AMENDED SUBSURFACE INVESTIGATION REPORT

At

PORT OF PASCO BIG INDUSTRIAL PARK LAGOONS
SE Road 36/East Ainsworth Avenue
Pasco, Washington 99361
Cleanup Site ID: 15433
Fac. Site ID# 88749
VCP Project ID: EA0362

Amended May 30, 2024

Prepared for:

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1.0 INTRODUCTION

This Subsurface Investigation (SI) report, prepared by Blue Mountain Environmental & Consulting Co., Inc. (BMEC) for Mr. Randy Hayden of the Port of Pasco (the Client), as well as the State of Washington Department of Ecology (Ecology), describes the field activities that BMEC performed between November 2023 and February 2024 at the property located at the Port of Pasco Big Industrial Park Lagoons at SE Road 36/East Ainsworth Avenue in Pasco, Washington 99301 (Site). The field activities performed during this SI were conducted per the requests made by Ecology via the January 6, 2023 ***Further Action*** Letter, the August 10, 2023 Opinion Letter titled ***Re: Technical Assistance for the following contaminated Site.*** A Site Vicinity Map is included as **Figure 1**. A Site Location Map is included as **Figure 2**. Copies of both Ecology letters dated January 6, 2023 and August 10, 2023, are included in **Appendix A**.

Per the aforementioned Ecology letters, BMEC performed the following SI field activities on November 28 – 29 and December 4, 2023:

- On November 28 and 29, 2023, supervise the advancement of 11 soil borings (SB1 – SB8 and MW1 – MW3) via Geoprobe® and hollow-stem auger (HSA) methodology. Three of the soil borings were completed as monitoring wells MW1, MW2, and MW3.
- Collect depth-to-groundwater measurements from below top of casings (btoc) on the three monitoring wells (MW1 – MW3) to confirm the groundwater flow direction.
- Collection of five biosolids sludge samples and eight soil samples from the 11 soil borings and characterization of subsurface media (sludge and soil) at the Site for a combination of the following contaminants of concern (COCs): Resource Conservation and Recovery Act (RCRA) 8 Metals per EPA Method 6061D/6020B/7471B; dioxins and furans per EPA Method 1613; polybrominated diphenyl ethers (PDBEs) per EPA Method 1614; polyfluoroalkyl substances (PFAS) compounds using EPA Method 1633; volatile organic compounds (VOCs) using EPA Method 8260; and total petroleum hydrocarbons (TPH) using analytical methods NWTPH-Gx for gasoline-range (TPH-G) and NWTPH-Dx for diesel- (TPH-D) and heavy-oil range (TPH-O) petroleum hydrocarbons.
- Mobilize to the Site on December 4, 2023, to develop and sample monitoring wells MW1, MW2, and MW3. The groundwater samples collected from the three wells were analyzed for PFAs.
- Mobilize to the Site on February 15, 2024, to purge and sample monitoring wells MW1, MW2, and MW3. The groundwater samples collected from the three wells were analyzed for RCRA 8 Metals (total) using EPA Method EPA 200.8/7470A.

Additionally, BMEC was asked by Ecology to document all field activities and sample results in a report, including the percent dry weight of solids for the soil and sludge samples.

1.1 Site Information

The Site is located at the southeast intersection of East Ainsworth Street and SE Road 36 in Pasco, Washington 99301. The Site consists of two former wastewater treatment lagoons which no longer contain surface water, but have been backfilled, compacted and leveled, and are currently unused, but may be used for parking in the future. The north and south lagoons had an approximate sludge volume of 32,130 cubic feet and 62,400 cubic feet, respectively. Per depth-to-groundwater

obtained from the three monitoring wells on November 29, 2023, depth to groundwater below the lagoons ranged from 9.82 feet btoc in well MW3 to 11.20 feet btoc in MW2 and groundwater flow direction was calculated to be to the south-southeast toward the Columbia River which is less than ¼-mile from the Site. Port of Pasco facility operations exist to the immediate northwest, west, southwest, and south. The Sacajawea State Park exists to the southeast and vacant land owned by the Port of Pasco exists to the northeast and north. The Site is located on Parcel 112420028, in the south half of Section 33, in Township 9 N., Range 30 E.W.M., and the northwest quarter of Section 3, in Township 8 N., and Range 30 E.W.M.

1.2 Site History

On January 12, 2021, BMEC personnel conducted sampling of biosolids in the two lagoons at the Site. Seven discrete sludge column samples were collected from each of the two lagoons and analyzed for fecal coliform. One composite sample was created from each lagoon and analyzed for organochlorine pesticides, RCRA 8 metals, nitrates, nitrogen, ammonia, dioxins, furans, PAHs, PCBs, and PBDEs. Cadmium exceeded the MTCA Method A soil cleanup level in the south lagoon sample, while the dioxin and furan toxicity equivalency (TEQ) exceeded the MTCA Method B soil cleanup level. The organochlorine DDE and PBDEs were detected in this same south lagoon sample below their respective soil cleanup levels. There was no detection of any COCs above cleanup screening levels in the North Lagoon. Soil below the lagoon sludge column has not been characterized to date.

For a detailed description of past environmental activities and results conducted at the Site, please refer to the following documents:

- Ecology, Environmental Covenant 1966700, September 26, 2022.
- Blue Mountain Environmental and Consulting Co., Inc., CSID No. 15433 Big Pasco. Industrial Park Lagoons, Operation and Maintenance Plan, March 15, 2022.
- Coho Environmental, Terrestrial Ecological Evaluation, Port of Pasco, Big Pasco Industrial Center Lagoons, Pasco, WA, June 28, 2021.
- Blue Mountain Environmental and Consulting Co., Inc., Biosolids Sample Analysis Report at Big Pasco Industrial Center, Pasco, Washington, February 25, 2021.
- Blue Mountain Environmental and Consulting Co., Inc., Port of Pasco Big Industrial Park Lagoons, Sampling and Analysis Plan, December 11, 2020.
- GN Northern, Inc., Geotechnical Site Investigation Report, GNN Project No. 219-1119, May 20, 2020.

These documents are accessible in electronic form from the Site webpage. The complete records are stored in the Central Files of the Eastern Regional Office of Ecology (ERO) for review by appointment only.

2.0 FIELD METHODOLOGIES

On November 28 and 29, 2023, BMEC supervised Steadfast crews during the advancement of 11 soil borings (B1 through B8 and MW1 through MW3) total via Geoprobe® Model 7720DT. Photographs of the field activities are included in **Appendix B**. Three of the borings (B1 through B3) were advanced in the north lagoon and five of the borings (B4 through B8) were advanced in the south lagoon at the Site (**Figure 3**). The boring for well MW1 was advanced in the north lagoon while MW2 and MW3 were advanced on the exterior (south of) the south lagoon. A total of five sludge samples and eight soil samples were obtained for laboratory analysis from borings B1 through B8. **Table 1** lists the five sludge and eight soil samples collected from the Site with nomenclature such as ***NL-B2-SO-30'*** indicating the sample was collected from the north lagoon-from boring B2-soil-at a depth of 30 feet bgs; and nomenclature such as ***SL-B6-SL-15'*** indicating the sample was collected from the south lagoon-from boring B6-sludge-at a depth of 15 feet bgs. No groundwater samples were obtained from borings B1 through B8 for analysis. No soil or sludge samples were obtained from borings MW1 through MW3.

Soil and sludge from each of the eight borings (B1 through B8) were extracted from the subsurface via 5-foot-long acetate liners which were placed on the field geologist's sample table, cut open by the driller, and field screened via photo-ionization detector (PID) and visually. The PID readings and soil lithology are documented on each of the boring logs located in **Appendix C**. Soil and/or sludge samples were collected in three to five 4-ounce glass jars with sealable Teflon lids per sample. Soil and sludge removed from each of the eight borings were containerized in 55-gallon drums which were properly labeled and sealed, awaiting future disposal. Each of the eight soil borings were backfilled with bentonite pellets.

Soil and/or sludge samples were analyzed for the following analytes according to the August 10, 2023 Opinion Letter titled ***Re: Technical Assistance for the following contaminated Site,*** and an email from Ted Uecker dated November 29, 2023(*):

- 5 soil samples - Dioxins and furans per EPA Method 1613
- *3 soil samples - PDBEs per EPA Method 1614
- 5 biosolids sludge samples - PFAS compounds per EPA Method 1633
- 3 groundwater, 8 soils, and 5 biosolids sludge samples - VOCs per EPA Method 8260
- 3 groundwater, 8 soils, and 5 biosolids sludge samples for NWTPH-HCID
- 1 biosolids sludge sample for TPH-D and TPH-O per Northwest Method NWTPH-Dx
- 3 groundwater and 8 soils samples for RCRA 8 total metals per EPA Method 6010D/7471B

On November 29, 2023, borings MW1 through MW3 were over-drilled with a CME 75 drill rig via HSA methodology equipped with 6.5-inch outer diameter (OD) augers. Two-inch diameter, Schedule 40 polyvinyl chloride (PVC) monitoring wells were installed in the three borings and

completed as flush-mounted monitoring wells. The three monitoring wells were labeled MW1, MW2, and MW3, and were installed with 0.010-inch slotted screen from 5 – 25 feet below ground surface (bgs), 5 – 20 feet bgs, and 5 – 20 feet bgs, respectively.

On December 4, 2023, BMEC returned to the Site to develop each of the monitoring wells via submersible pump and dedicated tubing. Groundwater parameters (pH, temperature, conductivity, and turbidity) were measured and recorded groundwater sample field logs (**Appendix D**). Approximately 10 well volumes were purged from each of the three monitoring wells during the development process. Groundwater sampling for the following occurred immediately after well development was completed: PFAS compounds per EPA Method 1633.

Each of the sludge, soil, and groundwater samples were shipped overnight to OnSite Environmental in Redmond, Washington for analysis.

On February 15, 2024, BMEC returned to the Site to purge each of the three monitoring wells via submersible pump and dedicated tubing. Groundwater parameters (pH, temperature, conductivity, and turbidity) were measured and recorded groundwater sample field logs (**Appendix D**). Approximately three well volumes were purged from each of the three monitoring wells, prior to collection of groundwater samples. Each of the three groundwater samples were submitted to OnSite via overnight shipment for RCRA 8 Metals per EPA Method 6061D/6020B/7471B.

3.0 LABORATORY ANALYTICAL RESULTS

A total of 13 soil and/or sludge samples were collected and shipped to OnSite for a combination of the following analyses:

- 5 soil samples - Dioxins and furans per EPA Method 1613
- *3 soil samples - PDBEs per EPA Method 1614
- 5 biosolids sludge samples - PFAS compounds per EPA Method 1633
- 3 groundwater, 8 soils, and 5 biosolids sludge samples - VOCs per EPA Method 8260D
- 3 groundwater, 8 soils, and 5 biosolids sludge samples for NWTPH-HCID
- 1 biosolids sludge sample for TPH-D and TPH-O per Northwest Method NWTPH-Dx
- 3 groundwater and 8 soils samples for RCRA 8 total metals per EPA Method 6010D/7471B

The text contained in Section 3.1 discusses the results of the soil and sludge sample laboratory analyses.

A total of three groundwater samples were collected for laboratory analysis of organic compounds per EPA Method PFC/537M, as well as for RCRA 8 Metals (total) per EPA Method 200.8/7470A. One groundwater sample was collected from each of the newly installed and developed monitoring wells, MW-1 through MW-3. The text contained in Section 3.2 discusses the results of the organic compounds in groundwater, as well as the results of the RCRA 8 Metals (total) in groundwater.

3.1 Soil and Sludge Sample Results

A total of 13 samples were collected and analyzed for HCID: Five sludge and eight soil samples in total. TPH-G and THP-D were not identified above the laboratory PQL in any of the 13 samples. TPH-O was identified in only one sample (NL-B3-SL-20') and quantified at 140 mg/Kg TPH-O via Northwest Method NWTPH-Dx. The HCID and TPH results for the five sludge and eight soil samples are summarized in **Table 1**.

A total of four sludge samples were collected and analyzed for VOCs via EPA Method 8260. BTEX; 1,2,4-trimethylbenzene (124-TMB); 1,3,5-trimethylbenzene (135-TMB); MTBE; trichloroethene (TCE); and tetrachloroethene (PCE) were not detected in any of the four sludge samples at concentrations above the laboratory PQLs. Various VOCs (i.e., acetone, carbon disulfide, 2-butanone, and naphthalene) were detected above the laboratory PQLs, but not at concentrations exceeding applicable screening levels. The VOC results for the four sludge samples are summarized in **Table 2**.

A total of eight soil samples were collected and analyzed for total metals via EPA Method 6010D/7471B. Arsenic, cadmium, mercury, lead, selenium, and silver were not detected in any of the eight soil samples at concentrations above the laboratory PQLs. Barium was detected in all eight soil samples at concentrations ranging from 30 mg/Kg in sample SL-B8-SO-20' to 57 mg/Kg in sample NL-B1-SO-25'. An applicable MTCA Method A Cleanup Level does not currently exist for barium. Chromium was detected in all eight soil samples at concentrations ranging from 2.6 mg/Kg in sample SL-B5-SO-20' to 16 mg/Kg in sample SL-B6-SO-20'. None of the eight chromium detections exceeded the MTCA Method A Cleanup Level for chromium of 19 mg/Kg. The total metal results for the eight soil samples are summarized in **Table 3**.

A total of eight soil samples were collected and analyzed for dioxins and furans via EPA Method1613B. Six different analytes were detected in the eight soil samples, in particular, OCDD which was detected in all eight soil samples at concentrations ranging from 1.22 picograms per gram (pg/g) in sample NL-B1-SO-25' to 149 pg/g in sample SL-B6-SO-20. None of the analyte concentrations in any of the eight soil samples exceeded applicable screening levels. The dioxin and furan results for the eight soil samples are summarized in **Table 4**.

A total of five sludge samples were collected and analyzed for the following organic compounds: perfluoroalkyl sulfonic acids (PFSAs); perfluoroalkyl carboxylic acids (PFCAs); perfluoralkyl sulfonamido substances; fluortelomer sulfonic acids (FTSAs); and perfluoralkyl ether carbonic acids (PFECAs). PFSAs were detected above the laboratory PQLs in three of the five sludge samples, but not at concentrations exceeding applicable screening levels. Similarly, perfluoralkyl sulfonamido substances were detected above the laboratory PQLs in three of the five sludge samples, but not at concentrations exceeding applicable screening levels. The organic compound results for the five sludge samples are summarized in **Table 5**.

A total of three soil samples were collected and analyzed for PBDEs per EPA Method 1614. Various PBDEs were detected in all three soil samples, but none at concentrations exceeding applicable screening levels. The PBDE results for the three soil samples are summarized in **Table 6**.

A copy of the laboratory analytical report and accompanying chain-of-custody documentation for all five sludge samples and eight soil samples collected and analyzed is included in **Appendix E**.

3.2 Groundwater Sample Results

A total of three groundwater samples were collected on December 4, 2023 and submitted to OnSite for laboratory analysis of organic compounds per EPA Method PFC/537M. One groundwater sample was collected from each of the newly installed and developed monitoring wells, MW1 through MW3. PFECAs were not detected in groundwater samples collected from any of the three monitoring wells. PFSAs, PFCAs, perfluoralkyl sulfonamido substances, and FTSAs were detected in all three of the groundwater samples; however, at concentrations that do not exceed any applicable screening levels. The organic compound results for the three groundwater samples are summarized in **Table 7**.

A total of three groundwater samples were collected on February 15, 2024 and submitted to OnSite for laboratory analysis of RCRA 8 total metals per EPA Method 200.8/7470A. One groundwater sample was collected from each of the newly installed and developed monitoring wells, MW1 through MW3. Cadmium, mercury, selenium, and silver were not detected above the laboratory PQLs in any of the three groundwater samples. Barium was detected in all three groundwater samples at concentrations ranging from 110 µg/L in well MW3 to 490 µg/L in well MW1. Currently, no MTCA Method A Cleanup Level exists for barium. Chromium was detected in all three groundwater samples at concentrations ranging from 7.2 µg/L in well MW3 to 36 µg/L in well MW1. None of the three results for chromium exceed the MTCA Method A Cleanup Level of 50 µg/L. Lead was detected in all three groundwater samples at concentrations ranging from 2.6 µg/L in well MW3 to 55 µg/L in well MW1. The concentration of 55 µg/L was the only one of the three results to exceed the MTCA Method A Cleanup Level of 15 µg/L for lead in groundwater. Arsenic was detected in all three groundwater samples at concentrations of 3.4 µg/L in well MW3; 6.2 µg/L in well MW2; and 19 µg/L in well MW1. The concentrations of 6.2 µg/L and 19 µg/L exceed the MTCA Method A Cleanup Level of 5 µg/L for arsenic in groundwater. The RCRA 8 Metals (total) results for the three groundwater samples are summarized in **Table 8**.

A total of three groundwater samples were collected on December 4, 2023 and submitted to OnSite for laboratory analysis of TPH-Gasoline, TPH-Diesel, and TPH-O via HCID, as well as VOCs per EPA Method 8260D. One groundwater sample was collected from each of the newly installed and developed monitoring wells, MW1 through MW3. HCID analysis did not detect any TPH (gasoline, diesel, or heavy oil) in any of the three groundwater samples. Furthermore, VOC analysis did not detect any volatile organic concentrations in any of the three groundwater samples. The HCID and VOC results for all three groundwater samples collected from monitoring wells MW1, MW2, and MW3 are summarized in **Table 9**.

A copy of the laboratory analytical report and accompanying chain-of-custody documentation for all three groundwater samples collected on both dates and analyzed is included in **Appendix E**.

4.0 GEOLOGY AND HYDROGEOLOGY

Per the drilling activities conducted on November 28 and 29, 2023, a sludge layer beneath the Site was encountered at the following locations (**Figure 3**):

Boring B1 (SW corner of north lagoon):	18 – 22.5' = black silty sludge, sewer odor, moist to wet
Boring B4 (south lagoon):	14 – 15' = black silty sludge, sewer odor, wet
Boring B6 (south lagoon):	14 – 15' = brown sludge transitioning to black sludge, very wet
Boring B7 (south lagoon):	13.5 – 15' = black silty sludge, trace gravel, very wet
Boring B8 (south lagoon):	13.5 – 15' = black silty sludge, trace gravel, very wet

Aside from the sludge layer (where encountered), soil lithology consisted of brown SAND above the sludge, coarsening to dark grey medium SAND(SW)/SAND & GRAVEL (SW/GW) below the sludge.

On November 29, 2023, depth-to-water (DTW) measurements in monitoring wells MW1 through MW3 were as follows:

- MW1: 9.82 feet below top of casing (btoc)
- MW2: 10.93 feet btoc
- MW3: 11.20 feet btoc

On December 4, 2023, DTW measurements in monitoring wells MW1 through MW3 were as follows:

- MW1: 9.81 feet btoc
- MW2: 10.79 feet btoc
- MW3: 10.54 feet btoc

Per the field data collected on December 4, 2023, the groundwater flow direction was to the south-southeast with a hydraulic gradient of 0.001 feet per foot. **Table 10** summarizes the hydrogeological field data collected on December 4, 2023 and **Figure 4** illustrates the groundwater flow direction toward the Columbia River to the south-southeast and groundwater surface contours of the shallow aquifer beneath the Site on the same date.

5.0 INVESTIGATION-DERIVED WASTE DISPOSAL

All investigation-derived waste (IDW) was containerized in 55-gallon drums. The various waste streams of IDW anticipated included sludge and soil cuttings derived from the Geoprobe® and HSA drilling activities, all purged groundwater removed from the subsurface during monitoring well development and groundwater sampling activities, and decontamination water. The 55-gallon drums were properly staged on-site at a location preferred by the property owner. All standard waste (i.e., nitrile gloves, paper towels, rope, bailers, and peristaltic pump tubing) were placed in plastic trash bags and hauled offsite.

6.0 MONITORING WELL SURVEY

On February 12, 2024, a Professional Licensed Surveyor (PLS) was hired to survey the PVC top of casing for all of the newly installed monitoring wells (MW1 through MW3). The monitoring wells were surveyed per North American vertical datum1988 (NAVD88), in addition to northing and easting data. A copy of the monitoring well map provided to BMEC by the licensed land surveyor (PLSA) is included in **Appendix F**.

7.0 CONCLUSIONS

Via the field activities requested by Ecology and as implemented and supervised by BMEC in November 2023 through February 2024, the Site has been fully characterized for the analytes of concern as determined by Ecology. On November 28 and 29, 2023, eight soil and five sludge samples were collected then analyzed for a combination of the following analytes: Dioxins and furans; PDBEs; PFAS compounds; VOCs; TPH-G; TPH-D; TPH-O; and total metals. No applicable screening levels were exceeded in the eight soil and five sludge samples.

On December 4, 2023, and February 15, 2024, groundwater samples were collected from the Site via newly installed monitoring wells MW, MW2, and MW3. The three groundwater samples were analyzed for HCID, VOCs, organic compounds, and RCRA 8 Metals (total). Petroleum hydrocarbons (i.e., gasoline, diesel, and heavy oil) and VOCs were not detected in the three groundwater samples.

Organic compounds were detected in all three groundwater samples, but at concentrations not exceeding any applicable screening levels.

Cadmium, mercury, selenium, and silver were not detected above the laboratory PQLs in any of the three groundwater samples. Barium was detected in all three groundwater samples at concentrations ranging from 110 µg/L in well MW3 to 490 µg/L in well MW1. Currently, no MTCA Method A Cleanup Level exists for barium. Chromium was detected in all three groundwater samples at concentrations ranging from 7.2 µg/L in well MW3 to 36 µg/L in well MW1. None of the three results for chromium exceed the MTCA Method A Cleanup Level of 50

µg/L. Lead was detected in all three groundwater samples at concentrations ranging from 2.6 µg/L in well MW3 to 55 µg/L in well MW1. The concentration of 55 µg/L was the only one of the three results to exceed the MTCA Method A Cleanup Level of 15 µg/L for lead in groundwater. Arsenic was detected in all three groundwater samples at concentrations of 3.4 µg/L in well MW3; 6.2 µg/L in well MW2; and 19 µg/L in well MW1. The concentrations of 6.2 µg/L and 19 µg/L exceed the MTCA Method A Cleanup Level of 5 µg/L for arsenic in groundwater.

Per the drilling activities conducted on November 28 and 29, 2023, a sludge layer beneath the Site was encountered at the following locations:

Boring B1 (SW corner of north lagoon): 18 – 22.5' = black silty sludge, sewer odor, moist to wet

Boring B4 (south lagoon): 14 – 15' = black silty sludge, sewer odor, wet

Boring B6 (south lagoon): 14 – 15' = brown sludge transitioning to black sludge, very wet

Boring B7 (south lagoon): 13.5 – 15' = black silty sludge, trace gravel, very wet

Boring B8 (south lagoon): 13.5 – 15' = black silty sludge, trace gravel, very wet

Aside from the sludge layer (where encountered), soil lithology consisted of brown SAND above the sludge, coarsening to dark grey medium SAND(SW)/SAND & GRAVEL (SW/GW) below the sludge.

On November 29, 2023, depth-to-water (DTW) measurements in monitoring wells MW1 through MW3 were as follows:

- MW1: 9.82 feet btoc
- MW2: 10.93 feet btoc
- MW3: 11.20 feet btoc

On December 4, 2023, DTW measurements in monitoring wells MW1 through MW3 were as follows:

- MW1: 9.81 feet btoc
- MW2: 10.79 feet btoc
- MW3: 10.54 feet btoc

Per the field data collected on December 4, 2023, the groundwater flow direction was to the south-southeast toward the Columbia River less than 0.5 miles away with a hydraulic gradient of 0.001 feet per foot.

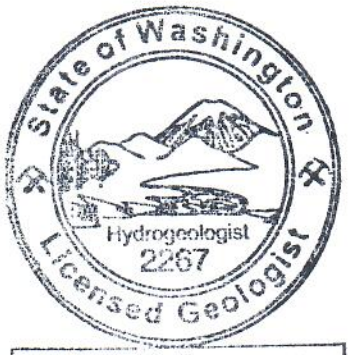
It is the opinion of BMEC that the Site has been properly characterized according to Ecology's recommendations in August 10, 2023 Opinion Letter titled *Re: Technical Assistance for the following contaminated Site*.

8.0 RECOMMENDATIONS

Per email communication from Ted Uecker (Ecology) on May 29, 2024, additional groundwater sampling of the three existing monitoring wells (MW1, MW2, and MW3) shall be required moving forward. The three groundwater samples shall be collected and analyzed for total arsenic and total lead. Additionally, analysis of PFAs may be required and shall be addressed by Ecology in the forthcoming Opinion Letter. A minimum of four quarters of consecutive groundwater sampling events (GWSEs) shall begin in June 2024. Determination of groundwater flow direction per GWSE shall be determined and included in each accompanying quarterly report.

No additional soil or sludge sample collection and analysis is required.

If you have any questions regarding the content of this Amended Subsurface Investigation Report, please feel free to contact me at (503) 913-7870 or Mr. Yancy Meyer at (509) 520-4416.



Expires 1/3/25

Brent N. Bergeron

Brent N. Bergeron, LHG

9.0 REFERENCES

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Blue Mountain Environmental Consulting & Company Inc., BIOSOLIDS SAMPLE ANALYSIS REPORT at Big Pasco Industrial Center Pasco, Washington, February 25, 2021.

Google Maps, 2023.

Washington State Department of Ecology, email, May 29,2024.

Washington State Department of Ecology, Modified Further Action Letter, August 10, 2023.

Washington State Department of Ecology, Modified Further Action Letter, May 31, 2023.

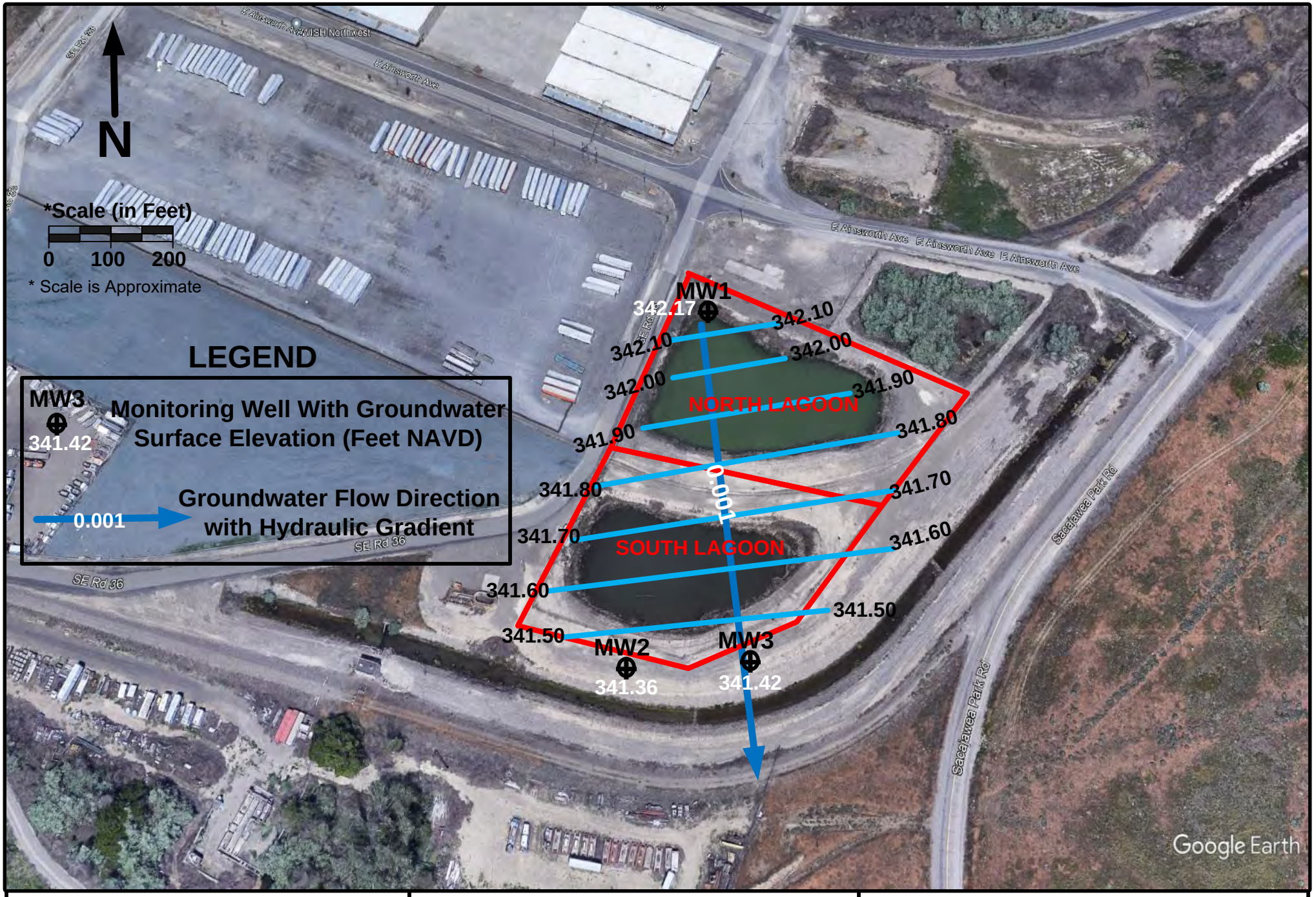
Washington State Department of Ecology, Further Action Letter, January 6, 2023.

Washington State Department of Ecology, Model Toxics Control Act Statute and Regulation, November 2007.

Cleanup Site ID: 15433 **Facility/Site ID: 88749** **VCP Project ID: EA0362**	**FIGURE 1 – SITE VICINITY MAP**	**Port of Pasco** **Big Industrial Park Lagoons** **SE Road 36/East Ainsworth Avenue** **Pasco, Washington 99301**

Cleanup Site ID: 15433 **Facility/Site ID: 88749** **VCP Project ID: EA0362**	**FIGURE 2 – SITE LOCATION MAP**	**Port of Pasco** **Big Industrial Park Lagoons** **SE Road 36/East Ainsworth Avenue** **Pasco, Washington 99301**

Cleanup Site ID: 15433 **Facility/Site ID: 88749** **VCP Project ID: EA0362**	**FIGURE 3** **SOIL BORINGS AND MONITORING WELLS** **NOVEMBER 2023**	**Port of Pasco** **Big Industrial Park Lagoons** **SE Road 36/East Ainsworth Avenue** **Pasco, Washington 99301**



Cleanup Site ID: 15433 Facility/Site ID: 88749 VCP Project ID: EA0362	**FIGURE 4** **GROUNDWATER FLOW DIRECTION** **DECEMBER 4, 2023**	Port of Pasco Big Industrial Park Lagoons SE Road 36/East Ainsworth Avenue Pasco, Washington 99301

TABLE 1

Soil Sample Results - Total Petroleum Hydrocarbons (mg/Kg)[1]

Big Industrial Park Lagoons

SE Road 36/East Ainsworth Avenue

Pasco, Washington 99301

Sample I.D.	Depth (ft bsg)	Date Collected	Hydrocarbon Identification (HCID)	TPH-Diesel and Heavy Oil by Northwest Method NWTPH-Dx		TPH-Gasoline by Northwest Method NWTPH-Gx
				TPH-D	TPH-O	
SUBSURFACE INVESTIGATION (BMEC) - NOVEMBER 2023						
NL-B1-SL-20'	20'	11/28/23	ND	< 61	< 120	< 25
NL-B1-SO-25'	25'	11/28/23	ND	< 58	< 120	< 23
NL-B2-SO-30'	30'	11/28/23	ND	< 54	< 110	< 22
NL-B3-SL-20'	20'	11/28/23	**DETECTED (TPH-O)**	< 29	**140**	< 23
NL-B3-SO-25'	25'	11/28/23	ND	< 61	< 120	< 25
SL-B4-SL-15'	15'	11/29/23	ND	< 60	< 120	< 24
SL-B4-SO-25'	25'	11/29/23	ND	< 56	< 110	< 23
SL-B5-SO-20'	20'	11/29/23	ND	< 56	< 110	< 22
SL-B6-SL-15'	15'	11/29/23	ND	< 61	< 120	< 25
SL-B6-SO-20'	20'	11/29/23	ND	< 56	< 110	< 22
SL-B7-SL-15'	15'	11/29/23	ND	< 64	< 130	< 26
SL-B7-SO-20'	20'	11/29/23	ND	< 56	< 110	< 22
SL-B8-SO-20'	20'	11/29/23	ND	< 54	< 110	< 22
Ecology MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (mg/Kg)						
Unrestricted Land Use				2,000	2,000	30/100 [1]

Notes:

[1] MTCA Method A Cleanup Level for Unrestricted Land Use for TPH-G is 30 ppm if benzene is detected in subsurface soils or groundwater. If benzene is not detected, Cleanup Level is 100 ppm.

MTCA = Model Toxics Control Act

NA= Not Analyzed

ND = Non-Detect

ft bsg = feet below surface grade

mg/Kg = milligrams per Kilogram or parts per million (ppm)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 2

Sludge Sample Results - Volatile Organic Compounds (mg/Kg)1

Big Industrial Park Lagoons

SE Road 36/East Ainsworth Avenue

Pasco, Washington 99301

Sample I.D.	Depth (ft bsg)	Date Collected	Volatile Organic Compounds (VOCs) by EPA Method 8260D (mg/Kg)												
			Benzene	Toluene	Ethylbenzene	Total Xylenes	124-TMB	135-TMB	Acetone	Carbon Disulfide	2-Butanone	MTBE	Naphthalene	PCE	TCE
SUBSURFACE INVESTIGATION (BMEC) - NOVEMBER 2023															
NL-B1-SL-20'	20'	11/28/23	< 0.013	< 0.0063	< 0.013	< 0.038	< 0.013	< 0.013	**0.24**	**0.0084**	**0.034**	< 0.013	**0.013**	< 0.013	< 0.013
NL-B3-SL-20'	20'	11/28/23	< 0.00098	< 0.0049	< 0.00098	< 0.00298	< 0.00098	< 0.00098	< 0.049	< 0.0020	< 0.0049	< 0.00098	< 0.0049	< 0.00098	< 0.00098
SL-B4-SL-15	15'	11/29/23	< 0.0010	< 0.0050	< 0.0010	< 0.0030	< 0.0010	< 0.0010	< 0.050	**0.0032**	< 0.0050	< 0.0010	< 0.0050	< 0.0010	< 0.0010
SL-B6-SL-15'	15'	11/29/23	< 0.0013	< 0.0065	< 0.0013	< 0.0039	< 0.0013	< 0.0013	< 0.065	**0.0040**	< 0.0065	< 0.0013	< 0.0065	< 0.0013	< 0.0013
Ecology MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (mg/Kg)															
Unrestricted Land Use			0.03	7	6	9	0.005	DNE	DNE	DNE	DNE	0.1	5	DNE	DNE

Notes:

MTCA = Model Toxics Control Act

NA = Not Analyzed

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

MTBE = Mehtyl tertiery-butyl ether

124-TMB = 1,2,4-trimethylbenzene

135-TMB = 1,3,5-trimethylbenzene

DNE = Does Not Exist

ft bsg = feet below surface grade

mg/Kg = milligrams per Kilogram or parts per million (ppm)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 3

Soil Sample Results - Total Metals (mg/Kg)
Big Industrial Park Lagoons
SE Road 36/East Ainsworth Avenue
Pasco, Washington 99301

Sample I.D.	Depth (ft bsg)	Date Collected	Total Metals via EPA Methods 6010D/7471B							
			Arsenic	Barium	Cadmium	Chromium	Mercury	Lead	Selenium	Silver
BMEC SUBSURFACE INVESTIGATION - NOVEMBER 2023										
NL-B1-SO-25'	25'	11/28/23	< 12	**57**	< 0.58	**6.4**	< 0.29	< 5.8	< 12	< 1.2
NL-B2-SO-30'	30'	11/28/23	< 11	**43**	< 0.54	**7.3**	< 0.27	< 5.4	< 11	< 1.1
NL-B3-SO-25'	25'	11/28/23	< 12	**46**	< 0.61	**7.4**	< 0.31	< 6.1	< 12	< 1.2
SL-B4-SO-25'	25'	11/29/23	< 11	**39**	< 0.56	**3.4**	< 0.28	< 5.6	< 11	< 1.1
SL-B5-SO-20'	20'	11/29/23	< 11	**34**	< 0.56	**2.6**	< 0.28	< 5.6	< 11	< 1.1
SL-B6-SO-20'	20'	11/29/23	< 11	**43**	< 0.56	**16**	< 0.28	< 5.6	< 11	< 1.1
SL-B7-SO-20'	20'	11/29/23	< 11	**31**	< 0.56	**4.0**	< 0.28	< 5.6	< 11	< 1.1
SL-B8-SO-20'	20'	11/29/23	< 11	**30**	< 0.54	**6.9**	< 0.27	< 5.4	< 11	< 1.1
Ecology MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (mg/Kg)										
Unrestricted Land Use			20	DNE	2	19	2	250	DNE	DNE

Notes:

[1] MTCA Method A Cleanup Level for Unrestricted Land Use for Chromium VI. Cleanup Level for Chromium III is 2,000 mg/Kg.

