		5080	pg/g	28.2	244
30402-14-3	Total TeCDF	U	3.75	pg/g	3.75	48.8
30402-15-4	Total PeCDF	JK	106	pg/g	1.48	244
55684-94-1	Total HxCDF	J	486	pg/g	7.10	244
38998-75-3	Total HpCDF	J	1540	pg/g	13.5	244
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		70.5	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		73.3	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		5580	9760	pg/g	57.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		7440	9760	pg/g	76.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		6720	9760	pg/g	68.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		7850	9760	pg/g	80.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		7880	9760	pg/g	80.8	(23%-140%)
13C-OCDD		14100	19500	pg/g	72.4	(17%-157%)
13C-2,3,7,8-TCDF		6180	9760	pg/g	63.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		7800	9760	pg/g	79.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		7450	9760	pg/g	76.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		6640	9760	pg/g	68.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		7590	9760	pg/g	77.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		7660	9760	pg/g	78.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		7770	9760	pg/g	79.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561003**	**Date Collected:**	**05/07/2020 12:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**31.9**
Client ID:	**ISM-03_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/05/2020 01:13**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A04JUN20A_2-3**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**.301 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		7380	9760	pg/g	75.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		7500	9760	pg/g	76.9	(26%-138%)
37Cl-2,3,7,8-TCDD		507	976	pg/g	52.0	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561004**	**Date Collected:**	**05/06/2020 13:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**38.4**
Client ID:	**ISM-04_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 21:33**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C_3-8**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**17.09 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		2.45	pg/g	0.348	0.951
40321-76-4	1,2,3,7,8-PeCDD		15.0	pg/g	0.382	4.75
39227-28-6	1,2,3,4,7,8-HxCDD		26.2	pg/g	0.795	4.75
57653-85-7	1,2,3,6,7,8-HxCDD		63.7	pg/g	0.833	4.75
19408-74-3	1,2,3,7,8,9-HxCDD		44.1	pg/g	0.827	4.75
35822-46-9	1,2,3,4,6,7,8-HpCDD		1410	pg/g	1.87	4.75
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11300	pg/g	2.19	9.51
51207-31-9	2,3,7,8-TCDF		2.68	pg/g	0.605	0.951
57117-41-6	1,2,3,7,8-PeCDF	J	3.13	pg/g	0.270	4.75
57117-31-4	2,3,4,7,8-PeCDF		6.44	pg/g	0.257	4.75
70648-26-9	1,2,3,4,7,8-HxCDF		12.5	pg/g	0.447	4.75
57117-44-9	1,2,3,6,7,8-HxCDF		12.0	pg/g	0.473	4.75
72918-21-9	1,2,3,7,8,9-HxCDF	J	3.21	pg/g	0.538	4.75
60851-34-5	2,3,4,6,7,8-HxCDF		16.8	pg/g	0.456	4.75
67562-39-4	1,2,3,4,6,7,8-HpCDF		339	pg/g	0.673	4.75
55673-89-7	1,2,3,4,7,8,9-HpCDF		18.7	pg/g	0.865	4.75
39001-02-0	1,2,3,4,6,7,8,9-OCDF		991	pg/g	1.59	9.51
41903-57-5	Total TeCDD	JK	14.6	pg/g	0.348	0.951
36088-22-9	Total PeCDD	J	70.1	pg/g	0.382	4.75
34465-46-8	Total HxCDD		429	pg/g	0.795	4.75
37871-00-4	Total HpCDD	E	2690	pg/g	1.87	4.75
30402-14-3	Total TeCDF	JK	40.3	pg/g	0.605	0.951
30402-15-4	Total PeCDF	JK	141	pg/g	0.0696	4.75
55684-94-1	Total HxCDF	J	398	pg/g	0.447	4.75
38998-75-3	Total HpCDF	JK	968	pg/g	0.673	4.75
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		58.9	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		58.9	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		96.6	190	pg/g	50.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		96.5	190	pg/g	50.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		103	190	pg/g	53.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		97.6	190	pg/g	51.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		113	190	pg/g	59.7	(23%-140%)
13C-OCDD		192	380	pg/g	50.5	(17%-157%)
13C-2,3,7,8-TCDF		109	190	pg/g	57.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		101	190	pg/g	53.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		94.0	190	pg/g	49.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		96.9	190	pg/g	51.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		90.2	190	pg/g	47.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.2	190	pg/g	52.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		97.5	190	pg/g	51.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561004**	**Date Collected:**	**05/06/2020 13:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**38.4**
Client ID:	**ISM-04_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 21:33**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C_3-8**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**17.09 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		95.3	190	pg/g	50.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		109	190	pg/g	57.1	(26%-138%)
37Cl-2,3,7,8-TCDD		15.1	19.0	pg/g	79.7	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561004**	**Date Collected:**	**05/06/2020 13:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**38.4**
Client ID:	**ISM-04_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/10/2020 09:37**	**Analyst:**	**MJC**	**Instrument:**	**HRP757**
Data File:	**e10jun20a-4**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**17.09 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		2.00	pg/g	0.354	0.951

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561005**	**Date Collected:**	**05/07/2020 15:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**29.4**
Client ID:	**ISM-06_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/05/2020 02:02**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A04JUN20A_2-4**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**.301 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	4.96	pg/g	4.96	47.1
40321-76-4	1,2,3,7,8-PeCDD	J	19.0	pg/g	10.5	235
39227-28-6	1,2,3,4,7,8-HxCDD	J	28.1	pg/g	15.7	235
57653-85-7	1,2,3,6,7,8-HxCDD	J	195	pg/g	15.6	235
19408-74-3	1,2,3,7,8,9-HxCDD	J	76.6	pg/g	15.9	235
35822-46-9	1,2,3,4,6,7,8-HpCDD		4520	pg/g	38.3	235
3268-87-9	1,2,3,4,6,7,8,9-OCDD		46200	pg/g	83.9	471
51207-31-9	2,3,7,8-TCDF	U	4.40	pg/g	4.40	47.1
57117-41-6	1,2,3,7,8-PeCDF	U	11.7	pg/g	11.7	235
57117-31-4	2,3,4,7,8-PeCDF	J	18.2	pg/g	10.9	235
70648-26-9	1,2,3,4,7,8-HxCDF	J	41.1	pg/g	10.9	235
57117-44-9	1,2,3,6,7,8-HxCDF	J	22.4	pg/g	10.5	235
72918-21-9	1,2,3,7,8,9-HxCDF	J	18.6	pg/g	15.1	235
60851-34-5	2,3,4,6,7,8-HxCDF	J	29.5	pg/g	10.3	235
67562-39-4	1,2,3,4,6,7,8-HpCDF		611	pg/g	13.6	235
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	26.8	pg/g	20.8	235
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1000	pg/g	23.4	471
41903-57-5	Total TeCDD	JK	20.2	pg/g	4.96	47.1
36088-22-9	Total PeCDD	J	90.1	pg/g	10.5	235
34465-46-8	Total HxCDD	J	1040	pg/g	15.6	235
37871-00-4	Total HpCDD		9880	pg/g	38.3	235
30402-14-3	Total TeCDF	JK	12.0	pg/g	4.40	47.1
30402-15-4	Total PeCDF	J	249	pg/g	1.25	235
55684-94-1	Total HxCDF	J	1140	pg/g	10.3	235
38998-75-3	Total HpCDF	J	2040	pg/g	13.6	235
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		131	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		134	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		5790	9410	pg/g	61.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		7060	9410	pg/g	75.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		6400	9410	pg/g	68.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		7240	9410	pg/g	77.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		7410	9410	pg/g	78.7	(23%-140%)
13C-OCDD		13700	18800	pg/g	72.6	(17%-157%)
13C-2,3,7,8-TCDF		6510	9410	pg/g	69.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		7640	9410	pg/g	81.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		7190	9410	pg/g	76.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		6240	9410	pg/g	66.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		7260	9410	pg/g	77.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		7200	9410	pg/g	76.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		7240	9410	pg/g	76.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561005**	**Date Collected:**	**05/07/2020 15:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**29.4**
Client ID:	**ISM-06_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/05/2020 02:02**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A04JUN20A_2-4**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**.301 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		7060	9410	pg/g	75.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		7110	9410	pg/g	75.5	(26%-138%)
37Cl-2,3,7,8-TCDD		541	941	pg/g	57.5	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561006**	**Date Collected:**	**05/05/2020 14:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**35**
Client ID:	**ISM-07_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 22:22**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C_3-9**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**16.57 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.492	pg/g	0.310	0.929
40321-76-4	1,2,3,7,8-PeCDD	JK	1.76	pg/g	0.457	4.64
39227-28-6	1,2,3,4,7,8-HxCDD	J	4.64	pg/g	0.362	4.64
57653-85-7	1,2,3,6,7,8-HxCDD		18.0	pg/g	0.362	4.64
19408-74-3	1,2,3,7,8,9-HxCDD		7.51	pg/g	0.368	4.64
35822-46-9	1,2,3,4,6,7,8-HpCDD		444	pg/g	1.25	4.64
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4460	pg/g	2.43	9.29
51207-31-9	2,3,7,8-TCDF	K	1.16	pg/g	0.446	0.929
57117-41-6	1,2,3,7,8-PeCDF	J	2.18	pg/g	0.329	4.64
57117-31-4	2,3,4,7,8-PeCDF	J	2.94	pg/g	0.325	4.64
70648-26-9	1,2,3,4,7,8-HxCDF	J	4.63	pg/g	0.368	4.64
57117-44-9	1,2,3,6,7,8-HxCDF	J	3.18	pg/g	0.370	4.64
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.65	pg/g	0.490	4.64
60851-34-5	2,3,4,6,7,8-HxCDF		4.68	pg/g	0.368	4.64
67562-39-4	1,2,3,4,6,7,8-HpCDF		140	pg/g	0.535	4.64
55673-89-7	1,2,3,4,7,8,9-HpCDF		7.52	pg/g	0.723	4.64
39001-02-0	1,2,3,4,6,7,8,9-OCDF		524	pg/g	1.05	9.29
41903-57-5	Total TeCDD	JK	5.49	pg/g	0.310	0.929
36088-22-9	Total PeCDD	JK	11.0	pg/g	0.457	4.64
34465-46-8	Total HxCDD	J	95.8	pg/g	0.362	4.64
37871-00-4	Total HpCDD		837	pg/g	1.25	4.64
30402-14-3	Total TeCDF	JK	11.9	pg/g	0.446	0.929
30402-15-4	Total PeCDF	JK	51.8	pg/g	0.0615	4.64
55684-94-1	Total HxCDF	J	182	pg/g	0.368	4.64
38998-75-3	Total HpCDF	J	522	pg/g	0.535	4.64
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		15.2	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		15.2	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		112	186	pg/g	60.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		121	186	pg/g	64.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		111	186	pg/g	59.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		110	186	pg/g	59.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		122	186	pg/g	65.7	(23%-140%)
13C-OCDD		200	372	pg/g	53.9	(17%-157%)
13C-2,3,7,8-TCDF		123	186	pg/g	66.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		129	186	pg/g	69.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		118	186	pg/g	63.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		107	186	pg/g	57.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		103	186	pg/g	55.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		110	186	pg/g	59.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		110	186	pg/g	59.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561006**	**Date Collected:**	**05/05/2020 14:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**35**
Client ID:	**ISM-07_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 22:22**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C_3-9**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**16.57 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		106	186	pg/g	56.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		112	186	pg/g	60.2	(26%-138%)
37Cl-2,3,7,8-TCDD		15.3	18.6	pg/g	82.1	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561006**	**Date Collected:**	**05/05/2020 14:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**35**
Client ID:	**ISM-07_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 10:59**	**Analyst:**	**MJC**	**Instrument:**	**HRP757**
Data File:	**e09jun20a-4**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**16.57 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.48	pg/g	0.294	0.929

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561007**	**Date Collected:**	**05/06/2020 18:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**11.3**
Client ID:	**ISM-104_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 01:49**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-13**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.03 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	4.73	pg/g	1.92	10.9
40321-76-4	1,2,3,7,8-PeCDD	J	21.7	pg/g	3.26	54.7
39227-28-6	1,2,3,4,7,8-HxCDD	J	34.3	pg/g	2.67	54.7
57653-85-7	1,2,3,6,7,8-HxCDD		96.0	pg/g	2.63	54.7
19408-74-3	1,2,3,7,8,9-HxCDD		68.0	pg/g	2.69	54.7
35822-46-9	1,2,3,4,6,7,8-HpCDD		2230	pg/g	8.21	54.7
3268-87-9	1,2,3,4,6,7,8,9-OCDD		21800	pg/g	10.3	109
51207-31-9	2,3,7,8-TCDF	JK	2.23	pg/g	2.18	10.9
57117-41-6	1,2,3,7,8-PeCDF	BJ	5.23	pg/g	1.46	54.7
57117-31-4	2,3,4,7,8-PeCDF	J	9.61	pg/g	1.49	54.7
70648-26-9	1,2,3,4,7,8-HxCDF	J	18.6	pg/g	1.93	54.7
57117-44-9	1,2,3,6,7,8-HxCDF	JK	18.8	pg/g	1.97	54.7
72918-21-9	1,2,3,7,8,9-HxCDF	J	6.04	pg/g	2.63	54.7
60851-34-5	2,3,4,6,7,8-HxCDF	J	24.7	pg/g	1.89	54.7
67562-39-4	1,2,3,4,6,7,8-HpCDF		511	pg/g	2.39	54.7
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	29.4	pg/g	3.24	54.7
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1480	pg/g	4.22	109
41903-57-5	Total TeCDD	JK	18.8	pg/g	1.92	10.9
36088-22-9	Total PeCDD	J	94.5	pg/g	3.26	54.7
34465-46-8	Total HxCDD	JK	630	pg/g	2.63	54.7
37871-00-4	Total HpCDD		4290	pg/g	8.21	54.7
30402-14-3	Total TeCDF	JK	40.6	pg/g	2.18	10.9
30402-15-4	Total PeCDF	JK	194	pg/g	0.368	54.7
55684-94-1	Total HxCDF	JK	573	pg/g	1.89	54.7
38998-75-3	Total HpCDF	J	1450	pg/g	2.39	54.7
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		91.0	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		91.0	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1360	2190	pg/g	62.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		1570	2190	pg/g	71.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1540	2190	pg/g	70.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1480	2190	pg/g	67.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1680	2190	pg/g	76.8	(23%-140%)
13C-OCDD		2820	4380	pg/g	64.4	(17%-157%)
13C-2,3,7,8-TCDF		1510	2190	pg/g	69.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		1670	2190	pg/g	76.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		1530	2190	pg/g	69.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1490	2190	pg/g	68.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1410	2190	pg/g	64.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1520	2190	pg/g	69.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1490	2190	pg/g	68.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561007**	**Date Collected:**	**05/06/2020 18:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**11.3**
Client ID:	**ISM-104_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 01:49**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-13**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.03 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1470	2190	pg/g	67.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1590	2190	pg/g	72.5	(26%-138%)
37Cl-2,3,7,8-TCDD		171	219	pg/g	78.0	(35%-197%)

Comments:

B **The target analyte was detected in the associated blank.**

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561008**	**Date Collected:**	**05/06/2020 14:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**31.5**
Client ID:	**ISM-204_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 02:38**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-14**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	7.83	pg/g	2.55	13.1
40321-76-4	1,2,3,7,8-PeCDD	J	34.0	pg/g	3.21	65.7
39227-28-6	1,2,3,4,7,8-HxCDD	J	61.5	pg/g	4.34	65.7
57653-85-7	1,2,3,6,7,8-HxCDD		152	pg/g	4.42	65.7
19408-74-3	1,2,3,7,8,9-HxCDD		112	pg/g	4.44	65.7
35822-46-9	1,2,3,4,6,7,8-HpCDD		3720	pg/g	12.9	65.7
3268-87-9	1,2,3,4,6,7,8,9-OCDD		35000	pg/g	15.5	131
51207-31-9	2,3,7,8-TCDF	U	3.60	pg/g	3.60	13.1
57117-41-6	1,2,3,7,8-PeCDF	JK	10.1	pg/g	2.03	65.7
57117-31-4	2,3,4,7,8-PeCDF	J	16.3	pg/g	2.02	65.7
70648-26-9	1,2,3,4,7,8-HxCDF	J	34.4	pg/g	2.87	65.7
57117-44-9	1,2,3,6,7,8-HxCDF	J	34.7	pg/g	3.00	65.7
72918-21-9	1,2,3,7,8,9-HxCDF	J	9.67	pg/g	3.76	65.7
60851-34-5	2,3,4,6,7,8-HxCDF	J	42.4	pg/g	2.89	65.7
67562-39-4	1,2,3,4,6,7,8-HpCDF		877	pg/g	5.15	65.7
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	48.1	pg/g	6.83	65.7
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2550	pg/g	6.62	131
41903-57-5	Total TeCDD	JK	31.5	pg/g	2.55	13.1
36088-22-9	Total PeCDD	JK	171	pg/g	3.21	65.7
34465-46-8	Total HxCDD	JK	1010	pg/g	4.34	65.7
37871-00-4	Total HpCDD		7020	pg/g	12.9	65.7
30402-14-3	Total TeCDF	JK	73.1	pg/g	3.60	13.1
30402-15-4	Total PeCDF	JK	369	pg/g	0.610	65.7
55684-94-1	Total HxCDF	J	996	pg/g	2.87	65.7
38998-75-3	Total HpCDF	J	2430	pg/g	5.15	65.7
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		149	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		149	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1770	2630	pg/g	67.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		1750	2630	pg/g	66.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1950	2630	pg/g	74.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1890	2630	pg/g	72.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2260	2630	pg/g	86.0	(23%-140%)
13C-OCDD		4110	5260	pg/g	78.1	(17%-157%)
13C-2,3,7,8-TCDF		1980	2630	pg/g	75.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		1800	2630	pg/g	68.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		1690	2630	pg/g	64.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1840	2630	pg/g	69.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1720	2630	pg/g	65.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1920	2630	pg/g	73.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1850	2630	pg/g	70.5	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561008**	**Date Collected:**	**05/06/2020 14:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**31.5**
Client ID:	**ISM-204_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 02:38**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-14**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1930	2630	pg/g	73.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2110	2630	pg/g	80.2	(26%-138%)
37Cl-2,3,7,8-TCDD		208	263	pg/g	79.0	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561009**	**Date Collected:**	**05/05/2020 14:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**40.5**
Client ID:	**ISM-907_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 23:11**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C_3-10**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**19.19 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.475	pg/g	0.249	0.876
40321-76-4	1,2,3,7,8-PeCDD	J	1.69	pg/g	0.354	4.38
39227-28-6	1,2,3,4,7,8-HxCDD	J	4.07	pg/g	0.442	4.38
57653-85-7	1,2,3,6,7,8-HxCDD		16.5	pg/g	0.436	4.38
19408-74-3	1,2,3,7,8,9-HxCDD		6.51	pg/g	0.445	4.38
35822-46-9	1,2,3,4,6,7,8-HpCDD		407	pg/g	1.35	4.38
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4620	pg/g	1.77	8.76
51207-31-9	2,3,7,8-TCDF		1.07	pg/g	0.373	0.876
57117-41-6	1,2,3,7,8-PeCDF	J	1.64	pg/g	0.319	4.38
57117-31-4	2,3,4,7,8-PeCDF	J	2.82	pg/g	0.317	4.38
70648-26-9	1,2,3,4,7,8-HxCDF	J	4.24	pg/g	0.342	4.38
57117-44-9	1,2,3,6,7,8-HxCDF	J	2.71	pg/g	0.342	4.38
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.51	pg/g	0.445	4.38
60851-34-5	2,3,4,6,7,8-HxCDF	J	4.29	pg/g	0.343	4.38
67562-39-4	1,2,3,4,6,7,8-HpCDF		124	pg/g	0.487	4.38
55673-89-7	1,2,3,4,7,8,9-HpCDF		6.93	pg/g	0.626	4.38
39001-02-0	1,2,3,4,6,7,8,9-OCDF		478	pg/g	0.787	8.76
41903-57-5	Total TeCDD	JK	4.98	pg/g	0.249	0.876
36088-22-9	Total PeCDD	JK	10.2	pg/g	0.354	4.38
34465-46-8	Total HxCDD	J	88.9	pg/g	0.436	4.38
37871-00-4	Total HpCDD		775	pg/g	1.35	4.38
30402-14-3	Total TeCDF	JK	9.49	pg/g	0.373	0.876
30402-15-4	Total PeCDF	JK	46.6	pg/g	0.0682	4.38
55684-94-1	Total HxCDF	J	161	pg/g	0.342	4.38
38998-75-3	Total HpCDF	J	465	pg/g	0.487	4.38
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		14.1	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		14.1	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		68.8	175	pg/g	39.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		74.1	175	pg/g	42.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		70.3	175	pg/g	40.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		67.2	175	pg/g	38.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		76.9	175	pg/g	43.9	(23%-140%)
13C-OCDD		128	350	pg/g	36.6	(17%-157%)
13C-2,3,7,8-TCDF		75.4	175	pg/g	43.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		77.5	175	pg/g	44.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		71.0	175	pg/g	40.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		66.5	175	pg/g	38.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		64.7	175	pg/g	36.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		68.9	175	pg/g	39.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		70.0	175	pg/g	40.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561009**	**Date Collected:**	**05/05/2020 14:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**40.5**
Client ID:	**ISM-907_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 23:11**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C_3-10**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**19.19 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		66.1	175	pg/g	37.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		71.1	175	pg/g	40.6	(26%-138%)
37Cl-2,3,7,8-TCDD		14.8	17.5	pg/g	84.5	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16561009**	**Date Collected:**	**05/05/2020 14:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**40.5**
Client ID:	**ISM-907_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 12:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP757**
Data File:	**e09jun20a-7**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**19.19 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.27	pg/g	0.284	0.876

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12026686	LCS for batch 43902	13C-2,3,7,8-TCDD		78.7	(20%-175%)
		13C-1,2,3,7,8-PeCDD		87.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		76.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		82.1	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		78.9	(22%-166%)
		13C-OCDD		61.4	(13%-199%)
		13C-2,3,7,8-TCDF		89.0	(22%-152%)
		13C-1,2,3,7,8-PeCDF		101	(21%-192%)
		13C-2,3,4,7,8-PeCDF		90.5	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		82.1	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		82.6	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		84.8	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		84.1	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		74.1	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		77.5	(20%-186%)
		37Cl-2,3,7,8-TCDD		86.8	(31%-191%)
12026687	LCSD for batch 43902	13C-2,3,7,8-TCDD		72.3	(20%-175%)
		13C-1,2,3,7,8-PeCDD		77.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		71.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		74.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		73.6	(22%-166%)
		13C-OCDD		56.6	(13%-199%)
		13C-2,3,7,8-TCDF		82.5	(22%-152%)
		13C-1,2,3,7,8-PeCDF		93.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		81.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		74.4	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		75.1	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		76.0	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		77.5	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		67.3	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		71.1	(20%-186%)
		37Cl-2,3,7,8-TCDD		86.6	(31%-191%)
12026685	MB for batch 43902	13C-2,3,7,8-TCDD		73.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		73.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		74.2	(23%-140%)
		13C-OCDD		58.9	(17%-157%)
		13C-2,3,7,8-TCDF		83.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		96.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		76.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		76.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		68.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.5	(35%-197%)
16561001	ISM-01_0520---After Processing	13C-2,3,7,8-TCDD		40.2	(25%-164%)

Surrogate Recovery Report

SDG Number: A0E0214

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
16561001	ISM-01_0520---After Processing	13C-1,2,3,7,8-PeCDD		47.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		40.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		41.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		48.3	(23%-140%)
		13C-OCDD		40.2	(17%-157%)
		13C-2,3,7,8-TCDF		43.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		48.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		45.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		40.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		39.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		41.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		42.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		41.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		46.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.4	(35%-197%)
16561003	ISM-03_0520---After Processing	13C-2,3,7,8-TCDD		57.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		76.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		68.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		80.8	(23%-140%)
		13C-OCDD		72.4	(17%-157%)
		13C-2,3,7,8-TCDF		63.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		79.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		76.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		68.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		79.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		52.0	(35%-197%)
16561005	ISM-06_0520---After Processing	13C-2,3,7,8-TCDD		61.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		75.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		68.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.7	(23%-140%)
		13C-OCDD		72.6	(17%-157%)
		13C-2,3,7,8-TCDF		69.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		81.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		76.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		66.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		76.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		75.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		57.5	(35%-197%)
12026717	LCS for batch 43951	13C-2,3,7,8-TCDD		69.9	(20%-175%)
		13C-1,2,3,7,8-PeCDD		72.6	(21%-227%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12026717	LCS for batch 43951	13C-1,2,3,4,7,8-HxCDD		74.0	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		68.8	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		77.4	(22%-166%)
		13C-OCDD		62.7	(13%-199%)
		13C-2,3,7,8-TCDF		78.2	(22%-152%)
		13C-1,2,3,7,8-PeCDF		78.8	(21%-192%)
		13C-2,3,4,7,8-PeCDF		71.8	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		71.8	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		68.4	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		73.8	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		75.6	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.6	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		75.7	(20%-186%)
		37Cl-2,3,7,8-TCDD		83.8	(31%-191%)
12026718	LCSD for batch 43951	13C-2,3,7,8-TCDD		73.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		77.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		77.8	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		71.1	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		79.4	(22%-166%)
		13C-OCDD		64.3	(13%-199%)
		13C-2,3,7,8-TCDF		79.9	(22%-152%)
		13C-1,2,3,7,8-PeCDF		83.7	(21%-192%)
		13C-2,3,4,7,8-PeCDF		76.7	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		75.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		71.9	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		76.5	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		79.0	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		71.2	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		76.3	(20%-186%)
		37Cl-2,3,7,8-TCDD		84.2	(31%-191%)
12026716	MB for batch 43951	13C-2,3,7,8-TCDD		71.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.1	(23%-140%)
		13C-OCDD		61.7	(17%-157%)
		13C-2,3,7,8-TCDF		81.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		74.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		74.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		70.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		76.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.8	(35%-197%)
16561002	ISM-02_0520---After Processing	13C-2,3,7,8-TCDD		72.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		68.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.1	(32%-141%)

Hi-Res Dioxins/Furans

Surrogate Recovery Report

SDG Number: A0E0214

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
16561002	ISM-02_0520---After Processing	13C-1,2,3,6,7,8-HxCDD		71.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		89.7	(23%-140%)
		13C-OCDD		77.9	(17%-157%)
		13C-2,3,7,8-TCDF		81.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		65.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		77.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.3	(35%-197%)
12026719	ISM-02_0520---After Processing(16561002M	13C-2,3,7,8-TCDD		71.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		69.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		93.7	(23%-140%)
		13C-OCDD		88.2	(17%-157%)
		13C-2,3,7,8-TCDF		78.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		70.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		67.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		68.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		76.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		89.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.7	(35%-197%)
12026720	ISM-02_0520---After Processing(16561002M	13C-2,3,7,8-TCDD		71.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		76.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		72.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.7	(23%-140%)
		13C-OCDD		81.0	(17%-157%)
		13C-2,3,7,8-TCDF		78.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		73.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		68.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		80.7	(35%-197%)
16561007	ISM-104_0520---After Processing	13C-2,3,7,8-TCDD		62.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		71.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		67.5	(28%-130%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
16561007	ISM-104_0520---After Processing	13C-1,2,3,4,6,7,8-HpCDD		76.8	(23%-140%)
		13C-OCDD		64.4	(17%-157%)
		13C-2,3,7,8-TCDF		69.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		76.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		69.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		68.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		64.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		68.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.0	(35%-197%)
16561008	ISM-204_0520---After Processing	13C-2,3,7,8-TCDD		67.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		66.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		72.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.0	(23%-140%)
		13C-OCDD		78.1	(17%-157%)
		13C-2,3,7,8-TCDF		75.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		64.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		65.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		70.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		73.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		80.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.0	(35%-197%)
16561004	ISM-04_0520---After Processing	13C-2,3,7,8-TCDD		50.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		50.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		53.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		51.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		59.7	(23%-140%)
		13C-OCDD		50.5	(17%-157%)
		13C-2,3,7,8-TCDF		57.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		53.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		49.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		51.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		47.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		52.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		51.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		50.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		57.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.7	(35%-197%)
16561006	ISM-07_0520---After Processing	13C-2,3,7,8-TCDD		60.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		64.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		59.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		59.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		65.7	(23%-140%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
16561006	ISM-07_0520---After Processing	13C-OCDD		53.9	(17%-157%)
		13C-2,3,7,8-TCDF		66.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		63.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		57.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		55.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		59.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		59.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		56.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		60.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.1	(35%-197%)
16561009	ISM-907_0520---After Processing	13C-2,3,7,8-TCDD		39.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		42.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		40.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		38.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		43.9	(23%-140%)
		13C-OCDD		36.6	(17%-157%)
		13C-2,3,7,8-TCDF		43.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		44.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		40.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		38.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		36.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		39.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		40.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		37.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		40.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.5	(35%-197%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 43902**
Matrix: **SOIL**
Lab Sample ID: **12026686**
Instrument: **HRP750**
Analysis Date: **06/02/2020 02:09**
Dilution: **1**
Analyst: **MLL**
Prep Batch ID: **43902**
Batch ID: **43904**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	20.0	20.5	103	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	108	108	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	103	103	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	103	103	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	106	106	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	93.9	93.9	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	199	99.6	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	18.0	90.2	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	95.5	95.5	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	103	103	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	99.4	99.4	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	103	103	84-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	96.4	96.4	78-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	97.0	97	70-156
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	100	100	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	95.9	95.9	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	192	95.8	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214** **Sample Type:** **Laboratory Control Sample Duplicate**

Client ID: **LCSD for batch 43902** **Matrix:** **SOIL**

Lab Sample ID: **12026687**

Instrument: **HRP750** **Analysis Date:** **06/02/2020 02:57** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **43902**

Batch ID: **43904**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	20.9	104	67-158	1.82	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	111	111	70-142	2.97	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	103	103	70-164	0.240	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	104	104	76-134	0.376	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	108	108	64-162	2.00	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	93.4	93.4	70-140	0.508	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	193	96.4	78-144	3.25	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	18.0	90.1	75-158	0.166	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	96.6	96.6	80-134	1.20	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	108	108	68-160	4.55	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	101	101	72-134	1.37	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	101	101	84-130	1.38	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	95.7	95.7	78-130	0.706	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	101	101	70-156	4.50	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	104	104	82-122	3.76	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	97.3	97.3	78-138	1.41	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	197	98.4	63-170	2.70	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214** **Sample Type:** **Laboratory Control Sample**

Client ID: **LCS for batch 43951** **Matrix:** **SOIL**

Lab Sample ID: **12026717**

Instrument: **HRP750** **Analysis Date:** **06/08/2020 16:53** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **43951**

Batch ID: **43953**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	200	207	104	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	1000	1100	110	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	1000	1050	105	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	1000	1050	105	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	1000	1110	111	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	1000	989	98.9	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	2000	2070	104	78-144
51207-31-9	LCS	2,3,7,8-TCDF	200	182	91.1	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	1000	993	99.3	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	1000	1080	108	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	1000	1050	105	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	1000	1020	102	84-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	1000	1020	102	78-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	1000	1000	100	70-156
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	1000	1050	105	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	1000	994	99.4	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	2000	2010	100	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214** **Sample Type:** **Laboratory Control Sample Duplicate**