[2] Mercury analyzed via EPA Method 7471A.

MTCA = Model Toxics Control Act

NA = Not Analyzed

DNE = Does Not Exist

ft bsg = feet below surface grade

mg/Kg = milligrams per Kilogram or parts per million (ppm)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 4

Soil Sample Results - Dioxins/Furans (picograms/gram)
Big Industrial Park Lagoons
SE Road 36/East Ainsworth Avenue
Pasco, Washington 99301

Sample I.D.	Depth (ft bsg)	Date Collected	Dioxins/Furans via EPA Method 1613B																	
			2,3,7,8-TCDD	1,2,3,7,8-PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HxCDD	OCDD	2,3,7,8-TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCDF	TEF
BMEC SUBSURFACE INVESTIGATION - NOVEMBER 2023																				
NL-B1-SO-25'	25'	11/28/23	< 0.119	< 0.189	< 0.381	< 0.415	< 0.417	< 0.409	**1.22**	< 0.0973	< 0.145	< 0.127	< 0.216	< 0.204	< 0.232	< 0.341	< 0.262	< 0.361	< 0.839	0.00037
NL-B2-SO-30'	30'	11/28/23	< 0.118	< 0.195	< 0.222	< 0.236	< 0.232	**0.537**	**5.72**	< 0.103	< 0.123	< 0.107	< 0.145	< 0.149	< 0.167	< 0.215	< 0.186	< 0.242	< 0.525	0.0071
NL-B3-SO-25'	25'	11/28/23	< 0.109	< 0.195	< 0.245	< 0.223	< 0.368	**0.525**	**6.83**	< 0.0973	< 0.134	< 0.100	< 0.115	< 0.110	< 0.144	< 0.354	< 0.188	< 0.205	< 0.433	0.0073
SL-B4-SO-25'	25'	11/29/23	< 0.102	< 0.180	< 0.242	< 0.253	< 0.238	< 0.307	**1.83**	< 0.119	< 0.137	< 0.111	< 0.171	< 0.172	< 0.194	< 0.240	< 0.174	< 0.250	< 0.415	0.00055
SL-B5-SO-20'	20'	11/29/23	< 0.0864	< 0.153	< 0.236	< 0.292	< 0.247	< 0.271	**2.10**	< 0.0921	< 0.148	< 0.120	< 0.149	< 0.131	< 0.148	< 0.158	< 0.171	< 0.279	< 0.382	0.00063
SL-B6-SO-20'	20'	11/29/23	< 0.121	< 0.187	< 0.695	**0.497**	< 1.20	**11.7**	**149**	**0.144**	< 0.134	< 0.143	< 0.142	< 0.162	< 0.466	< 0.642	**2.43**	< 0.184	**11.1**	0.253
SL-B7-SO-20'	20'	11/29/23	< 0.117	< 0.176	< 0.248	< 0.270	< 0.267	< 0.322	**2.56**	< 0.117	< 0.114	< 0.100	< 0.184	< 0.187	< 0.212	< 0.286	< 0.179	< 0.286	< 0.552	0.00077
SL-B8-SO-20'	20'	11/29/23	< 0.153	< 0.207	< 0.310	< 0.346	< 0.286	< 0.388	**1.56**	< 0.128	< 0.154	< 0.118	< 0.190	< 0.187	< 0.205	< 0.286	< 0.206	< 0.294	< 0.542	0.00047
Screening Levels =																				
			93	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	TEF	93

Notes:

MTCA = Model Toxics Control Act

TEF = Toxic Equivalency Factor according to Evaluating the Toxicity and Assessing the Carcinogenic Risk For Mixtures of Dioxins/Furans - Cleanup Levels and Risk Calculation (CLARC)

ft bsg = feet below surface grade

pg/g = picograms per gram or parts per trllion (ppt)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 5

Soil Sample Results - Organic Compounds (nanograms/gram)
Big Industrial Park Lagoons
SE Road 36/East Ainsworth Avenue
Pasco, Washington 99301

Sample I.D.	Depth (ft bsg)	Date Collected	Organic Compounds via EPA Method PFC/537M				
			Perfluorooctane sulfonic acid (PFOS)	Perfluoroalkyl Carboxylic Acids (PFCAs)	Perfluoralkyl Sulfonamido Substances (NEtFOSAA)	Fluorotelomer Sulfonic Acids (FTSAs)	Perfluoroalkyl Ether Carboxylic Acids (PFECAs)
BMEC SUBSURFACE INVESTIGATION - NOVEMBER 2023							
NL-B1-SL-2O'	20'	11/28/23	**0.3**	< 1.1	**0.93**	< 1.1	< 1.1
NL-B3-SL-20'	20'	11/28/23	**0.16**	< 0.93	< 0.99	< 0.99	< 0.99
SL-B4-SL-15'	15'	11/29/23	< 1.1	< 1.1	**0.72**	< 1.1	< 1.1
SL-B6-SL-15'	15'	11/29/23	**0.21**	< 1.1	< 1.1	< 1.1	< 1.1
SL-B7-SL-15'	15'	11/29/23	< 1.2	< 1.2	**2.9**	< 1.2	< 1.2
Screening Levels =							
			240	NR	NR	NR	NR

Notes:

MTCA = Model Toxics Control Act

NR = Not Researched

NA = Not Analyzed

DNE = Does Not Exist

ft bsg = feet below surface grade

ng/g = nanograms per gram or parts per billion (ppb)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 6

Soil Sample Results - PBDEs (picograms/gram)
Big Industrial Park Lagoons
SE Road 36/East Ainsworth Avenue
Pasco, Washington 99301

Sample I.D.	Depth (ft bsg)	Date Collected	Polybrominated Diphenyl Ethers (PBDEs) per EPA Method 1614																												
			BDE 7	BDE 8/11	BDE 12/13	BDE 15	BDE 32	BDE 17/25	BDE 28/33	BDE 35	BDE 51	BDE 49	BDE 47	BDE 66	BDE 100	BDE 99	BDE 85	BDE 155	BDE154	BDE 153	BDE 183	BDE 191	BDE 197	BDE 203	BDE 196	BDE 208	BDE 207	BDE 206	BDE 209	PBEB	HBB
BMEC SUBSURFACE INVESTIGATION - NOVEMBER 2023																															
SL-B4-SO-25'	25'	11/29/23	< 0.016	< 0.011	< 0.0098	< 0.0083	< 0.022	< 0.028	< 0.026	< 0.018	< 0.029	< 0.043	**0.170**	< 0.049	**0.050**	**0.220**	< 0.028	< 0.018	< 0.020	< 0.068	< 0.056	< 0.087	< 0.078	< 0.11	< 0.093	< 0.15	< 0.14	< 0.16	< 7.5	< 0.017	**0.28**
SL-B6-SO-20'	20'	11/29/23	**0.0932**	**0.0469**	**0.0220**	**0.0313**	**0.049**	**0.250**	**0.140**	**0.480**	**0.087**	**1.36**	**8.160**	**0.211**	**2.95**	**13.1**	**0.365**	**0.082**	**1.05**	**1.45**	**0.57**	**0.94**	**0.529**	**0.94**	**0.86**	**0.83**	**1.9**	**2.3**	**39.9**	**0**	**0.382**
SL-B7-SO-20'	20'	11/29/23	< 0.025	< 0.018	< 0.015	< 0.013	< 0.030	< 0.038	< 0.036	**0.044**	< 0.044	< 0.066	**0.438**	< 0.074	**0.185**	**0.536**	< 0.050	< 0.042	< 0.050	< 0.15	< 0.10	< 0.16	< 0.20	< 0.27	< 0.23	< 0.32	< 0.31	< 0.34	**16.4**	< 0.055	**0.22**
Screening Levels =																															
			NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	8 x 10^6	NR	NR	8 x 10^6	NR	NR	NR	16 x 10^6	NR	NR	NR	NR	NR	NR	NR	NR	5.6 x 10^8	NR	NR

Notes:

MTCA = Model Toxics Control Act

NR = Not Researched

NA = Not Analyzed

DNE = Does Not Exist

ft bsg = feet below surface grade

pg/g = picograms per gram or parts per trillion (ppt)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 7

Groundwater Sample Results - Organic Compounds (nanograms/Liter)
Big Industrial Park Lagoons
SE Road 36/East Ainsworth Avenue
Pasco, Washington 99301

Sample I.D.	Date Collected	Organic Compounds via EPA Method PFC/537M				
		Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	N-Methylperfluorooctane sulfonamide (MeFOSA)	Fluortelomer Sulfonic Acids (FTSAs)	Perfluoralkyl Ether Carbonic Acids (PFECAs)
BMEC GROUNDWATER SAMPLING EVENT - DECEMBER 2023						
MW1	12/4/23	**4.6**	**2.7**	**2.8**	**3.9**	< 1.5
MW2	12/4/23	**4.3**	**4.1**	**4.5**	< 4.1	< 1.5
MW3	12/4/23	**9.3**	**5**	**1.8**	< 4.1	< 1.5
MTCA Screening Levels =						
		15	10	NR	NR	NR

Notes:

NR = Not Researched

MTCA = Model Toxics Control Act

NA = Not Analyzed

DNE = Does Not Exist

ft bsg = feet below surface grade

ng/L = nanograms per Liter or parts per trillion (ppt)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 8A

Groundwater Sample Results - Total Metals (µg/L)

Big Industrial Park Lagoons

SE Road 36/East Ainsworth Avenue

Pasco, Washington 99301

Sample I.D.	Screened Interval (ft bsg)	Date Collected	Total Metals via EPA Methods 200.8/7470A							
			Arsenic	Barium	Cadmium	Chromium	Mercury	Lead	Selenium	Silver
BMEC SUBSURFACE INVESTIGATION - FEBRUARY 2024										
NL-B1-SO-25'	25'	11/28/23	< 12	**57**	< 0.58	**6.4**	< 0.29	< 5.8	< 12	< 1.2
NL-B2-SO-30'	30'	11/28/23	< 11	**43**	< 0.54	**7.3**	< 0.27	< 5.4	< 11	< 1.1
NL-B3-SO-25'	25'	11/28/23	< 12	**46**	< 0.61	**7.4**	< 0.31	< 6.1	< 12	< 1.2
GWMW-1	5 - 25'	2/15/24	**19**	**490**	< 4.4	**36**	< 0.50	**55**	< 5.6	< 11
GWMW-2	5 - 20'	2/15/24	**6.2**	**190**	< 1.8	**16**	< 0.50	**5.7**	< 2.2	< 4.4
GWMW-3	5 - 20'	2/15/24	**3.4**	**110**	< 1.8	**7.2**	< 0.50	**2.6**	< 2.2	< 4.4
Ecology MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (µg/L)										
Unrestricted Land Use			5	DNE	5	50	2	15	DNE	DNE

Notes:

[1] MTCA Method A Cleanup Level for Unrestricted Land Use for Chromium VI; Cleanup Level for Chromium III is 100 µg/L

[2] Mercury analyzed via EPA Method 7471A.

MTCA = Model Toxics Control Act

NA = Not Analyzed

DNE = Does Not Exist

ft bsg = feet below surface grade

µg/L = micrograms per Liter or parts per billion (ppb)

BOLD = sample yielded detectable concentration of analyzed compound

TABLE 9

GROUNDWATER SAMPLE ANALYTICAL RESULTS - HCID and VOCs (µg/L)

Big Industrial Park Lagoons

SE Road 36/East Ainsworth Avenue

Pasco, Washington 99301

Sample ID	Date Collected	TPH-G via HCID	TPH-Dx via HCID		VOCs via EPA Method 8260D								
			TPH-D	TPH-O	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	PCE	TCE	VC	All Other VOCs
MONITORING WELLS													
MW1	12/4/24	< 0.063	< 0.13	< 0.13	< 0.20	< 1.0	< 0.20	< 0.60	< 1.0	< 0.20	< 0.20	< 0.20	ND
MW2	12/4/24	< 0.065	< 0.13	< 0.13	< 0.20	< 1.0	< 0.20	< 0.60	< 1.0	< 0.20	< 0.20	< 0.20	ND
MW3	12/4/24	< 0.065	< 0.13	< 0.13	< 0.20	< 1.0	< 0.20	< 0.60	< 1.0	< 0.20	< 0.20	< 0.20	ND
MTCA Method A Cleanup Level (µg/L)		1	0.5	0.5	5	1000	700	1000	160	5	5	0.20	-

Notes:

MTCA = Model Toxics Control Act

DNE = does not exist

µg/L = micrograms per Liter or parts per billion (ppb)

HCID = hydrocarbon identification

TPH-D = total petroleum hydrocarbon - diesel range

TPH-O = total petroleum hydrocarbon - heavy oil range

TPH-G = total petroleum hydrocarbons - gasoline range

PCE = tetrachloroethene

TCE = trichloroethene

VC = vinyl chloride

< = not detected above laboratory practical quantitation limit (PQL)

BOLD = detected at concentration above PQL

- = all other volatile organic compounds (VOCs) analyzed via EPA Method 8260D were not detected above the laboratory PQL

ND = not detected in the groundwater sample at a concentration above the laboratory PQL

TABLE 10
Monitoring Well Groundwater Surface Data and Well Installation Details
Port of Pasco Lagoons, Pasco, Washington

Monitoring Well Number	Date Measured	Top of Casing Elevation (feet NAVD88)	Depth-To-Water Below Top of Casing (feet btoc)	Groundwater Elevation (feet NAVD88)	LNAPL Thickness (feet)	Volume of Groundwater Purged (gallons)	Screened Interval (feet bgs)	Sandpack Interval (feet bgs)	Bentonite Interval (feet bgs)
Monitoring Wells									
MW-1	12/4/23	351.98	9.81	342.17	0.00	25	5 - 25'	3 - 25'	1 - 3'
MW-2	12/4/23	352.15	10.79	341.36	0.00	16	5 - 20'	3 - 20'	1 - 3'
MW-3	12/4/23	351.96	10.54	341.42	0.00	16	5 - 20'	3 - 20'	1 - 3'

Notes:

NAVD88 = North American Vertical Datum 1988

btoc = below top of casing

APPENDIX A

Ecology Opinion Letters

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Eastern Region Office
4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

January 6, 2023

Randy Hayden
Port of Pasco
PO Box 769
Pasco, WA 99301

Re: Further Action at the following Site:

Site Name:	Port of Pasco Big Industrial Park Lagoons
Site Address:	SE Road 36/ E Ainsworth St, Pasco
Cleanup Site ID:	15433
Facility/Site ID:	88749
VCP Project ID:	EA0362

Dear Randy Hayden:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Port of Pasco Big Industrial Park Lagoons facility (Site). This letter provides our opinion and analysis. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination and meet all cleanup standards at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided as follows.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Heavy metals, dioxins, furans, and polybrominated diphenyl ethers (PDBEs) into the soil.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

- Ecology, Environmental Covenant 1966700, September 26, 2022.
- Blue Mountain Environmental and Consulting Co., Inc., CSID No. 15433 Big Pasco Industrial Park Lagoons, Operation and Maintenance Plan, March 15, 2022.
- Coho Environmental, Terrestrial Ecological Evaluation, Port of Pasco, Big Pasco Industrial Center Lagoons, Pasco, WA, June 28, 2021.
- Blue Mountain Environmental and Consulting Co., Inc., Biosolids Sample Analysis Report at Big Pasco Industrial Center, Pasco, Washington, February 25, 2021.
- Blue Mountain Environmental and Consulting Co., Inc., Port of Pasco Big Industrial Park Lagoons, Sampling and Analysis Plan, December 11, 2020.
- GN Northern, Inc., Geotechnical Site Investigation Report, GNN Project No. 219-1119, May 20, 2020.

These documents are accessible in electronic form from the Site webpage[1].The complete records are stored in the Central Files of the Eastern Regional Office of Ecology (ERO) for review by appointment only. Visit our Public Records Request page[2], to submit a public records request or get more information about the process. If you require assistance with this process, you may contact the Public Records Officer at recordsofficer@ecy.wa.gov or 360-407-6040.

This opinion is void if any of the information contained in those documents is materially false or misleading.

[1] https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=15433
[2] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

Characterization of the Site.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

The Site consists of two former wastewater treatment lagoons with approximately 1-2 feet of sludge below standing water. The north and south lagoons have an approximate sludge volume of 32,130 cubic feet and 62,400 cubic feet of sludge, respectively. Seven discrete sludge column samples were collected from each of the two lagoons and analyzed for fecal coliform. One composite sample was developed for each lagoon and analyzed for organochlorine pesticides, RCRA 8 metals, nitrates, nitrogen, ammonia, dioxins, furans, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and polybrominated diphenyl ethers (PDBEs). Cadmium exceeded the MTCA Method A soil cleanup level in the south lagoon sample, while the dioxin and furan toxicity equivalency (TEQ) exceeded the MTCA Method B soil cleanup level. DDE and PBDEs were detected in the south lagoon sample below their respective soil cleanup levels. Soil below the lagoon sludge column has not been characterized. Depth to groundwater below the lagoons has not been determined and groundwater samples have not been collected or analyzed for potential contamination.

Establishment of cleanup standards.

Ecology has determined that further characterization of the Site is necessary to establish exposure pathways, cleanup levels, and points of compliance to meet the substantive requirements of MTCA.

For soil, MTCA Method A or Method B cleanup levels are appropriate for this Site. Standard soil formula cleanup level values presented in CLARC for Method B may not be appropriate because they are calculated to be protective of direct contact and not the soil leaching to groundwater pathway. If used, Method B cleanup levels have to be protective of the groundwater ingestion pathway unless further Site characterization demonstrates that soil contamination is not impacting groundwater and is unlikely to leach in the future. If further characterization indicates that groundwater is impacted, then the groundwater to surface water pathway must also be evaluated before appropriate cleanup levels are established.

The cleanup levels should be based on unrestricted land use unless it is demonstrated that the Site meets the definition of an industrial facility provided in Chapter 173-340-

745(1)(a)(i) WAC. Once the appropriate exposure pathways have been evaluated, a suitable point of compliance can be established where cleanup levels must be met.

Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA. The selected cleanup action is as follows:

- Engineering controls: backfilling and capping the lagoons with clean imported soil and gravel
- Institutional controls: recording an environmental covenant on the south lagoon to restrict land use

While these cleanup actions may be protective of the direct contact pathway, they may not be protective of other pathways including soil leaching to groundwater and groundwater to surface water. These pathways require further evaluation as described in the following section. At this time, Ecology considers the engineering and institutional controls implemented at the Site as interim cleanup actions, which may reduce the risk to human health and the environment but are not the final cleanup action.

Additional requirements.

To determine a path forward for the Site, the following data gaps in your Site characterization need to be addressed. Ecology will then evaluate if further remedial action is necessary at the Site. The purpose of a comprehensive Site characterization is to define the nature and extent of contamination in all media and develop a Conceptual Site Model (CSM) showing the impacted media and potential exposure pathways.

The sampling at the Site in 2021 included a single composite sample of lagoon sludge for each lagoon. Composite samples are usually implemented during waste characterization for offsite disposal and may not be representative of the true extent and concentration of contaminants within the sludge. Furthermore, multiple discrete soil samples should be collected below each sludge layer to determine whether contaminants in the lagoon sludge have migrated to deeper soils.

The actual depth to groundwater below the lagoons has not been determined. MTCA includes Method B soil cleanup levels protective of the groundwater leaching pathway in both the vadose and saturated subsurface zones. The soil to groundwater exposure pathway cannot be ruled out unless additional groundwater characterization demonstrates that residual contamination in the sludge and soil are not causing an exceedance in groundwater. Characterization of groundwater flow direction and gradient requires a minimum of three groundwater monitoring wells advanced into each saturated water-bearing zone. If groundwater impacts are observed, then further evaluation will be required to determine if the groundwater to surface water pathway is also a risk.

Limitations of the Opinion

Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly, and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion does not:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70A.305.080 and WAC 173-340-545.

State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70A.305.180.

Contact Information

Thank you for choosing to clean up the Site under the VCP. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our webpage[3]. If you have any questions about this opinion, please contact me by phone at (509) 342-5564 or e-mail at ted.uecker@ecy.wa.gov.

Sincerely,

Ted M. Uecker
ERO Toxics Cleanup Program

[3] https://www.ecy.wa.gov/vcp

tmu;hg

Enclosures (1): A – Site Description and Diagram

cc: Tracy Friesz, Port of Pasco
Yancy Meyer, Blue Mountain Environmental and Consulting Co.
Kathleen Falconer, Ecology KLF
Nick Acklam, Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Eastern Region Office
4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

May 31, 2023

Randy Hayden
Port of Pasco
PO Box 769
Pasco, WA 99301

Re: Technical Assistance for the following contaminated Site:

Site Name:	Port of Pasco Big Industrial Park Lagoons
Site Address:	SE Road 36/ E Ainsworth St, Pasco
Cleanup Site ID:	15433
Facility/Site ID:	88749
VCP Project ID:	EA0362

Dear Randy Hayden:

The Washington State Department of Ecology (Ecology) received your request for technical consultation pursuant to WAC 173-340-515(5) on your proposed additional characterization of the Port of Pasco Big Industrial Park Lagoons facility (Site) under the Voluntary Cleanup Program (VCP)[1]. This letter provides our advice and assistance. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305[2] RCW.

Issue Presented and Opinion

Ecology has determined that your proposed work plan meets the stated objectives to resolve data gaps at the Site. There are additional recommendations outlined in the analysis below.

This opinion is based on an analysis of whether the proposed actions meet the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided as follows.

[1] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Voluntary-Cleanup-Program
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305

Site Description

This opinion applies to the only Site described as follows. The Site is defined by the nature and extent of contamination associated with the following release:

- Heavy metals into the soil.
- Dioxins into the soil.
- Furans into the soil.
- Polybrominated diphenyl ethers (PBDEs) into the soil.

Enclosure A includes a detailed description, history, and diagrams of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

Ecology bases this opinion on information in the documents listed in **Enclosure B**. You can request these documents by filing a records request.[3] For help making a request, contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or call (360) 407-6040. Before making a request, check whether the documents are available on the Site webpage[4].

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis and Opinion

Characterizing the Site

Ecology has concluded that, upon completion of the actions detailed in the Scope of Work for Subsurface Investigation (BMEC, 2023), the Site characterization will be sufficient to determine whether the cleanup actions to date are protective of human health and the environment or whether further remedial action is necessary. The Site is described above and in **Enclosure A.**

The Site consists of two former wastewater treatment lagoons with approximately 1-2 feet of sludge below standing water. The north and south lagoons have an approximate sludge volume of 32,130 cubic feet and 62,400 cubic feet of sludge, respectively. Seven discrete sludge column samples were collected from each of the two lagoons and analyzed for fecal coliform. One composite sample was developed for each lagoon and

[3] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[4] https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=15433

analyzed for organochlorine pesticides, RCRA 8 metals, nitrates, nitrogen, ammonia, dioxins, furans, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and polybrominated diphenyl ethers (PBDEs). Cadmium exceeded the MTCA Method A soil cleanup level in the south lagoon sample, while the dioxin and furan toxicity equivalency (TEQ) exceeded the MTCA Method B soil cleanup level. DDE and PBDEs were detected in the south lagoon sample below their respective soil cleanup levels. Soil below the lagoon sludge column has not been characterized. Depth to groundwater below the lagoons has not been determined and groundwater samples have not been collected or analyzed for potential contamination.

Proposed Remedial Actions

The following additional Site characterization actions have been proposed to address data gaps and assess whether further remedial action is necessary:

- Advance nine soil borings within the lateral extent of the south lagoon and collect discrete samples of both the lagoon sludge and underlying native soils, one sample of each medium per boring. The samples will be analyzed for RCRA 8 metals, dioxins, furans, and PDBEs.
- Install four groundwater monitoring wells around the perimeter of the south lagoon, one north and hydraulically upgradient of the lagoon and three south and hydraulically downgradient of the lagoon. Groundwater quality and flow parameters will be determined once the wells have equilibrated. Groundwater samples will be collected and analyzed for RCRA 8 metals, dioxins, furans, and PDBEs.

Further Recommendations

Ecology concurs that the proposed additional Site characterization will address data gaps identified in Ecology's January 6, 2023 opinion letter, with the following comments and recommendations:

- The lagoon sludge sampling in January 2021 indicated that the north lagoon samples did not exceed the cleanup levels established for the Site; however, the samples were composited and potentially not representative of the actual contaminant concentrations. To confirm that the lagoon sludge and underlying soil meets the cleanup levels, a minimum of four additional discrete samples of both media should be collected from within the north lagoon and analyzed for all contaminants of concern (COCs). Please include the percent dry weight of solids for the soil and sludge samples with your results.
- The proposed groundwater monitoring well locations will be sufficient to determine if groundwater exceeds MTCA cleanup levels.
- A minimum of four sludge samples from each lagoon (eight total samples) should also be analyzed for polyfluoroalkyl substances (PFAS) compounds using EPA Method 1633, volatile organic compounds (VOCs) using EPA Method 8260, and

petroleum hydrocarbons using analytical methods NWTPH-Gx for gasoline-range and NWTPH-Dx for diesel- and heavy-oil range petroleum hydrocarbons. These compounds are known to be associated with either biosolids or dioxins and furans.

- If groundwater samples indicate the presence of any COC exceeding cleanup levels, additional groundwater monitoring wells may be necessary to delineate the extent of contaminated groundwater based on the hydraulic gradient.

Limitations of the Opinion

Opinion does not settle liability with the state

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion does not:

- Resolve or alter a person's liability to the state
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

Opinion does not constitute a determination of substantial equivalence

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70A.305.080 and WAC 173-340-545.

Opinion is limited to proposed cleanup

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the Voluntary Cleanup Program (VCP).

State is immune from liability

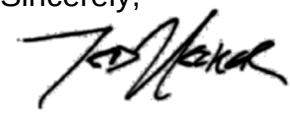
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70A.305.170.

Contact Information

Thank you for choosing to clean up the Site under the VCP. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our webpage [5]. If you have any questions about this opinion, please contact me by phone at 509-342-5564 or e-mail at ted.uecker@ecy.wa.gov.

Sincerely,



Ted M. Uecker
ERO Toxics Cleanup Program

tmu:hg

Enclosures (2): A – Site Description, History, and Diagrams
B – Basis for Opinion: List of Site Documents

cc: Tracy Friesz, Port of Pasco
Yancy Meyer, BMEC
Brent Bergeron, BMEC
Christer Loftenius, Ecology
Nicholas Acklam, Ecology

[5] https://www.ecy.wa.gov/vcp

Enclosure A

Site Description, History, and Diagrams

Site Description

The Site is part of the 370-acre Big Pasco Industrial Center, which is located along the Columbia River in Pasco, WA. The two former sewage lagoons are located at SE Road 36 and E Ainsworth Ave, approximately 650 and 920 feet from the river. The south lagoon has an average sludge depth of two feet, with approximately 62,400 cubic feet of sludge. The north lagoon has an average sludge depth of one foot, with approximately 32,130 cubic feet of sludge. Depth to groundwater at the Site is approximately 9-14 feet below ground surface (bgs). Groundwater flow direction is unknown but is inferred to flow south toward the river. Site soils generally consist of sands and silts to deeper sand and gravel to approximately 50 feet bgs, underlain by the competent silt of the Ringold Formation.

Site History

In January 2021, the two sewage lagoons were sampled to characterize the waste with the intent to decommission and develop the area into a gravel parking lot. Fourteen total sludge samples were collected, seven from each lagoon, and were considered representative of the entire vertical sludge column. The discrete samples were analyzed for fecal coliform, while composite samples were analyzed for organochlorine pesticides, RCRA 8 metals, nitrates, nitrogen, ammonia, dioxins, furans, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and polybrominated diphenyl ethers (PDBEs). Analytical results for the south lagoon samples indicated that the dioxin and furan toxicity equivalency (TEQ) exceeded MTCA Method B cleanup levels for both direct contact and protection of groundwater. Cadmium exceeded the MTCA Method A cleanup level, and PDBEs and DDE were present below regulatory thresholds. Beginning in 2021, both lagoons were filled with clean imported soil and gravel to a minimum of 6 feet above the sludge surface and compacted. An environmental covenant was filed with Franklin County on September 26, 2022 under recording number 1966700. The covenant restricts the site to industrial land use and activities that would compromise the soil cap, and details instructions for operation and maintenance of the engineered controls.

In January 2023, Ecology issued a Further Action opinion requesting additional characterization of the biosolids, soil, and groundwater. In April 2023, Blue Mountain Environmental submitted a Site characterization work plan which included nine geoprobe soil borings within the lateral extent of the south lagoon with discrete samples of both the sludge and underlying native soils below the lagoon and installing four groundwater monitoring wells at approximately 25 feet bgs.

Site Diagrams

Cleanup Site ID: 15433 Facility/Site ID: 88749 VCP Project ID: EA0362	FIGURE 3 – PROPOSED SAMPLE LOCATION MAP	Port of Pasco Big Industrial Park Lagoons SE Road 36/East Ainsworth Avenue Pasco, Washington 99301

Enclosure B

Basis for Opinion: List of Site Documents

- Blue Mountain Environmental and Consulting Co, Inc., Scope of Work for Subsurface Investigation, April 24, 2023.
- Ecology, Further Action Opinion, January 6, 2023.
- Ecology, Environmental Covenant 1966700, September 26, 2022.
- Blue Mountain Environmental and Consulting Co., Inc., CSID No. 15433 Big Pasco Industrial Park Lagoons, Operation and Maintenance Plan, March 15, 2022.
- Coho Environmental, Terrestrial Ecological Evaluation, Port of Pasco, Big Pasco Industrial Center Lagoons, Pasco, WA, June 28, 2021.
- Blue Mountain Environmental and Consulting Co., Inc., Biosolids Sample Analysis Report at Big Pasco Industrial Center, Pasco, Washington, February 25, 2021.
- Blue Mountain Environmental and Consulting Co., Inc., Port of Pasco Big Industrial Park Lagoons, Sampling and Analysis Plan, December 11, 2020.
- GN Northern, Inc., Geotechnical Site Investigation Report, GNN Project No. 219-1119, May 20, 2020.

Enclosure A

Description and Diagram of the Site

Site Description

The Site is part of the 370-acre Big Pasco Industrial Center, which is located along the Columbia River in Pasco, WA. The two former sewage lagoons are located at SE Road 36 and E Ainsworth Ave, approximately 650 and 920 feet from the river. The south lagoon has an average sludge depth of two feet, with approximately 62,400 cubic feet of sludge. The north lagoon has an average sludge depth of one foot, with approximately 32,130 cubic feet of sludge. Depth to groundwater at the Site is approximately 9-14 feet below ground surface (bgs). Site soils generally consist of sands and silts to deeper sand and gravel to approximately 50 feet bgs, underlain by the competent silt of the Ringold Formation.

Site History

In January 2021, the two sewage lagoons were sampled to characterize the waste with the intent to decommission and develop the area into a gravel parking lot. Fourteen total sludge samples were collected, seven from each lagoon, and were considered representative of the entire vertical sludge column. The discrete samples were analyzed for fecal coliform, while composite samples were analyzed for organochlorine pesticides, RCRA 8 metals, nitrates, nitrogen, ammonia, dioxins, furans, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and polybrominated diphenyl ethers (PDBEs). Analytical results for the south lagoon samples indicated that the dioxin and furan toxicity equivalency (TEQ) exceeded MTCA Method B cleanup levels for both direct contact and protection of groundwater. Cadmium exceeded the MTCA Method A cleanup level, and PDBEs and DDE were present below regulatory thresholds. Beginning in 2021, both lagoons were filled with clean imported soil and gravel to a minimum of 6 feet above the sludge surface and compacted. An environmental covenant was filed with Franklin County on September 26, 2022 under recording number 1966700. The covenant restricts the site to industrial land use and activities that would compromise the soil cap, and details instructions for operation and maintenance of the engineered controls.

Site Diagram

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Eastern Region Office
4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

August 10, 2023

Randy Hayden
Port of Pasco
PO Box 769
Pasco, WA 99301

Re: Technical Assistance for the following contaminated Site:

Site Name:	Port of Pasco Big Industrial Park Lagoons
Site Address:	SE Road 36/ E Ainsworth St, Pasco
Cleanup Site ID:	15433
Facility/Site ID:	88749
VCP Project ID:	EA0362

Dear Randy Hayden:

The Washington State Department of Ecology (Ecology) received your request for technical consultation pursuant to WAC 173-340-515(5) on your proposed limited evaluation of the Port of Pasco Big Industrial Park Lagoons facility (Site) under the Voluntary Cleanup Program (VCP)[1]. This letter provides our advice and assistance. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305[2] RCW.

Issue Presented and Opinion

Ecology has determined the following sampling and analysis plan for soils, biosolids, and groundwater will be sufficient to resolve data gaps at the Site. These requirements take into consideration the previous biosolids characterization and current institutional and engineering controls implemented at the Site.

This opinion is based on an analysis of whether the proposed actions meet the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing

[1] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Voluntary-Cleanup-Program
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305

regulations, Chapter 173-340 WAC (collectively “substantive requirements of MTCA”). The analysis is provided as follows.

Soil and biosolids sludge characterization

- A minimum of five soil borings should be installed in the south lagoon and three soil borings installed in the north lagoon. Discrete soil samples should be collected from below the lagoon biosolids in each boring (eight total soil samples). Three discrete biosolids samples should be collected from the south lagoon and two from the north lagoon (five total biosolids samples).
- Soil samples should be analyzed for the following contaminants of concern (COCs):
    - RCRA 8 metals,
    - Dioxins and furans
    - Total petroleum hydrocarbons (TPH). The NWTPH-HCID method may be used to determine if TPH is present, while the respective gasoline-, diesel- and oil-range petroleum hydrocarbon analytical methods (NWTPH-Gx and NWTPH-Dx) should subsequently be used to quantify any TPH fractions if present.
    - The five soil samples from the south lagoon should also be analyzed for polybrominated diphenyl ethers (PBDEs).
- Biosolids samples should be analyzed for the following COCs:
    - PFAS
    - VOCs
    - TPH
- Please include the percent dry weight of solids for the soil and sludge samples with your results.

Groundwater characterization

- Three groundwater monitoring wells should be installed with one upgradient and two downgradient of the south lagoon.
- Groundwater samples from all four monitoring wells should be analyzed for the following COCs:
    - RCRA 8 metals
    - PFAS
    - VOCs
    - TPH

- If soil sample results indicate the presence of dioxins, furans, or PBDEs exceeding soil cleanup levels for groundwater protection, further groundwater sampling and analyses should be conducted for these analytes.

Limitations of the Opinion

Opinion does not settle liability with the state

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion does not:

- Resolve or alter a person's liability to the state
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

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To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70A.305.080 and WAC 173-340-545.

Opinion is limited to proposed cleanup

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the Voluntary Cleanup Program (VCP).

State is immune from liability

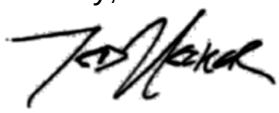
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70A.305.170.

Contact Information

Thank you for choosing to clean up the Site under the VCP. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our webpage [3]. If you have any questions about this opinion, please contact me by phone at 509-342-5564 or e-mail at ted.uecker@ecy.wa.gov.

Sincerely,



Ted M. Uecker
ERO Toxics Cleanup Program

tmu:hg

cc: Tracy Friesz, Port of Pasco
Yancy Meyer, BMEC
Brent Bergeron, BMEC
Christer Loftenius, Ecology
Nicholas Acklam, Ecology

[3] https://www.ecy.wa.gov/vcp

ymeyer@bmecww.com

From: Uecker, Ted (ECY) <TUEC461@ECY.WA.GOV>
Sent: Wednesday, November 29, 2023 1:23 PM
To: yancymeyer@gmail.com; 'Randy Hayden (Port of Pasco)'
Cc: 'Tracy S. Friesz'; 'BNB Environmental, PC (Brent N. Bergeron)'; Loftenius, Christer (ECY); Acklam, Nicholas (ECY)
Subject: RE: Port of Pasco Industrial Park Lagoons- Technical Assistance

Hi Yancy,

Ecology is fine with 3 samples from the south lagoon analyzed for PBDEs. Thank you for the update, and please let us know if you have any more questions.

Best regards,

Ted Uecker, LG
Toxics Cleanup Program | Eastern Region Office
Washington State Department of Ecology
ted.uecker@ecy.wa.gov | (509) 342-5564

From: yancymeyer@gmail.com <yancymeyer@gmail.com>
Sent: Wednesday, November 29, 2023 1:17 PM
To: Uecker, Ted (ECY) <TUEC461@ECY.WA.GOV>; 'Randy Hayden (Port of Pasco)' <rhayden@portofpasco.org>
Cc: 'Tracy S. Friesz' <tfriesz@portofpasco.org>; 'BNB Environmental, PC (Brent N. Bergeron)' <brentb@bnbenv.com>; Loftenius, Christer (ECY) <clof461@ECY.WA.GOV>; Acklam, Nicholas (ECY) <nack461@ECY.WA.GOV>
Subject: RE: Port of Pasco Industrial Park Lagoons- Technical Assistance

Ted, we're preparing to send the samples out, and I've been informed that the price for PBDE in soil has increased to $1,215 EACH (was under $700). Would you be OK with doing 3 soil samples from the south lagoons instead of 5 for PBDEs?

I look forward to your reply. Thanks

Yancy Meyer
BMEC
509-520-4416

From: Uecker, Ted (ECY) <TUEC461@ECY.WA.GOV>
Sent: Monday, August 14, 2023 8:49 AM
To: Randy Hayden (Port of Pasco) <rhayden@portofpasco.org>
Cc: Tracy S. Friesz <tfriesz@portofpasco.org>; 'ymeyer@bmecww.com' <ymeyer@bmecww.com>; 'BNB Environmental, PC (Brent N. Bergeron)' <brentb@bnbenv.com>; Loftenius, Christer (ECY) <clof461@ECY.WA.GOV>; Acklam, Nicholas (ECY) <nack461@ECY.WA.GOV>
Subject: Port of Pasco Industrial Park Lagoons- Technical Assistance

APPENDIX B

Photographs

Photograph 1 – Geoprobe® (via Steadfast Services NW) setting up at monitoring wells MW-2 on Tuesday, November 28, 2023 (facing west).

Photograph 2 – Geologist's table set up outside of (south) of the the fencing due south of the south lagoon on Tuesday, November 28, 2023 (facing north).

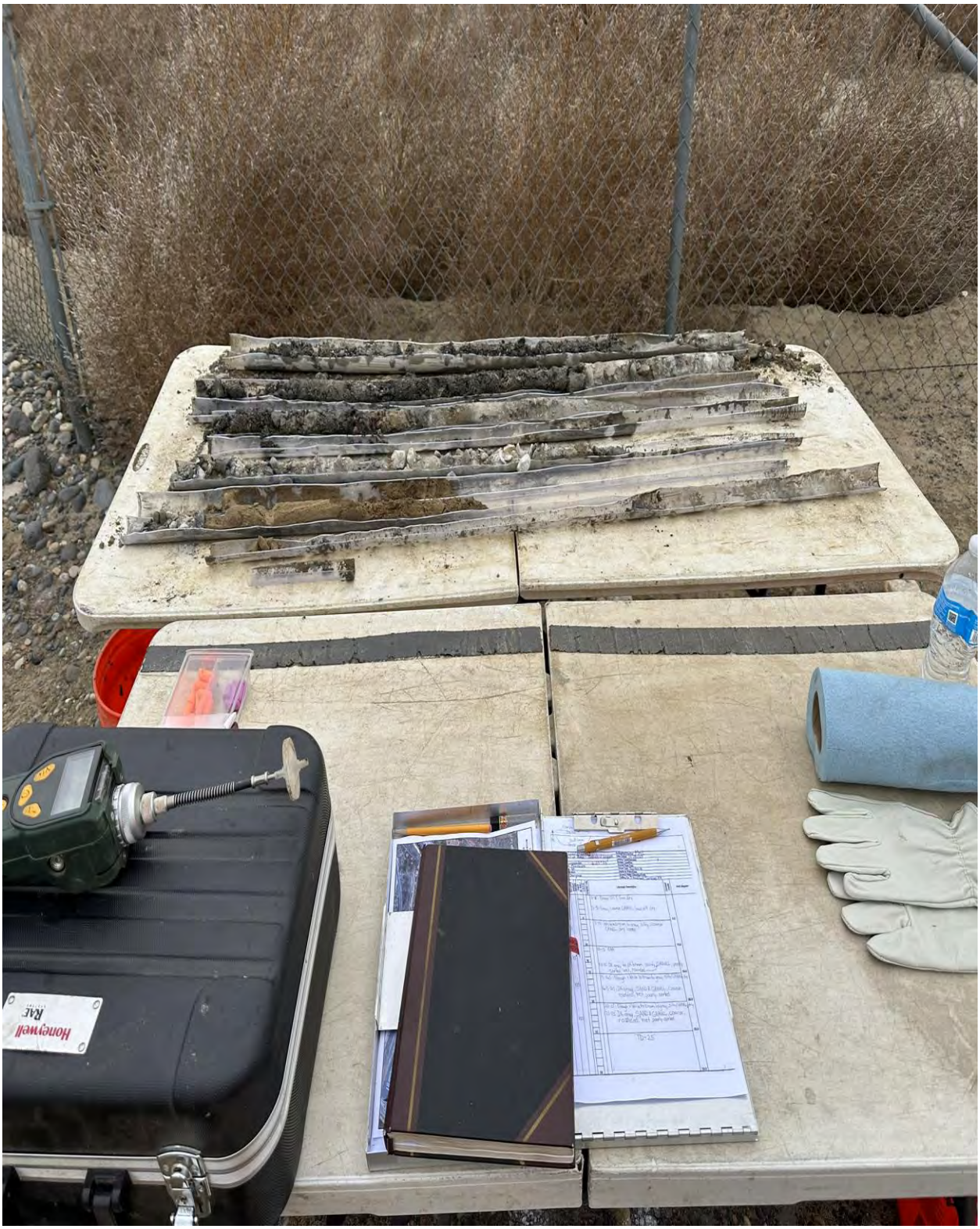
Photograph 3 – Surface water drainage ditch immediately south of Site (facing south).

Photograph 4 – Soil lithology (i.e., brown SILT near top and dark gray medium SAND near bottom) for boring MW-2 on Tuesday, November 28, 2023.

Photograph 5 – Hollow-stem auger methodology (Model 7720DT) being deployed by Steadfast on Tuesday, November 28, 2023 at the boring advanced for montirong well MW-2 (facing northeast).

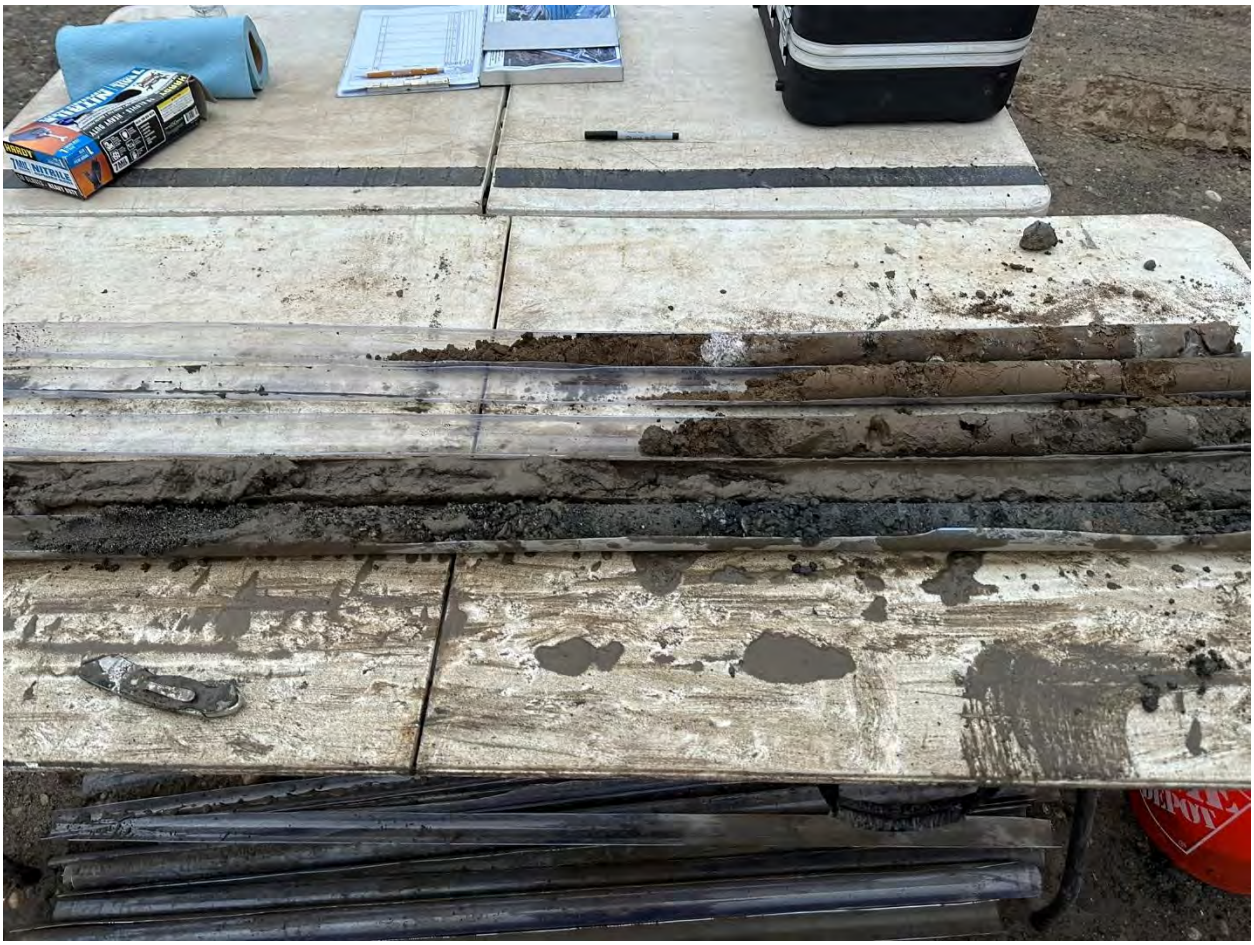
Photograph 6 – Drilling continues at boring MW-2 on Tuesday, November 28, 2023 (facing east).

Photograph 7 – Steadfast personnel utilizing geoprobe® methodology at boring MW-3 on Tuesday, November 28, 2023 (facing southwest).



Photograph 8 – Geologist's table with soil core from 0 – 25' bgs in boring MW-3 on Tuesday, November 23, 2023 (facing north).

Photograph 9 – Using geoprobe® methodology to advance a boring in the south lagoon on Wednesday, November 29, 2023 (facing east).



Photograph 10 – Brown SILT with little gravel near top and dark grey, medium SAND & GRAVEL near bottom of boring B-6 on Wednesday, November 29, 2023.

Photograph 11 – CME 75 onsite to begin advancing hollow-stem augers into the subsurface at boring MW-1 on Wednesday, November 29, 2023 (facing southeast).

Photograph 12 – Geoprobe® methodology deployed in south lagoon at boring B-7 on Wednesday, November 29, 2023 (facing south).

Photograph 13 – Begin monitoring well installation at MW-1 in the north lagoon on Wednesday, November 29, 2023 (facing southeast).

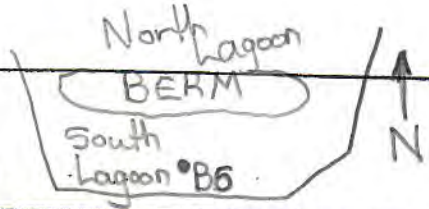
Photograph 14 – BMEC personnel collecting soil samples on Wednesday, November 29, 2023 (facing east).

Photograph 15 – Soil lithology from boring B-4 on Wednesday, November 29, 2023.

Photograph 16 – Steadfast utilizing HSA methodology via CME 75 to advnace boring at MW-3 to 25' bgs on Wednesday, November 29, 2023 (facing north).

APPENDIX C

Boring Logs



BORING/WELL CONSTRUCTION LOG

Project Number	G2023-0303	Boring/Well Number	B6
Project Name	Port of Tacoma - Industrial Lagoons	Date Drilled	11/29/23 11/29/23
Location	South-Central Part of South Lagoon	Casing Type/Diameter	NA
Drilling Method	Geoprobe - 2.25" OD	Screen Type/Slot	NA
Sampling Method	Macrocore	Gravel Pack Type	NA
Ground Elevation	NA	Grout Type	Bentonite
Top of Casing Elevation		Depth to Water/Date	
Logged by	B. Bergeron	Ground Water Elevation/Date	
Remarks		Drilling Co.	Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL.)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
NA		30			5			3.5-5': Brown, fine SAND, trace gravel, damp.	5.0	
NA		0			10			No Recovery	10.0	
0.1		40			15			13-14': SAA, v. wet 14-15': Brown SLUDGE transitioning to Black SLUDGE, v. wet, little gravel.	15.0	
0.1	SL-B6-SL-15			X						
0.2		100			20			15-18': Brown, fine SAND, loose, V. Wet. 18-20': Dark gray to multi-colored, SAND & GRAVEL, poorly-sorted, v. wet, firm.	20.0	
0.1	SL-B6-SO-20			X				TD = 20'		
0					25				25.0	
0.1										
					30				30.0	

1035 SL-B6-SL-15'

1040 SL-B6-SO-20'

BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number B5
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location NE part of South Lagoon	Casing Type/Diameter NA
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot NA
Sampling Method Macrocore	Gravel Pack Type NA
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL.)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
0		60			5			2-5': Brown, fine SAND, little angular gravel, loose, damp.	5.0	
		20			10			9-10': SAA	10.0	
		20			15			14-15': Brown, fine SAND, trace gravel, v. wet. 15-17': SAA	15.0	
		100			20			17-19': Mult-colored, sandy GRAVEL, subangular, wet, firm 19-20': DK gray, fine to med SAND, little gravel, v. wet, v. firm TD=20'	20.0	
					25				25.0	
					30				30.0	

SL-B5-SO-20

0955 SL-B5-SO-20

North Lagoon

BERM

B4

South Lagoon

N

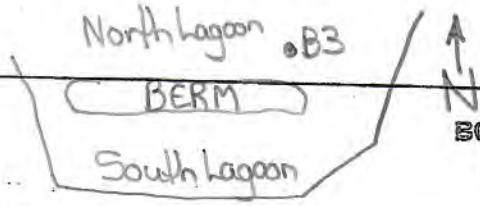
BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number B4
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location SE Part of South Lagoon	Casing Type/Diameter NA
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot NA
Sampling Method Macrocore	Gravel Pack Type NA
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL.)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
		40			5			3-5': Brown, fine SAND, little subangular gravel, damp	5.0	
		20			10			9-10': SAA	10.0	
		40			15			13-14.5': SAA, wet - v. wet, loose 14.5-15': Black SLUDGE (aka silt), sewer odor, v. wet	15.0	
SL-B4-SL-15				X				15-16.5': Brown, fine SAND, v. wet, loose		
		100			20			16.5-20': Dark gray SAND, some rounded gravel, firm, v. wet	20.0	
		100			25			20-21.5': Slough = brown, fine SAND, v. wet 21.5-25': Dark gray SAND & GRAVEL, poorly-sorted, v. wet.	25.0	
SL-B4-SO-25				X				TD = 25'		
					30				30.0	

0855 SL-B4-SL-15

0910 SL-B4-SO-25



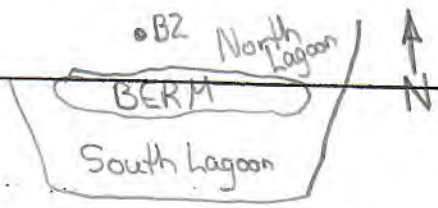
BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number B3
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location East End of North Lagoon	Casing Type/Diameter
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot
Sampling Method Matrocore	Gravel Pack Type
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL.)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
0		50			5			2.5-5': Brown, gravelly SAND, firm, damp.	5.0	
		40			10			8-10': SAA	10.0	
		10			15			14.5-15': SAA, v. wet @ 14.5'	15.0	
		70			20			16.5-19': SAA, v. wet 19-20': Brown, gravelly SAND, v. wet	20.0	
		100			25			20-21': Slough 21-24.5': DK gray SAND, fine-medium, trace gravel, v. wet 24.5-25': DK gray SAND & GRAVEL, v. wet TD=25'	25.0	
					30				30.0	

NL-B3-SL-20
NL-B3-SO-25

1645 NL-B3-SL-20'
1650 NL-B3-SO-25'

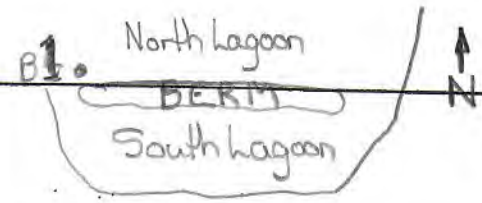


BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number B2
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location South Part of N. Lagoon	Casing Type/Diameter
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot
Sampling Method Makrocore	Gravel Pack Type
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation NA	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
		50			5			2.5-5': Brown, fine SAND, trace gravel, loose, moist	5.0	
		40			10			8-10': SAA	10.0	
		0			15			No Recovery	15.0	
		50			20			17.5-20': Brown, fine SAND, little gravel, wet.	20.0	
		100			25			20-24': Brown, fine SAND, little silt, v. wet, v. loose. 24-25': Brown-gray, fine SAND, trace gravel, v. wet.	25.0	
		100			30			25-26': DK gray, well-sorted, fine SAND, v. wet 26-30': DK gray, SAND & GRAVEL, v. wet, firm.	30.0	

NL-B2-50-30' 1605 TD=30'



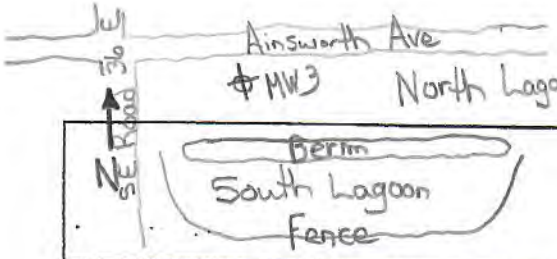
BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number B1
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location SWest Corner N. Lagoon	Casing Type/Diameter
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot
Sampling Method Macrocore	Gravel Pack Type
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation NA	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL.)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
		20			5					
0								4-5': Brown SAND, damp, v.little silt, little angular gravel, loose,	5.0	
		10			10					
0.3								9-10': Brown fine SAND, trace gravel, loose, damp	10.0	
		20			15					
								14-15': Gray-brown, SAND, little gravel, v.moist-wet.	15.0	
		100						15-18': Brown silty, fine SAND, trace gravel, v.wet, loose.		
NL-B1-SH-20'				X	20			18-20': Black SLUDGE, sewer odor, firm, moist.	20.0	
		100						20-21': SAA 21.5-22.5': Black, silty/sludgy, fine SAND, sewer odor, wet 22.5-25': Black, fine-medium SAND, little coarse rounded gravel, v.wet.		
NL-B1-50-25'				X	25				25.0	
								TD=25'		
					30				30.0	

1510 NL-B1-SH-20

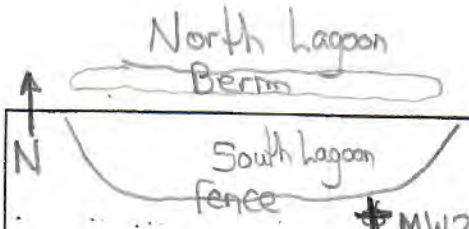
1515 NL-B1-50-25



BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number MW3
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location North Lagoon (Upgradient)	Casing Type/Diameter
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot
Sampling Method Macrocore	Gravel Pack Type
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

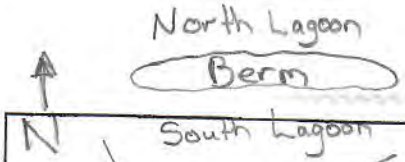
PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
0		10			5			4.5-5': Brown, fine SAND, little angular gravel, damp; loose	5.0	
		10			10			9.5-10': Brown, fine SAND, trace gravel, damp.	10.0	
		10			15			14.5-15': Brown-gray, fine SAND, wet, little silt.	15.0	
		50			20			17.5-20': Brown, fine SAND, v.wet	20.0	
		70			25			20-22.5': DK gray, fine-medium SAND, trace gravel, v.wet 22.5-23': Brown, silty, fine SAND, trace gravel, v.wet, loose 23-25': DK gray SAND, little rounded gravel, loose, v.wet. TD=25'	25.0	
					30				30.0	



BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number MW2
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location SE Corner of S. Lagoon	Casing Type/Diameter
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot
Sampling Method Macrocore	Gravel Pack Type
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

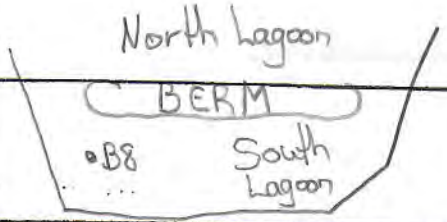
PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
⊙		60			5			0-3': Brown SILT, firm, dry. 3-5': Gray, coarse GRAVEL, trace silt, dry.	5.0	
		70			10			5-10': White to brown to gray, silty, coarse GRAVEL, dry, loose.	10.0	
		70			15			10-13': SAA 13-15': DK gray to dk brown, sandy, GRAVEL, poorly sorted, wet, rounded	15.0	
		100			20			15-16.5': Slough = White to brown to gray, silty GRAVEL, dry 16.5-20': DK gray, SAND & GRAVEL, coarse, rounded, v.wet, poorly-sorted	20.0	
		100			25			20-21': Slough = White to brown to gray, silty GRAVEL, dry 21-25': DK gray, SAND & GRAVEL, coarse, rounded, v.wet, poorly-sorted	25.0	
					30			TD = 25'	30.0	



BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number MW1
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23
Location SW corner of S. Lagoon	Casing Type/Diameter
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot
Sampling Method Maktocore	Gravel Pack Type
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date
Logged by B. Bergeron	Ground Water Elevation/Date
Remarks	Drilling Co. Steadfast Services NW

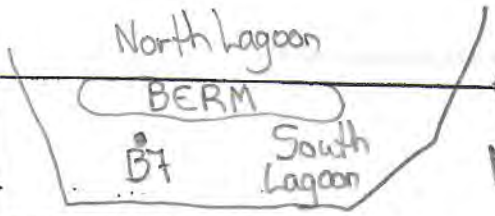
PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
⊙		70			5			0-5': Brown SILT, mod firm, dry.	5.0	
		60			10			5-10': Brown to dk brown mottled gray, silty, coarse rounded GRAVEL, loose, dry	10.0	
		80			15			10-13': SAA 13-15': DK brown, sandy GRAVEL, angular, wet.	15.0	
		90			20			15-16': Slough = Brown to dk brown silty coarse GRAVEL, dry 16-20': DK gray to black gravelly, medium SAND, well ~~sorted/poorly~~ graded, v. wet	20.0	
		90			25			20-21': Slough = DK gray, gravelly SAND, wet 21-25': DK gray to black gravelly, medium SAND, ~~poor~~ well-graded, v. wet; rounded	25.0	
					30			TD = 25'	30.0	



BORING/WELL CONSTRUCTION LOG

Project Number E2023-0303	Boring/Well Number B8
Project Name Port of Pasco - Industrial Lagoons	Date Drilled 11/28/23 11/29/23
Location West Part of South Lagoon	Casing Type/Diameter NA
Drilling Method Geoprobe - 2.25" OD	Screen Type/Slot NA
Sampling Method Macrocore	Gravel Pack Type NA
Ground Elevation NA	Grout Type Bentonite
Top of Casing Elevation	Depth to Water/Date NA
Logged by B. Bergeron	Ground Water Elevation/Date NA
Remarks	Drilling Co. Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
		40			5			3-5': Brown, fine SAND, trace gravel, loose, damp.	5.0	
		40			10			8-10': SAA	10.0	
		50			15			12.5-13': SAA 13-13.5': Brown, v. fine SAND, v. wet 13.5-15': Black SLUDGE (aka SILT), v. wet, trace gravel	15.0	
		100			20			15-15.5': DK gray, fine SAND, v. wet 15.5-16': DK gray, rounded, coarse GRAVEL, little sand, v. wet. 16-16.5': DK gray, medium SAND, trace gravel, v. wet 16.5-20': DK gray, SAND & GRAVEL, v. wet, firm	20.0	
					25			TD = 20'	25.0	
					30				30.0	



BORING/WELL CONSTRUCTION LOG

Project Number	E2023-0303	Boring/Well Number	B7
Project Name	Port of Pasco - Industrial Lagoons	Date Drilled	11/29/23 11/29/23
Location	North-Central Part of South Lagoon	Casing Type/Diameter	NA
Drilling Method	Geoprobe - 2.25" OD	Screen Type/Slot	NA
Sampling Method	Macrocore	Gravel Pack Type	NA
Ground Elevation	NA	Grout Type	Bentonite
Top of Casing Elevation		Depth to Water/Date	
Logged by	B. Bergeron	Ground Water Elevation/Date	
Remarks		Drilling Co.	Steadfast Services NW

PID (ppm)	Blow Counts	Recovery (%)	Sampling Method	Sample	Depth (ft. BGL.)	U.S.C.S	Graphic Log	Lithologic Description	Contact Depth	Well Diagram
0		10			5			4.5-5': Brown, fine SAND, some coarse Gravel, damp.	5.0	
		40			10			8-10': Brown, fine SAND, little gravel, damp, loose	10.0	
		60			15			12-13.5': Brown, fine SAND, damp; fining downward to brown SILT, wet 13.5-15': Black SLUDGE (aka SILT), trace gravel @ 15', V. wet	15.0	
		100			20			15-16.5': DK brown; fine SAND, v wet, loose 16.5-20': DK gray, fine SAND, little gravel coarsening downward to SAND & GRAVEL, V. wet	20.0	
					25			TD = 20'	25.0	
					30				30.0	

1105
1110

APPENDIX D

Groundwater Sampling Field Data Sheets

GROUNDWATER SAMPLE FIELD LOG

DAY/DATE: 12-4-23	SHEET 1 of
PROJECT NAME: POF LAGOONS	PROJECT NO.: E2023/1103
PROJECT LOCATION: RD 26 / E AINSWORTH	

Weather: ☐Fair ☒Overcast ☐Fog ☐Rain ☐Snow	Wind: ☒Calm ☐Light ☐Moderate ☐Strong
Temp.: ☐<0 ☐0-32 ☒33-54 ☐55-79 ☐>80	Wind from: ☐N ☐NE ☐E ☐SE ☐S ☒SW ☐W ☐NW
Humidity %: ☐<25 ☐26-49 ☒50-74 ☐>75	Precip.: ☒None ☐Mist ☐Light ☐Moderate ☐Heavy

WELL NO. (or Boring, Location): MW-1	**SAMPLE NUMBER:** MW-1 BPK856
Well depth: 25 Screen length: 15'	Laboratory:
Well install date: 11-29-23	COC and/or RFA Number:
Pre-purge SWL: 9.81	Casing diameter: 2"
Time Sample Collected: 0845	SWL at sample time: 9.84'
Sample Turbidity:	Sample Conductance:
Sample Color:	Sample pH:
Sample Temperature:	Sample Odor:

Field Data

Time (24 HR)	Temp	Cond	pH	Pump Rate or Bail No.	Turbidity	Other
0800	23.6	784.9	7.02		523.9	
0810	20.1	822.0	7.46		Over 1,000	
0815	23.7	817.9	7.64		" "	
0825	23.6	825.9	7.70		" "	
0835	22.2	796.8	7.66		" "	
0845	21.3		7.69		24.22	

Sample Collection Method:

The monitor well was purged:

☑ of stagnant water in the casing and filter by slowly setting a pump or intake tubing within the approximate middle of the screened interval or slightly above the middle until the until the temperature, conductivity and pH stabilized. OR,

☐ of stagnant water in the casing and filter by slowly setting a pump or intake tubing at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized. OR,

☐ by hand bailing until temperature, conductivity and pH stabilized.

Samples were collected:

☑ by setting a pump, or tubing attached to a pump, within the approximate middle of the screened interval until the temperature, conductivity and pH stabilized.

☐ by setting a pump, or tubing attached to a pump, at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized.

☐ with disposable bailers until the temperature, conductivity and pH stabilized.

Sample Shipment:

Water samples were placed in appropriate containers suitable for analyses requested. As necessary, the containers were prepared by the lab. The containers were filled to prevent air-entrapment, sealed, labeled, and placed in an ice chest at approximately 4°C (e.g. blu-ice) for transport to the laboratory.

Analysis Requested: (per laboratory protocols)

☐ NWTPH-HCID; ☐ NWTPH-Gx; ☐ NWTPH-Dx; ☐ NWTPH-Gx/BTEX; ☐ VOC; ☐ HVOC;

☐ SemiVOC; ☐ PAH; ☐ PCB; ☐ Pesticides; (☐8, ☐10, ☐13) Metals; ☐ TCLP; ☐ MTBE;

☐ OTHER:

SIGNATURE: _____

PRINT NAME: ANDY MEYER

Notes: 2-inch, Schedule 40 PVC casing = 0.163 gallons per foot; 6" Hole = 1.469 gallons per foot

GROUNDWATER SAMPLE FIELD LOG

DAY/DATE: 12-1-23	SHEET 1 of
PROJECT NAME: POP LAGOONS	PROJECT NO.: E2023/103
PROJECT LOCATION: RD 26/E AINSWORTH	

Weather: ☐Fair ☒Overcast ☐Fog ☐Rain ☐Snow	Wind: ☒Calm ☐Light ☐Moderate ☐Strong
Temp.: ☐<0 ☐0-32 ☒33-54 ☐55-79 ☐>80	Wind from: ☐N ☐NE ☐E ☐SE ☐S ☒SW ☐W ☐NW
Humidity %: ☐<25 ☐26-49 ☒50-74 ☐>75	Precip.: ☒None ☐Mist ☐Light ☐Moderate ☐Heavy

BPK 857

WELL NO. (or Boring, Location): MW-2	**SAMPLE NUMBER:** MW-2
Well depth: / Screen length:	Laboratory:
Well install date:	COC and/or RFA Number:
Pre-purge SWL: 10.79'	Casing diameter:
Time Sample Collected: 1015	SWL at sample time: 10.80'
Sample Turbidity:	Sample Conductance:
Sample Color:	Sample pH:
Sample Temperature:	Sample Odor:

Field Data

Time (24 HR)	Temp	Cond	pH	Pump Rate or Bail No.	Turbidity	Other
0945	24.5	757.1	7.46		423.2	
0950	~~20.5~~ 15.8	719.9	8.17		<1000	
0959	19.9	748.2	9.04		<1000	
1003	18.9	749.1	9.11		6.87	
1008	19.8	~~8.43~~ 746.	9.43		2.29	
1015	19.2	738.6	9.28		<1000	

Sample Collection Method:

The monitor well was purged:

☒ of stagnant water in the casing and filter by slowly setting a pump or intake tubing within the approximate middle of the screened interval or slightly above the middle until the until the temperature, conductivity and pH stabilized. OR,

☐ of stagnant water in the casing and filter by slowly setting a pump or intake tubing at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized. OR,

☐ by hand bailing until temperature, conductivity and pH stabilized.

Samples were collected:

☒ by setting a pump, or tubing attached to a pump, within the approximate middle of the screened interval until the temperature, conductivity and pH stabilized.

☐ by setting a pump, or tubing attached to a pump, at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized.

☐ with disposable bailers until the temperature, conductivity and pH stabilized.

Sample Shipment:

Water samples were placed in appropriate containers suitable for analyses requested. As necessary, the containers were prepared by the lab. The containers were filled to prevent air-entrapment, sealed, labeled, and placed in an ice chest at approximately 4°C (e.g. blu-ice) for transport to the laboratory.

Analysis Requested: (per laboratory protocols)

☐ NWTPH-HCID; ☐ NWTPH-Gx; ☐ NWTPH-Dx; ☐ NWTPH-Gx/BTEX; ☐ VOC; ☐ HVOC;

☐ SemiVOC; ☐ PAH; ☐ PCB; ☐ Pesticides; (☐8, ☐10, ☐13) Metals; ☐ TCLP; ☐ MTBE;

☐ OTHER:

SIGNATURE: _____

PRINT NAME: NANCY MEYER

Notes: 2-inch, Schedule 40 PVC casing = 0.163 gallons per foot. 6" Hole = 1.469 gallons per foot

GROUNDWATER SAMPLE FIELD LOG

DAY/DATE: 1-24-23	SHEET 1 of
PROJECT NAME: POP / ALCORN'S	PROJECT NO.: E2023/1103
PROJECT LOCATION: RD 26 / E AINSWORTH	

Weather: ☐Fair ☒Overcast ☐Fog ☐Rain ☐Snow	Wind: ☒Calm ☐Light ☐Moderate ☐Strong
Temp.: ☐<0 ☐0-32 ☒33-54 ☐55-79 ☐>80	Wind from: ☐N ☐NE ☐E ☐SE ☐S ☒SW ☐W ☐NW
Humidity %: ☐<25 ☐26-49 ☒50-74 ☐>75	Precip.: ☒None ☐Mist ☐Light ☐Moderate ☐Heavy

BPK 858

WELL NO. (or Boring, Location): MW3	**SAMPLE NUMBER:**
Well depth: / Screen length:	Laboratory:
Well install date:	COC and/or RFA Number:
Pre-purge SWL: 10.54	Casing diameter:
Time Sample Collected: 1130	SWL at sample time: 10.57
Sample Turbidity:	Sample Conductance:
Sample Color:	Sample pH:
Sample Temperature:	Sample Odor:

Field Data

Time (24 HR)	Temp	Cond	pH	Pump Rate or Bail No.	Turbidity	Other
1101	18.2	764.6	8.25		209.5	
1106	19.6	698.1	8.25		<1000	
1112	19.0	721.1	8.30		<1000	
1123	18.6	722.5	8.43			
1128	19.8	731.3	8.23		<1000	
1130	18.2	744.3	8.51		5.63	

10.57

Sample Collection Method:

The monitor well was purged:

☒ of stagnant water in the casing and filter by slowly setting a pump or intake tubing within the approximate middle of the screened interval or slightly above the middle until the until the temperature, conductivity and pH stabilized. OR,

☐ of stagnant water in the casing and filter by slowly setting a pump or intake tubing at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized. OR,

☐ by hand bailing until temperature, conductivity and pH stabilized.