Client ID: **LCSD for batch 43951** **Matrix:** **SOIL**

Lab Sample ID: **12026718**

Instrument: **HRP750** **Analysis Date:** **06/08/2020 17:42** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **43951**

Batch ID: **43953**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	200	210	105	67-158	1.65	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	1000	1110	111	70-142	0.494	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	1000	1070	107	70-164	1.22	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	1000	1070	107	76-134	1.44	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	1000	1110	111	64-162	0.0163	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	1000	975	97.5	70-140	1.39	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	2000	2050	102	78-144	1.31	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	200	184	92.1	75-158	1.08	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	1000	991	99.1	80-134	0.222	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	1000	1090	109	68-160	1.08	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	1000	1030	103	72-134	2.10	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	1000	1050	105	84-130	2.63	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	1000	1030	103	78-130	1.37	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	1000	1010	101	70-156	0.901	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	1000	1060	106	82-122	0.570	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	1000	1000	100	78-138	1.02	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	2000	1950	97.7	63-170	2.68	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214**
Client ID: **ISM-02_0520---After Processing(16561002M**
Lab Sample ID: **12026719**
Instrument: **HRP750**
Analyst: **MLL**

Sample Type: **Matrix Spike**
Matrix: **SOIL**
%Moisture: **24.5**
Analysis Date: **06/09/2020 00:12**
Dilution: **1**
Prep Batch ID: **43951**
Batch ID: **43953**

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	MS	2,3,7,8-TCDD	255	U	268	105	70-130
40321-76-4	MS	1,2,3,7,8-PeCDD	1270	JK	1400	109	70-130
39227-28-6	MS	1,2,3,4,7,8-HxCDD	1270	JK	1350	105	70-130
57653-85-7	MS	1,2,3,6,7,8-HxCDD	1270	J	1370	105	70-130
19408-74-3	MS	1,2,3,7,8,9-HxCDD	1270	J	1390	108	70-130
35822-46-9	MS	1,2,3,4,6,7,8-HpCDD	1270		1990	103	70-130
3268-87-9	MS	1,2,3,4,6,7,8,9-OCDD	2550		11300	117	70-130
51207-31-9	MS	2,3,7,8-TCDF	255	U	233	91.7	70-130
57117-41-6	MS	1,2,3,7,8-PeCDF	1270	BJK	1260	98.8	70-130
57117-31-4	MS	2,3,4,7,8-PeCDF	1270	BJK	1380	108	70-130
70648-26-9	MS	1,2,3,4,7,8-HxCDF	1270	BJK	1310	103	70-130
57117-44-9	MS	1,2,3,6,7,8-HxCDF	1270	J	1320	103	70-130
72918-21-9	MS	1,2,3,7,8,9-HxCDF	1270	U	1280	100	70-130
60851-34-5	MS	2,3,4,6,7,8-HxCDF	1270	JK	1270	99.6	70-130
67562-39-4	MS	1,2,3,4,6,7,8-HpCDF	1270		1480	106	70-130
55673-89-7	MS	1,2,3,4,7,8,9-HpCDF	1270	J	1260	98.5	70-130
39001-02-0	MS	1,2,3,4,6,7,8,9-OCDF	2550		2790	98.7	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A0E0214
Client ID: ISM-02_0520---After Processing(16561002M
Lab Sample ID: 12026720
Instrument: HRP750
Analyst: MLL

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 24.5
Analysis Date: 06/09/2020 01:00
Dilution: 1
Prep Batch ID: 43951
Batch ID: 43953

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	MSD	2,3,7,8-TCDD	245	U	271	110	70-130	1.00	0-20
40321-76-4	MSD	1,2,3,7,8-PeCDD	1230	JK	1440	117	70-130	3.25	0-20
39227-28-6	MSD	1,2,3,4,7,8-HxCDD	1230	JK	1360	111	70-130	1.14	0-20
57653-85-7	MSD	1,2,3,6,7,8-HxCDD	1230	J	1400	112	70-130	2.25	0-20
19408-74-3	MSD	1,2,3,7,8,9-HxCDD	1230	J	1420	115	70-130	1.90	0-20
35822-46-9	MSD	1,2,3,4,6,7,8-HpCDD	1230		2110	117	70-130	5.75	0-20
3268-87-9	MSD	1,2,3,4,6,7,8,9-OCDD	2450		12200	159 *	70-130	7.99	0-20
51207-31-9	MSD	2,3,7,8-TCDF	245	U	233	95.2	70-130	0.0707	0-20
57117-41-6	MSD	1,2,3,7,8-PeCDF	1230	BJK	1280	104	70-130	1.10	0-20
57117-31-4	MSD	2,3,4,7,8-PeCDF	1230	BJK	1410	115	70-130	1.83	0-20
70648-26-9	MSD	1,2,3,4,7,8-HxCDF	1230	BJK	1330	108	70-130	0.883	0-20
57117-44-9	MSD	1,2,3,6,7,8-HxCDF	1230	J	1380	112	70-130	4.45	0-20
72918-21-9	MSD	1,2,3,7,8,9-HxCDF	1230	U	1340	110	70-130	4.95	0-20
60851-34-5	MSD	2,3,4,6,7,8-HxCDF	1230	JK	1320	107	70-130	3.59	0-20
67562-39-4	MSD	1,2,3,4,6,7,8-HpCDF	1230		1500	112	70-130	1.77	0-20
55673-89-7	MSD	1,2,3,4,7,8,9-HpCDF	1230	J	1300	105	70-130	2.59	0-20
39001-02-0	MSD	1,2,3,4,6,7,8,9-OCDF	2450		2790	103	70-130	0.00389	0-20

Method Blank Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 43902**	**Instrument ID:**	**HRP750**	**Data File:**	**A01JUN20B_3-3**
Lab Sample ID:	**12026685**	**Prep Date:**	**29-MAY-20**	**Analyzed:**	**06/02/20 03:45**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 43902	12026686	A01JUN20B_3-1	06/02/20	0209
02	LCSD for batch 43902	12026687	A01JUN20B_3-2	06/02/20	0257
03	ISM-01_0520---After Processing	16561001	A03JUN20A_2-2	06/03/20	1610
04	ISM-03_0520---After Processing	16561003	A04JUN20A_2-3	06/05/20	0113
05	ISM-06_0520---After Processing	16561005	A04JUN20A_2-4	06/05/20	0202
06	ISM-07_0520---After Processing	16561006	e09jun20a-4	06/09/20	1059
07	ISM-907_0520---After Processing	16561009	e09jun20a-7	06/09/20	1211
08	ISM-04_0520---After Processing	16561004	A08JUN20C_3-8	06/09/20	2133
09	ISM-07_0520---After Processing	16561006	A08JUN20C_3-9	06/09/20	2222
10	ISM-907_0520---After Processing	16561009	A08JUN20C_3-10	06/09/20	2311
11	ISM-04_0520---After Processing	16561004	e10jun20a-4	06/10/20	0937

Method Blank Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 43951**	**Instrument ID:**	**HRP750**	**Data File:**	**A08JUN20C-4**
Lab Sample ID:	**12026716**	**Prep Date:**	**05-JUN-20**	**Analyzed:**	**06/08/20 18:31**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 43951	12026717	A08JUN20C-2	06/08/20	1653
02	LCSD for batch 43951	12026718	A08JUN20C-3	06/08/20	1742
03	ISM-02_0520---After Processing	16561002	A08JUN20C-10	06/08/20	2323
04	ISM-02_0520---After Processing(16561002M	12026719	A08JUN20C-11	06/09/20	0012
05	ISM-02_0520---After Processing(16561002M	12026720	A08JUN20C-12	06/09/20	0100
06	ISM-104_0520---After Processing	16561007	A08JUN20C-13	06/09/20	0149
07	ISM-204_0520---After Processing	16561008	A08JUN20C-14	06/09/20	0238

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026685**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43902**				
Client ID:	**MB for batch 43902**			**Prep Basis:**	**As Received**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/02/2020 03:45**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A01JUN20B_3-3**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.118	pg/g	0.118	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.0698	pg/g	0.0698	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.101	pg/g	0.101	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.0952	pg/g	0.0952	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.0996	pg/g	0.0996	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	0.136	pg/g	0.104	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	0.476	pg/g	0.278	10.0
51207-31-9	2,3,7,8-TCDF	U	0.0762	pg/g	0.0762	1.00
57117-41-6	1,2,3,7,8-PeCDF	JK	0.0760	pg/g	0.0526	5.00
57117-31-4	2,3,4,7,8-PeCDF	J	0.0820	pg/g	0.0546	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	JK	0.0720	pg/g	0.0628	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.0632	pg/g	0.0632	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.0842	pg/g	0.0842	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.0630	pg/g	0.0630	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	JK	0.186	pg/g	0.0864	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.120	pg/g	0.120	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	0.240	pg/g	0.181	10.0
41903-57-5	Total TeCDD	U	0.118	pg/g	0.118	1.00
36088-22-9	Total PeCDD	U	0.0698	pg/g	0.0698	5.00
34465-46-8	Total HxCDD	U	0.0952	pg/g	0.0952	5.00
37871-00-4	Total HpCDD	J	0.136	pg/g	0.104	5.00
30402-14-3	Total TeCDF	U	0.0762	pg/g	0.0762	1.00
30402-15-4	Total PeCDF	JK	0.260	pg/g	0.0352	5.00
55684-94-1	Total HxCDF	JK	0.0720	pg/g	0.0628	5.00
38998-75-3	Total HpCDF	JK	0.186	pg/g	0.0864	5.00
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.0375	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.161	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		148	200	pg/g	73.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		161	200	pg/g	80.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		146	200	pg/g	73.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		151	200	pg/g	75.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		148	200	pg/g	74.2	(23%-140%)
13C-OCDD		235	400	pg/g	58.9	(17%-157%)
13C-2,3,7,8-TCDF		166	200	pg/g	83.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		192	200	pg/g	96.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		168	200	pg/g	84.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		153	200	pg/g	76.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		154	200	pg/g	76.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		156	200	pg/g	78.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		158	200	pg/g	78.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026685**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43902**				
Client ID:	**MB for batch 43902**			**Prep Basis:**	**As Received**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/02/2020 03:45**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A01JUN20B_3-3**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		138	200	pg/g	68.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		144	200	pg/g	72.2	(26%-138%)
37Cl-2,3,7,8-TCDD		17.1	20.0	pg/g	85.5	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026686**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43902**				
Client ID:	**LCS for batch 43902**			**Prep Basis:**	**As Received**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/02/2020 02:09**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A01JUN20B_3-1**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.5	pg/g	0.135	1.00
40321-76-4	1,2,3,7,8-PeCDD		108	pg/g	0.189	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		103	pg/g	0.470	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		103	pg/g	0.484	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		106	pg/g	0.486	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		93.9	pg/g	0.538	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		199	pg/g	1.23	10.0
51207-31-9	2,3,7,8-TCDF		18.0	pg/g	0.104	1.00
57117-41-6	1,2,3,7,8-PeCDF		95.5	pg/g	0.316	5.00
57117-31-4	2,3,4,7,8-PeCDF		103	pg/g	0.336	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		99.4	pg/g	0.478	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		103	pg/g	0.474	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		96.4	pg/g	0.678	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		97.0	pg/g	0.498	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		100	pg/g	0.562	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		95.9	pg/g	0.736	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		192	pg/g	0.790	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		157	200	pg/g	78.7	(20%-175%)
13C-1,2,3,7,8-PeCDD		176	200	pg/g	87.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		153	200	pg/g	76.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		164	200	pg/g	82.1	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		158	200	pg/g	78.9	(22%-166%)
13C-OCDD		246	400	pg/g	61.4	(13%-199%)
13C-2,3,7,8-TCDF		178	200	pg/g	89.0	(22%-152%)
13C-1,2,3,7,8-PeCDF		201	200	pg/g	101	(21%-192%)
13C-2,3,4,7,8-PeCDF		181	200	pg/g	90.5	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		164	200	pg/g	82.1	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		165	200	pg/g	82.6	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		170	200	pg/g	84.8	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		168	200	pg/g	84.1	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		148	200	pg/g	74.1	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		155	200	pg/g	77.5	(20%-186%)
37Cl-2,3,7,8-TCDD		17.4	20.0	pg/g	86.8	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026687**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43902**				
Client ID:	**LCSD for batch 43902**			**Prep Basis:**	**As Received**
Batch ID:	**43904**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/02/2020 02:57**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A01JUN20B_3-2**			**Dilution:**	**1**
Prep Batch:	**43902**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**29-MAY-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.9	pg/g	0.144	1.00
40321-76-4	1,2,3,7,8-PeCDD		111	pg/g	0.188	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		103	pg/g	0.390	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		104	pg/g	0.384	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		108	pg/g	0.394	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		93.4	pg/g	0.418	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		193	pg/g	0.748	10.0
51207-31-9	2,3,7,8-TCDF		18.0	pg/g	0.148	1.00
57117-41-6	1,2,3,7,8-PeCDF		96.6	pg/g	0.180	5.00
57117-31-4	2,3,4,7,8-PeCDF		108	pg/g	0.199	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		101	pg/g	0.474	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		101	pg/g	0.462	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		95.7	pg/g	0.652	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		101	pg/g	0.488	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		104	pg/g	0.538	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		97.3	pg/g	0.708	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		197	pg/g	0.814	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		145	200	pg/g	72.3	(20%-175%)
13C-1,2,3,7,8-PeCDD		156	200	pg/g	77.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		143	200	pg/g	71.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		149	200	pg/g	74.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		147	200	pg/g	73.6	(22%-166%)
13C-OCDD		226	400	pg/g	56.6	(13%-199%)
13C-2,3,7,8-TCDF		165	200	pg/g	82.5	(22%-152%)
13C-1,2,3,7,8-PeCDF		187	200	pg/g	93.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		163	200	pg/g	81.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		149	200	pg/g	74.4	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		150	200	pg/g	75.1	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		152	200	pg/g	76.0	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		155	200	pg/g	77.5	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		135	200	pg/g	67.3	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		142	200	pg/g	71.1	(20%-186%)
37Cl-2,3,7,8-TCDD		17.3	20.0	pg/g	86.6	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026716**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43951**				
Client ID:	**MB for batch 43951**			**Prep Basis:**	**As Received**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/08/2020 18:31**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-4**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.36	pg/g	1.36	10.0
40321-76-4	1,2,3,7,8-PeCDD	U	0.646	pg/g	0.646	50.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.714	pg/g	0.714	50.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.688	pg/g	0.688	50.0
19408-74-3	1,2,3,7,8,9-HxCDD	JK	0.760	pg/g	0.712	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	JK	0.900	pg/g	0.854	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	JK	3.96	pg/g	1.03	100
51207-31-9	2,3,7,8-TCDF	U	0.714	pg/g	0.714	10.0
57117-41-6	1,2,3,7,8-PeCDF	J	0.660	pg/g	0.442	50.0
57117-31-4	2,3,4,7,8-PeCDF	JK	0.540	pg/g	0.452	50.0
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.960	pg/g	0.754	50.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.754	pg/g	0.754	50.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.976	pg/g	0.976	50.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.736	pg/g	0.736	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.72	pg/g	0.638	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.876	pg/g	0.876	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	JK	2.02	pg/g	1.43	100
41903-57-5	Total TeCDD	U	1.36	pg/g	1.36	10.0
36088-22-9	Total PeCDD	U	0.646	pg/g	0.646	50.0
34465-46-8	Total HxCDD	JK	0.760	pg/g	0.688	50.0
37871-00-4	Total HpCDD	JK	0.900	pg/g	0.854	50.0
30402-14-3	Total TeCDF	U	0.714	pg/g	0.714	10.0
30402-15-4	Total PeCDF	JK	1.70	pg/g	0.278	50.0
55684-94-1	Total HxCDF	J	0.960	pg/g	0.736	50.0
38998-75-3	Total HpCDF	J	1.72	pg/g	0.638	50.0
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.382	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		1.62	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1440	2000	pg/g	71.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		1490	2000	pg/g	74.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1530	2000	pg/g	76.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1420	2000	pg/g	70.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1520	2000	pg/g	76.1	(23%-140%)
13C-OCDD		2470	4000	pg/g	61.7	(17%-157%)
13C-2,3,7,8-TCDF		1620	2000	pg/g	81.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		1670	2000	pg/g	83.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		1480	2000	pg/g	74.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1500	2000	pg/g	74.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1410	2000	pg/g	70.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1530	2000	pg/g	76.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1530	2000	pg/g	76.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026716**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43951**				
Client ID:	**MB for batch 43951**			**Prep Basis:**	**As Received**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/08/2020 18:31**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-4**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1380	2000	pg/g	69.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1470	2000	pg/g	73.5	(26%-138%)
37Cl-2,3,7,8-TCDD		168	200	pg/g	83.8	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026717**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43951**				
Client ID:	**LCS for batch 43951**			**Prep Basis:**	**As Received**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/08/2020 16:53**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-2**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		207	pg/g	1.26	10.0
40321-76-4	1,2,3,7,8-PeCDD		1100	pg/g	1.40	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1050	pg/g	1.70	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1050	pg/g	1.64	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1110	pg/g	1.70	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		989	pg/g	2.30	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2070	pg/g	4.44	100
51207-31-9	2,3,7,8-TCDF		182	pg/g	1.02	10.0
57117-41-6	1,2,3,7,8-PeCDF		993	pg/g	1.45	50.0
57117-31-4	2,3,4,7,8-PeCDF		1080	pg/g	1.55	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1050	pg/g	2.70	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1020	pg/g	2.78	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1020	pg/g	3.52	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1000	pg/g	2.70	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1050	pg/g	2.62	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		994	pg/g	3.52	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2010	pg/g	3.62	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1400	2000	pg/g	69.9	(20%-175%)
13C-1,2,3,7,8-PeCDD		1450	2000	pg/g	72.6	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1480	2000	pg/g	74.0	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1380	2000	pg/g	68.8	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1550	2000	pg/g	77.4	(22%-166%)
13C-OCDD		2510	4000	pg/g	62.7	(13%-199%)
13C-2,3,7,8-TCDF		1560	2000	pg/g	78.2	(22%-152%)
13C-1,2,3,7,8-PeCDF		1580	2000	pg/g	78.8	(21%-192%)
13C-2,3,4,7,8-PeCDF		1440	2000	pg/g	71.8	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1440	2000	pg/g	71.8	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1370	2000	pg/g	68.4	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1480	2000	pg/g	73.8	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1510	2000	pg/g	75.6	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1390	2000	pg/g	69.6	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1510	2000	pg/g	75.7	(20%-186%)
37Cl-2,3,7,8-TCDD		168	200	pg/g	83.8	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026718**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43951**				
Client ID:	**LCSD for batch 43951**			**Prep Basis:**	**As Received**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/08/2020 17:42**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-3**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		210	pg/g	1.22	10.0
40321-76-4	1,2,3,7,8-PeCDD		1110	pg/g	1.56	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1070	pg/g	1.94	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1070	pg/g	1.79	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1110	pg/g	1.89	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		975	pg/g	2.56	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2050	pg/g	3.88	100
51207-31-9	2,3,7,8-TCDF		184	pg/g	1.11	10.0
57117-41-6	1,2,3,7,8-PeCDF		991	pg/g	1.49	50.0
57117-31-4	2,3,4,7,8-PeCDF		1090	pg/g	1.55	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1030	pg/g	1.74	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1050	pg/g	1.72	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1030	pg/g	2.12	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1010	pg/g	1.70	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1060	pg/g	2.06	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1000	pg/g	2.78	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1950	pg/g	3.84	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1460	2000	pg/g	73.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		1560	2000	pg/g	77.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1560	2000	pg/g	77.8	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1420	2000	pg/g	71.1	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1590	2000	pg/g	79.4	(22%-166%)
13C-OCDD		2570	4000	pg/g	64.3	(13%-199%)
13C-2,3,7,8-TCDF		1600	2000	pg/g	79.9	(22%-152%)
13C-1,2,3,7,8-PeCDF		1670	2000	pg/g	83.7	(21%-192%)
13C-2,3,4,7,8-PeCDF		1530	2000	pg/g	76.7	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1510	2000	pg/g	75.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1440	2000	pg/g	71.9	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1530	2000	pg/g	76.5	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1580	2000	pg/g	79.0	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1420	2000	pg/g	71.2	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1530	2000	pg/g	76.3	(20%-186%)
37Cl-2,3,7,8-TCDD		168	200	pg/g	84.2	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026719**	**Date Collected:**	**05/05/2020 11:30**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43951**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**24.5**
Client ID:	**ISM-02_0520---After Processing(165**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 00:12**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-11**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.04 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		268	pg/g	2.00	12.7
40321-76-4	1,2,3,7,8-PeCDD		1400	pg/g	3.54	63.6
39227-28-6	1,2,3,4,7,8-HxCDD		1350	pg/g	3.49	63.6
57653-85-7	1,2,3,6,7,8-HxCDD		1370	pg/g	3.36	63.6
19408-74-3	1,2,3,7,8,9-HxCDD		1390	pg/g	3.49	63.6
35822-46-9	1,2,3,4,6,7,8-HpCDD		1990	pg/g	5.78	63.6
3268-87-9	1,2,3,4,6,7,8,9-OCDD		11300	pg/g	9.95	127
51207-31-9	2,3,7,8-TCDF		233	pg/g	1.96	12.7
57117-41-6	1,2,3,7,8-PeCDF		1260	pg/g	3.11	63.6
57117-31-4	2,3,4,7,8-PeCDF		1380	pg/g	2.95	63.6
70648-26-9	1,2,3,4,7,8-HxCDF		1310	pg/g	3.74	63.6
57117-44-9	1,2,3,6,7,8-HxCDF		1320	pg/g	3.97	63.6
72918-21-9	1,2,3,7,8,9-HxCDF		1280	pg/g	4.81	63.6
60851-34-5	2,3,4,6,7,8-HxCDF		1270	pg/g	3.77	63.6
67562-39-4	1,2,3,4,6,7,8-HpCDF		1480	pg/g	3.84	63.6
55673-89-7	1,2,3,4,7,8,9-HpCDF		1260	pg/g	4.86	63.6
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2790	pg/g	6.06	127