Samples were collected:

☒ by setting a pump, or tubing attached to a pump, within the approximate middle of the screened interval until the temperature, conductivity and pH stabilized.

☐ by setting a pump, or tubing attached to a pump, at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized.

☐ with disposable bailers until the temperature, conductivity and pH stabilized.

Sample Shipment:

Water samples were placed in appropriate containers suitable for analyses requested. As necessary, the containers were prepared by the lab. The containers were filled to prevent air-entrapment, sealed, labeled, and placed in an ice chest at approximately 4°C (e.g. blu-ice) for transport to the laboratory.

Analysis Requested: (per laboratory protocols)

☐ NWTPH-HCID; ☐ NWTPH-Gx; ☐ NWTPH-Dx; ☐ NWTPH-Gx/BTEX; ☐ VOC; ☐ HVOC;

☐ SemiVOC; ☐ PAH; ☐ PCB; ☐ Pesticides; (☐8, ☐10, ☐13) Metals; ☐ TCLP; ☐ MTBE;

☐ OTHER:

SIGNATURE: _____

PRINT NAME: NANCY MEYER

Notes: 2-inch, Schedule 40 PVC casing = 0.163 gallons per foot; 6" Hole = 1.469 gallons per foot

GROUNDWATER SAMPLE FIELD LOG

DAY/DATE: 2-15-23 THURSDAY	SHEET 1 of
PROJECT NAME: PORT OF PASCO LAGOONS	PROJECT NO.: E2023/1103
PROJECT LOCATION: RD 26 / E. AINSWORTH	

Weather: ☐Fair ☒Overcast ☐Fog ☐Rain ☐Snow	Wind: ☐Calm ☒Light ☐Moderate ☐Strong
Temp.: ☐<0 ☐0-32 ☒33-54 ☐55-79 ☐>80	Wind from: ☐N ☐NE ☐E ☐SE ☐S ☒SW ☐W ☐NW
Humidity %: ☐<25 ☐26-49 ☒50-74 ☐>75	Precip.: ☒None ☐Mist ☐Light ☐Moderate ☐Heavy

WELL NO. (or Boring, Location): MW1	**SAMPLE NUMBER:** GWMW-1 BPK856
Well depth: 25 / Screen length: 15	Laboratory:
Well install date: 11-29-23	COC and/or RFA Number:
Pre-purge SWL: 9.66	Casing diameter: 2"
Time Sample Collected: 1215	SWL at sample time: 9.66
Sample Turbidity: LIGHT	Sample Conductance: 798.2
Sample Color: —	Sample pH: 7.64
Sample Temperature: 20.9	Sample Odor: —

Field Data

Time (24 HR)	Temp	Cond	pH	Pump Rate or Bail No.	Turbidity	Other
1133	22.3	785.3	7.08		10.2	
1141	21.3	791.1	7.51		652.1	
1156	21.1	797.2	7.62		238.0	
1205	21.1	796.3	7.64		100.2	
1215	20.9	798.2	7.64		15.3	

Sample Collection Method:

The monitor well was purged:

☒ of stagnant water in the casing and filter by slowly setting a pump or intake tubing within the approximate middle of the screened interval or slightly above the middle until the until the temperature, conductivity and pH stabilized. OR,

☐ of stagnant water in the casing and filter by slowly setting a pump or intake tubing at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized. OR,

☐ by hand bailing until temperature, conductivity and pH stabilized.

Samples were collected:

☒ by setting a pump, or tubing attached to a pump, within the approximate middle of the screened interval until the temperature, conductivity and pH stabilized.

☐ by setting a pump, or tubing attached to a pump, at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized.

☐ with disposable bailers until the temperature, conductivity and pH stabilized.

Sample Shipment:

Water samples were placed in appropriate containers suitable for analyses requested. As necessary, the containers were prepared by the lab. The containers were filled to prevent air-entrapment, sealed, labeled, and placed in an ice chest at approximately 4°C (e.g. blu-ice) for transport to the laboratory.

Analysis Requested: (per laboratory protocols)

☐ NWTPH-HCID; ☐ NWTPH-Gx; ☐ NWTPH-Dx; ☐ NWTPH-Gx/BTEX; ☐ VOC; ☐ HVOC;

☐ SemiVOC; ☐ PAH; ☐ PCB; ☐ Pesticides; (☐8, ☐10, ☐13) Metals; ☐ TCLP; ☐ MTBE;

☐ OTHER:

SIGNATURE: _____

PRINT NAME: NANCY MEYER

Notes: 2-inch, Schedule 40 PVC casing = 0.163 gallons per foot; 6" Hole = 1.469 gallons per foot

GROUNDWATER SAMPLE FIELD LOG

DAY/DATE: 2-15-23 THURSDAY	SHEET 1 of __
PROJECT NAME: PORT OF PASCO LAGOONS	PROJECT NO.: E2023/1103
PROJECT LOCATION: R026 / E. AINSWORTH	

Weather: ☐Fair ☒Overcast ☐Fog ☐Rain ☐Snow	Wind: ☐Calm ☒Light ☐Moderate ☐Strong
Temp.: ☐<0 ☐0-32 ☒33-54 ☐55-79 ☐>80	Wind from: ☐N ☐NE ☐E ☐SE ☐S ☒SW ☐W ☐NW
Humidity %: ☐<25 ☐26-49 ☒50-74 ☐>75	Precip.: ☒None ☐Mist ☐Light ☐Moderate ☐Heavy

WELL NO. (or Boring, Location): MW-2	**SAMPLE NUMBER:** GWMW-2 BPK-857
Well depth: 25 / Screen length: 15	Laboratory:
Well install date: 11.29.23	COC and/or RFA Number:
Pre-purge SWL: 10.63	Casing diameter: 2"
Time Sample Collected: 1300	SWL at sample time: 10.63
Sample Turbidity: LIGHT	Sample Conductance: 739.3
Sample Color: —	Sample pH: 8.02
Sample Temperature: 19.5	Sample Odor: —

Field Data

Time (24 HR)	Temp	Cond	pH	Pump Rate or Bail No.	Turbidity	Other
1225	22.8	761.1	7.53		8.6	
1232	21.0	752.0	7.89		302.2	
1245	19.7	740.1	7.98		109.8	
1253	19.5	739.7	8.01		19.3	
1300	19.5	739.3	8.02		12.1	

Sample Collection Method:

The monitor well was purged:

☒ of stagnant water in the casing and filter by slowly setting a pump or intake tubing within the approximate middle of the screened interval or slightly above the middle until the until the temperature, conductivity and pH stabilized. OR,

☐ of stagnant water in the casing and filter by slowly setting a pump or intake tubing at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized. OR,

☐ by hand bailing until temperature, conductivity and pH stabilized.

Samples were collected:

☒ by setting a pump, or tubing attached to a pump, within the approximate middle of the screened interval until the temperature, conductivity and pH stabilized.

☐ by setting a pump, or tubing attached to a pump, at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized.

☐ with disposable bailers until the temperature, conductivity and pH stabilized.

Sample Shipment:

Water samples were placed in appropriate containers suitable for analyses requested. As necessary, the containers were prepared by the lab. The containers were filled to prevent air-entrapment, sealed, labeled, and placed in an ice chest at approximately 4°C (e.g. blu-ice) for transport to the laboratory.

Analysis Requested: (per laboratory protocols)

☐ NWTPH-HCID; ☐ NWTPH-Gx; ☐ NWTPH-Dx; ☐ NWTPH-Gx/BTEX; ☐ VOC; ☐ HVOC;

☐ SemiVOC; ☐ PAH; ☐ PCB; ☐ Pesticides; (☐8, ☐10, ☐13) Metals; ☐ TCLP; ☐ MTBE;

☐ OTHER:

SIGNATURE: _____

PRINT NAME: NANCY MEYER

Notes: 2-inch, Schedule 40 PVC casing = 0.163 gallons per foot; 6" Hole = 1.469 gallons per foot

GROUNDWATER SAMPLE FIELD LOG

DAY/DATE: 2-15-23 THURSDAY	SHEET 1 of
PROJECT NAME: PORT OF PASCO LAGOONS	PROJECT NO.: E2023/1103
PROJECT LOCATION: 2026 / E. AINSWORTH	
Weather: ☐Fair ☒Overcast ☐Fog ☐Rain ☐Snow	Wind: ☐Calm ☒Light ☐Moderate ☐Strong
Temp.: ☐<0 ☐0-32 ☒33-54 ☐55-79 ☐>80	Wind from: ☐N ☐NE ☐E ☐SE ☐S ☒SW ☐W ☐NW
Humidity %: ☐<25 ☐26-49 ☒50-74 ☐>75	Precip.: ☒None ☐Mist ☐Light ☐Moderate ☐Heavy

WELL NO. (or Boring, Location): MW-3	**SAMPLE NUMBER:** CWMW-3
Well depth: 25 / Screen length: 15	Laboratory:
Well install date: 11.29.23	COC and/or RFA Number:
Pre-purge SWL: 10.39	Casing diameter: 2"
Time Sample Collected: 1340	SWL at sample time: 10.40
Sample Turbidity: LIGHT	Sample Conductance: 743.8
Sample Color: —	Sample pH: 8.48
Sample Temperature: 18.1	Sample Odor: —

Field Data

Time (24 HR)	Temp	Cond	pH	Pump Rate or Bail No.	Turbidity	Other
1310	18.1	762.1	8.20		6.21	
1318	19.3	751.2	8.35		303.2	
1326	18.3	744.1	8.41		89.7	
1335	18.1	740.2	8.46		10.21	
1340	18.1	743.8	8.48		5.89	

Sample Collection Method:

The monitor well was purged:

☒ of stagnant water in the casing and filter by slowly setting a pump or intake tubing within the approximate middle of the screened interval or slightly above the middle until the until the temperature, conductivity and pH stabilized. OR,

☐ of stagnant water in the casing and filter by slowly setting a pump or intake tubing at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized. OR,

☐ by hand bailing until temperature, conductivity and pH stabilized.

Samples were collected:

☒ by setting a pump, or tubing attached to a pump, within the approximate middle of the screened interval until the temperature, conductivity and pH stabilized.

☐ by setting a pump, or tubing attached to a pump, at approximately _____ feet above the bottom of the casing until the temperature, conductivity and pH stabilized.

☐ with disposable bailers until the temperature, conductivity and pH stabilized.

Sample Shipment:

Water samples were placed in appropriate containers suitable for analyses requested. As necessary, the containers were prepared by the lab. The containers were filled to prevent air-entrapment, sealed, labeled, and placed in an ice chest at approximately 4°C (e.g. blu-ice) for transport to the laboratory.

Analysis Requested: (per laboratory protocols)

☐ NWTPH-HCID; ☐ NWTPH-Gx; ☐ NWTPH-Dx; ☐ NWTPH-Gx/BTEX; ☐ VOC; ☐ HVOC;

☐ SemiVOC; ☐ PAH; ☐ PCB; ☐ Pesticides; (☐8, ☐10, ☐13) Metals; ☐ TCLP; ☐ MTBE;

☐ OTHER:

SIGNATURE: _____

PRINT NAME: NANCY MEYER

Notes: 2-inch, Schedule 40 PVC casing = 0.163 gallons per foot; 6" Hole = 1.469 gallons per foot

APPENDIX E

Laboratory Analytical Report and Chain of Custody Documentation

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 21, 2023

Yancy Meyer
Blue Mountain Environmental, Inc.
90 Baldwin Road
Walla Walla, WA 99362

Re: Analytical Data for Project E2023/1103; Port of Pasco Lagoons
Laboratory Reference No. 2312-008

Dear Yancy:

Enclosed are the analytical results and associated quality control data for samples submitted on December 1, 2023.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

Case Narrative

Samples were collected on November 28 and 29, 2023 and received by the laboratory on December 1, 2023. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Volatiles EPA 8260D Analysis

The percent recovery for Acetone and Dibromomethane is outside the control limits in the Spike Blank. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The RPD for Dibromomethane is outside the control limits for the Spike Blank/Spike Blank Duplicate. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

Sodium Bisulfate preservation has been proven to increase the frequency of detection and the concentration of Acetone and 2-Butanone due in part to chemical reactions in the sample. If Acetone is a potential site contaminant, Sodium Bisulfate should not be used.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

HYDROCARBON IDENTIFICATION
NWTPH-HCID

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B1-SL-20'**					
Laboratory ID:	12-008-01					
Gasoline Range Organics	**ND**	25	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	61	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	120	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**NL-B1-SO-25'**					
Laboratory ID:	12-008-02					
Gasoline Range Organics	**ND**	23	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	58	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	120	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**NL-B2-SO-30'**					
Laboratory ID:	12-008-03					
Gasoline Range Organics	**ND**	22	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	54	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	110	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				
Client ID:	**NL-B3-SL-20'**					
Laboratory ID:	12-008-04					
Gasoline Range Organics	**ND**	23	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	58	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil	**Detected**	120	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**NL-B3-SO-25'**					
Laboratory ID:	12-008-05					
Gasoline Range Organics	**ND**	25	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	61	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	120	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

HYDROCARBON IDENTIFICATION
NWTPH-HCID

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B4-SL-15'**					
Laboratory ID:	12-008-06					
Gasoline Range Organics	**ND**	24	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	60	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	120	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				
Client ID:	**SL-B4-SO-25'**					
Laboratory ID:	12-008-07					
Gasoline Range Organics	**ND**	23	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	56	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	110	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**SL-B5-SO-20'**					
Laboratory ID:	12-008-08					
Gasoline Range Organics	**ND**	22	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	56	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	110	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*103*	*50-150*				
Client ID:	**SL-B6-SL-15'**					
Laboratory ID:	12-008-09					
Gasoline Range Organics	**ND**	25	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	61	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	120	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**SL-B6-SO-20'**					
Laboratory ID:	12-008-10					
Gasoline Range Organics	**ND**	22	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	56	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	110	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

HYDROCARBON IDENTIFICATION
NWTPH-HCID

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B7-SL-15'**					
Laboratory ID:	12-008-11					
Gasoline Range Organics	**ND**	26	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	64	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	130	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*111*	*50-150*				
Client ID:	**SL-B7-SO-20'**					
Laboratory ID:	12-008-12					
Gasoline Range Organics	**ND**	22	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	56	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	110	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*100*	*50-150*				
Client ID:	**SL-B8-SO-20'**					
Laboratory ID:	12-008-13					
Gasoline Range Organics	**ND**	22	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	54	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	110	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

HYDROCARBON IDENTIFICATION
NWTPH-HCID
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1204S2					
Gasoline Range Organics	**ND**	20	NWTPH-HCID	12-4-23	12-4-23	
Diesel Range Organics	**ND**	50	NWTPH-HCID	12-4-23	12-4-23	
Lube Oil Range Organics	**ND**	100	NWTPH-HCID	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

VOLATILE ORGANICS EPA 8260D
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B1-SL-20'**					
Laboratory ID:	12-008-01					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Chloromethane	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Vinyl Chloride	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromomethane	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Chloroethane	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Trichlorofluoromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Acetone	0.24	0.063	EPA 8260D	12-4-23	12-4-23	Y
Iodomethane	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Carbon Disulfide	0.0084	0.0025	EPA 8260D	12-4-23	12-4-23	
Methylene Chloride	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
(trans) 1,2-Dichloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Methyl t-Butyl Ether	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Vinyl Acetate	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
2,2-Dichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
(cis) 1,2-Dichloroethene	ND	0.013	EPA 8260D	12-4-23	12-4-23	
2-Butanone	0.034	0.0063	EPA 8260D	12-4-23	12-4-23	Y
Bromochloromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Chloroform	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,1-Trichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Carbon Tetrachloride	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloropropene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Benzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Trichloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Dibromomethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromodichloromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
2-Chloroethyl Vinyl Ether	ND	0.0084	EPA 8260D	12-4-23	12-4-23	
(cis) 1,3-Dichloropropene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Methyl Isobutyl Ketone	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Toluene	ND	0.0063	EPA 8260D	12-4-23	12-4-23	

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B1-SL-20'**					
Laboratory ID:	12-008-01					
(trans) 1,3-Dichloropropene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,2-Trichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Tetrachloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,3-Dichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
2-Hexanone	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Dibromochloromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromoethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Chlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,1,2-Tetrachloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Ethylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
m,p-Xylene	ND	0.0025	EPA 8260D	12-4-23	12-4-23	
o-Xylene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Styrene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromoform	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Isopropylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,2,2-Tetrachloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
n-Propylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
2-Chlorotoluene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
4-Chlorotoluene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,3,5-Trimethylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
tert-Butylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trimethylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
sec-Butylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,3-Dichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
p-Isopropyltoluene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,4-Dichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
n-Butylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromo-3-chloropropane	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Hexachlorobutadiene	ND	0.0063	EPA 8260D	12-4-23	12-4-23	
Naphthalene	0.013	0.0063	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*75-130*				
Toluene-d8	*96*	*78-128*				
4-Bromofluorobenzene	*101*	*71-130*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B3-SL-20'**					
Laboratory ID:	12-008-04					
Dichlorodifluoromethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Chloromethane	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Vinyl Chloride	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Bromomethane	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Chloroethane	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Trichlorofluoromethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Acetone	ND	0.049	EPA 8260D	12-4-23	12-4-23	
Iodomethane	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Carbon Disulfide	ND	0.0020	EPA 8260D	12-4-23	12-4-23	
Methylene Chloride	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
(trans) 1,2-Dichloroethene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Methyl t-Butyl Ether	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Vinyl Acetate	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
2,2-Dichloropropane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
(cis) 1,2-Dichloroethene	ND	0.0098	EPA 8260D	12-4-23	12-4-23	
2-Butanone	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Bromochloromethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Chloroform	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1,1-Trichloroethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Carbon Tetrachloride	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloropropene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Benzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloroethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Trichloroethene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloropropane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Dibromomethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Bromodichloromethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
2-Chloroethyl Vinyl Ether	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
(cis) 1,3-Dichloropropene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Methyl Isobutyl Ketone	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Toluene	ND	0.0049	EPA 8260D	12-4-23	12-4-23	

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B3-SL-20'**					
Laboratory ID:	12-008-04					
(trans) 1,3-Dichloropropene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1,2-Trichloroethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Tetrachloroethene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,3-Dichloropropane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
2-Hexanone	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Dibromochloromethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromoethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Chlorobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1,1,2-Tetrachloroethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Ethylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
m,p-Xylene	ND	0.0020	EPA 8260D	12-4-23	12-4-23	
o-Xylene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Styrene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Bromoform	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Isopropylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Bromobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,1,2,2-Tetrachloroethane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichloropropane	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
n-Propylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
2-Chlorotoluene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
4-Chlorotoluene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,3,5-Trimethylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
tert-Butylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trimethylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
sec-Butylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,3-Dichlorobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
p-Isopropyltoluene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,4-Dichlorobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2-Dichlorobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
n-Butylbenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromo-3-chloropropane	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trichlorobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Hexachlorobutadiene	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
Naphthalene	ND	0.0049	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichlorobenzene	ND	0.00098	EPA 8260D	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*75-130*				
Toluene-d8	*100*	*78-128*				
4-Bromofluorobenzene	*97*	*71-130*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B4-SL-15'**					
Laboratory ID:	12-008-06					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Chloromethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Vinyl Chloride	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromomethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Chloroethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Acetone	ND	0.050	EPA 8260D	12-4-23	12-4-23	
Iodomethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Carbon Disulfide	0.0032	0.0020	EPA 8260D	12-4-23	12-4-23	
Methylene Chloride	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Vinyl Acetate	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
(cis) 1,2-Dichloroethene	ND	0.010	EPA 8260D	12-4-23	12-4-23	
2-Butanone	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Bromochloromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Chloroform	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Benzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Trichloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Dibromomethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromodichloromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
2-Chloroethyl Vinyl Ether	ND	0.0067	EPA 8260D	12-4-23	12-4-23	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Toluene	ND	0.0050	EPA 8260D	12-4-23	12-4-23	

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B4-SL-15'**					
Laboratory ID:	12-008-06					
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Tetrachloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
2-Hexanone	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Dibromochloromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Chlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Ethylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
m,p-Xylene	ND	0.0020	EPA 8260D	12-4-23	12-4-23	
o-Xylene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Styrene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromoform	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Isopropylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
n-Propylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
2-Chlorotoluene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
4-Chlorotoluene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
tert-Butylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
sec-Butylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
p-Isopropyltoluene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
n-Butylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Naphthalene	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*75-130*				
Toluene-d8	*97*	*78-128*				
4-Bromofluorobenzene	*102*	*71-130*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B6-SL-15'**					
Laboratory ID:	12-008-09					
Dichlorodifluoromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Chloromethane	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Vinyl Chloride	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromomethane	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Chloroethane	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Trichlorofluoromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Acetone	ND	0.065	EPA 8260D	12-4-23	12-4-23	
Iodomethane	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Carbon Disulfide	0.0040	0.0026	EPA 8260D	12-4-23	12-4-23	
Methylene Chloride	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
(trans) 1,2-Dichloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Methyl t-Butyl Ether	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Vinyl Acetate	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
2,2-Dichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
(cis) 1,2-Dichloroethene	ND	0.013	EPA 8260D	12-4-23	12-4-23	
2-Butanone	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Bromochloromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Chloroform	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,1-Trichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Carbon Tetrachloride	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloropropene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Benzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Trichloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Dibromomethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromodichloromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
2-Chloroethyl Vinyl Ether	ND	0.0087	EPA 8260D	12-4-23	12-4-23	
(cis) 1,3-Dichloropropene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Methyl Isobutyl Ketone	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Toluene	ND	0.0065	EPA 8260D	12-4-23	12-4-23	

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B6-SL-15'**					
Laboratory ID:	12-008-09					
(trans) 1,3-Dichloropropene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,2-Trichloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Tetrachloroethene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,3-Dichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
2-Hexanone	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Dibromochloromethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromoethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Chlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,1,2-Tetrachloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Ethylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
m,p-Xylene	ND	0.0026	EPA 8260D	12-4-23	12-4-23	
o-Xylene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Styrene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromoform	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Isopropylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Bromobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,1,2,2-Tetrachloroethane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichloropropane	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
n-Propylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
2-Chlorotoluene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
4-Chlorotoluene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,3,5-Trimethylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
tert-Butylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trimethylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
sec-Butylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,3-Dichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
p-Isopropyltoluene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,4-Dichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
n-Butylbenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromo-3-chloropropane	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Hexachlorobutadiene	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
Naphthalene	ND	0.0065	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichlorobenzene	ND	0.0013	EPA 8260D	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-130*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*105*	*71-130*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B7-SL-15'**					
Laboratory ID:	12-008-11					
Dichlorodifluoromethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Chloromethane	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Vinyl Chloride	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Bromomethane	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Chloroethane	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Trichlorofluoromethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Acetone	ND	0.055	EPA 8260D	12-4-23	12-4-23	
Iodomethane	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Carbon Disulfide	0.0033	0.0022	EPA 8260D	12-4-23	12-4-23	
Methylene Chloride	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Methyl t-Butyl Ether	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Vinyl Acetate	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
2,2-Dichloropropane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
(cis) 1,2-Dichloroethene	ND	0.011	EPA 8260D	12-4-23	12-4-23	
2-Butanone	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Bromochloromethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Chloroform	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Carbon Tetrachloride	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloropropene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Benzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloroethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Trichloroethene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloropropane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Dibromomethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Bromodichloromethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
2-Chloroethyl Vinyl Ether	ND	0.0073	EPA 8260D	12-4-23	12-4-23	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Methyl Isobutyl Ketone	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Toluene	ND	0.0055	EPA 8260D	12-4-23	12-4-23	

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B7-SL-15'**					
Laboratory ID:	12-008-11					
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1,2-Trichloroethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Tetrachloroethene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,3-Dichloropropane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
2-Hexanone	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Dibromochloromethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromoethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Chlorobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Ethylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
m,p-Xylene	ND	0.0022	EPA 8260D	12-4-23	12-4-23	
o-Xylene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Styrene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Bromoform	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Isopropylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Bromobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
n-Propylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
2-Chlorotoluene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
4-Chlorotoluene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,3,5-Trimethylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
tert-Butylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trimethylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
sec-Butylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
p-Isopropyltoluene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
n-Butylbenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromo-3-chloropropane	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Hexachlorobutadiene	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
Naphthalene	ND	0.0055	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260D	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*75-130*				
Toluene-d8	*99*	*78-128*				
4-Bromofluorobenzene	*104*	*71-130*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1204S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Chloromethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Vinyl Chloride	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromomethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Chloroethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Acetone	ND	0.050	EPA 8260D	12-4-23	12-4-23	
Iodomethane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Carbon Disulfide	ND	0.0020	EPA 8260D	12-4-23	12-4-23	
Methylene Chloride	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Vinyl Acetate	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
(cis) 1,2-Dichloroethene	ND	0.010	EPA 8260D	12-4-23	12-4-23	
2-Butanone	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Bromochloromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Chloroform	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Benzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Trichloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Dibromomethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromodichloromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
2-Chloroethyl Vinyl Ether	ND	0.0067	EPA 8260D	12-4-23	12-4-23	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Toluene	ND	0.0050	EPA 8260D	12-4-23	12-4-23	

Date of Report: December 21, 2023
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Project: E2023/1103; Port of Pasco Lagoons

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1204S1					
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Tetrachloroethene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
2-Hexanone	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Dibromochloromethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Chlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Ethylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
m,p-Xylene	ND	0.0020	EPA 8260D	12-4-23	12-4-23	
o-Xylene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Styrene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromoform	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Isopropylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Bromobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
n-Propylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
2-Chlorotoluene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
4-Chlorotoluene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
tert-Butylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
sec-Butylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
p-Isopropyltoluene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
n-Butylbenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
Naphthalene	ND	0.0050	EPA 8260D	12-4-23	12-4-23	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	12-4-23	12-4-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*75-130*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*100*	*71-130*				

Date of Report: December 21, 2023
Samples Submitted: December 1, 2023
Laboratory Reference: 2312-008
Project: E2023/1103; Port of Pasco Lagoons

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1204S1									
	SB	SBD	SB	SBD	SB	SBD				
Dichlorodifluoromethane	**0.0610**	**0.0582**	0.0500	0.0500	122	116	30-160	5	26	
Chloromethane	**0.0590**	**0.0542**	0.0500	0.0500	118	108	59-131	8	26	
Vinyl Chloride	**0.0556**	**0.0538**	0.0500	0.0500	111	108	68-136	3	23	
Bromomethane	**0.0486**	**0.0495**	0.0500	0.0500	97	99	48-155	2	32	
Chloroethane	**0.0507**	**0.0523**	0.0500	0.0500	101	105	67-141	3	16	
Trichlorofluoromethane	**0.0545**	**0.0539**	0.0500	0.0500	109	108	76-127	1	19	
1,1-Dichloroethene	**0.0561**	**0.0564**	0.0500	0.0500	112	113	75-129	1	19	
Acetone	**0.0813**	**0.0609**	0.0500	0.0500	163	122	49-158	29	37	I
Iodomethane	**0.0463**	**0.0453**	0.0500	0.0500	93	91	37-140	2	27	
Carbon Disulfide	**0.0400**	**0.0384**	0.0500	0.0500	80	77	41-143	4	19	
Methylene Chloride	**0.0517**	**0.0514**	0.0500	0.0500	103	103	60-124	1	18	
(trans) 1,2-Dichloroethene	**0.0531**	**0.0541**	0.0500	0.0500	106	108	79-133	2	15	
Methyl t-Butyl Ether	**0.0551**	**0.0535**	0.0500	0.0500	110	107	73-125	3	17	
1,1-Dichloroethane	**0.0527**	**0.0534**	0.0500	0.0500	105	107	79-125	1	17	
Vinyl Acetate	**0.0621**	**0.0566**	0.0500	0.0500	124	113	51-145	9	41	
2,2-Dichloropropane	**0.0562**	**0.0566**	0.0500	0.0500	112	113	79-126	1	18	
(cis) 1,2-Dichloroethene	**0.0577**	**0.0580**	0.0500	0.0500	115	116	75-131	1	15	
2-Butanone	**0.0711**	**0.0574**	0.0500	0.0500	142	115	54-145	21	32	
Bromochloromethane	**0.0578**	**0.0578**	0.0500	0.0500	116	116	80-126	0	15	
Chloroform	**0.0524**	**0.0524**	0.0500	0.0500	105	105	80-123	0	15	
1,1,1-Trichloroethane	**0.0509**	**0.0515**	0.0500	0.0500	102	103	78-124	1	21	
Carbon Tetrachloride	**0.0505**	**0.0509**	0.0500	0.0500	101	102	74-127	1	18	
1,1-Dichloropropene	**0.0517**	**0.0500**	0.0500	0.0500	103	100	80-123	3	15	
Benzene	**0.0513**	**0.0506**	0.0500	0.0500	103	101	80-122	1	18	
1,2-Dichloroethane	**0.0550**	**0.0516**	0.0500	0.0500	110	103	75-124	6	15	
Trichloroethene	**0.0515**	**0.0516**	0.0500	0.0500	103	103	80-129	0	18	
1,2-Dichloropropane	**0.0556**	**0.0552**	0.0500	0.0500	111	110	80-123	1	15	
Dibromomethane	**0.0742**	**0.0442**	0.0500	0.0500	148	88	80-123	51	15	I,L
Bromodichloromethane	**0.0563**	**0.0570**	0.0500	0.0500	113	114	80-129	1	15	
(cis) 1,3-Dichloropropene	**0.0499**	**0.0487**	0.0500	0.0500	100	97	80-130	2	15	
Methyl Isobutyl Ketone	**0.0677**	**0.0567**	0.0500	0.0500	135	113	63-137	18	27	
Toluene	**0.0505**	**0.0519**	0.0500	0.0500	101	104	80-120	3	18	
(trans) 1,3-Dichloropropene	**0.0469**	**0.0453**	0.0500	0.0500	94	91	80-124	3	15	

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VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
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Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1204S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1,2-Trichloroethane	**0.0506**	**0.0479**	0.0500	0.0500	101	96	80-120	5	15	
Tetrachloroethene	**0.0510**	**0.0516**	0.0500	0.0500	102	103	77-126	1	15	
1,3-Dichloropropane	**0.0563**	**0.0527**	0.0500	0.0500	113	105	77-123	7	15	
2-Hexanone	**0.0638**	**0.0491**	0.0500	0.0500	128	98	53-137	26	29	
Dibromochloromethane	**0.0486**	**0.0461**	0.0500	0.0500	97	92	80-128	5	16	
1,2-Dibromoethane	**0.0571**	**0.0522**	0.0500	0.0500	114	104	80-122	9	20	
Chlorobenzene	**0.0498**	**0.0509**	0.0500	0.0500	100	102	80-120	2	18	
1,1,1,2-Tetrachloroethane	**0.0537**	**0.0534**	0.0500	0.0500	107	107	80-120	1	15	
Ethylbenzene	**0.0459**	**0.0463**	0.0500	0.0500	92	93	80-120	1	15	
m,p-Xylene	**0.0973**	**0.0977**	0.100	0.100	97	98	80-120	0	15	
o-Xylene	**0.0456**	**0.0460**	0.0500	0.0500	91	92	80-120	1	15	
Styrene	**0.0525**	**0.0529**	0.0500	0.0500	105	106	80-122	1	15	
Bromoform	**0.0533**	**0.0491**	0.0500	0.0500	107	98	78-126	8	15	
Isopropylbenzene	**0.0507**	**0.0502**	0.0500	0.0500	101	100	80-125	1	15	
Bromobenzene	**0.0490**	**0.0477**	0.0500	0.0500	98	95	79-124	3	15	
1,1,2,2-Tetrachloroethane	**0.0566**	**0.0512**	0.0500	0.0500	113	102	75-122	10	17	
1,2,3-Trichloropropane	**0.0536**	**0.0486**	0.0500	0.0500	107	97	72-125	10	20	
n-Propylbenzene	**0.0484**	**0.0485**	0.0500	0.0500	97	97	77-126	0	16	
2-Chlorotoluene	**0.0490**	**0.0489**	0.0500	0.0500	98	98	75-128	0	15	
4-Chlorotoluene	**0.0469**	**0.0477**	0.0500	0.0500	94	95	78-127	2	16	
1,3,5-Trimethylbenzene	**0.0484**	**0.0483**	0.0500	0.0500	97	97	77-128	0	15	
tert-Butylbenzene	**0.0460**	**0.0474**	0.0500	0.0500	92	95	73-130	3	20	
1,2,4-Trimethylbenzene	**0.0476**	**0.0476**	0.0500	0.0500	95	95	77-125	0	16	
sec-Butylbenzene	**0.0460**	**0.0483**	0.0500	0.0500	92	97	75-130	5	17	
1,3-Dichlorobenzene	**0.0486**	**0.0505**	0.0500	0.0500	97	101	78-123	4	17	
p-Isopropyltoluene	**0.0480**	**0.0497**	0.0500	0.0500	96	99	75-130	3	18	
1,4-Dichlorobenzene	**0.0481**	**0.0494**	0.0500	0.0500	96	99	77-121	3	17	
1,2-Dichlorobenzene	**0.0502**	**0.0503**	0.0500	0.0500	100	101	80-120	0	15	
n-Butylbenzene	**0.0503**	**0.0514**	0.0500	0.0500	101	103	76-131	2	20	
1,2-Dibromo-3-chloropropane	**0.0625**	**0.0530**	0.0500	0.0500	125	106	61-137	16	28	
1,2,4-Trichlorobenzene	**0.0500**	**0.0539**	0.0500	0.0500	100	108	77-127	8	17	
Hexachlorobutadiene	**0.0487**	**0.0516**	0.0500	0.0500	97	103	77-125	6	22	
Naphthalene	**0.0554**	**0.0532**	0.0500	0.0500	111	106	68-129	4	19	
1,2,3-Trichlorobenzene	**0.0501**	**0.0532**	0.0500	0.0500	100	106	77-124	6	19	
Surrogate:										
Dibromofluoromethane					*101*	*97*	*75-130*			
Toluene-d8					*98*	*98*	*78-128*			
4-Bromofluorobenzene					*105*	*102*	*71-130*			

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TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B1-SO-25'**					
Laboratory ID:	12-008-02					
Arsenic	**ND**	12	EPA 6010D	12-4-23	12-4-23	
Barium	**57**	2.9	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.58	EPA 6010D	12-4-23	12-4-23	
Chromium	**6.4**	0.58	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.8	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.29	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	12	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.2	EPA 6010D	12-4-23	12-4-23	
Client ID:	**NL-B2-SO-30'**					
Laboratory ID:	12-008-03					
Arsenic	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Barium	**43**	2.7	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.54	EPA 6010D	12-4-23	12-4-23	
Chromium	**7.3**	0.54	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.4	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.27	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.1	EPA 6010D	12-4-23	12-4-23	
Client ID:	**NL-B3-SO-25'**					
Laboratory ID:	12-008-05					
Arsenic	**ND**	12	EPA 6010D	12-4-23	12-4-23	
Barium	**46**	3.1	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.61	EPA 6010D	12-4-23	12-4-23	
Chromium	**7.4**	0.61	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	6.1	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.31	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	12	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.2	EPA 6010D	12-4-23	12-4-23	

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TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B4-SO-25'**					
Laboratory ID:	12-008-07					
Arsenic	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Barium	**39**	2.8	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.56	EPA 6010D	12-4-23	12-4-23	
Chromium	**3.4**	0.56	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.6	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.28	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.1	EPA 6010D	12-4-23	12-4-23	
Client ID:	**SL-B5-SO-20'**					
Laboratory ID:	12-008-08					
Arsenic	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Barium	**34**	2.8	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.56	EPA 6010D	12-4-23	12-4-23	
Chromium	**2.6**	0.56	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.6	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.28	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.1	EPA 6010D	12-4-23	12-4-23	
Client ID:	**SL-B6-SO-20'**					
Laboratory ID:	12-008-10					
Arsenic	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Barium	**43**	2.8	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.56	EPA 6010D	12-4-23	12-4-23	
Chromium	**16**	0.56	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.6	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.28	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.1	EPA 6010D	12-4-23	12-4-23	

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TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SL-B7-SO-20'**					
Laboratory ID:	12-008-12					
Arsenic	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Barium	**31**	2.8	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.56	EPA 6010D	12-4-23	12-4-23	
Chromium	**4.0**	0.56	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.6	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.28	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.1	EPA 6010D	12-4-23	12-4-23	
Client ID:	**SL-B8-SO-20'**					
Laboratory ID:	12-008-13					
Arsenic	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Barium	**30**	2.7	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.54	EPA 6010D	12-4-23	12-4-23	
Chromium	**6.9**	0.54	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.4	EPA 6010D	12-4-23	12-4-23	
Mercury	**ND**	0.27	EPA 7471B	12-4-23	12-4-23	
Selenium	**ND**	11	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.1	EPA 6010D	12-4-23	12-4-23	

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TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1204SM1					
Arsenic	**ND**	10	EPA 6010D	12-4-23	12-4-23	
Barium	**ND**	2.5	EPA 6010D	12-4-23	12-4-23	
Cadmium	**ND**	0.50	EPA 6010D	12-4-23	12-4-23	
Chromium	**ND**	0.50	EPA 6010D	12-4-23	12-4-23	
Lead	**ND**	5.0	EPA 6010D	12-4-23	12-4-23	
Selenium	**ND**	10	EPA 6010D	12-4-23	12-4-23	
Silver	**ND**	1.0	EPA 6010D	12-4-23	12-4-23	
Laboratory ID:	MB1204S1					
Mercury	**ND**	0.25	EPA 7471B	12-4-23	12-4-23	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	12-006-02									
	ORIG	DUP								
Arsenic	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Barium	**79.7**	**75.4**	NA	NA		NA	NA	6	20	
Cadmium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Chromium	**31.7**	**26.9**	NA	NA		NA	NA	16	20	
Lead	**68.4**	**60.8**	NA	NA		NA	NA	12	20	
Selenium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Laboratory ID:	12-009-11									
Mercury	**ND**	**ND**	NA	NA		NA	NA	NA	20	
MATRIX SPIKES										
Laboratory ID:	12-006-02									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**94.3**	**96.8**	100	100	ND	**94**	**97**	75-125	3	20
Barium	**157**	**170**	100	100	79.7	**78**	**90**	75-125	7	20
Cadmium	**49.1**	**49.6**	50.0	50.0	ND	**98**	**99**	75-125	1	20
Chromium	**118**	**121**	100	100	31.7	**87**	**89**	75-125	2	20
Lead	**313**	**315**	250	250	68.4	**98**	**99**	75-125	1	20
Selenium	**94.8**	**94.7**	100	100	ND	**95**	**95**	75-125	0	20
Silver	**23.6**	**23.8**	25.0	25.0	ND	**94**	**95**	75-125	1	20
Laboratory ID:	12-009-11									
Mercury	**0.510**	**0.507**	0.500	0.500	0.00528	**101**	**100**	80-120	1	20

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**NL-B3-SL-20'**					
Laboratory ID:	12-008-04					
Diesel Range Organics	**ND**	29	NWTPH-Dx	12-6-23	12-6-23	
Lube Oil	**140**	58	NWTPH-Dx	12-6-23	12-6-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1206S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	12-6-23	12-6-23	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	12-6-23	12-6-23	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	12-064-01									
	ORIG	DUP								
Diesel Range	**ND**	**ND**	NA	NA		NA	NA	NA	40	
Lube Oil	**92.0**	**ND**	NA	NA		NA	NA	NA	40	
Surrogate:										
o-Terphenyl						*76* *72*	*50-150*			

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% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
NL-B1-SL-20'	12-008-01	**18**	12-4-23
NL-B1-SO-25'	12-008-02	**13**	12-4-23
NL-B2-SO-30'	12-008-03	**8**	12-4-23
NL-B3-SL-20'	12-008-04	**14**	12-4-23
NL-B3-SO-25'	12-008-05	**18**	12-4-23
SL-B4-SL-15'	12-008-06	**16**	12-4-23
SL-B4-SO-25'	12-008-07	**11**	12-4-23
SL-B5-SO-20'	12-008-08	**10**	12-4-23
SL-B6-SL-15'	12-008-09	**19**	12-4-23
SL-B6-SO-20'	12-008-10	**10**	12-4-23
SL-B7-SL-15'	12-008-11	**22**	12-4-23
SL-B7-SO-20'	12-008-12	**10**	12-4-23
SL-B8-SO-20'	12-008-13	**7**	12-4-23

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

December 20, 2023

Enthalpy Analytical - El Dorado Hills
Work Order No. 2312036

Mr. David Baumeister
OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

Dear Mr. Baumeister,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on December 05, 2023 under your Project Name 'E2023/1103 Port of Pasco Lagoons'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at kathy.zipp@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Kathy Zipp
Project Manager

Enthalpy Analytical - EDH Work Order No. 2312036
Case Narrative

Sample Condition on Receipt:

Eight soil samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements. The samples were received in clear glass jars. Authorization to proceed with the analyses was received by email on December 7, 2023.

Analytical Notes:

EPA Method 1613B

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

1,2,3,6,7,8-HxCDF were below 84% in the OPR. The reported sample results for these analytes may be biased low. The recoveries of all other analytes were within the acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2312036-01	NL-B1-SO-25'	28-Nov-23 15:15	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-02	NL-B2-SO-30'	28-Nov-23 16:05	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-03	NL-B3-SO-25'	28-Nov-23 16:50	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-04	SL-B4-SO-25'	29-Nov-23 09:10	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-05	SL-B5-SO-20'	29-Nov-23 09:55	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-06	SL-B6-SO-20'	29-Nov-23 10:40	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-07	SL-B7-SO-20'	29-Nov-23 11:10	05-Dec-23 11:52	Clear Glass Jar, 120mL
2312036-08	SL-B8-SO-20'	29-Nov-23 11:50	05-Dec-23 11:52	Clear Glass Jar, 120mL

ANALYTICAL RESULTS

Sample ID: Method Blank

EPA Method 1613B

Client Data
Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Solid

Laboratory Data
Lab Sample: B23L108-BLK1
QC Batch: B23L108 Date Extracted: 13-Dec-23
Sample Size: 10.0 g Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.105			15-Dec-23 15:55	1
1,2,3,7,8-PeCDD	ND	0.187			15-Dec-23 15:55	1
1,2,3,4,7,8-HxCDD	ND	0.392			15-Dec-23 15:55	1
1,2,3,6,7,8-HxCDD	ND	0.447			15-Dec-23 15:55	1
1,2,3,7,8,9-HxCDD	ND	0.340			15-Dec-23 15:55	1
1,2,3,4,6,7,8-HpCDD	ND	0.461			15-Dec-23 15:55	1
OCDD	ND	0.687			15-Dec-23 15:55	1
2,3,7,8-TCDF	ND	0.112			15-Dec-23 15:55	1
1,2,3,7,8-PeCDF	ND	0.148			15-Dec-23 15:55	1
2,3,4,7,8-PeCDF	ND	0.135			15-Dec-23 15:55	1
1,2,3,4,7,8-HxCDF	ND	0.191			15-Dec-23 15:55	1
1,2,3,6,7,8-HxCDF	ND	0.187			15-Dec-23 15:55	1
2,3,4,6,7,8-HxCDF	ND	0.232			15-Dec-23 15:55	1
1,2,3,7,8,9-HxCDF	ND	0.281			15-Dec-23 15:55	1
1,2,3,4,6,7,8-HpCDF	ND	0.212			15-Dec-23 15:55	1
1,2,3,4,7,8,9-HpCDF	ND	0.338			15-Dec-23 15:55	1
OCDF	ND	0.504			15-Dec-23 15:55	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	0.105				
Total PeCDD	ND	0.187				
Total HxCDD	ND	0.447				
Total HpCDD	ND	0.461				
Total TCDF	ND	0.112				
Total PeCDF	ND	0.148				
Total HxCDF	ND	0.281				
Total HpCDF	ND	0.338				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	116	25 - 164		15-Dec-23 15:55	1
13C-1,2,3,7,8-PeCDD	IS	97.5	25 - 181		15-Dec-23 15:55	1
13C-1,2,3,4,7,8-HxCDD	IS	98.2	32 - 141		15-Dec-23 15:55	1
13C-1,2,3,6,7,8-HxCDD	IS	95.3	28 - 130		15-Dec-23 15:55	1
13C-1,2,3,7,8,9-HxCDD	IS	120	32 - 141		15-Dec-23 15:55	1
13C-1,2,3,4,6,7,8-HpCDD	IS	90.3	23 - 140		15-Dec-23 15:55	1
13C-OCDD	IS	89.7	17 - 157		15-Dec-23 15:55	1
13C-2,3,7,8-TCDF	IS	101	24 - 169		15-Dec-23 15:55	1
13C-1,2,3,7,8-PeCDF	IS	90.7	24 - 185		15-Dec-23 15:55	1
13C-2,3,4,7,8-PeCDF	IS	89.1	21 - 178		15-Dec-23 15:55	1
13C-1,2,3,4,7,8-HxCDF	IS	91.3	26 - 152		15-Dec-23 15:55	1
13C-1,2,3,6,7,8-HxCDF	IS	90.8	26 - 123		15-Dec-23 15:55	1
13C-2,3,4,6,7,8-HxCDF	IS	89.7	28 - 136		15-Dec-23 15:55	1
13C-1,2,3,7,8,9-HxCDF	IS	94.0	29 - 147		15-Dec-23 15:55	1
13C-1,2,3,4,6,7,8-HpCDF	IS	88.2	28 - 143		15-Dec-23 15:55	1
13C-1,2,3,4,7,8,9-HpCDF	IS	88.6	26 - 138		15-Dec-23 15:55	1
13C-OCDF	IS	78.5	17 - 157		15-Dec-23 15:55	1
37Cl-2,3,7,8-TCDD	CRS	109	35 - 197		15-Dec-23 15:55	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: OPR **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Solid

Laboratory Data
Lab Sample: B23L108-BS1
QC Batch: B23L108 Date Extracted: 13-Dec-23 07:34
Sample Size: 10.0 g Column: ZB-DIOXIN

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	16.8	20.0	84.0	67-158		15-Dec-23 12:49	1
1,2,3,7,8-PeCDD	89.3	100	89.3	70-142		15-Dec-23 12:49	1
1,2,3,4,7,8-HxCDD	81.6	100	81.6	70-164		15-Dec-23 12:49	1
1,2,3,6,7,8-HxCDD	84.5	100	84.5	76-134		15-Dec-23 12:49	1
1,2,3,7,8,9-HxCDD	85.1	100	85.1	64-162		15-Dec-23 12:49	1
1,2,3,4,6,7,8-HpCDD	81.7	100	81.7	70-140		15-Dec-23 12:49	1
OCDD	176	200	87.9	78-144		15-Dec-23 12:49	1
2,3,7,8-TCDF	15.2	20.0	76.2	75-158		15-Dec-23 12:49	1
1,2,3,7,8-PeCDF	82.8	100	82.8	80-134		15-Dec-23 12:49	1
2,3,4,7,8-PeCDF	87.4	100	87.4	68-160		15-Dec-23 12:49	1
1,2,3,4,7,8-HxCDF	85.8	100	85.8	72-134		15-Dec-23 12:49	1
1,2,3,6,7,8-HxCDF	83.9	100	83.9	84-130	H	15-Dec-23 12:49	1
2,3,4,6,7,8-HxCDF	83.9	100	83.9	70-156		15-Dec-23 12:49	1
1,2,3,7,8,9-HxCDF	85.1	100	85.1	78-130		15-Dec-23 12:49	1
1,2,3,4,6,7,8-HpCDF	85.1	100	85.1	82-122		15-Dec-23 12:49	1
1,2,3,4,7,8,9-HpCDF	88.5	100	88.5	78-138		15-Dec-23 12:49	1
OCDF	171	200	85.5	63-170		15-Dec-23 12:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	108	20-175		15-Dec-23 12:49	1
13C-1,2,3,7,8-PeCDD	IS	92.9	21-227		15-Dec-23 12:49	1
13C-1,2,3,4,7,8-HxCDD	IS	101	21-193		15-Dec-23 12:49	1
13C-1,2,3,6,7,8-HxCDD	IS	98.6	25-163		15-Dec-23 12:49	1
13C-1,2,3,7,8,9-HxCDD	IS	108	21-193		15-Dec-23 12:49	1
13C-1,2,3,4,6,7,8-HpCDD	IS	83.7	26-166		15-Dec-23 12:49	1
13C-OCDD	IS	81.0	13-199		15-Dec-23 12:49	1
13C-2,3,7,8-TCDF	IS	102	22-152		15-Dec-23 12:49	1
13C-1,2,3,7,8-PeCDF	IS	95.6	21-192		15-Dec-23 12:49	1
13C-2,3,4,7,8-PeCDF	IS	94.5	13-328		15-Dec-23 12:49	1
13C-1,2,3,4,7,8-HxCDF	IS	94.2	19-202		15-Dec-23 12:49	1
13C-1,2,3,6,7,8-HxCDF	IS	91.8	21-159		15-Dec-23 12:49	1
13C-2,3,4,6,7,8-HxCDF	IS	92.6	22-176		15-Dec-23 12:49	1
13C-1,2,3,7,8,9-HxCDF	IS	90.3	17-205		15-Dec-23 12:49	1
13C-1,2,3,4,6,7,8-HpCDF	IS	76.7	21-158		15-Dec-23 12:49	1
13C-1,2,3,4,7,8,9-HpCDF	IS	77.1	20-186		15-Dec-23 12:49	1
13C-OCDF	IS	70.4	13-199		15-Dec-23 12:49	1
37Cl-2,3,7,8-TCDD	CRS	96.4	31-191		15-Dec-23 12:49	1

Sample ID: NL-B1-SO-25'

EPA Method 1613B

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 28-Nov-23 15:15

Laboratory Data

Lab Sample: 2312036-01
QC Batch: B23L108
Sample Size: 12.3 g
% Solids: 85.9
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.119			19-Dec-23 11:45	1
1,2,3,7,8-PeCDD	ND	0.189			19-Dec-23 11:45	1
1,2,3,4,7,8-HxCDD	ND	0.381			19-Dec-23 11:45	1
1,2,3,6,7,8-HxCDD	ND	0.415			19-Dec-23 11:45	1
1,2,3,7,8,9-HxCDD	ND	0.417			19-Dec-23 11:45	1
1,2,3,4,6,7,8-HpCDD	ND	0.409			19-Dec-23 11:45	1
OCDD	1.22			J	19-Dec-23 11:45	1
2,3,7,8-TCDF	ND	0.0973			19-Dec-23 11:45	1
1,2,3,7,8-PeCDF	ND	0.145			19-Dec-23 11:45	1
2,3,4,7,8-PeCDF	ND	0.127			19-Dec-23 11:45	1
1,2,3,4,7,8-HxCDF	ND	0.216			19-Dec-23 11:45	1
1,2,3,6,7,8-HxCDF	ND	0.204			19-Dec-23 11:45	1
2,3,4,6,7,8-HxCDF	ND	0.232			19-Dec-23 11:45	1
1,2,3,7,8,9-HxCDF	ND	0.341			19-Dec-23 11:45	1
1,2,3,4,6,7,8-HpCDF	ND	0.262			19-Dec-23 11:45	1
1,2,3,4,7,8,9-HpCDF	ND	0.361			19-Dec-23 11:45	1
OCDF	ND	0.839			19-Dec-23 11:45	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.000366					
Totals						
Total TCDD	ND	0.119				
Total PeCDD	ND	0.189				
Total HxCDD	ND	0.417				
Total HpCDD	ND	0.409				
Total TCDF	ND	0.0973				
Total PeCDF	ND	0.145				
Total HxCDF	ND	0.341				
Total HpCDF	ND	0.361				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	117	25 - 164		19-Dec-23 11:45	1
13C-1,2,3,7,8-PeCDD	IS	110	25 - 181		19-Dec-23 11:45	1
13C-1,2,3,4,7,8-HxCDD	IS	81.2	32 - 141		19-Dec-23 11:45	1
13C-1,2,3,6,7,8-HxCDD	IS	78.4	28 - 130		19-Dec-23 11:45	1
13C-1,2,3,7,8,9-HxCDD	IS	90.9	32 - 141		19-Dec-23 11:45	1
13C-1,2,3,4,6,7,8-HpCDD	IS	83.6	23 - 140		19-Dec-23 11:45	1
13C-OCDD	IS	66.7	17 - 157		19-Dec-23 11:45	1
13C-2,3,7,8-TCDF	IS	96.7	24 - 169		19-Dec-23 11:45	1
13C-1,2,3,7,8-PeCDF	IS	86.4	24 - 185		19-Dec-23 11:45	1
13C-2,3,4,7,8-PeCDF	IS	86.6	21 - 178		19-Dec-23 11:45	1
13C-1,2,3,4,7,8-HxCDF	IS	91.2	26 - 152		19-Dec-23 11:45	1
13C-1,2,3,6,7,8-HxCDF	IS	92.1	26 - 123		19-Dec-23 11:45	1
13C-2,3,4,6,7,8-HxCDF	IS	93.7	28 - 136		19-Dec-23 11:45	1
13C-1,2,3,7,8,9-HxCDF	IS	85.9	29 - 147		19-Dec-23 11:45	1
13C-1,2,3,4,6,7,8-HpCDF	IS	86.1	28 - 143		19-Dec-23 11:45	1
13C-1,2,3,4,7,8,9-HpCDF	IS	93.6	26 - 138		19-Dec-23 11:45	1
13C-OCDF	IS	72.9	17 - 157		19-Dec-23 11:45	1
37Cl-2,3,7,8-TCDD	CRS	111	35 - 197		19-Dec-23 11:45	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: NL-B2-SO-30' **EPA Method 1613B**

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 28-Nov-23 16:05

Laboratory Data

Lab Sample: 2312036-02
QC Batch: B23L108
Sample Size: 11.2 g
% Solids: 91.8
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.118			16-Dec-23 14:34	1
1,2,3,7,8-PeCDD	ND	0.195			16-Dec-23 14:34	1
1,2,3,4,7,8-HxCDD	ND	0.222			16-Dec-23 14:34	1
1,2,3,6,7,8-HxCDD	ND	0.236			16-Dec-23 14:34	1
1,2,3,7,8,9-HxCDD	ND	0.232			16-Dec-23 14:34	1
1,2,3,4,6,7,8-HpCDD	0.537			J	16-Dec-23 14:34	1
OCDD	5.72				16-Dec-23 14:34	1
2,3,7,8-TCDF	ND	0.103			16-Dec-23 14:34	1
1,2,3,7,8-PeCDF	ND	0.123			16-Dec-23 14:34	1
2,3,4,7,8-PeCDF	ND	0.107			16-Dec-23 14:34	1
1,2,3,4,7,8-HxCDF	ND	0.145			16-Dec-23 14:34	1
1,2,3,6,7,8-HxCDF	ND	0.149			16-Dec-23 14:34	1
2,3,4,6,7,8-HxCDF	ND	0.167			16-Dec-23 14:34	1
1,2,3,7,8,9-HxCDF	ND	0.215			16-Dec-23 14:34	1
1,2,3,4,6,7,8-HpCDF	ND	0.186			16-Dec-23 14:34	1
1,2,3,4,7,8,9-HpCDF	ND	0.242			16-Dec-23 14:34	1
OCDF	ND	0.525			16-Dec-23 14:34	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00709					
Totals						
Total TCDD	ND	0.118				
Total PeCDD	ND	0.195				
Total HxCDD	ND	0.236				
Total HpCDD	1.05			J		
Total TCDF	ND	0.103				
Total PeCDF	ND	0.123				
Total HxCDF	ND	0.215				
Total HpCDF	ND	0.242				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	105	25 - 164		16-Dec-23 14:34	1
13C-1,2,3,7,8-PeCDD	IS	92.0	25 - 181		16-Dec-23 14:34	1
13C-1,2,3,4,7,8-HxCDD	IS	106	32 - 141		16-Dec-23 14:34	1
13C-1,2,3,6,7,8-HxCDD	IS	101	28 - 130		16-Dec-23 14:34	1
13C-1,2,3,7,8,9-HxCDD	IS	109	32 - 141		16-Dec-23 14:34	1
13C-1,2,3,4,6,7,8-HpCDD	IS	84.4	23 - 140		16-Dec-23 14:34	1
13C-OCDD	IS	72.9	17 - 157		16-Dec-23 14:34	1
13C-2,3,7,8-TCDF	IS	108	24 - 169		16-Dec-23 14:34	1
13C-1,2,3,7,8-PeCDF	IS	93.5	24 - 185		16-Dec-23 14:34	1
13C-2,3,4,7,8-PeCDF	IS	97.8	21 - 178		16-Dec-23 14:34	1
13C-1,2,3,4,7,8-HxCDF	IS	98.1	26 - 152		16-Dec-23 14:34	1
13C-1,2,3,6,7,8-HxCDF	IS	94.6	26 - 123		16-Dec-23 14:34	1
13C-2,3,4,6,7,8-HxCDF	IS	93.7	28 - 136		16-Dec-23 14:34	1
13C-1,2,3,7,8,9-HxCDF	IS	92.9	29 - 147		16-Dec-23 14:34	1
13C-1,2,3,4,6,7,8-HpCDF	IS	77.9	28 - 143		16-Dec-23 14:34	1
13C-1,2,3,4,7,8,9-HpCDF	IS	82.5	26 - 138		16-Dec-23 14:34	1
13C-OCDF	IS	68.8	17 - 157		16-Dec-23 14:34	1
37Cl-2,3,7,8-TCDD	CRS	90.0	35 - 197		16-Dec-23 14:34	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: NL-B3-SO-25' **EPA Method 1613B**

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 28-Nov-23 16:50

Laboratory Data

Lab Sample: 2312036-03
QC Batch: B23L108
Sample Size: 12.9 g
% Solids: 82.2
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.109			16-Dec-23 15:20	1
1,2,3,7,8-PeCDD	ND	0.195			16-Dec-23 15:20	1
1,2,3,4,7,8-HxCDD	ND	0.245			16-Dec-23 15:20	1
1,2,3,6,7,8-HxCDD	ND	0.223			16-Dec-23 15:20	1
1,2,3,7,8,9-HxCDD	ND	0.368			16-Dec-23 15:20	1
1,2,3,4,6,7,8-HpCDD	0.525			J	16-Dec-23 15:20	1
OCDD	6.83				16-Dec-23 15:20	1
2,3,7,8-TCDF	ND	0.0973			16-Dec-23 15:20	1
1,2,3,7,8-PeCDF	ND	0.134			16-Dec-23 15:20	1
2,3,4,7,8-PeCDF	ND	0.100			16-Dec-23 15:20	1
1,2,3,4,7,8-HxCDF	ND	0.115			16-Dec-23 15:20	1
1,2,3,6,7,8-HxCDF	ND	0.110			16-Dec-23 15:20	1
2,3,4,6,7,8-HxCDF	ND	0.144			16-Dec-23 15:20	1
1,2,3,7,8,9-HxCDF	ND	0.354			16-Dec-23 15:20	1
1,2,3,4,6,7,8-HpCDF	ND	0.188			16-Dec-23 15:20	1
1,2,3,4,7,8,9-HpCDF	ND	0.205			16-Dec-23 15:20	1
OCDF	ND	0.433			16-Dec-23 15:20	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00730					
Totals						
Total TCDD	ND	0.109				
Total PeCDD	ND		1.40			
Total HxCDD	ND	0.368				
Total HpCDD	1.33			J		
Total TCDF	ND	0.0973				
Total PeCDF	ND		0.503			
Total HxCDF	ND	0.354				
Total HpCDF	0.327			J		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	102	25 - 164		16-Dec-23 15:20	1
13C-1,2,3,7,8-PeCDD	IS	94.5	25 - 181		16-Dec-23 15:20	1
13C-1,2,3,4,7,8-HxCDD	IS	85.3	32 - 141		16-Dec-23 15:20	1
13C-1,2,3,6,7,8-HxCDD	IS	95.6	28 - 130		16-Dec-23 15:20	1
13C-1,2,3,7,8,9-HxCDD	IS	62.0	32 - 141		16-Dec-23 15:20	1
13C-1,2,3,4,6,7,8-HpCDD	IS	70.3	23 - 140		16-Dec-23 15:20	1
13C-OCDD	IS	64.8	17 - 157		16-Dec-23 15:20	1
13C-2,3,7,8-TCDF	IS	116	24 - 169		16-Dec-23 15:20	1
13C-1,2,3,7,8-PeCDF	IS	94.2	24 - 185		16-Dec-23 15:20	1
13C-2,3,4,7,8-PeCDF	IS	118	21 - 178		16-Dec-23 15:20	1
13C-1,2,3,4,7,8-HxCDF	IS	90.2	26 - 152		16-Dec-23 15:20	1
13C-1,2,3,6,7,8-HxCDF	IS	91.0	26 - 123		16-Dec-23 15:20	1
13C-2,3,4,6,7,8-HxCDF	IS	82.4	28 - 136		16-Dec-23 15:20	1
13C-1,2,3,7,8,9-HxCDF	IS	48.5	29 - 147		16-Dec-23 15:20	1
13C-1,2,3,4,6,7,8-HpCDF	IS	74.9	28 - 143		16-Dec-23 15:20	1
13C-1,2,3,4,7,8,9-HpCDF	IS	67.6	26 - 138		16-Dec-23 15:20	1
13C-OCDF	IS	51.6	17 - 157		16-Dec-23 15:20	1
37Cl-2,3,7,8-TCDD	CRS	88.6	35 - 197		16-Dec-23 15:20	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: SL-B4-SO-25'

EPA Method 1613B

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 29-Nov-23 09:10

Laboratory Data

Lab Sample: 2312036-04
QC Batch: B23L108
Sample Size: 11.8 g
% Solids: 90.6
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.102			16-Dec-23 16:07	1
1,2,3,7,8-PeCDD	ND	0.180			16-Dec-23 16:07	1
1,2,3,4,7,8-HxCDD	ND	0.242			16-Dec-23 16:07	1
1,2,3,6,7,8-HxCDD	ND	0.253			16-Dec-23 16:07	1
1,2,3,7,8,9-HxCDD	ND	0.238			16-Dec-23 16:07	1
1,2,3,4,6,7,8-HpCDD	ND	0.307			16-Dec-23 16:07	1
OCDD	1.83			J	16-Dec-23 16:07	1
2,3,7,8-TCDF	ND	0.119			16-Dec-23 16:07	1
1,2,3,7,8-PeCDF	ND	0.137			16-Dec-23 16:07	1
2,3,4,7,8-PeCDF	ND	0.111			16-Dec-23 16:07	1
1,2,3,4,7,8-HxCDF	ND	0.171			16-Dec-23 16:07	1
1,2,3,6,7,8-HxCDF	ND	0.172			16-Dec-23 16:07	1
2,3,4,6,7,8-HxCDF	ND	0.194			16-Dec-23 16:07	1
1,2,3,7,8,9-HxCDF	ND	0.240			16-Dec-23 16:07	1
1,2,3,4,6,7,8-HpCDF	ND	0.174			16-Dec-23 16:07	1
1,2,3,4,7,8,9-HpCDF	ND	0.250			16-Dec-23 16:07	1
OCDF	ND	0.415			16-Dec-23 16:07	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.000549					
Totals						
Total TCDD	ND	0.102				
Total PeCDD	ND	0.180				
Total HxCDD	ND	0.253				
Total HpCDD	ND	0.307				
Total TCDF	ND	0.119				
Total PeCDF	ND	0.137				
Total HxCDF	ND	0.240				
Total HpCDF	ND	0.250				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	107	25 - 164		16-Dec-23 16:07	1
13C-1,2,3,7,8-PeCDD	IS	95.4	25 - 181		16-Dec-23 16:07	1
13C-1,2,3,4,7,8-HxCDD	IS	103	32 - 141		16-Dec-23 16:07	1
13C-1,2,3,6,7,8-HxCDD	IS	99.1	28 - 130		16-Dec-23 16:07	1
13C-1,2,3,7,8,9-HxCDD	IS	110	32 - 141		16-Dec-23 16:07	1
13C-1,2,3,4,6,7,8-HpCDD	IS	82.4	23 - 140		16-Dec-23 16:07	1
13C-OCDD	IS	91.2	17 - 157		16-Dec-23 16:07	1
13C-2,3,7,8-TCDF	IS	96.4	24 - 169		16-Dec-23 16:07	1
13C-1,2,3,7,8-PeCDF	IS	89.4	24 - 185		16-Dec-23 16:07	1
13C-2,3,4,7,8-PeCDF	IS	93.8	21 - 178		16-Dec-23 16:07	1
13C-1,2,3,4,7,8-HxCDF	IS	90.5	26 - 152		16-Dec-23 16:07	1
13C-1,2,3,6,7,8-HxCDF	IS	88.5	26 - 123		16-Dec-23 16:07	1
13C-2,3,4,6,7,8-HxCDF	IS	91.0	28 - 136		16-Dec-23 16:07	1
13C-1,2,3,7,8,9-HxCDF	IS	92.9	29 - 147		16-Dec-23 16:07	1
13C-1,2,3,4,6,7,8-HpCDF	IS	79.1	28 - 143		16-Dec-23 16:07	1
13C-1,2,3,4,7,8,9-HpCDF	IS	72.8	26 - 138		16-Dec-23 16:07	1
13C-OCDF	IS	71.4	17 - 157		16-Dec-23 16:07	1
37Cl-2,3,7,8-TCDD	CRS	99.3	35 - 197		16-Dec-23 16:07	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: SL-B5-SO-20'

EPA Method 1613B

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 29-Nov-23 09:55

Laboratory Data

Lab Sample: 2312036-05
QC Batch: B23L108
Sample Size: 12.9 g
% Solids: 88.5
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.0864			16-Dec-23 16:53	1
1,2,3,7,8-PeCDD	ND	0.153			16-Dec-23 16:53	1
1,2,3,4,7,8-HxCDD	ND	0.236			16-Dec-23 16:53	1
1,2,3,6,7,8-HxCDD	ND	0.292			16-Dec-23 16:53	1
1,2,3,7,8,9-HxCDD	ND	0.247			16-Dec-23 16:53	1
1,2,3,4,6,7,8-HpCDD	ND	0.271			16-Dec-23 16:53	1
OCDD	2.10			J	16-Dec-23 16:53	1
2,3,7,8-TCDF	ND	0.0921			16-Dec-23 16:53	1
1,2,3,7,8-PeCDF	ND	0.148			16-Dec-23 16:53	1
2,3,4,7,8-PeCDF	ND	0.120			16-Dec-23 16:53	1
1,2,3,4,7,8-HxCDF	ND	0.149			16-Dec-23 16:53	1
1,2,3,6,7,8-HxCDF	ND	0.131			16-Dec-23 16:53	1
2,3,4,6,7,8-HxCDF	ND	0.148			16-Dec-23 16:53	1
1,2,3,7,8,9-HxCDF	ND	0.158			16-Dec-23 16:53	1
1,2,3,4,6,7,8-HpCDF	ND	0.171			16-Dec-23 16:53	1
1,2,3,4,7,8,9-HpCDF	ND	0.279			16-Dec-23 16:53	1
OCDF	ND	0.382			16-Dec-23 16:53	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.000630					
Totals						
Total TCDD	ND	0.0864				
Total PeCDD	ND	0.153				
Total HxCDD	ND	0.292				
Total HpCDD	ND	0.271				
Total TCDF	ND	0.0921				
Total PeCDF	ND	0.148				
Total HxCDF	ND	0.158				
Total HpCDF	ND	0.279				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	119	25 - 164		16-Dec-23 16:53	1
13C-1,2,3,7,8-PeCDD	IS	104	25 - 181		16-Dec-23 16:53	1
13C-1,2,3,4,7,8-HxCDD	IS	117	32 - 141		16-Dec-23 16:53	1
13C-1,2,3,6,7,8-HxCDD	IS	100	28 - 130		16-Dec-23 16:53	1
13C-1,2,3,7,8,9-HxCDD	IS	123	32 - 141		16-Dec-23 16:53	1
13C-1,2,3,4,6,7,8-HpCDD	IS	87.7	23 - 140		16-Dec-23 16:53	1
13C-OCDD	IS	90.1	17 - 157		16-Dec-23 16:53	1
13C-2,3,7,8-TCDF	IS	107	24 - 169		16-Dec-23 16:53	1
13C-1,2,3,7,8-PeCDF	IS	92.1	24 - 185		16-Dec-23 16:53	1
13C-2,3,4,7,8-PeCDF	IS	98.3	21 - 178		16-Dec-23 16:53	1
13C-1,2,3,4,7,8-HxCDF	IS	94.3	26 - 152		16-Dec-23 16:53	1
13C-1,2,3,6,7,8-HxCDF	IS	105	26 - 123		16-Dec-23 16:53	1
13C-2,3,4,6,7,8-HxCDF	IS	110	28 - 136		16-Dec-23 16:53	1
13C-1,2,3,7,8,9-HxCDF	IS	126	29 - 147		16-Dec-23 16:53	1
13C-1,2,3,4,6,7,8-HpCDF	IS	86.9	28 - 143		16-Dec-23 16:53	1
13C-1,2,3,4,7,8,9-HpCDF	IS	82.6	26 - 138		16-Dec-23 16:53	1
13C-OCDF	IS	75.0	17 - 157		16-Dec-23 16:53	1
37Cl-2,3,7,8-TCDD	CRS	104	35 - 197		16-Dec-23 16:53	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: SL-B6-SO-20'