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1810	2550	pg/g	71.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		1770	2550	pg/g	69.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		2010	2550	pg/g	79.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1880	2550	pg/g	74.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2380	2550	pg/g	93.7	(23%-140%)
13C-OCDD		4490	5090	pg/g	88.2	(17%-157%)
13C-2,3,7,8-TCDF		1990	2550	pg/g	78.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		1800	2550	pg/g	70.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		1710	2550	pg/g	67.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1870	2550	pg/g	73.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1750	2550	pg/g	68.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1930	2550	pg/g	76.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1960	2550	pg/g	76.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		2020	2550	pg/g	79.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2280	2550	pg/g	89.6	(26%-138%)
37Cl-2,3,7,8-TCDD		211	255	pg/g	82.7	(35%-197%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026720**	**Date Collected:**	**05/05/2020 11:30**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 43951**	**Date Received:**	**05/20/2020 10:00**	**%Moisture:**	**24.5**
Client ID:	**ISM-02_0520---After Processing(165**			**Prep Basis:**	**Dry Weight**
Batch ID:	**43953**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/09/2020 01:00**	**Analyst:**	**MLL**	**Instrument:**	**HRP750**
Data File:	**A08JUN20C-12**			**Dilution:**	**1**
Prep Batch:	**43951**	**Prep Method:**	**EPA Method 1613B-3546**		
Prep Date:	**05-JUN-20**	**Prep Aliquot:**	**1.08 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		271	pg/g	1.84	12.3
40321-76-4	1,2,3,7,8-PeCDD		1440	pg/g	2.97	61.3
39227-28-6	1,2,3,4,7,8-HxCDD		1360	pg/g	3.33	61.3
57653-85-7	1,2,3,6,7,8-HxCDD		1400	pg/g	3.24	61.3
19408-74-3	1,2,3,7,8,9-HxCDD		1420	pg/g	3.33	61.3
35822-46-9	1,2,3,4,6,7,8-HpCDD		2110	pg/g	6.10	61.3
3268-87-9	1,2,3,4,6,7,8,9-OCDD		12200	pg/g	8.80	123
51207-31-9	2,3,7,8-TCDF		233	pg/g	1.63	12.3
57117-41-6	1,2,3,7,8-PeCDF		1280	pg/g	2.75	61.3
57117-31-4	2,3,4,7,8-PeCDF		1410	pg/g	2.53	61.3
70648-26-9	1,2,3,4,7,8-HxCDF		1330	pg/g	3.26	61.3
57117-44-9	1,2,3,6,7,8-HxCDF		1380	pg/g	3.33	61.3
72918-21-9	1,2,3,7,8,9-HxCDF		1340	pg/g	4.27	61.3
60851-34-5	2,3,4,6,7,8-HxCDF		1320	pg/g	3.14	61.3
67562-39-4	1,2,3,4,6,7,8-HpCDF		1500	pg/g	4.00	61.3
55673-89-7	1,2,3,4,7,8,9-HpCDF		1300	pg/g	5.32	61.3
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2790	pg/g	5.32	123

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1750	2450	pg/g	71.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		1880	2450	pg/g	76.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1930	2450	pg/g	78.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1770	2450	pg/g	72.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2170	2450	pg/g	88.7	(23%-140%)
13C-OCDD		3970	4900	pg/g	81.0	(17%-157%)
13C-2,3,7,8-TCDF		1920	2450	pg/g	78.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		1930	2450	pg/g	78.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		1800	2450	pg/g	73.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1790	2450	pg/g	73.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1670	2450	pg/g	68.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1830	2450	pg/g	74.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1840	2450	pg/g	75.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		1870	2450	pg/g	76.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2070	2450	pg/g	84.5	(26%-138%)
37Cl-2,3,7,8-TCDD		198	245	pg/g	80.7	(35%-197%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

July 10, 2020

Ms. Lisa Domenighini
Apex Laboratories
6700 SW Sandburg Street
Portland, Oregon 97223

Re: 2018 DXN & PCB IDIQ
Work Order: 16681
SDG: A0E0214_2

Dear Ms. Domenighini:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 16, 2020. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Enclosures

SUBCONTRACT ORDER

Apex Laboratories

CA 6/15/20 **A0E0214** CFA WO#16681

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Apex Laboratories	Cape Fear Analytical, LLC
6700 S.W. Sandburg Street	3306 Kitty Hawk Rd Suite 120
Tigard, OR 97223	Wilmington, NC 28405
Phone: (503) 718-2323	Phone :(910) 795-0421
Fax: (503) 336-0745	Fax: -
Project Manager: Lisa Domenighini	

Sample Name: ISM-01_0520---After Processing **Soil** **Sampled: 05/06/20 18:00** (A0E0214-02)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 18:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-02_0520---After Processing **Soil** **Sampled: 05/05/20 11:30** (A0E0214-04)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/01/20 11:30	
Containers Supplied:			
(B)2 oz Glass Jar			

CA 6/15/20

Sample Name: ISM-03_0520---After Processing **Soil** **Sampled: 05/07/20 12:30** (A0E0214-06)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/03/20 12:30	
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-04_0520---After Processing **Soil** **Sampled: 05/06/20 13:00** (A0E0214-08)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 13:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Standard TAT

See Page 2

[signature] 6/15/20 14:35		Fed Ex (Shipper)	
Released By	Date	Received By	Date
Fed Ex (Shipper)		Cynde Larkins	16 JUN 20 @ 1014
Released By	Date	Received By	Date

SUBCONTRACT ORDER

Apex Laboratories

CAB 6/15/20 **A0E0214**

CFA NO# 16681

Sample Name: ISM-05_0520---After Processing **Soil** **Sampled: 05/07/20 10:00** (A0E0214-10)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/07/20 17:00	11/03/20 10:00	added 6/15/2020
Containers Supplied:			
(B)4 oz Glass Jar			

Sample Name: ISM-06_0520---After Processing **Soil** **Sampled: 05/07/20 15:30** (A0E0214-12)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/03/20 15:30	CAB 6/15/20
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-07_0520---After Processing **Soil** **Sampled: 05/05/20 14:30** (A0E0214-14)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/01/20 14:30	lab duplicate for 214-21
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-08_0520---After Processing **Soil** **Sampled: 05/05/20 16:30** (A0E0214-16)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/07/20 17:00	11/01/20 16:30	
Containers Supplied:			
(B)4 oz Glass Jar			

Sample Name: ISM-104_0520---After Processing **Soil** **Sampled: 05/06/20 18:00** (A0E0214-18)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 18:00	CAB 6/15/20
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: ISM-204_0520---After Processing **Soil** **Sampled: 05/06/20 14:00** (A0E0214-20)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/01/20 17:00	11/02/20 14:00	
Containers Supplied:			
(B)2 oz Glass Jar			

Standard TAT

See Page 2

temp. = 4.8°C

Released By	Date	Received By	Date
	6/15/20 14:35	Fed Ex (Shipper)	
Fed Ex (Shipper)		Cynde Larkins	16 JUN 20 @ 1014
Released By	Date	Received By	Date

SUBCONTRACT ORDER

Apex Laboratories

AB 6/15/20 **A0E0214** CFA WO# 16681

Create from sample 13

Sample Name: ISM-907_0520---After Processing **Soil** **Sampled: 05/05/20 14:30** (A0E0214-21)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB) *Containers Supplied:* (A)2 oz Glass Jar	06/01/20 17:00	11/01/20 14:30	AB 6/15/20

Standard TAT

See Page 2

6/15/20 14:35 Fed Ex (Shipper)

Released By Date Received By Date

Fed Ex (Shipper) Cynde Larkins 16 JUN 20 @ 1014

Released By Date Received By Date

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client:	APEX	Work Order:	16681
Shipping Company:	FedEx	Date/Time Received:	16 JUN 20 1014

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

Air Sample Receipt Specifics	Yes	NA	No
Air sample in shipment?			✓

Air Witness: _____

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Custody seal/s present on cooler?			✓	Seal intact? Yes (No)
3	Chain of Custody documents included with shipment?	✓			
4	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: (ice bags) blue ice dry ice none other (describe) Temperature Blank present: (Yes) No 4.7° + 0.1 = 4.8°C
5	Aqueous samples found to have visible solids?		✓		Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: 1-4oz Clear glass soil jar per sample 2 total
12	COC form is properly signed in relinquished/received sections?	✓			COC is 3 pages, only samples from page 2 are to be analyzed.

Comments:

Checklist performed by: Initials: CJ Date: 16 JUN 20

CF-UD-F-7

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Apex Laboratories (APEX)
SDG A0E0214_2
Work Order 16681

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3540C
Analytical Batch Number:	44118, 44159
Clean Up Batch Number:	44117, 44158
Extraction Batch Number:	44116, 44157

Sample Analysis

Samples were received at 4.8°C. (16681001, 16681002). The following samples were analyzed using the analytical protocol as established in:

Sample ID	Client ID
12026877	Method Blank (MB)
12026878	Laboratory Control Sample (LCS)
12026879	Laboratory Control Sample Duplicate (LCSD)
12026880	16681001(ISM-05_0520---After Processing) Matrix Spike (MS)
12026881	16681001(ISM-05_0520---After Processing) Matrix Spike Duplicate (MSD)
12026920	Method Blank (MB)
12026921	Laboratory Control Sample (LCS)
12026922	Laboratory Control Sample Duplicate (LCSD)
12026923	16681002(ISM-08_0520---After Processing) Matrix Spike (MS)
12026924	16681002(ISM-08_0520---After Processing) Matrix Spike Duplicate (MSD)
16681001	ISM-05_0520---After Processing
16681002	ISM-08_0520---After Processing

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 17.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2009 TNI Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
Sample 16681001 (ISM-05_0520---After Processing)- Batch 44118 and 16681002 (ISM-08_0520---After Processing)- Batch 44159 was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike/Duplicate (MS/MSD) Recovery Statement
The MS recoveries for this SDG were not within the acceptance limits. The failures confirm in the matrix spike duplicate and are attributed to matrix interference. 12026880 (ISM-05_0520---After Processing) and 12026881 (ISM-05_0520---After Processing) - Batch 44118, 12026923 (ISM-08_0520---After Processing) and 12026924 (ISM-08_0520---After Processing) - Batch 44159.

MS/MSD Relative Percent Difference (RPD) Statement
One RPD was outside the acceptance limits. Sample data is validated based on acceptable LCS/LCSD results. 16681002 (ISM-08_0520---After Processing)- Batch 44159.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample 16681002 (ISM-08_0520---After Processing)- Batch 44159 was diluted 10x due to the presence of over-range target analytes.

Sample Re-extraction/Re-analysis
The sample was re-extracted using a 1g aliquot due to high concentrations of over-range target analytes in the original extraction. 16681002 (ISM-08_0520---After Processing) - Batch 44159.

Miscellaneous Information

Nonconformance (NCR) Documentation
The following NCR was generated for this SDG: 647861 Batch 44159.

Manual Integrations
Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

Sample Preparation
No difficulties were encountered during sample preparation.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC
3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Qualifier Definition Report
for

APEX001 Apex Laboratories

Client SDG: A0E0214_2 CFA Work Order: 16681

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
K Estimated Maximum Possible Concentration
U Analyte was analyzed for, but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature:  **Name: Erin Suhrie**

Date: 09 JUL 2020 **Title: Data Validator**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16681001**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/01/2020 09:46**	**Analyst:**	**MJC**	**Instrument:**	**HRP757**
Data File:	**e01jul20a-4**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.24 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.63	pg/g	0.190	0.932

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16681001**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 11:54**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-4**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.24 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		2.54	pg/g	0.131	0.932
40321-76-4	1,2,3,7,8-PeCDD	J	4.22	pg/g	0.144	4.66
39227-28-6	1,2,3,4,7,8-HxCDD		8.05	pg/g	0.317	4.66
57653-85-7	1,2,3,6,7,8-HxCDD		33.4	pg/g	0.313	4.66
19408-74-3	1,2,3,7,8,9-HxCDD		16.5	pg/g	0.322	4.66
35822-46-9	1,2,3,4,6,7,8-HpCDD		745	pg/g	1.06	4.66
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5810	pg/g	1.64	9.32
51207-31-9	2,3,7,8-TCDF		1.70	pg/g	0.190	0.932
57117-41-6	1,2,3,7,8-PeCDF	J	3.67	pg/g	0.176	4.66
57117-31-4	2,3,4,7,8-PeCDF		8.14	pg/g	0.165	4.66
70648-26-9	1,2,3,4,7,8-HxCDF		22.7	pg/g	0.205	4.66
57117-44-9	1,2,3,6,7,8-HxCDF		9.31	pg/g	0.205	4.66
60851-34-5	2,3,4,6,7,8-HxCDF		10.6	pg/g	0.211	4.66
72918-21-9	1,2,3,7,8,9-HxCDF		5.43	pg/g	0.267	4.66
67562-39-4	1,2,3,4,6,7,8-HpCDF		136	pg/g	0.371	4.66
55673-89-7	1,2,3,4,7,8,9-HpCDF		9.09	pg/g	0.501	4.66
39001-02-0	1,2,3,4,6,7,8,9-OCDF		266	pg/g	0.403	9.32
41903-57-5	Total TeCDD	J	15.2	pg/g	0.131	0.932
36088-22-9	Total PeCDD	J	31.8	pg/g	0.144	4.66
34465-46-8	Total HxCDD	J	206	pg/g	0.313	4.66
37871-00-4	Total HpCDD		1590	pg/g	1.06	4.66
30402-14-3	Total TeCDF	JK	21.7	pg/g	0.190	0.932
30402-15-4	Total PeCDF	J	106	pg/g	0.0528	4.66
55684-94-1	Total HxCDF	J	295	pg/g	0.205	4.66
38998-75-3	Total HpCDF	J	433	pg/g	0.371	4.66
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		30.8	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		30.8	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		157	186	pg/g	84.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		156	186	pg/g	83.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		157	186	pg/g	84.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		140	186	pg/g	75.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		168	186	pg/g	90.2	(23%-140%)
13C-OCDD		398	373	pg/g	107	(17%-157%)
13C-2,3,7,8-TCDF		146	186	pg/g	78.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		140	186	pg/g	75.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		148	186	pg/g	79.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		138	186	pg/g	73.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		131	186	pg/g	70.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		140	186	pg/g	75.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		145	186	pg/g	77.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16681001**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 11:54**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-4**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.24 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		141	186	pg/g	75.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		158	186	pg/g	84.9	(26%-138%)
37Cl-2,3,7,8-TCDD		15.7	18.6	pg/g	84.2	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16681002**	**Date Collected:**	**05/05/2020 16:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**7**
Client ID:	**ISM-08_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 18:21**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-4**			**Dilution:**	**10**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1.02 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	JK	57.2	pg/g	23.2	105
40321-76-4	1,2,3,7,8-PeCDD	J	416	pg/g	28.7	527
39227-28-6	1,2,3,4,7,8-HxCDD		611	pg/g	72.3	527
57653-85-7	1,2,3,6,7,8-HxCDD		2570	pg/g	70.4	527
19408-74-3	1,2,3,7,8,9-HxCDD		1310	pg/g	72.5	527
35822-46-9	1,2,3,4,6,7,8-HpCDD		83500	pg/g	322	527
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	845000	pg/g	540	1050
51207-31-9	2,3,7,8-TCDF	J	52.1	pg/g	30.6	105
57117-41-6	1,2,3,7,8-PeCDF	J	160	pg/g	24.9	527
57117-31-4	2,3,4,7,8-PeCDF	J	249	pg/g	21.9	527
70648-26-9	1,2,3,4,7,8-HxCDF	J	483	pg/g	46.4	527
57117-44-9	1,2,3,6,7,8-HxCDF	J	311	pg/g	51.2	527
60851-34-5	2,3,4,6,7,8-HxCDF	J	450	pg/g	48.3	527
72918-21-9	1,2,3,7,8,9-HxCDF	J	243	pg/g	73.6	527
67562-39-4	1,2,3,4,6,7,8-HpCDF		10300	pg/g	110	527
55673-89-7	1,2,3,4,7,8,9-HpCDF		673	pg/g	145	527
39001-02-0	1,2,3,4,6,7,8,9-OCDF		37000	pg/g	152	1050
41903-57-5	Total TeCDD	JK	820	pg/g	23.2	105
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	J	211	pg/g	23.2	105
36088-22-9	Total Pentachlorodibenzo-p-dioxin	J	2570	pg/g	28.7	527
36088-22-9	Total PeCDD	JK	2680	pg/g	28.7	527
34465-46-8	Total HxCDD	JK	18600	pg/g	70.4	527
34465-46-8	Total Hexachlorodibenzo-p-dioxin		18100	pg/g	70.4	527
37871-00-4	Total HpCDD		188000	pg/g	322	527
37871-00-4	Total Heptachlorodibenzo-p-dioxin		188000	pg/g	322	527
30402-14-3	Total TeCDF	JK	486	pg/g	30.6	105
30402-14-3	Total Tetrachlorodibenzofuran	J	259	pg/g	30.6	105
30402-15-4	Total PeCDF	JK	4030	pg/g	11.8	527
30402-15-4	Total Pentachlorodibenzofuran	J	3910	pg/g	11.8	527
55684-94-1	Total HxCDF	J	16300	pg/g	46.4	527
55684-94-1	Total Hexachlorodibenzofuran	J	16300	pg/g	46.4	527
38998-75-3	Total Heptachlorodibenzofuran	J	39500	pg/g	110	527

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**16681002**	**Date Collected:**	**05/05/2020 16:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**7**
Client ID:	**ISM-08_0520---After Processing**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 18:21**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-4**			**Dilution:**	**10**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1.02 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38998-75-3	Total HpCDF	J	39500	pg/g	110	527
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		2360	pg/g		
3333-30-0	TEQ WHO2005 ND=0		2300	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2360	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		2310	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1640	2110	pg/g	77.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		1680	2110	pg/g	79.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1630	2110	pg/g	77.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1920	2110	pg/g	91.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1770	2110	pg/g	83.8	(23%-140%)
13C-OCDD		3680	4220	pg/g	87.3	(17%-157%)
13C-2,3,7,8-TCDF		1580	2110	pg/g	74.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		1610	2110	pg/g	76.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		1700	2110	pg/g	80.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1710	2110	pg/g	81.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1730	2110	pg/g	82.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1800	2110	pg/g	85.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1700	2110	pg/g	80.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		1600	2110	pg/g	76.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1660	2110	pg/g	78.6	(26%-138%)
37Cl-2,3,7,8-TCDD		175	211	pg/g	82.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
K Estimated Maximum Possible Concentration

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214_2

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12026878	LCS for batch 44116	13C-2,3,7,8-TCDD		85.2	(20%-175%)
		13C-1,2,3,7,8-PeCDD		86.6	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		80.6	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		79.9	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		89.9	(22%-166%)
		13C-OCDD		99.6	(13%-199%)
		13C-2,3,7,8-TCDF		77.7	(22%-152%)
		13C-1,2,3,7,8-PeCDF		80.7	(21%-192%)
		13C-2,3,4,7,8-PeCDF		82.3	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		76.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		72.9	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		75.8	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		77.8	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		77.5	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		87.3	(20%-186%)
		37Cl-2,3,7,8-TCDD		93.1	(31%-191%)
12026879	LCSD for batch 44116	13C-2,3,7,8-TCDD		86.3	(20%-175%)
		13C-1,2,3,7,8-PeCDD		85.4	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		79.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		79.9	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		91.2	(22%-166%)
		13C-OCDD		98.4	(13%-199%)
		13C-2,3,7,8-TCDF		77.4	(22%-152%)
		13C-1,2,3,7,8-PeCDF		79.4	(21%-192%)
		13C-2,3,4,7,8-PeCDF		80.9	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		77.1	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		72.6	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		75.6	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		80.2	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		77.4	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		86.9	(20%-186%)
		37Cl-2,3,7,8-TCDD		91.8	(31%-191%)
12026877	MB for batch 44116	13C-2,3,7,8-TCDD		80.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		83.9	(23%-140%)
		13C-OCDD		90.7	(17%-157%)
		13C-2,3,7,8-TCDF		71.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		76.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		74.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		92.4	(35%-197%)
16681001	ISM-05_0520---After Processing	13C-2,3,7,8-TCDD		84.1	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214_2

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
16681001	ISM-05_0520---After Processing	13C-1,2,3,7,8-PeCDD		83.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.2	(23%-140%)
		13C-OCDD		107	(17%-157%)
		13C-2,3,7,8-TCDF		78.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		70.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		77.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.2	(35%-197%)
12026880	ISM-05_0520---After Processing(16681001M	13C-2,3,7,8-TCDD		81.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		82.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		91.6	(23%-140%)
		13C-OCDD		114	(17%-157%)
		13C-2,3,7,8-TCDF		76.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		77.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		71.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		87.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.1	(35%-197%)
12026881	ISM-05_0520---After Processing(16681001M	13C-2,3,7,8-TCDD		82.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		82.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.5	(23%-140%)
		13C-OCDD		107	(17%-157%)
		13C-2,3,7,8-TCDF		75.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		72.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		75.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		71.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		68.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		83.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.2	(35%-197%)
12026921	LCS for batch 44157	13C-2,3,7,8-TCDD		84.9	(20%-175%)
		13C-1,2,3,7,8-PeCDD		84.3	(21%-227%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A0E0214_2

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12026921	LCS for batch 44157	13C-1,2,3,4,7,8-HxCDD		69.6	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		79.0	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		76.9	(22%-166%)
		13C-OCDD		72.5	(13%-199%)
		13C-2,3,7,8-TCDF		74.7	(22%-152%)
		13C-1,2,3,7,8-PeCDF		83.2	(21%-192%)
		13C-2,3,4,7,8-PeCDF		82.9	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		71.2	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		72.7	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		76.1	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		76.5	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		70.1	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		75.1	(20%-186%)
		37Cl-2,3,7,8-TCDD		89.4	(31%-191%)
12026922	LCSD for batch 44157	13C-2,3,7,8-TCDD		81.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		84.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		70.3	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		77.8	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		77.5	(22%-166%)
		13C-OCDD		65.9	(13%-199%)
		13C-2,3,7,8-TCDF		74.0	(22%-152%)
		13C-1,2,3,7,8-PeCDF		80.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		82.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		68.9	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		74.8	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		73.6	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		75.9	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.8	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		73.9	(20%-186%)
		37Cl-2,3,7,8-TCDD		89.0	(31%-191%)
12026920	MB for batch 44157	13C-2,3,7,8-TCDD		83.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		86.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.5	(23%-140%)
		13C-OCDD		66.5	(17%-157%)
		13C-2,3,7,8-TCDF		75.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		88.1	(35%-197%)
16681002	ISM-08_0520---After Processing	13C-2,3,7,8-TCDD	D	77.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD	D	79.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD	D	77.5	(32%-141%)

Hi-Res Dioxins/Furans

Surrogate Recovery Report

SDG Number: A0E0214_2

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)		Acceptance Limits
16681002	ISM-08_0520---After Processing	13C-1,2,3,6,7,8-HxCDD		91.2	D	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		83.8	D	(23%-140%)
		13C-OCDD		87.3	D	(17%-157%)
		13C-2,3,7,8-TCDF		74.9	D	(24%-169%)
		13C-1,2,3,7,8-PeCDF		76.6	D	(24%-185%)
		13C-2,3,4,7,8-PeCDF		80.9	D	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.0	D	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.2	D	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		85.6	D	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		80.6	D	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.1	D	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		78.6	D	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.9	D	(35%-197%)
12026923	ISM-08_0520---After Processing(16681002M	13C-2,3,7,8-TCDD		111	D	(25%-164%)
		13C-1,2,3,7,8-PeCDD		116	D	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		104	D	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		116	D	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		117	D	(23%-140%)
		13C-OCDD		130	D	(17%-157%)
		13C-2,3,7,8-TCDF		105	D	(24%-169%)
		13C-1,2,3,7,8-PeCDF		116	D	(24%-185%)
		13C-2,3,4,7,8-PeCDF		115	D	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		106	D	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		112	D	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		112	D	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		106	D	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		103	D	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		108	D	(26%-138%)
		37Cl-2,3,7,8-TCDD		114	D	(35%-197%)
12026924	ISM-08_0520---After Processing(16681002M	13C-2,3,7,8-TCDD		99.5	D	(25%-164%)
		13C-1,2,3,7,8-PeCDD		103	D	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		134	D	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		151 *	D	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		143 *	D	(23%-140%)
		13C-OCDD		161 *	D	(17%-157%)
		13C-2,3,7,8-TCDF		92.5	D	(24%-169%)
		13C-1,2,3,7,8-PeCDF		97.9	D	(24%-185%)
		13C-2,3,4,7,8-PeCDF		102	D	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		139	D	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		139 *	D	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		141 *	D	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		134	D	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		134	D	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		129	D	(26%-138%)
		37Cl-2,3,7,8-TCDD		101	D	(35%-197%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214_2** **Sample Type:** **Laboratory Control Sample**