EPA Method 1613B

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 29-Nov-23 10:40

Laboratory Data

Lab Sample: 2312036-06
QC Batch: B23L108
Sample Size: 10.8 g
% Solids: 93.2
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.121			16-Dec-23 17:39	1
1,2,3,7,8-PeCDD	ND	0.187			16-Dec-23 17:39	1
1,2,3,4,7,8-HxCDD	ND	0.695			16-Dec-23 17:39	1
1,2,3,6,7,8-HxCDD	0.497			J	16-Dec-23 17:39	1
1,2,3,7,8,9-HxCDD	ND	1.20			16-Dec-23 17:39	1
1,2,3,4,6,7,8-HpCDD	11.7				16-Dec-23 17:39	1
OCDD	149				16-Dec-23 17:39	1
2,3,7,8-TCDF	0.144			J	16-Dec-23 17:39	1
1,2,3,7,8-PeCDF	ND	0.134			16-Dec-23 17:39	1
2,3,4,7,8-PeCDF	ND		0.143		16-Dec-23 17:39	1
1,2,3,4,7,8-HxCDF	ND	0.142			16-Dec-23 17:39	1
1,2,3,6,7,8-HxCDF	ND	0.162			16-Dec-23 17:39	1
2,3,4,6,7,8-HxCDF	ND	0.466			16-Dec-23 17:39	1
1,2,3,7,8,9-HxCDF	ND	0.642			16-Dec-23 17:39	1
1,2,3,4,6,7,8-HpCDF	2.43			J	16-Dec-23 17:39	1
1,2,3,4,7,8,9-HpCDF	ND	0.184			16-Dec-23 17:39	1
OCDF	11.1				16-Dec-23 17:39	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.253					
Totals						
Total TCDD	ND	0.121				
Total PeCDD	ND	0.187				
Total HxCDD	2.04		3.64	J		
Total HpCDD	27.2					
Total TCDF	0.585		0.702			
Total PeCDF	1.63		1.77	J		
Total HxCDF	4.17					
Total HpCDF	10.3					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	120	25 - 164		16-Dec-23 17:39	1
13C-1,2,3,7,8-PeCDD	IS	115	25 - 181		16-Dec-23 17:39	1
13C-1,2,3,4,7,8-HxCDD	IS	51.4	32 - 141		16-Dec-23 17:39	1
13C-1,2,3,6,7,8-HxCDD	IS	109	28 - 130		16-Dec-23 17:39	1
13C-1,2,3,7,8,9-HxCDD	IS	32.9	32 - 141		16-Dec-23 17:39	1
13C-1,2,3,4,6,7,8-HpCDD	IS	90.7	23 - 140		16-Dec-23 17:39	1
13C-OCDD	IS	79.7	17 - 157		16-Dec-23 17:39	1
13C-2,3,7,8-TCDF	IS	116	24 - 169		16-Dec-23 17:39	1
13C-1,2,3,7,8-PeCDF	IS	109	24 - 185		16-Dec-23 17:39	1
13C-2,3,4,7,8-PeCDF	IS	130	21 - 178		16-Dec-23 17:39	1
13C-1,2,3,4,7,8-HxCDF	IS	110	26 - 152		16-Dec-23 17:39	1
13C-1,2,3,6,7,8-HxCDF	IS	89.5	26 - 123		16-Dec-23 17:39	1
13C-2,3,4,6,7,8-HxCDF	IS	41.8	28 - 136		16-Dec-23 17:39	1
13C-1,2,3,7,8,9-HxCDF	IS	36.1	29 - 147		16-Dec-23 17:39	1
13C-1,2,3,4,6,7,8-HpCDF	IS	65.3	28 - 143		16-Dec-23 17:39	1
13C-1,2,3,4,7,8,9-HpCDF	IS	99.7	26 - 138		16-Dec-23 17:39	1
13C-OCDF	IS	68.9	17 - 157		16-Dec-23 17:39	1
37Cl-2,3,7,8-TCDD	CRS	102	35 - 197		16-Dec-23 17:39	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: SL-B7-SO-20'

EPA Method 1613B

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 29-Nov-23 11:10

Laboratory Data

Lab Sample: 2312036-07
QC Batch: B23L108
Sample Size: 10.8 g
% Solids: 93.9
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.117			16-Dec-23 18:26	1
1,2,3,7,8-PeCDD	ND	0.176			16-Dec-23 18:26	1
1,2,3,4,7,8-HxCDD	ND	0.248			16-Dec-23 18:26	1
1,2,3,6,7,8-HxCDD	ND	0.270			16-Dec-23 18:26	1
1,2,3,7,8,9-HxCDD	ND	0.267			16-Dec-23 18:26	1
1,2,3,4,6,7,8-HpCDD	ND	0.322			16-Dec-23 18:26	1
OCDD	2.56			J	16-Dec-23 18:26	1
2,3,7,8-TCDF	ND	0.117			16-Dec-23 18:26	1
1,2,3,7,8-PeCDF	ND	0.114			16-Dec-23 18:26	1
2,3,4,7,8-PeCDF	ND	0.100			16-Dec-23 18:26	1
1,2,3,4,7,8-HxCDF	ND	0.184			16-Dec-23 18:26	1
1,2,3,6,7,8-HxCDF	ND	0.187			16-Dec-23 18:26	1
2,3,4,6,7,8-HxCDF	ND	0.212			16-Dec-23 18:26	1
1,2,3,7,8,9-HxCDF	ND	0.286			16-Dec-23 18:26	1
1,2,3,4,6,7,8-HpCDF	ND	0.179			16-Dec-23 18:26	1
1,2,3,4,7,8,9-HpCDF	ND	0.286			16-Dec-23 18:26	1
OCDF	ND	0.552			16-Dec-23 18:26	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.000768					
Totals						
Total TCDD	ND	0.117				
Total PeCDD	ND	0.176				
Total HxCDD	ND	0.270				
Total HpCDD	ND	0.322				
Total TCDF	ND	0.117				
Total PeCDF	ND	0.114				
Total HxCDF	ND	0.286				
Total HpCDF	ND	0.286				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	113	25 - 164		16-Dec-23 18:26	1
13C-1,2,3,7,8-PeCDD	IS	104	25 - 181		16-Dec-23 18:26	1
13C-1,2,3,4,7,8-HxCDD	IS	101	32 - 141		16-Dec-23 18:26	1
13C-1,2,3,6,7,8-HxCDD	IS	98.0	28 - 130		16-Dec-23 18:26	1
13C-1,2,3,7,8,9-HxCDD	IS	107	32 - 141		16-Dec-23 18:26	1
13C-1,2,3,4,6,7,8-HpCDD	IS	85.3	23 - 140		16-Dec-23 18:26	1
13C-OCDD	IS	86.7	17 - 157		16-Dec-23 18:26	1
13C-2,3,7,8-TCDF	IS	104	24 - 169		16-Dec-23 18:26	1
13C-1,2,3,7,8-PeCDF	IS	97.7	24 - 185		16-Dec-23 18:26	1
13C-2,3,4,7,8-PeCDF	IS	98.9	21 - 178		16-Dec-23 18:26	1
13C-1,2,3,4,7,8-HxCDF	IS	90.5	26 - 152		16-Dec-23 18:26	1
13C-1,2,3,6,7,8-HxCDF	IS	88.0	26 - 123		16-Dec-23 18:26	1
13C-2,3,4,6,7,8-HxCDF	IS	90.0	28 - 136		16-Dec-23 18:26	1
13C-1,2,3,7,8,9-HxCDF	IS	87.7	29 - 147		16-Dec-23 18:26	1
13C-1,2,3,4,6,7,8-HpCDF	IS	87.6	28 - 143		16-Dec-23 18:26	1
13C-1,2,3,4,7,8,9-HpCDF	IS	76.6	26 - 138		16-Dec-23 18:26	1
13C-OCDF	IS	68.3	17 - 157		16-Dec-23 18:26	1
37Cl-2,3,7,8-TCDD	CRS	102	35 - 197		16-Dec-23 18:26	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: SL-B8-SO-20'

EPA Method 1613B

Client Data

Name: OnSite Environmental Inc.
Project: E2023/1103 Port of Pasco Lagoons
Matrix: Soil
Date Collected: 29-Nov-23 11:50

Laboratory Data

Lab Sample: 2312036-08
QC Batch: B23L108
Sample Size: 11.1 g
% Solids: 92.7
Date Received: 05-Dec-23 11:52
Date Extracted: 13-Dec-23
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.153			16-Dec-23 19:12	1
1,2,3,7,8-PeCDD	ND	0.207			16-Dec-23 19:12	1
1,2,3,4,7,8-HxCDD	ND	0.310			16-Dec-23 19:12	1
1,2,3,6,7,8-HxCDD	ND	0.346			16-Dec-23 19:12	1
1,2,3,7,8,9-HxCDD	ND	0.286			16-Dec-23 19:12	1
1,2,3,4,6,7,8-HpCDD	ND	0.388			16-Dec-23 19:12	1
OCDD	1.56			J	16-Dec-23 19:12	1
2,3,7,8-TCDF	ND	0.128			16-Dec-23 19:12	1
1,2,3,7,8-PeCDF	ND	0.154			16-Dec-23 19:12	1
2,3,4,7,8-PeCDF	ND	0.118			16-Dec-23 19:12	1
1,2,3,4,7,8-HxCDF	ND	0.190			16-Dec-23 19:12	1
1,2,3,6,7,8-HxCDF	ND	0.187			16-Dec-23 19:12	1
2,3,4,6,7,8-HxCDF	ND	0.205			16-Dec-23 19:12	1
1,2,3,7,8,9-HxCDF	ND	0.286			16-Dec-23 19:12	1
1,2,3,4,6,7,8-HpCDF	ND	0.206			16-Dec-23 19:12	1
1,2,3,4,7,8,9-HpCDF	ND	0.294			16-Dec-23 19:12	1
OCDF	ND	0.542			16-Dec-23 19:12	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.000468					
Totals						
Total TCDD	ND	0.153				
Total PeCDD	ND	0.207				
Total HxCDD	ND	0.346				
Total HpCDD	ND	0.388				
Total TCDF	ND	0.128				
Total PeCDF	ND	0.154				
Total HxCDF	ND	0.286				
Total HpCDF	ND	0.294				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	120	25 - 164		16-Dec-23 19:12	1
13C-1,2,3,7,8-PeCDD	IS	106	25 - 181		16-Dec-23 19:12	1
13C-1,2,3,4,7,8-HxCDD	IS	108	32 - 141		16-Dec-23 19:12	1
13C-1,2,3,6,7,8-HxCDD	IS	104	28 - 130		16-Dec-23 19:12	1
13C-1,2,3,7,8,9-HxCDD	IS	124	32 - 141		16-Dec-23 19:12	1
13C-1,2,3,4,6,7,8-HpCDD	IS	87.0	23 - 140		16-Dec-23 19:12	1
13C-OCDD	IS	98.3	17 - 157		16-Dec-23 19:12	1
13C-2,3,7,8-TCDF	IS	108	24 - 169		16-Dec-23 19:12	1
13C-1,2,3,7,8-PeCDF	IS	96.8	24 - 185		16-Dec-23 19:12	1
13C-2,3,4,7,8-PeCDF	IS	103	21 - 178		16-Dec-23 19:12	1
13C-1,2,3,4,7,8-HxCDF	IS	97.8	26 - 152		16-Dec-23 19:12	1
13C-1,2,3,6,7,8-HxCDF	IS	96.2	26 - 123		16-Dec-23 19:12	1
13C-2,3,4,6,7,8-HxCDF	IS	97.5	28 - 136		16-Dec-23 19:12	1
13C-1,2,3,7,8,9-HxCDF	IS	94.1	29 - 147		16-Dec-23 19:12	1
13C-1,2,3,4,6,7,8-HpCDF	IS	80.8	28 - 143		16-Dec-23 19:12	1
13C-1,2,3,4,7,8,9-HpCDF	IS	79.1	26 - 138		16-Dec-23 19:12	1
13C-OCDF	IS	71.3	17 - 157		16-Dec-23 19:12	1
37Cl-2,3,7,8-TCDD	CRS	103	35 - 197		16-Dec-23 19:12	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

2312036 2.5°C

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Laboratory Reference #: 12-008

Laboratory: Enthalpy Analytical - El Dorado Hills

Attention: Jennifer Miller

Address: 1104 Windfield Way, El Dorado Hills, CA 95762

Phone Number: (916) 673-1520

Turnaround Request

1 Day 2 Day 3 Day

Standard

Other: _____

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: E2023/1103; Port of Pasco Lagoons

Project Name: _____

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
	NL-B1-SO-25'	11/28/23	15:15	S	1	Dioxins/Furans
	NL-B2-SO-30'	11/28/23	16:05	S	1	Dioxins/Furans
	NL-B3-SO-25'	11/28/23	16:50	S	1	Dioxins/Furans
	SL-B4-SO-25'	11/29/23	9:10	S	1	Dioxins/Furans
	SL-B5-SO-20'	11/29/23	9:55	S	1	Dioxins/Furans
	SL-B6-SO-20'	11/29/23	10:40	S	1	Dioxins/Furans
	SL-B7-SO-20'	11/29/23	11:10	S	1	Dioxins/Furans
	SL-B8-SO-20'	11/29/23	11:50	S	1	Dioxins/Furans

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	12/4/23	1520	EIM
Received by:	UPS			
Relinquished by:	UPS			
Received by: Karen Mc	Enthalpy EDD	12/05/23	11:50 ~~11:52~~ 12/13/23	
Relinquished by:				
Received by:				

Sample Log-In Checklist

ENTHALPY

Page # 1 of 1

Work Order #: 2312036 TAT Std

Samples Arrival:	Date/Time: 12/05/23 11:52	Initials: KR	Location: WR-2 Shelf/Rack: WR

Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
		(UPS)					

Preservation:	Ice	Blue Ice	Techni Ice	Dry Ice	None
		(Blue Ice)			

Temp °C: 2.5 (uncorrected)	Probe used: (Y) / N	Thermometer ID: DT-5
Temp °C: 2.5 (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill ✓ Trk # 1Z 684 E1 W0 1 9879 5042	✓		
Shipping Documentation Present?	✓		

Shipping Container	Enthalpy	Client	Retain	Return	Dispose

Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	Date/Time: 12/06/23 11:58	Initials: KR	Location: WR-2 Shelf/Rack: D-4

COC Anomaly/Sample Acceptance Form completed?	✓		

Comments:

CoC/Label Reconciliation Report WO# 2312036

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2312036-01	A NL-B1-SO-25'	☐ (B)	28-Nov-23 15:15 ☐ (A)	Clear Glass Jar, 120mL	Solid	
2312036-02	A NL-B2-SO-30'	☑	28-Nov-23 16:05 ☐	Clear Glass Jar, 120mL	Solid	
2312036-03	A NL-B3-SO-25'	☑	28-Nov-23 16:50 ☐	Clear Glass Jar, 120mL	Solid	
2312036-04	A SL-B4-SO-25'	☑	29-Nov-23 09:10 ☐	Clear Glass Jar, 120mL	Solid	
2312036-05	A SL-B5-SO-20'	☑	29-Nov-23 09:55 ☐	Clear Glass Jar, 120mL	Solid	
2312036-06	A SL-B6-SO-20'	☐ (C)	29-Nov-23 10:40 ☐	Clear Glass Jar, 120mL	Solid	
2312036-07	A SL-B7-SO-20'	☑	29-Nov-23 11:10 ☐	Clear Glass Jar, 120mL	Solid	
2312036-08	A SL-B8-SO-20'	☑	29-Nov-23 11:50 ☐	Clear Glass Jar, 120mL	Solid	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)			

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Comments:
(A) Date not listed on sample label.
(B) Sample label ID: NL-B1-SO-25
(C) Sample label ID: SL-B6-SO-20
(D) Sample received in clear glass jar.

Verifed by/Date: JT 12/06/23

ENTHALPY ANALYTICAL

ANOMALY FORM

Work Order # 2312036

Initial/Date — The following checked issues were noted during sample receipt and login:

- ☐ **1. The samples were received out of temperature at (WI-PHT):** _____
  Was Ice present: Yes No Melted Blue Ice
- ☐ 2. The Chain-of-Custody (CoC) was not relinquished properly.
- ☐ 3. The CoC did not include collection time(s). 00:00 will be used unless notified otherwise.
- ☐ 4. The sample(s) did not include a sample collection time. All or Sample Name: _____
- ☐ 5. A sample ID discrepancy was found. See the Reconciliation report.
  The CoC Sample ID will be used unless notified otherwise.
- ☐ 6. A sample date and/or time discrepancy was found. See the Reconciliation report.
  The CoC Sample date/time will be used unless notified otherwise.
- ☐ **7. The CoC did not include a sample matrix. The following sample matrix will be used:** _____
- ☐ **8. Insufficent volume received for analysis. All or Sample Name:** _____
- ☐ 9. The backup bottle was received broken. Sample Name: _____
- ☐ **10. CoC not received, illegible or destroyed.**
- ☐ **11. The sample(s) were received out of holding time. All or Sample Name:** _____
- ☐ **12. The CoC did not include an analysis. All or Sample Name:** _____
- ☐ **13. Sample(s) received without collection date. All or Sample Name:** _____
- ☐ **14. Sample(s) not received. All or Sample Name:** _____
- ☐ **15. Sample(s) received broken. All or Sample Name:** _____
- ☑ 12/12/23 **16. An incorrect container-type was used. (All) or Sample Name:** _____
- ☐ 17. The Field Reagent Blank (FRB) preservative was from a different lot than the field samples.
  Will proceed with analysis and narrate unless notified otherwise.
- ☐ 18. Other:

Bolded items require sign-off

Client Contacted: David Baumeister

Date of Contact: 12/07/2023

Lab Project Manager: Kathy Zipp

Resolution:

Notified of anomaly - proceed.

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: BMEC
Project Number: E2023/1103
Project Name: PORT of PASCO LAGOONS
Project Manager: Y. MEYER/B. BERGERON
Sampled by: Y. MEYER

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 12-008

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	DIOXINS/FURANS				% Moisture
1	NL-B1-SL-20'	11-28-23	1510	SOIL	5	X				X																	X
2	NL-B1-SO-25'	↓	1515	↓	3	X		*	*										X				⊗				X
3	NL-B2-SO-~~20'~~ 30' YM		1605		3	X		*	*										X				⊗				X
4	NL-B3-SL-20'		1645		5	X			O	X													⊗				X
5	NL-B3-SO-25'		1650		3	X		*	*										X				⊗				X
6	SL-B4-SL-15'	11-28-23	0855		5	X				X																	X
7	SL-B4-SO-25'	↓	0910		3	X		*	*										X				⊗				X
8	SL-B5-SO-20'		0955		3	X		*	*										X				⊗				X
9	SL-B6-SL-15'		1035		5	X				X																	X
10	SL-B6-SO-20'	↓	1040	↓	3	X		*	*										X				⊗				X

	Signature	Company	Date	Time
Relinquished		BMEC	11-30-23	1400
Received		OSE	12/1/23	1130
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* FOLLOW POSITIVE HCID WITH GX/DX AS NEEDED
⊗ ADDED 12/4/23 NB (STA)
O ADDED 12/6/23 BSE STA

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: BMEC
Project Number: E2023/1103
Project Name: PORT OF PASCO LAGOONS
Project Manager: Y. MEYER / B. BERLERON
Sampled by: Y. MEYER

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 12-008

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (SG Clean-up☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	DIOXINS/FURANS				% Moisture
11	SL-B7-SL-15'	~~11-29-23~~ 11-30-23	1105	SOIL	5	X				X																	X
12	SL-B7-SO-20'	↓	1110	↓	3	X		*	*										X				⊗				X
13	SL-B8-SO-20'	↓	1150	↓	3	X		*	*										X				⊗				X

	Signature	Company	Date	Time
Relinquished		BMEC	~~11-30-23~~ 11-26-23	1400
Received	Michelle Bylin	OSE	12/1/23	1130
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* FOLLOW POSITIVE HCID WITH Gx / Dx AS NEEDED

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
+1 360 577 7222
+1 360 636 1068

January 11, 2024 **R r r r R** K2313619

David Baumeister
Onsite Environmental Incorporated
14648 Northeast 95th Street
Redmond, WA 98052

R r

Dear David,

Enclosed are the results of the sample(s) submitted to our laboratory December 05, 2023
For your reference, these analyses have been assigned our service request number

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

r r d r

Mark Harris
Project Manager

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
+1 360 577 7222
+1 360 636 1068

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Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS
Subcontract Lab Results

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: Onsite Environmental Incorporated
Project: Port of Pasco Lagoons
Sample Matrix: Soil, Water

Service Request: K2313619
Date Received: 12/05/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Eleven soil, water samples were received for analysis at ALS Environmental on 12/05/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Subcontracted Analytical Parameters:

PDBE
This analysis was performed at ALS Burlington, Ontario Laboratory. The data for this analysis is included in the corresponding section of this report.

Organic LC:

Method PFC/537M, 12/19/2023: The detection limit was elevated for all analytes in samples MW1, MW2 and MW3. The samples contained significant levels of sediment on the bottom of the bottles. The initial volume was reduced in order to facilitate loading and eluting the Solid Phase Extraction (SPE) cartridge. The reporting limits were elevated to reflect the reduced initial volume.

The control criteria were exceeded for D9-EtFOSE in Continuing Calibration Verification (CCV) KQ2322231-02. The recovery of the associated native analyte was within control criteria, which indicated the analysis was in control. No further corrective action was appropriate.

Method PFC/537M, 12/19/2023: The upper control criterion was exceeded for 1H, 1H, 2H, 2H-Perfluorododecanesulfonic acid (10:2 FTS) in Continuing Calibration Verification (CCV) KQ2322231-02. The field samples analyzed in this sequence did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Approved by _____ Date 01/11/2024

Chain of Custody

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ALS Environmental

CHAIN OF CUSTODY
134804

001, 002

SR#_____

COC Set_____of_____

COC#_____

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www.alsglobal.com

K23-13019

Project Name	PORT of PASCO LAGOONS
Project Number:	E2023/1103
Project Manager	Y. MEYER/B. BERGERON
Company	BMEC
Address, City, State	PO Box 545/125 MAIN St. WAITSBURG, WA
Phone #	509-520-4466
email	ymeyer@bmecwa.com
Sampler Signature	
Sampler Printed Name	~~Brt~~ YANCY MEYER

CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix	NUMBER OF CONTAINERS	14D PFC/537M / PFAS	999D 160.3 Modified / TS	999D None / Misc Out 1	1 PBDE 1614	2	3	4	5	Remarks
1. NL-B1-SL-20'		11-28 1510 WA	SOIL	2	X	X							
2. NL-B3-SL-20'		11-28 1695 WA	SOIL		X	X							
3. SL-B4-SL-15'		11-29 0955 WA	SOIL		X	X							
4. SL-B6-SL-15'		11-29 1035 WA	SOIL		X	X							
5. SL-B7-SL-15'		11-29 1105 WA	SOIL		X	X							
6. SL-B4-50-25' ~~SL-B6-50-20'~~		11-29 0910 WA ~~11-29 1040 WA~~	SOIL ~~SOIL~~			X		X					
7. SL-B7-50-20'		11-29-1110 WA	SOIL	↓		X		X					
8. MW1		12-4 0845 WA	H_2O	2	X								
9. MW2		12-4 1015 WA	H_2O		X								
10. MW3		12-4 1130 WA	H_2O	↓	X								

Report Requirements

- X I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- X V. EDD

Invoice Information

P.O.# E2023/1103

Bill To: BMEC

PO Box 545/125 MAIN St

WAITSBURG, WA 99361

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard

Requested Report Date

bmecinc@gmail.com ~~bmecinc@gmail.com~~

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature Naomi Pedersen	Signature	Signature	Signature	Signature
Printed Name YANCY MEYER	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm BMEC, INC.	Firm 12/5/23 1000	Firm	Firm	Firm	Firm
Date/Time 12-4-23	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PM DLH

Cooler Receipt and Preservation Form

Client BMEC Service Request K23 13619

Received: 12/5/23 Opened: 12/5/23 By: LP Unloaded: 12/5/23 By: LP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
0.1	—	1801	134802	—	—	787451205993	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* BOXES
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

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Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23 - 11/29/23
Sample Matrix:	Soil	**Date Received:**	12/5/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
NL-B1-SL-20'	K2313619-001	**75.4**	-	-	1	12/06/23 14:26	
NL-B3-SL-20'	K2313619-002	**83.1**	-	-	1	12/06/23 14:26	
SL-B4-SL-15'	K2313619-003	**74.1**	-	-	1	12/06/23 14:26	
SL-B6-SL-15'	K2313619-004	**82.6**	-	-	1	12/06/23 14:26	
SL-B7-SL-15'	K2313619-005	**63.5**	-	-	1	12/06/23 14:26	
SL-B4-50-25-'	K2313619-006	**66.9**	-	-	1	12/06/23 14:26	
SL-B6-50-20'	K2313619-007	**19.6**	-	-	1	12/06/23 14:26	
SL-B7-50-20'	K2313619-008	**22.0**	-	-	1	12/06/23 14:26	

Per and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

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Sample Results

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Organic Compounds by HPLC/MS/MS

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www.alsglobal.com

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23 15:10
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	NL-B1-SL-20'	**Units:**	ng/g
Lab Code:	K2313619-001	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	1.1	0.46	1	12/11/23 13:32	12/8/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluorooctane sulfonic acid (PFOS)	**0.30 J**	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluorononane sulfonic acid (PFNS)	ND U	1.1	0.46	1	12/11/23 13:32	12/8/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluoropentanoic acid (PFPeA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluorohexanoic acid (PFHxA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluoroheptanoic acid (PFHpA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluorooctanoic acid (PFOA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluorononanoic acid (PFNA)	ND U	1.1	0.46	1	12/11/23 13:32	12/8/23	
Perfluorodecanoic acid (PFDA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluorododecanoic acid (PFDOA)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	2.3	1.2	1	12/11/23 13:32	12/8/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	**0.93 J**	1.1	0.46	1	12/11/23 13:32	12/8/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23 15:10
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	NL-B1-SL-20'	**Units:**	ng/g
Lab Code:	K2313619-001	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1.1	0.23	1	12/11/23 13:32	12/8/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1.1	0.12	1	12/11/23 13:32	12/8/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	69	33 - 109	12/11/23 13:32	
18O2-PFHxS	59	36 - 120	12/11/23 13:32	
13C4-PFOS	65	32 - 130	12/11/23 13:32	
13C4-PFBA	64	34 - 116	12/11/23 13:32	
13C5-PFPeA	70	39 - 133	12/11/23 13:32	
13C2-PFHxA	70	32 - 136	12/11/23 13:32	
13C4-PFHpA	82	36 - 133	12/11/23 13:32	
13C4-PFOA	77	31 - 134	12/11/23 13:32	
13C5-PFNA	77	27 - 133	12/11/23 13:32	
13C2-PFDA	80	30 - 137	12/11/23 13:32	
13C2-PFUnDA	79	32 - 146	12/11/23 13:32	
13C2-PFDoDA	80	36 - 136	12/11/23 13:32	
13C2-PFTeDA	91	39 - 138	12/11/23 13:32	
13C8-FOSA	73	40 - 132	12/11/23 13:32	
D3-MeFOSA	71	51 - 132	12/11/23 13:32	
D5-EtFOSA	68	49 - 123	12/11/23 13:32	
D7-MeFOSE	67	53 - 125	12/11/23 13:32	
D9-EtFOSE	70	45 - 121	12/11/23 13:32	
D3-MeFOSAA	100	20 - 154	12/11/23 13:32	
D5-EtFOSAA	110	29 - 153	12/11/23 13:32	
13C2-4:2 FTS	98	18 - 127	12/11/23 13:32	
13C2-6:2 FTS	93	30 - 140	12/11/23 13:32	
13C2-8:2 FTS	111	9 - 171	12/11/23 13:32	
13C3-HFPO-DA	66	33 - 130	12/11/23 13:32	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23 16:45
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	NL-B3-SL-20'	**Units:**	ng/g
Lab Code:	K2313619-002	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	0.99	0.40	1	12/11/23 14:03	12/8/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluorooctane sulfonic acid (PFOS)	**0.16 J**	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluorononane sulfonic acid (PFNS)	ND U	0.99	0.40	1	12/11/23 14:03	12/8/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluoropentanoic acid (PFPeA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluorohexanoic acid (PFHxA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluoroheptanoic acid (PFHpA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluorooctanoic acid (PFOA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluorononanoic acid (PFNA)	ND U	0.99	0.40	1	12/11/23 14:03	12/8/23	
Perfluorodecanoic acid (PFDA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluorododecanoic acid (PFDOA)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	2.0	1.0	1	12/11/23 14:03	12/8/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	0.99	0.40	1	12/11/23 14:03	12/8/23	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23 16:45
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	NL-B3-SL-20'	**Units:**	ng/g
Lab Code:	K2313619-002	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	0.99	0.20	1	12/11/23 14:03	12/8/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	0.99	0.10	1	12/11/23 14:03	12/8/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	66	33 - 109	12/11/23 14:03	
18O2-PFHxS	70	36 - 120	12/11/23 14:03	
13C4-PFOS	61	32 - 130	12/11/23 14:03	
13C4-PFBA	63	34 - 116	12/11/23 14:03	
13C5-PFPeA	69	39 - 133	12/11/23 14:03	
13C2-PFHxA	87	32 - 136	12/11/23 14:03	
13C4-PFHpA	65	36 - 133	12/11/23 14:03	
13C4-PFOA	70	31 - 134	12/11/23 14:03	
13C5-PFNA	76	27 - 133	12/11/23 14:03	
13C2-PFDA	86	30 - 137	12/11/23 14:03	
13C2-PFUnDA	84	32 - 146	12/11/23 14:03	
13C2-PFDoDA	78	36 - 136	12/11/23 14:03	
13C2-PFTeDA	85	39 - 138	12/11/23 14:03	
13C8-FOSA	71	40 - 132	12/11/23 14:03	
D3-MeFOSA	60	51 - 132	12/11/23 14:03	
D5-EtFOSA	60	49 - 123	12/11/23 14:03	
D7-MeFOSE	72	53 - 125	12/11/23 14:03	
D9-EtFOSE	71	45 - 121	12/11/23 14:03	
D3-MeFOSAA	97	20 - 154	12/11/23 14:03	
D5-EtFOSAA	110	29 - 153	12/11/23 14:03	
13C2-4:2 FTS	86	18 - 127	12/11/23 14:03	
13C2-6:2 FTS	78	30 - 140	12/11/23 14:03	
13C2-8:2 FTS	128	9 - 171	12/11/23 14:03	
13C3-HFPO-DA	66	33 - 130	12/11/23 14:03	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/29/23 08:55
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	SL-B4-SL-15'	**Units:**	ng/g
Lab Code:	K2313619-003	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	1.1	0.45	1	12/11/23 14:14	12/8/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluorooctane sulfonic acid (PFOS)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluorononane sulfonic acid (PFNS)	ND U	1.1	0.45	1	12/11/23 14:14	12/8/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluoropentanoic acid (PFPeA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluorohexanoic acid (PFHxA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluoroheptanoic acid (PFHpA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluorooctanoic acid (PFOA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluorononanoic acid (PFNA)	ND U	1.1	0.45	1	12/11/23 14:14	12/8/23	
Perfluorodecanoic acid (PFDA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluorododecanoic acid (PFDOA)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	2.2	1.2	1	12/11/23 14:14	12/8/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	**0.72 J**	1.1	0.45	1	12/11/23 14:14	12/8/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/29/23 08:55
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	SL-B4-SL-15'	**Units:**	ng/g
Lab Code:	K2313619-003	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1.1	0.23	1	12/11/23 14:14	12/8/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1.1	0.12	1	12/11/23 14:14	12/8/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	70	33 - 109	12/11/23 14:14	
18O2-PFHxS	68	36 - 120	12/11/23 14:14	
13C4-PFOS	69	32 - 130	12/11/23 14:14	
13C4-PFBA	66	34 - 116	12/11/23 14:14	
13C5-PFPeA	70	39 - 133	12/11/23 14:14	
13C2-PFHxA	74	32 - 136	12/11/23 14:14	
13C4-PFHpA	81	36 - 133	12/11/23 14:14	
13C4-PFOA	69	31 - 134	12/11/23 14:14	
13C5-PFNA	77	27 - 133	12/11/23 14:14	
13C2-PFDA	89	30 - 137	12/11/23 14:14	
13C2-PFUnDA	82	32 - 146	12/11/23 14:14	
13C2-PFDoDA	85	36 - 136	12/11/23 14:14	
13C2-PFTeDA	89	39 - 138	12/11/23 14:14	
13C8-FOSA	72	40 - 132	12/11/23 14:14	
D3-MeFOSA	66	51 - 132	12/11/23 14:14	
D5-EtFOSA	65	49 - 123	12/11/23 14:14	
D7-MeFOSE	67	53 - 125	12/11/23 14:14	
D9-EtFOSE	77	45 - 121	12/11/23 14:14	
D3-MeFOSAA	95	20 - 154	12/11/23 14:14	
D5-EtFOSAA	101	29 - 153	12/11/23 14:14	
13C2-4:2 FTS	77	18 - 127	12/11/23 14:14	
13C2-6:2 FTS	65	30 - 140	12/11/23 14:14	
13C2-8:2 FTS	98	9 - 171	12/11/23 14:14	
13C3-HFPO-DA	64	33 - 130	12/11/23 14:14	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/29/23 10:35
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	SL-B6-SL-15'	**Units:**	ng/g
Lab Code:	K2313619-004	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	1.1	0.44	1	12/11/23 14:24	12/8/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluorooctane sulfonic acid (PFOS)	**0.21 J**	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluorononane sulfonic acid (PFNS)	ND U	1.1	0.44	1	12/11/23 14:24	12/8/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluoropentanoic acid (PFPeA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluorohexanoic acid (PFHxA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluoroheptanoic acid (PFHpA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluorooctanoic acid (PFOA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluorononanoic acid (PFNA)	ND U	1.1	0.44	1	12/11/23 14:24	12/8/23	
Perfluorodecanoic acid (PFDA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluorododecanoic acid (PFDOA)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	2.2	1.1	1	12/11/23 14:24	12/8/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	1.1	0.44	1	12/11/23 14:24	12/8/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/29/23 10:35
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	SL-B6-SL-15'	**Units:**	ng/g
Lab Code:	K2313619-004	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1.1	0.22	1	12/11/23 14:24	12/8/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1.1	0.11	1	12/11/23 14:24	12/8/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	73	33 - 109	12/11/23 14:24	
18O2-PFHxS	79	36 - 120	12/11/23 14:24	
13C4-PFOS	66	32 - 130	12/11/23 14:24	
13C4-PFBA	67	34 - 116	12/11/23 14:24	
13C5-PFPeA	72	39 - 133	12/11/23 14:24	
13C2-PFHxA	88	32 - 136	12/11/23 14:24	
13C4-PFHpA	72	36 - 133	12/11/23 14:24	
13C4-PFOA	73	31 - 134	12/11/23 14:24	
13C5-PFNA	77	27 - 133	12/11/23 14:24	
13C2-PFDA	86	30 - 137	12/11/23 14:24	
13C2-PFUnDA	84	32 - 146	12/11/23 14:24	
13C2-PFDoDA	81	36 - 136	12/11/23 14:24	
13C2-PFTeDA	92	39 - 138	12/11/23 14:24	
13C8-FOSA	76	40 - 132	12/11/23 14:24	
D3-MeFOSA	70	51 - 132	12/11/23 14:24	
D5-EtFOSA	68	49 - 123	12/11/23 14:24	
D7-MeFOSE	74	53 - 125	12/11/23 14:24	
D9-EtFOSE	81	45 - 121	12/11/23 14:24	
D3-MeFOSAA	92	20 - 154	12/11/23 14:24	
D5-EtFOSAA	111	29 - 153	12/11/23 14:24	
13C2-4:2 FTS	91	18 - 127	12/11/23 14:24	
13C2-6:2 FTS	71	30 - 140	12/11/23 14:24	
13C2-8:2 FTS	98	9 - 171	12/11/23 14:24	
13C3-HFPO-DA	69	33 - 130	12/11/23 14:24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/29/23 11:05
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	SL-B7-SL-15'	**Units:**	ng/g
Lab Code:	K2313619-005	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	1.2	0.50	1	12/11/23 14:35	12/8/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluorooctane sulfonic acid (PFOS)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluorononane sulfonic acid (PFNS)	ND U	1.2	0.50	1	12/11/23 14:35	12/8/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluoropentanoic acid (PFPeA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluorohexanoic acid (PFHxA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluoroheptanoic acid (PFHpA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluorooctanoic acid (PFOA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluorononanoic acid (PFNA)	ND U	1.2	0.50	1	12/11/23 14:35	12/8/23	
Perfluorodecanoic acid (PFDA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluorododecanoic acid (PFDOA)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	2.5	1.3	1	12/11/23 14:35	12/8/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	**2.9**	1.2	0.50	1	12/11/23 14:35	12/8/23	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/29/23 11:05
Sample Matrix:	Soil	**Date Received:**	12/05/23 10:00
Sample Name:	SL-B7-SL-15'	**Units:**	ng/g
Lab Code:	K2313619-005	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1.2	0.25	1	12/11/23 14:35	12/8/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1.2	0.13	1	12/11/23 14:35	12/8/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	61	33 - 109	12/11/23 14:35	
18O2-PFHxS	63	36 - 120	12/11/23 14:35	
13C4-PFOS	58	32 - 130	12/11/23 14:35	
13C4-PFBA	55	34 - 116	12/11/23 14:35	
13C5-PFPeA	62	39 - 133	12/11/23 14:35	
13C2-PFHxA	67	32 - 136	12/11/23 14:35	
13C4-PFHpA	68	36 - 133	12/11/23 14:35	
13C4-PFOA	62	31 - 134	12/11/23 14:35	
13C5-PFNA	66	27 - 133	12/11/23 14:35	
13C2-PFDA	76	30 - 137	12/11/23 14:35	
13C2-PFUnDA	78	32 - 146	12/11/23 14:35	
13C2-PFDoDA	73	36 - 136	12/11/23 14:35	
13C2-PFTeDA	81	39 - 138	12/11/23 14:35	
13C8-FOSA	69	40 - 132	12/11/23 14:35	
D3-MeFOSA	60	51 - 132	12/11/23 14:35	
D5-EtFOSA	65	49 - 123	12/11/23 14:35	
D7-MeFOSE	65	53 - 125	12/11/23 14:35	
D9-EtFOSE	71	45 - 121	12/11/23 14:35	
D3-MeFOSAA	82	20 - 154	12/11/23 14:35	
D5-EtFOSAA	93	29 - 153	12/11/23 14:35	
13C2-4:2 FTS	78	18 - 127	12/11/23 14:35	
13C2-6:2 FTS	71	30 - 140	12/11/23 14:35	
13C2-8:2 FTS	107	9 - 171	12/11/23 14:35	
13C3-HFPO-DA	59	33 - 130	12/11/23 14:35	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	12/04/23 08:45
Sample Matrix:	Water	**Date Received:**	12/05/23 10:00
Sample Name:	MW1	**Units:**	ng/L
Lab Code:	K2313619-009	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	25	1.4	1	12/19/23 20:19	12/18/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	25	8.0	1	12/19/23 20:19	12/18/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	25	6.5	1	12/19/23 20:19	12/18/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	25	2.2	1	12/19/23 20:19	12/18/23	
Perfluorooctane sulfonic acid (PFOS)	**4.6 J**	25	2.2	1	12/19/23 20:19	12/18/23	
Perfluorononane sulfonic acid (PFNS)	ND U	25	3.0	1	12/19/23 20:19	12/18/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	25	1.5	1	12/19/23 20:19	12/18/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	25	2.0	1	12/19/23 20:19	12/18/23	
Perfluoropentanoic acid (PFPeA)	ND U	25	8.5	1	12/19/23 20:19	12/18/23	
Perfluorohexanoic acid (PFHxA)	ND U	50	44	1	12/19/23 20:19	12/18/23	
Perfluoroheptanoic acid (PFHpA)	ND U	25	3.2	1	12/19/23 20:19	12/18/23	
Perfluorooctanoic acid (PFOA)	**2.7 J**	10	1.8	1	12/19/23 20:19	12/18/23	
Perfluorononanoic acid (PFNA)	ND U	25	5.5	1	12/19/23 20:19	12/18/23	
Perfluorodecanoic acid (PFDA)	ND U	25	6.0	1	12/19/23 20:19	12/18/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	25	7.5	1	12/19/23 20:19	12/18/23	
Perfluorododecanoic acid (PFDOA)	ND U	25	6.5	1	12/19/23 20:19	12/18/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	25	6.5	1	12/19/23 20:19	12/18/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	25	10	1	12/19/23 20:19	12/18/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	25	2.6	1	12/19/23 20:19	12/18/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	**2.8 J**	25	2.3	1	12/19/23 20:19	12/18/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	25	1.4	1	12/19/23 20:19	12/18/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	25	1.5	1	12/19/23 20:19	12/18/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	25	0.65	1	12/19/23 20:19	12/18/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	25	7.0	1	12/19/23 20:19	12/18/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	25	2.5	1	12/19/23 20:19	12/18/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	12/04/23 08:45
Sample Matrix:	Water	**Date Received:**	12/05/23 10:00
Sample Name:	MW1	**Units:**	ng/L
Lab Code:	K2313619-009	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	25	4.1	1	12/19/23 20:19	12/18/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	**3.9 J**	25	2.8	1	12/19/23 20:19	12/18/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	25	0.75	1	12/19/23 20:19	12/18/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	25	1.8	1	12/19/23 20:19	12/18/23	*
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	25	1.5	1	12/19/23 20:19	12/18/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	71	20 - 109	12/19/23 20:19	
18O2-PFHxS	85	26 - 122	12/19/23 20:19	
13C4-PFOS	69	25 - 121	12/19/23 20:19	
13C4-PFBA	76	27 - 124	12/19/23 20:19	
13C5-PFPeA	71	27 - 138	12/19/23 20:19	
13C2-PFHxA	90	28 - 132	12/19/23 20:19	
13C4-PFHpA	70	19 - 139	12/19/23 20:19	
13C4-PFOA	69	22 - 130	12/19/23 20:19	
13C5-PFNA	81	20 - 127	12/19/23 20:19	
13C2-PFDA	65	24 - 125	12/19/23 20:19	
13C2-PFUnDA	76	22 - 125	12/19/23 20:19	
13C2-PFDoDA	71	19 - 122	12/19/23 20:19	
13C2-PFTeDA	67	13 - 124	12/19/23 20:19	
13C8-FOSA	65	18 - 109	12/19/23 20:19	
D3-MeFOSA	58	15 - 153	12/19/23 20:19	
D5-EtFOSA	55	25 - 107	12/19/23 20:19	
D7-MeFOSE	58	24 - 112	12/19/23 20:19	
D9-EtFOSE	55	19 - 109	12/19/23 20:19	
D3-MeFOSAA	69	9 - 123	12/19/23 20:19	
D5-EtFOSAA	61	12 - 126	12/19/23 20:19	
13C2-4:2 FTS	72	10 - 197	12/19/23 20:19	
13C2-6:2 FTS	67	10 - 226	12/19/23 20:19	
13C2-8:2 FTS	100	10 - 202	12/19/23 20:19	
13C3-HFPO-DA	63	22 - 135	12/19/23 20:19	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	12/04/23 10:15
Sample Matrix:	Water	**Date Received:**	12/05/23 10:00
Sample Name:	MW2	**Units:**	ng/L
Lab Code:	K2313619-010	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	25	1.4	1	12/19/23 20:51	12/18/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	25	8.0	1	12/19/23 20:51	12/18/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	25	6.5	1	12/19/23 20:51	12/18/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	25	2.2	1	12/19/23 20:51	12/18/23	
Perfluorooctane sulfonic acid (PFOS)	**4.3 J**	25	2.2	1	12/19/23 20:51	12/18/23	
Perfluorononane sulfonic acid (PFNS)	ND U	25	3.0	1	12/19/23 20:51	12/18/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	25	1.5	1	12/19/23 20:51	12/18/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	25	2.0	1	12/19/23 20:51	12/18/23	
Perfluoropentanoic acid (PFPeA)	ND U	25	8.5	1	12/19/23 20:51	12/18/23	
Perfluorohexanoic acid (PFHxA)	ND U	50	44	1	12/19/23 20:51	12/18/23	
Perfluoroheptanoic acid (PFHpA)	ND U	25	3.2	1	12/19/23 20:51	12/18/23	
Perfluorooctanoic acid (PFOA)	**4.1 J**	10	1.8	1	12/19/23 20:51	12/18/23	
Perfluorononanoic acid (PFNA)	ND U	25	5.5	1	12/19/23 20:51	12/18/23	
Perfluorodecanoic acid (PFDA)	ND U	25	6.0	1	12/19/23 20:51	12/18/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	25	7.5	1	12/19/23 20:51	12/18/23	
Perfluorododecanoic acid (PFDOA)	ND U	25	6.5	1	12/19/23 20:51	12/18/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	25	6.5	1	12/19/23 20:51	12/18/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	25	10	1	12/19/23 20:51	12/18/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	25	2.6	1	12/19/23 20:51	12/18/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	**2.8 J**	25	2.3	1	12/19/23 20:51	12/18/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	25	1.4	1	12/19/23 20:51	12/18/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	**1.7 J**	25	1.5	1	12/19/23 20:51	12/18/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	25	0.65	1	12/19/23 20:51	12/18/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	25	7.0	1	12/19/23 20:51	12/18/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	25	2.5	1	12/19/23 20:51	12/18/23	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	12/04/23 10:15
Sample Matrix:	Water	**Date Received:**	12/05/23 10:00
Sample Name:	MW2	**Units:**	ng/L
Lab Code:	K2313619-010	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	25	4.1	1	12/19/23 20:51	12/18/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	25	2.8	1	12/19/23 20:51	12/18/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	25	0.75	1	12/19/23 20:51	12/18/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	25	1.8	1	12/19/23 20:51	12/18/23	*
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	25	1.5	1	12/19/23 20:51	12/18/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	75	20 - 109	12/19/23 20:51	
18O2-PFHxS	78	26 - 122	12/19/23 20:51	
13C4-PFOS	68	25 - 121	12/19/23 20:51	
13C4-PFBA	77	27 - 124	12/19/23 20:51	
13C5-PFPeA	71	27 - 138	12/19/23 20:51	
13C2-PFHxA	77	28 - 132	12/19/23 20:51	
13C4-PFHpA	78	19 - 139	12/19/23 20:51	
13C4-PFOA	70	22 - 130	12/19/23 20:51	
13C5-PFNA	79	20 - 127	12/19/23 20:51	
13C2-PFDA	69	24 - 125	12/19/23 20:51	
13C2-PFUnDA	75	22 - 125	12/19/23 20:51	
13C2-PFDoDA	67	19 - 122	12/19/23 20:51	
13C2-PFTeDA	75	13 - 124	12/19/23 20:51	
13C8-FOSA	65	18 - 109	12/19/23 20:51	
D3-MeFOSA	57	15 - 153	12/19/23 20:51	
D5-EtFOSA	58	25 - 107	12/19/23 20:51	
D7-MeFOSE	65	24 - 112	12/19/23 20:51	
D9-EtFOSE	65	19 - 109	12/19/23 20:51	
D3-MeFOSAA	62	9 - 123	12/19/23 20:51	
D5-EtFOSAA	66	12 - 126	12/19/23 20:51	
13C2-4:2 FTS	74	10 - 197	12/19/23 20:51	
13C2-6:2 FTS	69	10 - 226	12/19/23 20:51	
13C2-8:2 FTS	75	10 - 202	12/19/23 20:51	
13C3-HFPO-DA	67	22 - 135	12/19/23 20:51	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	12/04/23 11:30
Sample Matrix:	Water	**Date Received:**	12/05/23 10:00
Sample Name:	MW3	**Units:**	ng/L
Lab Code:	K2313619-011	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	25	1.4	1	12/19/23 21:22	12/18/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	25	8.0	1	12/19/23 21:22	12/18/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	25	6.5	1	12/19/23 21:22	12/18/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	25	2.2	1	12/19/23 21:22	12/18/23	
Perfluorooctane sulfonic acid (PFOS)	**3.2 J**	25	2.2	1	12/19/23 21:22	12/18/23	
Perfluorononane sulfonic acid (PFNS)	ND U	25	3.0	1	12/19/23 21:22	12/18/23	
Perfluorodecane sulfonic acid (PFDS)	**6.1 J**	25	1.5	1	12/19/23 21:22	12/18/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	25	2.0	1	12/19/23 21:22	12/18/23	
Perfluoropentanoic acid (PFPeA)	ND U	25	8.5	1	12/19/23 21:22	12/18/23	
Perfluorohexanoic acid (PFHxA)	ND U	50	44	1	12/19/23 21:22	12/18/23	
Perfluoroheptanoic acid (PFHpA)	ND U	25	3.2	1	12/19/23 21:22	12/18/23	
Perfluorooctanoic acid (PFOA)	**5.0 J**	10	1.8	1	12/19/23 21:22	12/18/23	
Perfluorononanoic acid (PFNA)	ND U	25	5.5	1	12/19/23 21:22	12/18/23	
Perfluorodecanoic acid (PFDA)	ND U	25	6.0	1	12/19/23 21:22	12/18/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	25	7.5	1	12/19/23 21:22	12/18/23	
Perfluorododecanoic acid (PFDOA)	ND U	25	6.5	1	12/19/23 21:22	12/18/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	25	6.5	1	12/19/23 21:22	12/18/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	25	10	1	12/19/23 21:22	12/18/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	25	2.6	1	12/19/23 21:22	12/18/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	25	2.3	1	12/19/23 21:22	12/18/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	25	1.4	1	12/19/23 21:22	12/18/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	25	1.5	1	12/19/23 21:22	12/18/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	**1.8 J**	25	0.65	1	12/19/23 21:22	12/18/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	25	7.0	1	12/19/23 21:22	12/18/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	25	2.5	1	12/19/23 21:22	12/18/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	12/04/23 11:30
Sample Matrix:	Water	**Date Received:**	12/05/23 10:00
Sample Name:	MW3	**Units:**	ng/L
Lab Code:	K2313619-011	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	25	4.1	1	12/19/23 21:22	12/18/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	25	2.8	1	12/19/23 21:22	12/18/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	25	0.75	1	12/19/23 21:22	12/18/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	25	1.8	1	12/19/23 21:22	12/18/23	*
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	25	1.5	1	12/19/23 21:22	12/18/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	69	20 - 109	12/19/23 21:22	
18O2-PFHxS	76	26 - 122	12/19/23 21:22	
13C4-PFOS	66	25 - 121	12/19/23 21:22	
13C4-PFBA	76	27 - 124	12/19/23 21:22	
13C5-PFPeA	68	27 - 138	12/19/23 21:22	
13C2-PFHxA	73	28 - 132	12/19/23 21:22	
13C4-PFHpA	75	19 - 139	12/19/23 21:22	
13C4-PFOA	66	22 - 130	12/19/23 21:22	
13C5-PFNA	77	20 - 127	12/19/23 21:22	
13C2-PFDA	74	24 - 125	12/19/23 21:22	
13C2-PFUnDA	79	22 - 125	12/19/23 21:22	
13C2-PFDoDA	76	19 - 122	12/19/23 21:22	
13C2-PFTeDA	77	13 - 124	12/19/23 21:22	
13C8-FOSA	65	18 - 109	12/19/23 21:22	
D3-MeFOSA	58	15 - 153	12/19/23 21:22	
D5-EtFOSA	55	25 - 107	12/19/23 21:22	
D7-MeFOSE	63	24 - 112	12/19/23 21:22	
D9-EtFOSE	66	19 - 109	12/19/23 21:22	
D3-MeFOSAA	62	9 - 123	12/19/23 21:22	
D5-EtFOSAA	58	12 - 126	12/19/23 21:22	
13C2-4:2 FTS	70	10 - 197	12/19/23 21:22	
13C2-6:2 FTS	65	10 - 226	12/19/23 21:22	
13C2-8:2 FTS	74	10 - 202	12/19/23 21:22	
13C3-HFPO-DA	63	22 - 135	12/19/23 21:22	

QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Organic Compounds by HPLC/MS/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	NL-B1-SL-20' K2313619-001	NL-B3-SL-20' K2313619-002	SL-B4-SL-15' K2313619-003
13C3-PFBS	33-109	69	66	70
18O2-PFHxS	36-120	59	70	68
13C4-PFOS	32-130	65	61	69
13C4-PFBA	34-116	64	63	66
13C5-PFPeA	39-133	70	69	70
13C2-PFHxA	32-136	70	87	74
13C4-PFHpA	36-133	82	65	81
13C4-PFOA	31-134	77	70	69
13C5-PFNA	27-133	77	76	77
13C2-PFDA	30-137	80	86	89
13C2-PFUnDA	32-146	79	84	82
13C2-PFDoDA	36-136	80	78	85
13C2-PFTeDA	39-138	91	85	89
13C8-FOSA	40-132	73	71	72
D3-MeFOSA	51-132	71	60	66
D5-EtFOSA	49-123	68	60	65
D7-MeFOSE	53-125	67	72	67
D9-EtFOSE	45-121	70	71	77
D3-MeFOSAA	20-154	100	97	95
D5-EtFOSAA	29-153	110	110	101
13C2-4:2 FTS	18-127	98	86	77
13C2-6:2 FTS	30-140	93	78	65
13C2-8:2 FTS	9-171	111	128	98
13C3-HFPO-DA	33-130	66	66	64

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	SL-B6-SL-15' K2313619-004	SL-B7-SL-15' K2313619-005	MW1 K2313619-009
13C3-PFBS	33-109	73	61	
18O2-PFHxS	36-120	79	63	
13C4-PFOS	32-130	66	58	
13C4-PFBA	34-116	67	55	
13C5-PFPeA	39-133	72	62	
13C2-PFHxA	32-136	88	67	
13C4-PFHpA	36-133	72	68	
13C4-PFOA	31-134	73	62	
13C5-PFNA	27-133	77	66	
13C2-PFDA	30-137	86	76	
13C2-PFUnDA	32-146	84	78	
13C2-PFDoDA	36-136	81	73	
13C2-PFTeDA	39-138	92	81	
13C8-FOSA	40-132	76	69	
D3-MeFOSA	51-132	70	60	
D5-EtFOSA	49-123	68	65	
D7-MeFOSE	53-125	74	65	
D9-EtFOSE	45-121	81	71	
D3-MeFOSAA	20-154	92	82	
D5-EtFOSAA	29-153	111	93	
13C2-4:2 FTS	18-127	91	78	
13C2-6:2 FTS	30-140	71	71	
13C2-8:2 FTS	9-171	98	107	
13C3-HFPO-DA	33-130	69	59	

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	MW2 K2313619-010	MW3 K2313619-011	Method Blank KQ2321390-04
13C3-PFBS	33-109			74
18O2-PFHxS	36-120			84
13C4-PFOS	32-130			70
13C4-PFBA	34-116			67
13C5-PFPeA	39-133			73
13C2-PFHxA	32-136			91
13C4-PFHpA	36-133			72
13C4-PFOA	31-134			75
13C5-PFNA	27-133			73
13C2-PFDA	30-137			85
13C2-PFUnDA	32-146			77
13C2-PFDoDA	36-136			75
13C2-PFTeDA	39-138			89
13C8-FOSA	40-132			76
D3-MeFOSA	51-132			77
D5-EtFOSA	49-123			76
D7-MeFOSE	53-125			75
D9-EtFOSE	45-121			80
D3-MeFOSAA	20-154			101
D5-EtFOSAA	29-153			103
13C2-4:2 FTS	18-127			80
13C2-6:2 FTS	30-140			65
13C2-8:2 FTS	9-171			82
13C3-HFPO-DA	33-130			74

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	Method Blank KQ2321945-03	Lab Control Sample KQ2321390-03	Lab Control Sample KQ2321945-01
13C3-PFBS	33-109		77	
18O2-PFHxS	36-120		79	
13C4-PFOS	32-130		68	
13C4-PFBA	34-116		66	
13C5-PFPeA	39-133		76	
13C2-PFHxA	32-136		84	
13C4-PFHpA	36-133		75	
13C4-PFOA	31-134		72	
13C5-PFNA	27-133		76	
13C2-PFDA	30-137		81	
13C2-PFUnDA	32-146		79	
13C2-PFDoDA	36-136		82	
13C2-PFTeDA	39-138		92	
13C8-FOSA	40-132		76	
D3-MeFOSA	51-132		75	
D5-EtFOSA	49-123		76	
D7-MeFOSE	53-125		69	
D9-EtFOSE	45-121		78	
D3-MeFOSAA	20-154		99	
D5-EtFOSAA	29-153		108	
13C2-4:2 FTS	18-127		80	
13C2-6:2 FTS	30-140		66	
13C2-8:2 FTS	9-171		94	
13C3-HFPO-DA	33-130		74	

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	Duplicate Lab Control Sample KQ2321945-02	NL-B1-SL-20' KQ2321390-01	NL-B1-SL-20' KQ2321390-02
13C3-PFBS	33-109		62	62
18O2-PFHxS	36-120		61	74
13C4-PFOS	32-130		60	61
13C4-PFBA	34-116		58	58
13C5-PFPeA	39-133		63	62
13C2-PFHxA	32-136		69	78
13C4-PFHpA	36-133		66	65
13C4-PFOA	31-134		70	69
13C5-PFNA	27-133		71	71
13C2-PFDA	30-137		79	83
13C2-PFUnDA	32-146		76	79
13C2-PFDoDA	36-136		82	77
13C2-PFTeDA	39-138		85	81
13C8-FOSA	40-132		67	67
D3-MeFOSA	51-132		62	60
D5-EtFOSA	49-123		63	62
D7-MeFOSE	53-125		63	65
D9-EtFOSE	45-121		66	68
D3-MeFOSAA	20-154		89	90
D5-EtFOSAA	29-153		96	102
13C2-4:2 FTS	18-127		94	87
13C2-6:2 FTS	30-140		84	83
13C2-8:2 FTS	9-171		116	116
13C3-HFPO-DA	33-130		61	62

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	SL-B6-SL-15' K2313619-004	SL-B7-SL-15' K2313619-005	MW1 K2313619-009
13C3-PFBS	20-109			71
18O2-PFHxS	26-122			85
13C4-PFOS	25-121			69
13C4-PFBA	27-124			76
13C5-PFPeA	27-138			71
13C2-PFHxA	28-132			90
13C4-PFHpA	19-139			70
13C4-PFOA	22-130			69
13C5-PFNA	20-127			81
13C2-PFDA	24-125			65
13C2-PFUnDA	22-125			76
13C2-PFDoDA	19-122			71
13C2-PFTeDA	13-124			67
13C8-FOSA	18-109			65
D3-MeFOSA	15-153			58
D5-EtFOSA	25-107			55
D7-MeFOSE	24-112			58
D9-EtFOSE	19-109			55
D3-MeFOSAA	9-123			69
D5-EtFOSAA	12-126			61
13C2-4:2 FTS	10-197			72
13C2-6:2 FTS	10-226			67
13C2-8:2 FTS	10-202			100
13C3-HFPO-DA	22-135			63

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	MW2 K2313619-010	MW3 K2313619-011	Method Blank KQ2321390-04
13C3-PFBS	20-109	75	69	
18O2-PFHxS	26-122	78	76	
13C4-PFOS	25-121	68	66	
13C4-PFBA	27-124	77	76	
13C5-PFPeA	27-138	71	68	
13C2-PFHxA	28-132	77	73	
13C4-PFHpA	19-139	78	75	
13C4-PFOA	22-130	70	66	
13C5-PFNA	20-127	79	77	
13C2-PFDA	24-125	69	74	
13C2-PFUnDA	22-125	75	79	
13C2-PFDoDA	19-122	67	76	
13C2-PFTeDA	13-124	75	77	
13C8-FOSA	18-109	65	65	
D3-MeFOSA	15-153	57	58	
D5-EtFOSA	25-107	58	55	
D7-MeFOSE	24-112	65	63	
D9-EtFOSE	19-109	65	66	
D3-MeFOSAA	9-123	62	62	
D5-EtFOSAA	12-126	66	58	
13C2-4:2 FTS	10-197	74	70	
13C2-6:2 FTS	10-226	69	65	
13C2-8:2 FTS	10-202	75	74	
13C3-HFPO-DA	22-135	67	63	

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	Method Blank KQ2321945-03	Lab Control Sample KQ2321390-03	Lab Control Sample KQ2321945-01
13C3-PFBS	20-109	62		66
18O2-PFHxS	26-122	69		66
13C4-PFOS	25-121	64		65
13C4-PFBA	27-124	69		74
13C5-PFPeA	27-138	64		67
13C2-PFHxA	28-132	86		79
13C4-PFHpA	19-139	74		79
13C4-PFOA	22-130	68		69
13C5-PFNA	20-127	76		81
13C2-PFDA	24-125	71		83
13C2-PFUnDA	22-125	87		91
13C2-PFDoDA	19-122	82		79
13C2-PFTeDA	13-124	74		77
13C8-FOSA	18-109	66		67
D3-MeFOSA	15-153	56		58
D5-EtFOSA	25-107	56		61
D7-MeFOSE	24-112	56		62
D9-EtFOSE	19-109	54		61
D3-MeFOSAA	9-123	71		76
D5-EtFOSAA	12-126	77		80
13C2-4:2 FTS	10-197	90		88
13C2-6:2 FTS	10-226	69		72
13C2-8:2 FTS	10-202	114		122
13C3-HFPO-DA	22-135	60		59

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2313619
Project: Port of Pasco Lagoons/E2023/1103
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	Duplicate Lab Control Sample KQ2321945-02	NL-B1-SL-20' KQ2321390-01	NL-B1-SL-20' KQ2321390-02
13C3-PFBS	20-109	68		
18O2-PFHxS	26-122	67		
13C4-PFOS	25-121	66		
13C4-PFBA	27-124	73		
13C5-PFPeA	27-138	69		
13C2-PFHxA	28-132	78		
13C4-PFHpA	19-139	86		
13C4-PFOA	22-130	71		
13C5-PFNA	20-127	83		
13C2-PFDA	24-125	86		
13C2-PFUnDA	22-125	86		
13C2-PFDoDA	19-122	81		
13C2-PFTeDA	13-124	75		
13C8-FOSA	18-109	73		
D3-MeFOSA	15-153	55		
D5-EtFOSA	25-107	55		
D7-MeFOSE	24-112	55		
D9-EtFOSE	19-109	61		
D3-MeFOSAA	9-123	76		
D5-EtFOSAA	12-126	73		
13C2-4:2 FTS	10-197	96		
13C2-6:2 FTS	10-226	75		
13C2-8:2 FTS	10-202	148		
13C3-HFPO-DA	22-135	61		

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23
Sample Matrix:	Soil	**Date Received:**	12/05/23
		Date Analyzed:	12/11/23
		Date Extracted:	12/8/23

Duplicate Matrix Spike Summary
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Sample Name:	NL-B1-SL-20'	**Units:**	ng/g
Lab Code:	K2313619-001	**Basis:**	Dry
Analysis Method:	PFC/537M		
Prep Method:	ALS SOP		

		Matrix Spike			Duplicate Matrix Spike					
		KQ2321390-01			KQ2321390-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perfluorobutane sulfonic acid (PFBS)	ND U	8.23	8.43	98	7.49	7.94	94	74-143	9	50
Perfluoropentane sulfonic acid (PFPeS)	ND U	9.54	8.94	107	9.85	8.42	117	48-195	3	50
Perfluorohexane sulfonic acid (PFHxS)	ND U	9.87	8.67	114	7.87	8.17	96	65-154	23	50
Perfluoroheptane sulfonic acid (PFHpS)	ND U	8.13	9.06	90	6.07	8.53	71	55-166	29	50
Perfluorooctane sulfonic acid (PFOS)	0.30 J	11.5	8.83	127	9.41	8.31	110	77-140	20	50
Perfluorononane sulfonic acid (PFNS)	ND U	11.3	9.13	123	8.84	8.60	103	64-161	24	50
Perfluorodecane sulfonic acid (PFDS)	ND U	13.2	9.16	144	9.82	8.63	114	69-154	29	50
Perfluorobutanoic acid (PFBA)	ND U	10.8	9.50	114	9.08	8.95	101	81-148	17	50
Perfluoropentanoic acid (PFPeA)	ND U	9.85	9.50	104	8.95	8.95	100	76-141	10	50
Perfluorohexanoic acid (PFHxA)	ND U	9.60	9.50	101	8.61	8.95	96	78-140	11	50
Perfluoroheptanoic acid (PFHpA)	ND U	10.2	9.50	108	8.98	8.95	100	71-133	13	50
Perfluorooctanoic acid (PFOA)	ND U	10.7	9.50	113	8.80	8.95	98	76-140	20	50
Perfluorononanoic acid (PFNA)	ND U	11.3	9.50	119	9.71	8.95	108	80-141	16	50
Perfluorodecanoic acid (PFDA)	ND U	9.53	9.50	100	8.54	8.95	95	80-142	11	50
Perfluoroundecanoic acid (PFUnDA)	ND U	10.1	9.50	106	8.93	8.95	100	75-147	12	50
Perfluorododecanoic acid (PFDOA)	ND U	8.85	9.50	93	8.22	8.95	92	68-147	7	50
Perfluorotridecanoic acid (PFTrDA)	ND U	9.10	9.50	96	8.72	8.95	98	51-153	4	50
Perfluorotetradecanoic acid (PFTDA)	ND U	9.20	9.50	97	8.77	8.95	98	59-144	5	50
Perfluorooctane sulfonamide (PFOSAm)	ND U	10.8	9.50	114	9.52	8.95	106	70-143	12	50
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	9.81	9.50	103	8.76	8.95	98	72-152	11	50
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	9.93	9.50	105	9.70	8.95	108	73-146	2	50
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	11.7	9.50	124	9.16	8.95	102	56-158	25	50
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	9.96	9.50	105	8.62	8.95	96	52-156	14	50
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	10.8	9.50	114	10.4	8.95	116	70-150	4	50
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.93 J	12.5	9.50	122	9.83	8.95	99	70-151	24	50

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	11/28/23
Sample Matrix:	Soil	**Date Received:**	12/05/23
		Date Analyzed:	12/11/23
		Date Extracted:	12/8/23

Duplicate Matrix Spike Summary
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Sample Name:	NL-B1-SL-20'	**Units:**	ng/g
Lab Code:	K2313619-001	**Basis:**	Dry
Analysis Method:	PFC/537M		
Prep Method:	ALS SOP		

		Matrix Spike KQ2321390-01			Duplicate Matrix Spike KQ2321390-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	10.6	8.90	119	8.07	8.38	96	75-157	27	50
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	10.3	9.03	114	8.57	8.51	101	77-147	18	50
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	9.80	9.12	107	9.43	8.59	110	72-155	4	50
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	13.5	9.18	147	12.7	8.64	147	47-194	6	50
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	9.26	9.50	97	7.74	8.95	86	65-150	18	50

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/g
Lab Code:	KQ2321390-04	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	1.0	0.40	1	12/11/23 13:11	12/8/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluorooctane sulfonic acid (PFOS)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluorononane sulfonic acid (PFNS)	ND U	1.0	0.40	1	12/11/23 13:11	12/8/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluoropentanoic acid (PFPeA)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluorohexanoic acid (PFHxA)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluoroheptanoic acid (PFHpA)	**0.22 J**	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluorooctanoic acid (PFOA)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluorononanoic acid (PFNA)	ND U	1.0	0.40	1	12/11/23 13:11	12/8/23	
Perfluorodecanoic acid (PFDA)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluorododecanoic acid (PFDOA)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	2.0	1.0	1	12/11/23 13:11	12/8/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	1.0	0.40	1	12/11/23 13:11	12/8/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/g
Lab Code:	KQ2321390-04	**Basis:**	Dry