Client ID: **LCS for batch 44116** **Matrix:** **SOIL**

Lab Sample ID: **12026878**

Instrument: **HRP763** **Analysis Date:** **06/30/2020 09:31** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **44116**

Batch ID: **44118**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	20.0	19.0	95.2	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	99.3	99.3	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	97.5	97.5	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	100	100	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	104	104	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	101	101	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	197	98.4	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	19.1	95.3	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	99.4	99.4	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	101	101	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	99.2	99.2	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	99.2	99.2	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	100	100	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	101	101	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	102	102	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	97.9	97.9	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	191	95.3	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214_2** **Sample Type:** **Laboratory Control Sample Duplicate**

Client ID: **LCSD for batch 44116** **Matrix:** **SOIL**

Lab Sample ID: **12026879**

Instrument: **HRP763** **Analysis Date:** **06/30/2020 10:18** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **44116**

Batch ID: **44118**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	19.1	95.3	67-158	0.0840	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	98.8	98.8	70-142	0.563	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	97.5	97.5	70-164	0.0123	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	100	100	76-134	0.00400	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	105	105	64-162	1.09	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	101	101	70-140	0.0934	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	196	98.1	78-144	0.313	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	19.0	94.9	75-158	0.379	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	99.7	99.7	80-134	0.299	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	102	102	68-160	0.396	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	98.4	98.4	72-134	0.883	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	100	100	84-130	1.09	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	99.5	99.5	70-156	0.833	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	99.9	99.9	78-130	1.52	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	101	101	82-122	1.00	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	97.5	97.5	78-138	0.459	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	193	96.7	63-170	1.51	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number:	**A0E0214_2**	**Sample Type:**	**Matrix Spike**
Client ID:	**ISM-05_0520---After Processing(16681001M**	**Matrix:**	**SOIL**
		%Moisture:	**4.5**
Lab Sample ID:	**12026880**		
Instrument:	**HRP757**	**Analysis Date:**	**07/01/2020 10:10**
Analyst:	**MJC**	**Prep Batch ID:**	**44116**
		Batch ID:	**44118**

Dilution: 1

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
51207-31-9	MS	2,3,7,8-TCDF	18.6	19.8	98	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A0E0214_2
Client ID: ISM-05_0520---After Processing(16681001M
Lab Sample ID: 12026881
Instrument: HRP757
Analyst: MJC

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 4.5
Analysis Date: 07/01/2020 10:34
Dilution: 1
Prep Batch ID: 44116
Batch ID: 44118

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
51207-31-9	MSD	2,3,7,8-TCDF	18.6	20.3	100	70-130	2.09	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A0E0214_2
Client ID: ISM-05_0520---After Processing(16681001M
Lab Sample ID: 12026880
Instrument: HRP763
Analyst: MLL

Sample Type: Matrix Spike
Matrix: SOIL
%Moisture: 4.5
Analysis Date: 06/30/2020 12:43
Dilution: 1
Prep Batch ID: 44116
Batch ID: 44118

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	MS	2,3,7,8-TCDD	18.6		20.5	96.8	70-130
40321-76-4	MS	1,2,3,7,8-PeCDD	93.0	J	96.5	99.3	70-130
39227-28-6	MS	1,2,3,4,7,8-HxCDD	93.0		99.4	98.3	70-130
57653-85-7	MS	1,2,3,6,7,8-HxCDD	93.0		123	95.9	70-130
19408-74-3	MS	1,2,3,7,8,9-HxCDD	93.0		119	110	70-130
35822-46-9	MS	1,2,3,4,6,7,8-HpCDD	93.0		825	86.1	70-130
3268-87-9	MS	1,2,3,4,6,7,8,9-OCDD	186	E	5800	-9.28 *	70-130
51207-31-9	MS	2,3,7,8-TCDF	18.6		19.3	94.7	70-130
57117-41-6	MS	1,2,3,7,8-PeCDF	93.0	J	94.6	97.8	70-130
57117-31-4	MS	2,3,4,7,8-PeCDF	93.0		101	99.7	70-130
70648-26-9	MS	1,2,3,4,7,8-HxCDF	93.0		117	101	70-130
57117-44-9	MS	1,2,3,6,7,8-HxCDF	93.0		100	97.6	70-130
60851-34-5	MS	2,3,4,6,7,8-HxCDF	93.0		101	97.4	70-130
72918-21-9	MS	1,2,3,7,8,9-HxCDF	93.0		96.6	98	70-130
67562-39-4	MS	1,2,3,4,6,7,8-HpCDF	93.0		229	99.5	70-130
55673-89-7	MS	1,2,3,4,7,8,9-HpCDF	93.0		100	98	70-130
39001-02-0	MS	1,2,3,4,6,7,8,9-OCDF	186		436	91.4	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A0E0214_2
Client ID: ISM-05_0520---After Processing(16681001M
Lab Sample ID: 12026881
Instrument: HRP763
Analyst: MLL

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 4.5
Analysis Date: 06/30/2020 13:31
Dilution: 1
Prep Batch ID: 44116
Batch ID: 44118

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	MSD	2,3,7,8-TCDD	18.6		20.2	94.8	70-130	1.92	0-20
40321-76-4	MSD	1,2,3,7,8-PeCDD	92.9	J	96.7	99.6	70-130	0.225	0-20
39227-28-6	MSD	1,2,3,4,7,8-HxCDD	92.9		99.4	98.4	70-130	0.000834	0-20
57653-85-7	MSD	1,2,3,6,7,8-HxCDD	92.9		124	97.2	70-130	0.853	0-20
19408-74-3	MSD	1,2,3,7,8,9-HxCDD	92.9		117	108	70-130	1.46	0-20
35822-46-9	MSD	1,2,3,4,6,7,8-HpCDD	92.9		834	96.8	70-130	1.19	0-20
3268-87-9	MSD	1,2,3,4,6,7,8,9-OCDD	186	E	5870	30.2 *	70-130	1.26	0-20
51207-31-9	MSD	2,3,7,8-TCDF	18.6		19.3	94.7	70-130	0.0694	0-20
57117-41-6	MSD	1,2,3,7,8-PeCDF	92.9	J	97.5	101	70-130	3.04	0-20
57117-31-4	MSD	2,3,4,7,8-PeCDF	92.9		103	102	70-130	1.88	0-20
70648-26-9	MSD	1,2,3,4,7,8-HxCDF	92.9		117	102	70-130	0.715	0-20
57117-44-9	MSD	1,2,3,6,7,8-HxCDF	92.9		99.5	97.1	70-130	0.512	0-20
60851-34-5	MSD	2,3,4,6,7,8-HxCDF	92.9		103	99.8	70-130	2.13	0-20
72918-21-9	MSD	1,2,3,7,8,9-HxCDF	92.9		96.6	98.1	70-130	0.0383	0-20
67562-39-4	MSD	1,2,3,4,6,7,8-HpCDF	92.9		231	103	70-130	1.20	0-20
55673-89-7	MSD	1,2,3,4,7,8,9-HpCDF	92.9		104	102	70-130	3.42	0-20
39001-02-0	MSD	1,2,3,4,6,7,8,9-OCDF	186		444	95.4	70-130	1.65	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214_2** **Sample Type:** **Laboratory Control Sample**

Client ID: **LCS for batch 44157** **Matrix:** **SOIL**

Lab Sample ID: **12026921**

Instrument: **HRP763** **Analysis Date:** **07/07/2020 15:57** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **44157**

Batch ID: **44159**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	200	191	95.3	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	1000	993	99.3	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	1000	974	97.4	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	1000	1020	102	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	1000	1050	105	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	1000	1000	100	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	2000	1880	94.1	78-144
51207-31-9	LCS	2,3,7,8-TCDF	200	192	96.2	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	1000	933	93.3	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	1000	953	95.3	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	1000	945	94.5	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	1000	984	98.4	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	1000	932	93.2	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	1000	926	92.6	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	1000	1030	103	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	1000	1010	101	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	2000	1960	97.9	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: **A0E0214_2** **Sample Type:** **Laboratory Control Sample Duplicate**

Client ID: **LCSD for batch 44157** **Matrix:** **SOIL**

Lab Sample ID: **12026922**

Instrument: **HRP763** **Analysis Date:** **07/07/2020 16:45** **Dilution:** **1**

Analyst: **MLL** **Prep Batch ID:** **44157**

Batch ID: **44159**

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	200	194	97.2	67-158	2.04	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	1000	1030	103	70-142	3.27	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	1000	984	98.4	70-164	1.02	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	1000	1030	103	76-134	1.54	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	1000	1080	108	64-162	2.56	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	1000	1020	102	70-140	1.54	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	2000	2110	105	78-144	11.3	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	200	195	97.3	75-158	1.14	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	1000	946	94.6	80-134	1.38	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	1000	990	99	68-160	3.81	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	1000	997	99.7	72-134	5.35	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	1000	978	97.8	84-130	0.561	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	1000	955	95.5	70-156	2.49	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	1000	929	92.9	78-130	0.341	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	1000	1050	105	82-122	1.60	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	1000	1010	101	78-138	0.736	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	2000	2180	109	63-170	10.6	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A0E0214_2
Client ID: ISM-08_0520---After Processing(16681002M
Lab Sample ID: 12026923
Instrument: HRP763
Analyst: MLL

Sample Type: Matrix Spike
Matrix: SOIL
%Moisture: 7
Analysis Date: 07/07/2020 19:09
Dilution: 10
Prep Batch ID: 44157
Batch ID: 44159

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	MS	2,3,7,8-TCDD	205	JK	252	95.2	70-130
40321-76-4	MS	1,2,3,7,8-PeCDD	1020	J	1560	111	70-130
39227-28-6	MS	1,2,3,4,7,8-HxCDD	1020		1740	110	70-130
57653-85-7	MS	1,2,3,6,7,8-HxCDD	1020		3750	116	70-130
19408-74-3	MS	1,2,3,7,8,9-HxCDD	1020		2470	113	70-130
35822-46-9	MS	1,2,3,4,6,7,8-HpCDD	1020		80600	-279 *	70-130
3268-87-9	MS	1,2,3,4,6,7,8,9-OCDD	2050	E	798000	-2300 *	70-130
51207-31-9	MS	2,3,7,8-TCDF	205	J	271	107	70-130
57117-41-6	MS	1,2,3,7,8-PeCDF	1020	J	1130	95	70-130
57117-31-4	MS	2,3,4,7,8-PeCDF	1020	J	1350	108	70-130
70648-26-9	MS	1,2,3,4,7,8-HxCDF	1020	J	1570	106	70-130
57117-44-9	MS	1,2,3,6,7,8-HxCDF	1020	J	1400	107	70-130
60851-34-5	MS	2,3,4,6,7,8-HxCDF	1020	J	1480	101	70-130
72918-21-9	MS	1,2,3,7,8,9-HxCDF	1020	J	1300	104	70-130
67562-39-4	MS	1,2,3,4,6,7,8-HpCDF	1020		10500	13.2 *	70-130
55673-89-7	MS	1,2,3,4,7,8,9-HpCDF	1020		1720	102	70-130
39001-02-0	MS	1,2,3,4,6,7,8,9-OCDF	2050		36900	-6.78 *	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A0E0214_2
Client ID: ISM-08_0520---After Processing(16681002M
Lab Sample ID: 12026924
Instrument: HRP763
Analyst: MLL

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 7
Analysis Date: 07/07/2020 19:57
Dilution: 10
Prep Batch ID: 44157
Batch ID: 44159

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	MSD	2,3,7,8-TCDD	213	JK	268	98.8	70-130	5.99	0-20
40321-76-4	MSD	1,2,3,7,8-PeCDD	1060	J	1570	109	70-130	1.10	0-20
39227-28-6	MSD	1,2,3,4,7,8-HxCDD	1060		1780	109	70-130	2.28	0-20
57653-85-7	MSD	1,2,3,6,7,8-HxCDD	1060		3740	110	70-130	0.310	0-20
19408-74-3	MSD	1,2,3,7,8,9-HxCDD	1060		2010	66.1 *	70-130	20.4 *	0-20
35822-46-9	MSD	1,2,3,4,6,7,8-HpCDD	1060		84300	74.6	70-130	4.43	0-20
3268-87-9	MSD	1,2,3,4,6,7,8,9-OCDD	2130	E	789000	-2610 *	70-130	1.08	0-20
51207-31-9	MSD	2,3,7,8-TCDF	213	J	274	104	70-130	0.937	0-20
57117-41-6	MSD	1,2,3,7,8-PeCDF	1060	J	1200	98	70-130	6.04	0-20
57117-31-4	MSD	2,3,4,7,8-PeCDF	1060	J	1320	101	70-130	1.93	0-20
70648-26-9	MSD	1,2,3,4,7,8-HxCDF	1060	J	1560	101	70-130	0.731	0-20
57117-44-9	MSD	1,2,3,6,7,8-HxCDF	1060	J	1420	104	70-130	0.892	0-20
60851-34-5	MSD	2,3,4,6,7,8-HxCDF	1060	J	1510	99.8	70-130	1.84	0-20
72918-21-9	MSD	1,2,3,7,8,9-HxCDF	1060	J	1260	95.3	70-130	3.62	0-20
67562-39-4	MSD	1,2,3,4,6,7,8-HpCDF	1060		11500	106	70-130	9.04	0-20
55673-89-7	MSD	1,2,3,4,7,8,9-HpCDF	1060		1690	95.2	70-130	2.01	0-20
39001-02-0	MSD	1,2,3,4,6,7,8,9-OCDF	2130		36400	-27.6 *	70-130	1.22	0-20

Method Blank Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 44116**	**Instrument ID:**	**HRP763**	**Data File:**	**b29jun20c_3-3**
Lab Sample ID:	**12026877**	**Prep Date:**	**28-JUN-20**	**Analyzed:**	**06/30/20 11:06**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 44116	12026878	b29jun20c_3-1	06/30/20	0931
02	LCSD for batch 44116	12026879	b29jun20c_3-2	06/30/20	1018
03	ISM-05_0520---After Processing	16681001	b29jun20c_3-4	06/30/20	1154
04	ISM-05_0520---After Processing(16681001M	12026880	b29jun20c_3-5	06/30/20	1243
05	ISM-05_0520---After Processing(16681001M	12026881	b29jun20c_3-6	06/30/20	1331
06	ISM-05_0520---After Processing	16681001	e01jul20a-4	07/01/20	0946
07	ISM-05_0520---After Processing(16681001M	12026880	e01jul20a-5	07/01/20	1010
08	ISM-05_0520---After Processing(16681001M	12026881	e01jul20a-6	07/01/20	1034

Method Blank Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 44157**	**Instrument ID:**	**HRP763**	**Data File:**	**b07jul20a_2-3**
Lab Sample ID:	**12026920**	**Prep Date:**	**06-JUL-20**	**Analyzed:**	**07/07/20 17:33**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 44157	12026921	b07jul20a_2-1	07/07/20	1557
02	LCSD for batch 44157	12026922	b07jul20a_2-2	07/07/20	1645
03	ISM-08_0520---After Processing	16681002	b07jul20a_2-4	07/07/20	1821
04	ISM-08_0520---After Processing(16681002M	12026923	b07jul20a_2-5	07/07/20	1909
05	ISM-08_0520---After Processing(16681002M	12026924	b07jul20a_2-6	07/07/20	1957

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026877**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**				
Client ID:	**MB for batch 44116**			**Prep Basis:**	**As Received**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 11:06**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-3**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.0790	pg/g	0.0790	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.0924	pg/g	0.0924	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.0888	pg/g	0.0888	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.0908	pg/g	0.0908	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.0916	pg/g	0.0916	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	0.146	pg/g	0.0614	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	JK	0.332	pg/g	0.163	10.0
51207-31-9	2,3,7,8-TCDF	J	0.150	pg/g	0.111	1.00
57117-41-6	1,2,3,7,8-PeCDF	JK	0.130	pg/g	0.0630	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	0.0602	pg/g	0.0602	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.130	pg/g	0.0736	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.0860	pg/g	0.0720	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.0748	pg/g	0.0748	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.100	pg/g	0.100	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.250	pg/g	0.0566	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.0820	pg/g	0.0820	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	0.138	pg/g	0.138	10.0
41903-57-5	Total TeCDD	U	0.0790	pg/g	0.0790	1.00
36088-22-9	Total PeCDD	U	0.0924	pg/g	0.0924	5.00
34465-46-8	Total HxCDD	U	0.0888	pg/g	0.0888	5.00
37871-00-4	Total HpCDD	J	0.146	pg/g	0.0614	5.00
30402-14-3	Total TeCDF	J	0.150	pg/g	0.111	1.00
30402-15-4	Total PeCDF	JK	0.442	pg/g	0.0514	5.00
55684-94-1	Total HxCDF	J	0.366	pg/g	0.0720	5.00
38998-75-3	Total HpCDF	J	0.250	pg/g	0.0566	5.00
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.0446	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.162	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		162	200	pg/g	80.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		162	200	pg/g	81.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		150	200	pg/g	74.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		151	200	pg/g	75.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		168	200	pg/g	83.9	(23%-140%)
13C-OCDD		363	400	pg/g	90.7	(17%-157%)
13C-2,3,7,8-TCDF		144	200	pg/g	71.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		152	200	pg/g	75.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		152	200	pg/g	76.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		145	200	pg/g	72.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		135	200	pg/g	67.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		142	200	pg/g	71.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		149	200	pg/g	74.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026877**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**				
Client ID:	**MB for batch 44116**			**Prep Basis:**	**As Received**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 11:06**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-3**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		143	200	pg/g	71.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		159	200	pg/g	79.7	(26%-138%)
37Cl-2,3,7,8-TCDD		18.5	20.0	pg/g	92.4	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026878**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**				
Client ID:	**LCS for batch 44116**			**Prep Basis:**	**As Received**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 09:31**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-1**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.0	pg/g	0.0946	1.00
40321-76-4	1,2,3,7,8-PeCDD		99.3	pg/g	0.117	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		97.5	pg/g	0.222	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		100	pg/g	0.226	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		104	pg/g	0.228	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		101	pg/g	0.346	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		197	pg/g	0.412	10.0
51207-31-9	2,3,7,8-TCDF		19.1	pg/g	0.105	1.00
57117-41-6	1,2,3,7,8-PeCDF		99.4	pg/g	0.142	5.00
57117-31-4	2,3,4,7,8-PeCDF		101	pg/g	0.134	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		99.2	pg/g	0.220	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		99.2	pg/g	0.224	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		100	pg/g	0.222	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		101	pg/g	0.300	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		102	pg/g	0.206	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		97.9	pg/g	0.280	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		191	pg/g	0.522	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		170	200	pg/g	85.2	(20%-175%)
13C-1,2,3,7,8-PeCDD		173	200	pg/g	86.6	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		161	200	pg/g	80.6	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		160	200	pg/g	79.9	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		180	200	pg/g	89.9	(22%-166%)
13C-OCDD		399	400	pg/g	99.6	(13%-199%)
13C-2,3,7,8-TCDF		155	200	pg/g	77.7	(22%-152%)
13C-1,2,3,7,8-PeCDF		161	200	pg/g	80.7	(21%-192%)
13C-2,3,4,7,8-PeCDF		165	200	pg/g	82.3	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		153	200	pg/g	76.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		146	200	pg/g	72.9	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		152	200	pg/g	75.8	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		156	200	pg/g	77.8	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		155	200	pg/g	77.5	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		175	200	pg/g	87.3	(20%-186%)
37Cl-2,3,7,8-TCDD		18.6	20.0	pg/g	93.1	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026879**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**				
Client ID:	**LCSD for batch 44116**			**Prep Basis:**	**As Received**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 10:18**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-2**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.1	pg/g	0.0802	1.00
40321-76-4	1,2,3,7,8-PeCDD		98.8	pg/g	0.180	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		97.5	pg/g	0.238	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		100	pg/g	0.244	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		105	pg/g	0.246	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		101	pg/g	0.226	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		196	pg/g	0.584	10.0
51207-31-9	2,3,7,8-TCDF		19.0	pg/g	0.121	1.00
57117-41-6	1,2,3,7,8-PeCDF		99.7	pg/g	0.192	5.00
57117-31-4	2,3,4,7,8-PeCDF		102	pg/g	0.183	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		98.4	pg/g	0.216	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		100	pg/g	0.220	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		99.5	pg/g	0.230	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		99.9	pg/g	0.304	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		101	pg/g	0.218	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		97.5	pg/g	0.306	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		193	pg/g	0.370	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		173	200	pg/g	86.3	(20%-175%)
13C-1,2,3,7,8-PeCDD		171	200	pg/g	85.4	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		159	200	pg/g	79.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		160	200	pg/g	79.9	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		182	200	pg/g	91.2	(22%-166%)
13C-OCDD		394	400	pg/g	98.4	(13%-199%)
13C-2,3,7,8-TCDF		155	200	pg/g	77.4	(22%-152%)
13C-1,2,3,7,8-PeCDF		159	200	pg/g	79.4	(21%-192%)
13C-2,3,4,7,8-PeCDF		162	200	pg/g	80.9	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		154	200	pg/g	77.1	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		145	200	pg/g	72.6	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		151	200	pg/g	75.6	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		160	200	pg/g	80.2	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		155	200	pg/g	77.4	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		174	200	pg/g	86.9	(20%-186%)
37Cl-2,3,7,8-TCDD		18.4	20.0	pg/g	91.8	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026880**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing(166**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/01/2020 10:10**	**Analyst:**	**MJC**	**Instrument:**	**HRP757**
Data File:	**e01jul20a-5**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.27 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		19.8	pg/g	0.208	0.930

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026880**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing(166**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 12:43**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-5**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.27 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.5	pg/g	0.117	0.930
40321-76-4	1,2,3,7,8-PeCDD		96.5	pg/g	0.199	4.65
39227-28-6	1,2,3,4,7,8-HxCDD		99.4	pg/g	0.363	4.65
57653-85-7	1,2,3,6,7,8-HxCDD		123	pg/g	0.366	4.65
19408-74-3	1,2,3,7,8,9-HxCDD		119	pg/g	0.372	4.65
35822-46-9	1,2,3,4,6,7,8-HpCDD		825	pg/g	1.04	4.65
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5800	pg/g	1.77	9.30
51207-31-9	2,3,7,8-TCDF		19.3	pg/g	0.172	0.930
57117-41-6	1,2,3,7,8-PeCDF		94.6	pg/g	0.201	4.65
57117-31-4	2,3,4,7,8-PeCDF		101	pg/g	0.190	4.65
70648-26-9	1,2,3,4,7,8-HxCDF		117	pg/g	0.271	4.65
57117-44-9	1,2,3,6,7,8-HxCDF		100	pg/g	0.283	4.65
60851-34-5	2,3,4,6,7,8-HxCDF		101	pg/g	0.288	4.65
72918-21-9	1,2,3,7,8,9-HxCDF		96.6	pg/g	0.346	4.65
67562-39-4	1,2,3,4,6,7,8-HpCDF		229	pg/g	0.337	4.65
55673-89-7	1,2,3,4,7,8,9-HpCDF		100	pg/g	0.457	4.65
39001-02-0	1,2,3,4,6,7,8,9-OCDF		436	pg/g	0.459	9.30

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		151	186	pg/g	81.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		154	186	pg/g	82.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		153	186	pg/g	82.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		144	186	pg/g	77.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		170	186	pg/g	91.6	(23%-140%)
13C-OCDD		424	372	pg/g	114	(17%-157%)
13C-2,3,7,8-TCDF		141	186	pg/g	76.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		141	186	pg/g	75.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		144	186	pg/g	77.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		137	186	pg/g	73.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		133	186	pg/g	71.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		139	186	pg/g	74.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		146	186	pg/g	78.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		143	186	pg/g	76.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		162	186	pg/g	87.2	(26%-138%)
37Cl-2,3,7,8-TCDD		15.3	18.6	pg/g	82.1	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026881**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing(166**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/01/2020 10:34**	**Analyst:**	**MJC**	**Instrument:**	**HRP757**
Data File:	**e01jul20a-6**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.28 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		20.3	pg/g	0.197	0.929

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026881**	**Date Collected:**	**05/07/2020 10:00**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44116**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**4.5**
Client ID:	**ISM-05_0520---After Processing(166**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44118**	**Method:**	**EPA Method 1613B**		
Run Date:	**06/30/2020 13:31**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b29jun20c_3-6**			**Dilution:**	**1**
Prep Batch:	**44116**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**28-JUN-20**	**Prep Aliquot:**	**11.28 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.2	pg/g	0.102	0.929
40321-76-4	1,2,3,7,8-PeCDD		96.7	pg/g	0.217	4.64
39227-28-6	1,2,3,4,7,8-HxCDD		99.4	pg/g	0.437	4.64
57653-85-7	1,2,3,6,7,8-HxCDD		124	pg/g	0.429	4.64
19408-74-3	1,2,3,7,8,9-HxCDD		117	pg/g	0.442	4.64
35822-46-9	1,2,3,4,6,7,8-HpCDD		834	pg/g	1.06	4.64
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5870	pg/g	1.43	9.29
51207-31-9	2,3,7,8-TCDF		19.3	pg/g	0.225	0.929
57117-41-6	1,2,3,7,8-PeCDF		97.5	pg/g	0.336	4.64
57117-31-4	2,3,4,7,8-PeCDF		103	pg/g	0.327	4.64
70648-26-9	1,2,3,4,7,8-HxCDF		117	pg/g	0.319	4.64
57117-44-9	1,2,3,6,7,8-HxCDF		99.5	pg/g	0.312	4.64
60851-34-5	2,3,4,6,7,8-HxCDF		103	pg/g	0.321	4.64
72918-21-9	1,2,3,7,8,9-HxCDF		96.6	pg/g	0.401	4.64
67562-39-4	1,2,3,4,6,7,8-HpCDF		231	pg/g	0.384	4.64
55673-89-7	1,2,3,4,7,8,9-HpCDF		104	pg/g	0.520	4.64
39001-02-0	1,2,3,4,6,7,8,9-OCDF		444	pg/g	0.483	9.29

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		152	186	pg/g	82.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		152	186	pg/g	82.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		145	186	pg/g	77.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		142	186	pg/g	76.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		168	186	pg/g	90.5	(23%-140%)
13C-OCDD		399	371	pg/g	107	(17%-157%)
13C-2,3,7,8-TCDF		141	186	pg/g	75.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		135	186	pg/g	72.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		139	186	pg/g	75.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		132	186	pg/g	71.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		127	186	pg/g	68.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		134	186	pg/g	72.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		140	186	pg/g	75.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		138	186	pg/g	74.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		156	186	pg/g	83.9	(26%-138%)
37Cl-2,3,7,8-TCDD		15.6	18.6	pg/g	84.2	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026920**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44157**				
Client ID:	**MB for batch 44157**			**Prep Basis:**	**As Received**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 17:33**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-3**			**Dilution:**	**1**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.02	pg/g	1.02	10.0
40321-76-4	1,2,3,7,8-PeCDD	U	1.15	pg/g	1.15	50.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.14	pg/g	1.14	50.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	1.15	pg/g	1.15	50.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.16	pg/g	1.16	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	1.78	pg/g	1.75	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	JK	6.08	pg/g	3.24	100
51207-31-9	2,3,7,8-TCDF	J	1.84	pg/g	1.47	10.0
57117-41-6	1,2,3,7,8-PeCDF	U	1.18	pg/g	1.18	50.0
57117-31-4	2,3,4,7,8-PeCDF	U	1.14	pg/g	1.14	50.0
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.28	pg/g	0.914	50.0
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.14	pg/g	0.928	50.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.970	pg/g	0.970	50.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	1.40	pg/g	1.40	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	5.56	pg/g	1.05	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.63	pg/g	1.63	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	3.10	pg/g	3.10	100
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	J	1.82	pg/g	1.02	10.0
41903-57-5	Total TeCDD	J	1.82	pg/g	1.02	10.0
36088-22-9	Total Pentachlorodibenzo-p-dioxin	U	1.15	pg/g	1.15	50.0
36088-22-9	Total PeCDD	U	1.15	pg/g	1.15	50.0
34465-46-8	Total Hexachlorodibenzo-p-dioxin	U	1.14	pg/g	1.14	50.0
34465-46-8	Total HxCDD	U	1.14	pg/g	1.14	50.0
37871-00-4	Total Heptachlorodibenzo-p-dioxin	J	1.78	pg/g	1.75	50.0
37871-00-4	Total HpCDD	J	1.78	pg/g	1.75	50.0
30402-14-3	Total Tetrachlorodibenzofuran	J	3.70	pg/g	1.47	10.0
30402-14-3	Total TeCDF	J	3.70	pg/g	1.47	10.0
30402-15-4	Total Pentachlorodibenzofuran	J	2.82	pg/g	0.686	50.0
30402-15-4	Total PeCDF	JK	5.44	pg/g	0.686	50.0
55684-94-1	Total Hexachlorodibenzofuran	J	5.88	pg/g	0.914	50.0
55684-94-1	Total HxCDF	J	5.88	pg/g	0.914	50.0
38998-75-3	Total Heptachlorodibenzofuran	J	5.56	pg/g	1.05	50.0

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026920**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44157**				
Client ID:	**MB for batch 44157**			**Prep Basis:**	**As Received**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 17:33**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-3**			**Dilution:**	**1**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38998-75-3	Total HpCDF	J	5.56	pg/g	1.05	50.0
3333-30-0	TEQ WHO2005 ND=0		0.599	pg/g		
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.601	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		2.17	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2.17	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1670	2000	pg/g	83.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		1730	2000	pg/g	86.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1400	2000	pg/g	70.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1590	2000	pg/g	79.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1570	2000	pg/g	78.5	(23%-140%)
13C-OCDD		2660	4000	pg/g	66.5	(17%-157%)
13C-2,3,7,8-TCDF		1500	2000	pg/g	75.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		1670	2000	pg/g	83.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		1630	2000	pg/g	81.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1440	2000	pg/g	72.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1450	2000	pg/g	72.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1510	2000	pg/g	75.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1500	2000	pg/g	75.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		1410	2000	pg/g	70.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1450	2000	pg/g	72.6	(26%-138%)
37Cl-2,3,7,8-TCDD		176	200	pg/g	88.1	(35%-197%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026921**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44157**				
Client ID:	**LCS for batch 44157**			**Prep Basis:**	**As Received**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 15:57**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-1**			**Dilution:**	**1**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		191	pg/g	1.28	10.0
40321-76-4	1,2,3,7,8-PeCDD		993	pg/g	2.82	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		974	pg/g	5.28	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1020	pg/g	5.28	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1050	pg/g	5.38	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		1000	pg/g	7.54	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1880	pg/g	21.2	100
51207-31-9	2,3,7,8-TCDF		192	pg/g	1.63	10.0
57117-41-6	1,2,3,7,8-PeCDF		933	pg/g	2.60	50.0
57117-31-4	2,3,4,7,8-PeCDF		953	pg/g	2.48	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		945	pg/g	4.88	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		984	pg/g	5.12	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		932	pg/g	4.94	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		926	pg/g	7.38	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1030	pg/g	4.60	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1010	pg/g	7.08	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1960	pg/g	10.4	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1700	2000	pg/g	84.9	(20%-175%)
13C-1,2,3,7,8-PeCDD		1690	2000	pg/g	84.3	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1390	2000	pg/g	69.6	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1580	2000	pg/g	79.0	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1540	2000	pg/g	76.9	(22%-166%)
13C-OCDD		2900	4000	pg/g	72.5	(13%-199%)
13C-2,3,7,8-TCDF		1490	2000	pg/g	74.7	(22%-152%)
13C-1,2,3,7,8-PeCDF		1660	2000	pg/g	83.2	(21%-192%)
13C-2,3,4,7,8-PeCDF		1660	2000	pg/g	82.9	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1420	2000	pg/g	71.2	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1450	2000	pg/g	72.7	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1520	2000	pg/g	76.1	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1530	2000	pg/g	76.5	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1400	2000	pg/g	70.1	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1500	2000	pg/g	75.1	(20%-186%)
37Cl-2,3,7,8-TCDD		179	200	pg/g	89.4	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026922**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44157**				
Client ID:	**LCSD for batch 44157**			**Prep Basis:**	**As Received**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 16:45**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-2**			**Dilution:**	**1**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		194	pg/g	1.27	10.0
40321-76-4	1,2,3,7,8-PeCDD		1030	pg/g	2.30	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		984	pg/g	4.30	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1030	pg/g	4.12	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1080	pg/g	4.28	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		1020	pg/g	6.14	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2110	pg/g	13.5	100
51207-31-9	2,3,7,8-TCDF		195	pg/g	1.44	10.0
57117-41-6	1,2,3,7,8-PeCDF		946	pg/g	2.46	50.0
57117-31-4	2,3,4,7,8-PeCDF		990	pg/g	2.44	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		997	pg/g	4.72	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		978	pg/g	4.82	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		955	pg/g	4.70	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		929	pg/g	6.96	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1050	pg/g	4.88	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1010	pg/g	6.98	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2180	pg/g	11.9	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1620	2000	pg/g	81.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		1680	2000	pg/g	84.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1410	2000	pg/g	70.3	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1560	2000	pg/g	77.8	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1550	2000	pg/g	77.5	(22%-166%)
13C-OCDD		2640	4000	pg/g	65.9	(13%-199%)
13C-2,3,7,8-TCDF		1480	2000	pg/g	74.0	(22%-152%)
13C-1,2,3,7,8-PeCDF		1610	2000	pg/g	80.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		1650	2000	pg/g	82.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1380	2000	pg/g	68.9	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1500	2000	pg/g	74.8	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1470	2000	pg/g	73.6	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1520	2000	pg/g	75.9	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1400	2000	pg/g	69.8	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1480	2000	pg/g	73.9	(20%-186%)
37Cl-2,3,7,8-TCDD		178	200	pg/g	89.0	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026923**	**Date Collected:**	**05/05/2020 16:30**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44157**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**7**
Client ID:	**ISM-08_0520---After Processing(166**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 19:09**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-5**			**Dilution:**	**10**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1.05 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		252	pg/g	12.1	102
40321-76-4	1,2,3,7,8-PeCDD		1560	pg/g	25.2	512
39227-28-6	1,2,3,4,7,8-HxCDD		1740	pg/g	75.8	512
57653-85-7	1,2,3,6,7,8-HxCDD		3750	pg/g	63.5	512
19408-74-3	1,2,3,7,8,9-HxCDD		2470	pg/g	70.2	512
35822-46-9	1,2,3,4,6,7,8-HpCDD		80600	pg/g	338	512
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	798000	pg/g	369	1020
51207-31-9	2,3,7,8-TCDF		271	pg/g	21.7	102
57117-41-6	1,2,3,7,8-PeCDF		1130	pg/g	21.1	512
57117-31-4	2,3,4,7,8-PeCDF		1350	pg/g	20.0	512
70648-26-9	1,2,3,4,7,8-HxCDF		1570	pg/g	33.2	512
57117-44-9	1,2,3,6,7,8-HxCDF		1400	pg/g	31.9	512
60851-34-5	2,3,4,6,7,8-HxCDF		1480	pg/g	33.4	512
72918-21-9	1,2,3,7,8,9-HxCDF		1300	pg/g	51.8	512
67562-39-4	1,2,3,4,6,7,8-HpCDF		10500	pg/g	53.4	512
55673-89-7	1,2,3,4,7,8,9-HpCDF		1720	pg/g	78.6	512
39001-02-0	1,2,3,4,6,7,8,9-OCDF		36900	pg/g	114	1020

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		2280	2050	pg/g	111	(25%-164%)
13C-1,2,3,7,8-PeCDD		2380	2050	pg/g	116	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		2120	2050	pg/g	104	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		2370	2050	pg/g	116	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2390	2050	pg/g	117	(23%-140%)
13C-OCDD		5310	4090	pg/g	130	(17%-157%)
13C-2,3,7,8-TCDF		2140	2050	pg/g	105	(24%-169%)
13C-1,2,3,7,8-PeCDF		2370	2050	pg/g	116	(24%-185%)
13C-2,3,4,7,8-PeCDF		2350	2050	pg/g	115	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		2170	2050	pg/g	106	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		2300	2050	pg/g	112	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		2280	2050	pg/g	112	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		2180	2050	pg/g	106	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		2100	2050	pg/g	103	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2200	2050	pg/g	108	(26%-138%)
37Cl-2,3,7,8-TCDD		233	205	pg/g	114	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A0E0214_2**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12026924**	**Date Collected:**	**05/05/2020 16:30**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 44157**	**Date Received:**	**06/16/2020 10:14**	**%Moisture:**	**7**
Client ID:	**ISM-08_0520---After Processing(166**			**Prep Basis:**	**Dry Weight**
Batch ID:	**44159**	**Method:**	**EPA Method 1613B**		
Run Date:	**07/07/2020 19:57**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b07jul20a_2-6**			**Dilution:**	**10**
Prep Batch:	**44157**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**06-JUL-20**	**Prep Aliquot:**	**1.01 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		268	pg/g	16.5	106
40321-76-4	1,2,3,7,8-PeCDD		1570	pg/g	23.0	532
39227-28-6	1,2,3,4,7,8-HxCDD		1780	pg/g	223	532
57653-85-7	1,2,3,6,7,8-HxCDD		3740	pg/g	221	532
19408-74-3	1,2,3,7,8,9-HxCDD		2010	pg/g	226	532
35822-46-9	1,2,3,4,6,7,8-HpCDD		84300	pg/g	226	532
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	789000	pg/g	415	1060
51207-31-9	2,3,7,8-TCDF		274	pg/g	21.7	106
57117-41-6	1,2,3,7,8-PeCDF		1200	pg/g	21.7	532
57117-31-4	2,3,4,7,8-PeCDF		1320	pg/g	20.4	532
70648-26-9	1,2,3,4,7,8-HxCDF		1560	pg/g	36.0	532
57117-44-9	1,2,3,6,7,8-HxCDF		1420	pg/g	39.0	532
60851-34-5	2,3,4,6,7,8-HxCDF		1510	pg/g	39.8	532
72918-21-9	1,2,3,7,8,9-HxCDF		1260	pg/g	52.8	532
67562-39-4	1,2,3,4,6,7,8-HpCDF		11500	pg/g	63.4	532
55673-89-7	1,2,3,4,7,8,9-HpCDF		1690	pg/g	102	532
39001-02-0	1,2,3,4,6,7,8,9-OCDF		36400	pg/g	119	1060

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%		Acceptable Limits
13C-2,3,7,8-TCDD		2120	2130	pg/g	99.5		(25%-164%)
13C-1,2,3,7,8-PeCDD		2200	2130	pg/g	103		(25%-181%)
13C-1,2,3,4,7,8-HxCDD		2850	2130	pg/g	134		(32%-141%)
13C-1,2,3,6,7,8-HxCDD		3210	2130	pg/g	151	*	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		3040	2130	pg/g	143	*	(23%-140%)
13C-OCDD		6870	4260	pg/g	161	*	(17%-157%)
13C-2,3,7,8-TCDF		1970	2130	pg/g	92.5		(24%-169%)
13C-1,2,3,7,8-PeCDF		2080	2130	pg/g	97.9		(24%-185%)
13C-2,3,4,7,8-PeCDF		2170	2130	pg/g	102		(21%-178%)
13C-1,2,3,4,7,8-HxCDF		2950	2130	pg/g	139		(26%-152%)
13C-1,2,3,6,7,8-HxCDF		2960	2130	pg/g	139	*	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		3000	2130	pg/g	141	*	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		2860	2130	pg/g	134		(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		2860	2130	pg/g	134		(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2750	2130	pg/g	129		(26%-138%)
37Cl-2,3,7,8-TCDD		215	213	pg/g	101		(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Attachment D
Data Validation Report

QA/QC SOLUTIONS, LLC

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August 28, 2020

Josh Bale, P.E.
GSI Water Solutions, Inc.
55 SW Yamhill Street, Suite 300
Portland, OR 972014

Sent via e-mail to jbale@gsiws.com on August 28, 2020

Subject: JH Baxter-Eugene: May 2020 ISM Sampling Data Review Summary
Client Project No.: 0302,.01.004
QA/QC Solutions, LLC Project No.: 0724290.1

Dear Josh:

Pursuant to your request, *QA/QC Solutions, LLC* completed an abbreviated data review of the chemical and physical parameter analyses completed on composited soil samples using incremental sampling methodology (ISM) and one equipment blank. The samples were collected between May 5 and 7, 2020 and associated with the JH Baxter-Eugene site.

Analyses were completed for 18 polycyclic aromatic hydrocarbons (PAHs), pentachlorophenol (PCP), selected metals (i.e., arsenic, chromium, copper, and zinc), total organic carbon (TOC), total solids, and polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (PCDD/Fs). All data were reported in sample delivery group (SDG) by Apex Laboratories located in Tigard, Oregon under work order AOE0214. The analytical methods used are specified in the SDG.

Overall Assessment of Data Quality

Overall, the data reported are of good quality and the results for the applicable QA/QC measurements that were used by the laboratories during the analysis of the samples were generally acceptable The data reported were reviewed to verify that applicable laboratory quality assurance and quality control (QA/QC) measurements were reported, documented, and of sufficient quality to support its intended purpose(s). No significant data quality issues were identified during the abbreviated review that would make any data unusable.

Some sample results were assigned laboratory qualifiers (see page 33 of 145 in APEX SDG for definitions). The laboratory qualifiers were assigned to provide additional information to data users regarding potential outliers and/or details for the specific result reported. Data users need to take note of all laboratory-assigned qualifiers for interpretative purposes.

Data Validation Procedures

Data validation procedures included evaluating a summary of the sample results and applicable quality control results reported by the laboratory; this level of validation is also referred to as an abbreviated data review (equivalent to "Stage 2B" review per U.S. EPA 2009). The data review was completed to identity if there may have been significant data quality issues with regards to method blank and equipment rinsate

blank contamination and bias attributed to the method-specific accuracy, and precision quality control measurements reported

Verification and validation of 100-percent of all applicable laboratory calculations, transcriptions, review of instrument printouts, and review of bench sheets were not completed during the data validation review. There may be analytical problems that could only be identified by reviewing every instrument printouts and associated analytical quality control results. Verification of all possible factors that could result in the degradation of data quality was not completed nor should be inferred at this time. The laboratory case narratives did not indicate any significant problems with data that were not reviewed during data validation. The adequacy of the sampling procedures was not completed during the data validation.

This concludes the data review summary. Should you have any questions regarding the information presented herein, please contact me by telephone at 503.763.6948 or by e-mail at jjmcateer@msn.com.

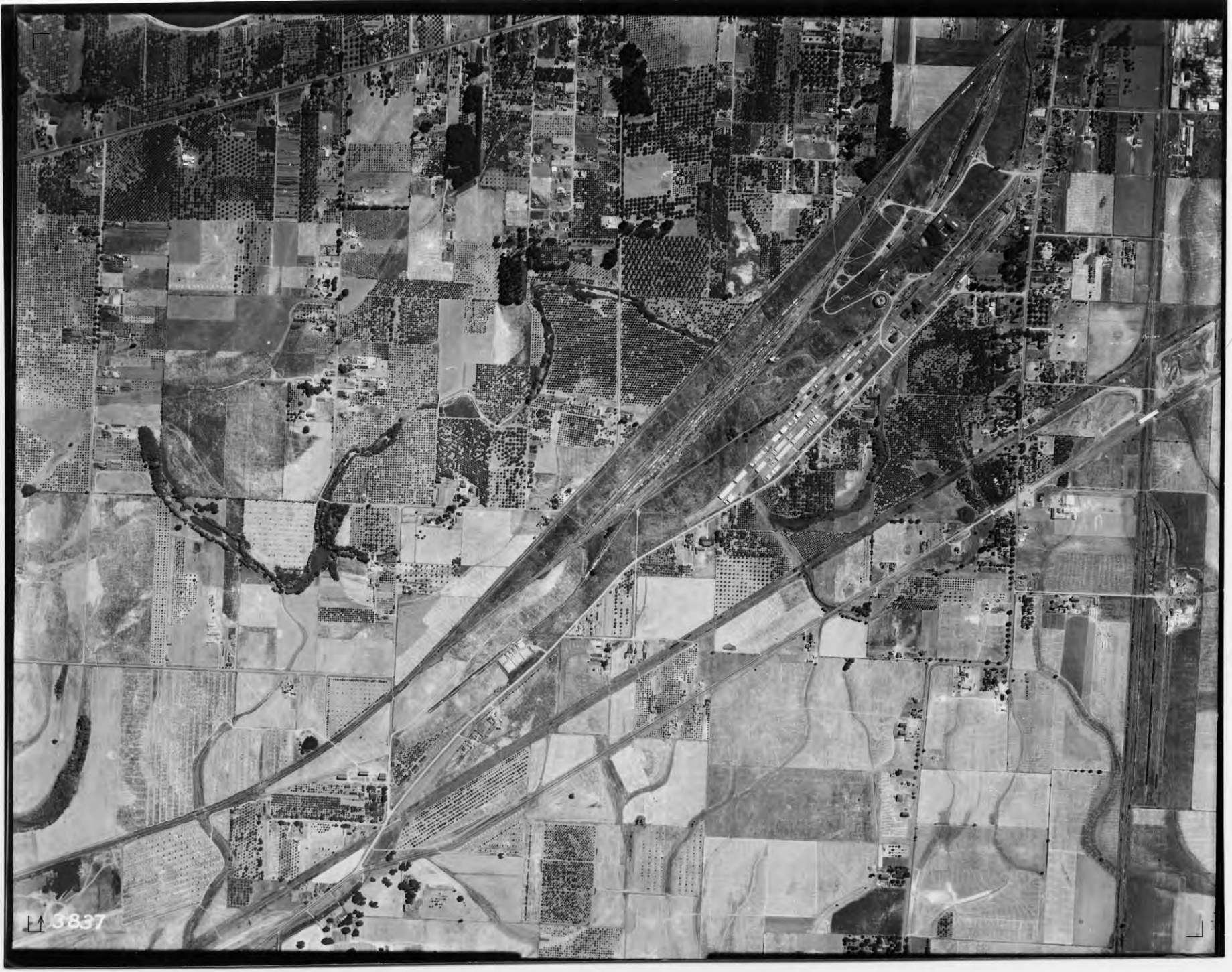
Cordially,

James J. Mc Ateer, Jr., BS, MRSC
Managing Member

References

U.S. EPA 2009. Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85. EPA 540-R-08-005. January 13, 2009. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC.

Attachment E
Historical Aerials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