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1.0	0.20	1	12/11/23 13:11	12/8/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1.0	0.10	1	12/11/23 13:11	12/8/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	74	33 - 109	12/11/23 13:11	
18O2-PFHxS	84	36 - 120	12/11/23 13:11	
13C4-PFOS	70	32 - 130	12/11/23 13:11	
13C4-PFBA	67	34 - 116	12/11/23 13:11	
13C5-PFPeA	73	39 - 133	12/11/23 13:11	
13C2-PFHxA	91	32 - 136	12/11/23 13:11	
13C4-PFHpA	72	36 - 133	12/11/23 13:11	
13C4-PFOA	75	31 - 134	12/11/23 13:11	
13C5-PFNA	73	27 - 133	12/11/23 13:11	
13C2-PFDA	85	30 - 137	12/11/23 13:11	
13C2-PFUnDA	77	32 - 146	12/11/23 13:11	
13C2-PFDoDA	75	36 - 136	12/11/23 13:11	
13C2-PFTeDA	89	39 - 138	12/11/23 13:11	
13C8-FOSA	76	40 - 132	12/11/23 13:11	
D3-MeFOSA	77	51 - 132	12/11/23 13:11	
D5-EtFOSA	76	49 - 123	12/11/23 13:11	
D7-MeFOSE	75	53 - 125	12/11/23 13:11	
D9-EtFOSE	80	45 - 121	12/11/23 13:11	
D3-MeFOSAA	101	20 - 154	12/11/23 13:11	
D5-EtFOSAA	103	29 - 153	12/11/23 13:11	
13C2-4:2 FTS	80	18 - 127	12/11/23 13:11	
13C2-6:2 FTS	65	30 - 140	12/11/23 13:11	
13C2-8:2 FTS	82	9 - 171	12/11/23 13:11	
13C3-HFPO-DA	74	33 - 130	12/11/23 13:11	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2321945-03	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	5.0	0.28	1	12/19/23 19:37	12/18/23	
Perfluoropentane sulfonic acid (PFPeS)	ND U	5.0	1.6	1	12/19/23 19:37	12/18/23	
Perfluorohexane sulfonic acid (PFHxS)	ND U	5.0	1.3	1	12/19/23 19:37	12/18/23	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	5.0	0.44	1	12/19/23 19:37	12/18/23	
Perfluorooctane sulfonic acid (PFOS)	ND U	5.0	0.44	1	12/19/23 19:37	12/18/23	
Perfluorononane sulfonic acid (PFNS)	ND U	5.0	0.59	1	12/19/23 19:37	12/18/23	
Perfluorodecane sulfonic acid (PFDS)	ND U	5.0	0.30	1	12/19/23 19:37	12/18/23	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	5.0	0.40	1	12/19/23 19:37	12/18/23	
Perfluoropentanoic acid (PFPeA)	ND U	5.0	1.7	1	12/19/23 19:37	12/18/23	
Perfluorohexanoic acid (PFHxA)	ND U	10	8.8	1	12/19/23 19:37	12/18/23	
Perfluoroheptanoic acid (PFHpA)	ND U	5.0	0.63	1	12/19/23 19:37	12/18/23	
Perfluorooctanoic acid (PFOA)	ND U	2.0	0.35	1	12/19/23 19:37	12/18/23	
Perfluorononanoic acid (PFNA)	ND U	5.0	1.1	1	12/19/23 19:37	12/18/23	
Perfluorodecanoic acid (PFDA)	ND U	5.0	1.2	1	12/19/23 19:37	12/18/23	
Perfluoroundecanoic acid (PFUnDA)	ND U	5.0	1.5	1	12/19/23 19:37	12/18/23	
Perfluorododecanoic acid (PFDOA)	ND U	5.0	1.3	1	12/19/23 19:37	12/18/23	
Perfluorotridecanoic acid (PFTrDA)	ND U	5.0	1.3	1	12/19/23 19:37	12/18/23	
Perfluorotetradecanoic acid (PFTDA)	ND U	5.0	2.0	1	12/19/23 19:37	12/18/23	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	5.0	0.52	1	12/19/23 19:37	12/18/23	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	5.0	0.46	1	12/19/23 19:37	12/18/23	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	5.0	0.27	1	12/19/23 19:37	12/18/23	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	5.0	0.30	1	12/19/23 19:37	12/18/23	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	**0.36 J**	5.0	0.13	1	12/19/23 19:37	12/18/23	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	5.0	1.4	1	12/19/23 19:37	12/18/23	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	5.0	0.50	1	12/19/23 19:37	12/18/23	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2321945-03	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	5.0	0.81	1	12/19/23 19:37	12/18/23	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	5.0	0.55	1	12/19/23 19:37	12/18/23	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	5.0	0.15	1	12/19/23 19:37	12/18/23	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	5.0	0.35	1	12/19/23 19:37	12/18/23	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	5.0	0.29	1	12/19/23 19:37	12/18/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	62	20 - 109	12/19/23 19:37	
18O2-PFHxS	69	26 - 122	12/19/23 19:37	
13C4-PFOS	64	25 - 121	12/19/23 19:37	
13C4-PFBA	69	27 - 124	12/19/23 19:37	
13C5-PFPeA	64	27 - 138	12/19/23 19:37	
13C2-PFHxA	86	28 - 132	12/19/23 19:37	
13C4-PFHpA	74	19 - 139	12/19/23 19:37	
13C4-PFOA	68	22 - 130	12/19/23 19:37	
13C5-PFNA	76	20 - 127	12/19/23 19:37	
13C2-PFDA	71	24 - 125	12/19/23 19:37	
13C2-PFUnDA	87	22 - 125	12/19/23 19:37	
13C2-PFDoDA	82	19 - 122	12/19/23 19:37	
13C2-PFTeDA	74	13 - 124	12/19/23 19:37	
13C8-FOSA	66	18 - 109	12/19/23 19:37	
D3-MeFOSA	56	15 - 153	12/19/23 19:37	
D5-EtFOSA	56	25 - 107	12/19/23 19:37	
D7-MeFOSE	56	24 - 112	12/19/23 19:37	
D9-EtFOSE	54	19 - 109	12/19/23 19:37	
D3-MeFOSAA	71	9 - 123	12/19/23 19:37	
D5-EtFOSAA	77	12 - 126	12/19/23 19:37	
13C2-4:2 FTS	90	10 - 197	12/19/23 19:37	
13C2-6:2 FTS	69	10 - 226	12/19/23 19:37	
13C2-8:2 FTS	114	10 - 202	12/19/23 19:37	
13C3-HFPO-DA	60	22 - 135	12/19/23 19:37	

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QA/QC Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Analyzed:**	12/11/23
Sample Matrix:	Soil	**Date Extracted:**	12/08/23

Lab Control Sample Summary
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method:	PFC/537M	**Units:**	ng/g
Prep Method:	ALS SOP	**Basis:**	Dry
		Analysis Lot:	827129

Lab Control Sample
KQ2321390-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	7.53	7.68	98	72-155
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	11.8	7.73	152	47-194
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	9.05	7.50	121	75-157
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	8.58	7.61	113	77-147
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	6.91	8.00	86	65-150
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	7.88	8.00	98	73-146
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	8.90	8.00	111	70-151
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	8.69	8.00	109	52-156
N-Methylperfluorooctane sulfonamide (MeFOSA)	8.11	8.00	101	72-152
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	9.04	8.00	113	70-150
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	9.88	8.00	123	56-158
Perfluorobutane sulfonic acid (PFBS)	6.47	7.10	91	74-143
Perfluorobutanoic acid (PFBA)	9.29	8.00	116	81-148
Perfluorodecane sulfonic acid (PFDS)	10.4	7.72	135	69-154
Perfluorodecanoic acid (PFDA)	8.59	8.00	107	80-142
Perfluorododecanoic acid (PFDOA)	8.65	8.00	108	68-147
Perfluoroheptane sulfonic acid (PFHpS)	6.26	7.63	82	55-166
Perfluoroheptanoic acid (PFHpA)	8.12	8.00	101	71-133
Perfluorohexane sulfonic acid (PFHxS)	9.03	7.30	124	65-154
Perfluorohexanoic acid (PFHxA)	9.58	8.00	120	78-140
Perfluorononane sulfonic acid (PFNS)	8.70	7.69	113	64-161
Perfluorononanoic acid (PFNA)	9.06	8.00	113	80-141
Perfluorooctane sulfonamide (PFOSAm)	8.37	8.00	105	70-143
Perfluorooctane sulfonic acid (PFOS)	8.89	7.43	120	77-140
Perfluorooctanoic acid (PFOA)	8.98	8.00	112	76-140
Perfluoropentane sulfonic acid (PFPeS)	7.84	7.53	104	48-195
Perfluoropentanoic acid (PFPeA)	8.21	8.00	103	76-141
Perfluorotetradecanoic acid (PFTDA)	7.93	8.00	99	59-144
Perfluorotridecanoic acid (PFTrDA)	7.61	8.00	95	51-153
Perfluoroundecanoic acid (PFUnDA)	8.95	8.00	112	75-147

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QA/QC Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2313619
Project:	Port of Pasco Lagoons/E2023/1103	**Date Analyzed:**	12/19/23
Sample Matrix:	Water	**Date Extracted:**	12/18/23

Duplicate Lab Control Sample Summary
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method:	PFC/537M	**Units:**	ng/L
Prep Method:	ALS SOP	**Basis:**	NA
		Analysis Lot:	827748

	Lab Control Sample KQ2321945-01			Duplicate Lab Control Sample KQ2321945-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	29.2	30.7	95	29.5	30.7	96	65-166	<1	30
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	27.7	30.9	90	21.9	30.9	71	37-194	23	30
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	31.3	30.0	104	30.2	30.0	101	80-154	4	30
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	30.0	30.4	99	31.0	30.4	102	77-150	3	30
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	29.2	32.0	91	29.3	32.0	91	66-146	<1	30
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	31.8	32.0	99	32.6	32.0	102	73-145	2	30
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	31.6	32.0	99	42.0	32.0	131	68-149	28	30
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	30.8	32.0	96	30.9	32.0	97	37-172	<1	30
N-Methylperfluorooctane sulfonamide (MeFOSA)	32.4	32.0	101	32.3	32.0	101	66-142	<1	30
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	34.0	32.0	106	31.7	32.0	99	66-162	7	30
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	31.2	32.0	98	35.0	32.0	109	38-163	11	30
Perfluorobutane sulfonic acid (PFBS)	24.9	28.4	88	25.3	28.4	89	67-145	2	30
Perfluorobutanoic acid (PFBA)	31.2	32.0	97	31.6	32.0	99	81-139	1	30
Perfluorodecane sulfonic acid (PFDS)	34.3	30.9	111	35.0	30.9	113	60-129	2	30
Perfluorodecanoic acid (PFDA)	28.4	32.0	89	30.4	32.0	95	68-152	7	30
Perfluorododecanoic acid (PFDOA)	28.7	32.0	90	26.8	32.0	84	66-142	7	30
Perfluoroheptane sulfonic acid (PFHpS)	25.7	30.5	84	27.1	30.5	89	60-162	5	30
Perfluoroheptanoic acid (PFHpA)	29.9	32.0	94	29.8	32.0	93	64-147	<1	30
Perfluorohexane sulfonic acid (PFHxS)	25.5	29.2	87	28.1	29.2	96	65-148	9	30
Perfluorohexanoic acid (PFHxA)	28.6	32.0	89	29.1	32.0	91	65-149	2	30
Perfluorononane sulfonic acid (PFNS)	29.2	30.8	95	30.8	30.8	100	67-136	5	30
Perfluorononanoic acid (PFNA)	30.5	32.0	95	30.5	32.0	95	72-145	<1	30
Perfluorooctane sulfonamide (PFOSAm)	31.9	32.0	100	33.0	32.0	103	71-134	4	30
Perfluorooctane sulfonic acid (PFOS)	30.5	29.7	103	31.4	29.7	106	67-135	3	30
Perfluorooctanoic acid (PFOA)	30.0	32.0	94	30.8	32.0	96	59-147	3	30
Perfluoropentane sulfonic acid (PFPeS)	28.1	30.1	93	29.9	30.1	99	42-202	6	30
Perfluoropentanoic acid (PFPeA)	32.0	32.0	100	31.5	32.0	98	66-159	2	30
Perfluorotetradecanoic acid (PFTDA)	29.9	32.0	94	30.8	32.0	96	61-148	3	30
Perfluorotridecanoic acid (PFTrDA)	29.9	32.0	93	31.9	32.0	100	64-153	6	30
Perfluoroundecanoic acid (PFUnDA)	29.1	32.0	91	31.2	32.0	98	68-145	7	30

Subcontract Lab Results

ALS Environmental—Kelso Laboratory
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ALS Environmental - Kelso
ATTN: Mark Harris
1317 South 13th Avenue
Kelso WA 98626

Date Received: 08-DEC-23
Report Date: 10-JAN-24 11:36 (MT)
Version: FINAL

Client Phone: 360-577-7222

Certificate of Analysis

Lab Work Order #: L2753951

Project P.O. #: 51K2313619
Job Reference: K2313619
C of C Numbers:
Legal Site Desc:

Claire Kocharakkal, B.Sc.
Project Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2753951-1 SL-B4-50-25'							
Sampled By: Client on 29-NOV-23 @ 09:10							
Matrix: Sediment							
Miscellaneous Parameters							
% Moisture	12.2		0.10	%	22-DEC-23	28-DEC-23	R5973476
PBDEs by EPA 1614							
BDE 10	<0.017	[U]	0.017	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 7	<0.016	[U]	0.016	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 8/11	<0.011	[U]	0.011	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 12/13	<0.0098	[U]	0.0098	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 15	<0.0083	[U]	0.0083	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 30	<0.031	[U]	0.031	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 32	<0.022	[U]	0.022	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 17/25	<0.028	[U]	0.028	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 28/33	<0.026	[U]	0.026	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 35	<0.018	[U]	0.018	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 37	<0.018	[U]	0.018	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 75	<0.034	[U]	0.034	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 51	<0.029	[U]	0.029	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 49	<0.043	[U]	0.043	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 71	<0.045	[U]	0.045	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 47	0.170	J,R	0.033	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 79	<0.028	[U]	0.028	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 83	<0.039	[U]	0.039	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 66	<0.049	[U]	0.049	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 77	<0.029	[U]	0.029	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 100	0.050	M,J,R	0.014	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 119/120	<0.028	[U]	0.028	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 99	0.220	J,R	0.019	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 116	<0.045	[U]	0.045	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 118	<0.033	[U]	0.033	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 85	<0.028	[U]	0.028	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 126	<0.019	[U]	0.019	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 105	<0.035	[U]	0.035	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 155	<0.018	[U]	0.018	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 154	<0.020	[U]	0.020	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 153	<0.068	[U]	0.068	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 140	<0.050	[U]	0.050	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 138/166	<0.086	[U]	0.086	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 156	<0.13	[U]	0.13	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 128	<0.11	[U]	0.11	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 184	<0.038	[U]	0.038	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 183	<0.056	[U]	0.056	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 191	<0.087	[U]	0.087	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 181	<0.081	[U]	0.081	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 190	<0.12	[U]	0.12	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 197	<0.078	[U]	0.078	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 203	<0.11	[U]	0.11	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 196	<0.093	[U]	0.093	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 208	<0.15	[U]	0.15	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 207	<0.14	[U]	0.14	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 206	<0.16	[U]	0.16	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 209	<7.5	[U]	7.5	pg/g	22-DEC-23	05-JAN-24	R5974016
PBEB	<0.017	[U]	0.017	pg/g	22-DEC-23	05-JAN-24	R5974016
HBB	0.280	J,B	0.029	pg/g	22-DEC-23	05-JAN-24	R5974016

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2753951-1 SL-B4-50-25'							
Sampled By: Client on 29-NOV-23 @ 09:10							
Matrix: Sediment							
PBDEs by EPA 1614							
Surrogate: 13C12 BDE 15	64.0		20-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 28	62.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 47	59.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 77	62.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 100	48.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 99	55.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 126	54.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 154	68.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 153	58.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 183	61.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 197	76.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 207	70.0		20-200	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 209	10.0	G	20-200	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C6 HBB	58.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 138 Cleanup	72.0		30-135	%	22-DEC-23	05-JAN-24	R5974016
Note: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently recovery corrected.							
L2753951-2 SL-B6-50-20'							
Sampled By: Client on 29-NOV-23 @ 16:40							
Matrix: Sediment							
Miscellaneous Parameters							
% Moisture	13.9		0.10	%	22-DEC-23	28-DEC-23	R5973476
PBDEs by EPA 1614							
BDE 10	<0.0098	[U]	0.0098	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 7	0.0932	M,J	0.0091	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 8/11	0.0469	M,J	0.0064	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 12/13	0.0220	M,J,R	0.0055	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 15	0.0313	M,J	0.0046	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 30	<0.025	[U]	0.025	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 32	0.049	M,J,R	0.018	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 17/25	0.250	J,R	0.022	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 28/33	0.140	J,R	0.022	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 35	0.480	J,R	0.015	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 37	<0.015	[U]	0.015	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 75	<0.028	[U]	0.028	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 51	0.087	M,J	0.024	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 49	1.36	[J]	0.036	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 71	<0.037	[U]	0.037	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 47	8.16		0.025	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 79	<0.023	[U]	0.023	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 83	<0.054	[U]	0.054	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 66	0.211	[J]	0.040	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 77	<0.026	[U]	0.026	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 100	2.95	[J]	0.020	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 119/120	<0.039	[U]	0.039	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 99	13.1		0.026	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 116	<0.062	[U]	0.062	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 118	<0.045	[U]	0.045	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 85	0.365	[J]	0.038	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 126	<0.025	[U]	0.025	pg/g	22-DEC-23	05-JAN-24	R5974016

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2753951-2 SL-B6-50-20'							
Sampled By: Client on 29-NOV-23 @ 16:40							
Matrix: Sediment							
PBDEs by EPA 1614							
BDE 105	<0.048	[U]	0.048	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 155	0.082	M,J	0.014	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 154	1.05	[J]	0.017	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 153	1.45	[J]	0.063	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 140	<0.051	[U]	0.051	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 138/166	<0.087	[U]	0.087	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 156	<0.13	[U]	0.13	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 128	<0.11	[U]	0.11	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 184	<0.027	[U]	0.027	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 183	0.570	J,R	0.040	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 191	0.094	M,J,R	0.062	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 181	<0.058	[U]	0.058	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 190	<0.087	[U]	0.087	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 197	0.529	[J]	0.058	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 203	0.940	J,R	0.081	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 196	0.860	[J]	0.070	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 208	0.83	[J]	0.12	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 207	1.90	J,R	0.11	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 206	2.30	[J]	0.13	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 209	39.9		0.76	pg/g	22-DEC-23	05-JAN-24	R5974016
PBEB	0.040	M,J	0.013	pg/g	22-DEC-23	05-JAN-24	R5974016
HBB	0.382	J,B	0.017	pg/g	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 15	76.0		20-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 28	78.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 47	71.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 77	78.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 100	59.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 99	67.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 126	68.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 154	76.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 153	72.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 183	71.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 197	96.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 207	74.0		20-200	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 209	42.0		20-200	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C6 HBB	85.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 138 Cleanup	89.0		30-135	%	22-DEC-23	05-JAN-24	R5974016
L2753951-3 SL-B7-50-20'							
Sampled By: Client on 29-NOV-23 @ 11:10							
Matrix: Sediment							
Miscellaneous Parameters							
% Moisture	15.2		0.10	%	22-DEC-23	28-DEC-23	R5973476
PBDEs by EPA 1614							
BDE 10	<0.027	[U]	0.027	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 7	<0.025	[U]	0.025	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 8/11	<0.018	[U]	0.018	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 12/13	<0.015	[U]	0.015	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 15	<0.013	[U]	0.013	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 30	<0.042	[U]	0.042	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 32	<0.030	[U]	0.030	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 17/25	<0.038	[U]	0.038	pg/g	22-DEC-23	05-JAN-24	R5974016

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2753951-3 SL-B7-50-20'							
Sampled By: Client on 29-NOV-23 @ 11:10							
Matrix: Sediment							
PBDEs by EPA 1614							
BDE 28/33	<0.036	[U]	0.036	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 35	0.044	M,J,R	0.025	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 37	<0.025	[U]	0.025	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 75	<0.052	[U]	0.052	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 51	<0.044	[U]	0.044	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 49	<0.066	[U]	0.066	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 71	<0.069	[U]	0.069	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 47	0.438	J,B	0.043	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 79	<0.042	[U]	0.042	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 83	<0.070	[U]	0.070	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 66	<0.074	[U]	0.074	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 77	<0.051	[U]	0.051	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 100	0.185	M,J	0.025	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 119/120	<0.051	[U]	0.051	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 99	0.536	[J]	0.033	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 116	<0.082	[U]	0.082	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 118	<0.059	[U]	0.059	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 85	<0.050	[U]	0.050	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 126	<0.034	[U]	0.034	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 105	<0.063	[U]	0.063	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 155	<0.042	[U]	0.042	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 154	<0.050	[U]	0.050	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 153	<0.15	[U]	0.15	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 140	<0.11	[U]	0.11	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 138/166	<0.19	[U]	0.19	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 156	<0.29	[U]	0.29	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 128	<0.24	[U]	0.24	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 184	<0.068	[U]	0.068	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 183	<0.10	[U]	0.10	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 191	<0.16	[U]	0.16	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 181	<0.15	[U]	0.15	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 190	<0.22	[U]	0.22	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 197	<0.20	[U]	0.20	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 203	<0.27	[U]	0.27	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 196	<0.23	[U]	0.23	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 208	<0.32	[U]	0.32	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 207	<0.31	[U]	0.31	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 206	<0.34	[U]	0.34	pg/g	22-DEC-23	05-JAN-24	R5974016
BDE 209	16.4	M	5.3	pg/g	22-DEC-23	05-JAN-24	R5974016
PBEB	<0.055	[U]	0.055	pg/g	22-DEC-23	05-JAN-24	R5974016
HBB	0.220	M,J,B	0.086	pg/g	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 15	67.0		20-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 28	65.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 47	54.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 77	55.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 100	45.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 99	51.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 126	47.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 154	59.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 153	49.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 183	49.0		25-150	%	22-DEC-23	05-JAN-24	R5974016

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2753951-3 SL-B7-50-20'							
Sampled By: Client on 29-NOV-23 @ 11:10							
Matrix: Sediment							
PBDEs by EPA 1614							
Surrogate: 13C12 BDE 197	61.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 207	42.0		20-200	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 209	17.0	G	20-200	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C6 HBB	54.0		25-150	%	22-DEC-23	05-JAN-24	R5974016
Surrogate: 13C12 BDE 138 Cleanup	59.0		30-135	%	22-DEC-23	05-JAN-24	R5974016
Note: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently recovery corrected							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
G	QC result did not meet ALS DQO. Refer to narrative comments for further information.
J,B	The analyte was detected below the calibrated range but above the EDL, and was detected in the Method Blank at >10% of the sample concentration.
J,R	The analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
M	A peak has been manually integrated.
M,J	A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.
M,J,B	A peak has been manually integrated. Target analyte was detected below the calibrated range but above the EDL. Compound was detected in the method blank at >10% of the sample concentration.
M,J,R	A peak has been manually integrated, the analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
[J]	The analyte was detected below the calibrated range but above the EDL.
[U]	The analyte was not detected above the EDL.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MOISTURE-BU	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

This method is used to determine the percent moisture in a sample. Samples are homogenized, moisture is removed by heating at 105°C until constant mass is achieved. The residues are measured gravimetrically and the difference in weight between the wet sample and the dried sample is used to determine the moisture content. This percent moisture can be used, in conjunction with analytical results, to report data on a dry weight basis.

PBDE-1614-HRMS-BU	Solid	PBDEs by EPA 1614	USEPA 1614

Samples are Dean-Stark Soxhlet extracted with toluene. Extracts are prepared by column chromatography, reduced in volume and analyzed by isotope-dilution GC/HRMS

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
BU	ALS ENVIRONMENTAL - BURLINGTON, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2753951 Report Date: 10-JAN-24

Client: ALS Environmental - Kelso
1317 South 13th Avenue
Kelso WA 98626
Contact: Mark Harris

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-BU	**Soil**							
Batch R5973476								
WG3787902-3 DUP		**L2753951-1**						
% Moisture		12.2	14.2		%	16	20	28-DEC-23
WG3787902-2 LCS								
% Moisture			100.5		%		90-110	28-DEC-23
WG3787902-1 MB								
% Moisture			<0.10		%		0.3	28-DEC-23
PBDE-1614-HRMS-BU	**Solid**							
Batch R5974016								
WG3787901-4 DUP		**L2753951-1**						
BDE 10		<0.017	<0.029	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 7		<0.016	<0.027	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 8/11		<0.011	<0.019	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 12/13		<0.0098	<0.016	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 15		<0.0083	<0.014	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 30		<0.031	<0.050	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 32		<0.022	<0.035	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 17/25		<0.028	<0.045	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 28/33		<0.026	<0.043	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 35		<0.018	<0.030	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 37		<0.018	<0.029	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 75		<0.034	<0.034	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 51		<0.029	<0.029	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 49		<0.043	<0.042	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 71		<0.045	<0.044	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 47		0.170	0.238		pg/g	33	50	05-JAN-24
BDE 79		<0.028	<0.027	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 83		<0.039	<0.049	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 66		<0.049	<0.048	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 77		<0.029	<0.030	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 100		0.050	0.052		pg/g	3.9	50	05-JAN-24
BDE 119/120		<0.028	<0.035	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 99		0.220	0.250		pg/g	13	50	05-JAN-24
BDE 116		<0.045	<0.057	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 118		<0.033	<0.041	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 85		<0.028	<0.035	RPD-NA	pg/g	N/A	50	05-JAN-24

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PBDE-1614-HRMS-BU	**Solid**							
Batch R5974016								
WG3787901-4 DUP		**L2753951-1**						
BDE 126		<0.019	<0.023	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 105		<0.035	<0.044	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 155		<0.018	<0.025	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 154		<0.020	0.033	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 153		<0.068	<0.079	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 140		<0.050	<0.059	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 138/166		<0.086	<0.10	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 156		<0.13	<0.15	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 128		<0.11	<0.13	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 184		<0.038	<0.041	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 183		<0.056	<0.061	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 191		<0.087	<0.094	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 181		<0.081	<0.089	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 190		<0.12	<0.13	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 197		<0.078	<0.077	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 203		<0.11	<0.11	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 196		<0.093	<0.092	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 208		<0.15	<0.19	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 207		<0.14	<0.18	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 206		<0.16	<0.20	RPD-NA	pg/g	N/A	50	05-JAN-24
BDE 209		<7.5	<6.4	RPD-NA	pg/g	N/A	50	05-JAN-24
PBEB		<0.017	<0.016	RPD-NA	pg/g	N/A	50	05-JAN-24
HBB		0.280	0.240		pg/g	15	50	05-JAN-24
COMMENTS: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently recovery corrected								
WG3787901-2 LCS								
BDE 10			32.0		%		5-130	05-JAN-24
BDE 7			63.0		%		5-130	05-JAN-24
BDE 8/11			85.0		%		20-150	05-JAN-24
BDE 12/13			88.0		%		5-130	05-JAN-24
BDE 15			94.0		%		50-150	05-JAN-24
BDE 30			86.0		%		5-130	05-JAN-24
BDE 32			109.0		%		50-150	05-JAN-24
BDE 17/25			110.0		%		50-150	05-JAN-24
COMMENTS: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PBDE-1614-HRMS-BU	**Solid**							
Batch R5974016								
WG3787901-2 LCS								
BDE 28/33			108.0		%		50-150	05-JAN-24
BDE 35			123.0		%		50-150	05-JAN-24
BDE 37			131.0		%		50-150	05-JAN-24
BDE 75			100.0		%		50-150	05-JAN-24
BDE 51			104.0		%		50-150	05-JAN-24
BDE 49			97.0		%		50-150	05-JAN-24
BDE 71			117.0		%		50-150	05-JAN-24
BDE 47			109.0		%		50-150	05-JAN-24
BDE 79			119.0		%		50-150	05-JAN-24
BDE 83			107.0		%		60-140	05-JAN-24
BDE 66			107.0		%		50-150	05-JAN-24
BDE 77			107.0		%		50-150	05-JAN-24
BDE 100			106.0		%		50-150	05-JAN-24
BDE 119/120			105.0		%		50-150	05-JAN-24
BDE 99			112.0		%		50-150	05-JAN-24
BDE 116			87.0		%		40-140	05-JAN-24
BDE 118			111.0		%		50-150	05-JAN-24
BDE 85			111.0		%		50-150	05-JAN-24
BDE 126			109.0		%		50-150	05-JAN-24
BDE 105			112.0		%		50-150	05-JAN-24
BDE 155			85.0		%		50-150	05-JAN-24
BDE 154			94.0		%		50-150	05-JAN-24
BDE 153			111.0		%		50-150	05-JAN-24
BDE 140			108.0		%		50-150	05-JAN-24
BDE 138/166			112.0		%		50-150	05-JAN-24
BDE 156			107.0		%		50-150	05-JAN-24
BDE 128			102.0		%		50-150	05-JAN-24
BDE 184			88.0		%		50-150	05-JAN-24
BDE 183			92.0		%		50-150	05-JAN-24
BDE 191			102.0		%		50-150	05-JAN-24
BDE 181			75.0		%		50-150	05-JAN-24
BDE 190			75.0		%		50-150	05-JAN-24
BDE 197			95.0		%		50-150	05-JAN-24
BDE 203			85.0		%		50-150	05-JAN-24

Quality Control Report

Workorder: L2753951 Report Date: 10-JAN-24

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PBDE-1614-HRMS-BU	**Solid**							
Batch R5974016								
WG3787901-2 LCS								
BDE 196			97.0		%		50-150	05-JAN-24
BDE 208			113.0		%		50-200	05-JAN-24
BDE 207			106.0		%		50-200	05-JAN-24
BDE 206			101.0		%		50-200	05-JAN-24
BDE 209			129.0		%		50-200	05-JAN-24
PBEB			156.0	G	%		50-150	05-JAN-24
HBB			94.0		%		50-150	05-JAN-24
COMMENTS: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently recovery corrected								
WG3787901-1 MB								
BDE 10			<0.021	[U]	pg/g		2.6	05-JAN-24
BDE 7			<0.020	[U]	pg/g		2.6	05-JAN-24
BDE 8/11			<0.014	[U]	pg/g		5.3	05-JAN-24
BDE 12/13			<0.012	[U]	pg/g		5.3	05-JAN-24
BDE 15			<0.010	[U]	pg/g		2.6	05-JAN-24
BDE 30			<0.032	[U]	pg/g		2.6	05-JAN-24
BDE 32			<0.022	[U]	pg/g		2.6	05-JAN-24
BDE 17/25			<0.029	[U]	pg/g		5.3	05-JAN-24
BDE 28/33			<0.028	[U]	pg/g		5.3	05-JAN-24
BDE 35			<0.019	[U]	pg/g		2.6	05-JAN-24
BDE 37			<0.019	[U]	pg/g		2.6	05-JAN-24
BDE 75			<0.030	[U]	pg/g		2.6	05-JAN-24
BDE 51			<0.026	[U]	pg/g		2.6	05-JAN-24
BDE 49			<0.038	[U]	pg/g		2.6	05-JAN-24
BDE 71			<0.039	[U]	pg/g		2.6	05-JAN-24
BDE 47			0.133	M,J	pg/g		2.6	05-JAN-24
BDE 79			<0.024	[U]	pg/g		2.6	05-JAN-24
BDE 83			<0.049	[U]	pg/g		8	05-JAN-24
BDE 66			<0.043	[U]	pg/g		2.6	05-JAN-24
BDE 77			<0.027	[U]	pg/g		2.6	05-JAN-24
BDE 100			0.021	M,J,R	pg/g		4	05-JAN-24
BDE 119/120			<0.035	[U]	pg/g		4	05-JAN-24
BDE 99			0.100	M,J,R	pg/g		4	05-JAN-24
BDE 116			<0.057	[U]	pg/g		4	05-JAN-24
COMMENTS: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PBDE-1614-HRMS-BU	**Solid**							
Batch R5974016								
WG3787901-1 MB								
BDE 118			<0.041	[U]	pg/g		4	05-JAN-24
BDE 85			<0.034	[U]	pg/g		4	05-JAN-24
BDE 126			<0.023	[U]	pg/g		4	05-JAN-24
BDE 105			<0.043	[U]	pg/g		4	05-JAN-24
BDE 155			<0.028	[U]	pg/g		5.3	05-JAN-24
BDE 154			<0.033	[U]	pg/g		5.3	05-JAN-24
BDE 153			<0.060	[U]	pg/g		5.3	05-JAN-24
BDE 140			<0.046	[U]	pg/g		5.3	05-JAN-24
BDE 138/166			<0.079	[U]	pg/g		11	05-JAN-24
BDE 156			<0.12	[U]	pg/g		5.3	05-JAN-24
BDE 128			<0.097	[U]	pg/g		5.3	05-JAN-24
BDE 184			<0.040	[U]	pg/g		6.6	05-JAN-24
BDE 183			<0.060	[U]	pg/g		6.6	05-JAN-24
BDE 191			<0.092	[U]	pg/g		6.6	05-JAN-24
BDE 181			<0.087	[U]	pg/g		6.6	05-JAN-24
BDE 190			<0.13	[U]	pg/g		6.6	05-JAN-24
BDE 197			<0.093	[U]	pg/g		6.6	05-JAN-24
BDE 203			<0.13	[U]	pg/g		6.6	05-JAN-24
BDE 196			<0.11	[U]	pg/g		6.6	05-JAN-24
BDE 208			<0.22	[U]	pg/g		13	05-JAN-24
BDE 207			<0.20	[U]	pg/g		13	05-JAN-24
BDE 206			<0.23	[U]	pg/g		13	05-JAN-24
BDE 209			<10	[U]	pg/g		13	05-JAN-24
PBEB			<0.014	[U]	pg/g		2.6	05-JAN-24
HBB			0.276	[J]	pg/g		2.6	05-JAN-24
Surrogate: 13C12 BDE 15			79.0		%		20-150	05-JAN-24
Surrogate: 13C12 BDE 28			73.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 47			68.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 77			72.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 100			51.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 99			58.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 126			59.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 154			73.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 153			66.0		%		25-150	05-JAN-24

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PBDE-1614-HRMS-BU	**Solid**							
Batch	**R5974016**							
WG3787901-1	**MB**							
Surrogate: 13C12 BDE 183			70.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 197			85.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 207			85.0		%		20-200	05-JAN-24
Surrogate: 13C12 BDE 209			10.0	G	%		20-200	05-JAN-24
Surrogate: 13C6 HBB			76.0		%		25-150	05-JAN-24
Surrogate: 13C12 BDE 138 Cleanup			75.0		%		30-135	05-JAN-24

COMMENTS: Sample is outside method recovery criteria for labelled BDE 209, native results are quantified using isotope dilution and are inherently recovery corrected

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
G	QC result did not meet ALS DQO. Refer to narrative comments for further information.
M,J	A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.
M,J,R	A peak has been manually integrated, the analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
[J]	The analyte was detected below the calibrated range but above the EDL.
[U]	The analyte was not detected above the EDL.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Mark Harris

Project Number: K2313619
Project Manager: Mark Harris
QAP: LAB QAP

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Misc Out 1 None
K2313619-006	SL-B4-50-25-'	1	Soil	11/29/23	0910	Burlington ALS	X
K2313619-007	SL-B6-50-20'	1	Soil	11/29/23	1640	Burlington ALS	X
K2313619-008	SL-B7-50-20'	1	Soil	11/29/23	1110	Burlington ALS	X

L2753951-COFC

Test Comments

Misc Out 1 - None K2313619-006,7,8 1614-PBDEs

Special Instructions/Comments

Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS

1 2 3 4 5

✓ **STANDARD**

Requested FAX Date: _____

Requested Report Date: 12/26/23

Report Requirements

____ I. Results Only

✓ II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J Y

EDD N

Invoice Information

PO# 51K2313619

Bill to

Relinquished By: Hayleigh Smith 12/7/23 Received By: Aaron Burton Airbill Number: _____

ALS Environmental

PURCHASE ORDER

FOR SUBCONTRACTED ANALYSES

Service Request: K2313619

Date: 12/6/2023
Contact: Mark Harris
Email: Mark.Harris@alsglobal.com

Company: ALS Environmental - Canada
Address: 1435 Norjohn Court, Unit 1
Burlington ON, L7L 0E6
Phone: 905-331-3111

Bill To: ALS Environmental
1317 South 13th Avenue
Kelso WA, 98626

Phone: 1-360-577-7222

Ship To: ALS Environmental
ALKLS.Data@alsglobal.com

Phone: 360-577-7222

Item/Description	Quantity	Unit Price
None/Misc Out 1	3	911.25

Comments:

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 26, 2024

Yancy Meyer
Blue Mountain Environmental, Inc.
90 Baldwin Road
Walla Walla, WA 99362

Re: Analytical Data for Project E2023/1103; Port of Pasco Lagoons
Laboratory Reference No. 2402-238

Dear Yancy:

Enclosed are the analytical results and associated quality control data for samples submitted on February 20, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: February 26, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-238
Project: E2023/1103; Port of Pasco Lagoons

Case Narrative

Samples were collected on February 15, 2024 and received by the laboratory on February 20, 2024. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: February 26, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-238
Project: E2023/1103; Port of Pasco Lagoons

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GWMW-1**					
Laboratory ID:	02-238-01					
Arsenic	**19**	3.3	EPA 200.8	2-26-24	2-26-24	
Barium	**490**	28	EPA 200.8	2-26-24	2-26-24	
Cadmium	**ND**	4.4	EPA 200.8	2-26-24	2-26-24	
Chromium	**36**	11	EPA 200.8	2-26-24	2-26-24	
Lead	**55**	1.1	EPA 200.8	2-26-24	2-26-24	
Mercury	**ND**	0.50	EPA 7470A	2-21-24	2-21-24	
Selenium	**ND**	5.6	EPA 200.8	2-26-24	2-26-24	
Silver	**ND**	11	EPA 200.8	2-26-24	2-26-24	
Client ID:	**GWMW-2**					
Laboratory ID:	02-238-02					
Arsenic	**6.2**	1.3	EPA 200.8	2-26-24	2-26-24	
Barium	**190**	11	EPA 200.8	2-26-24	2-26-24	
Cadmium	**ND**	1.8	EPA 200.8	2-26-24	2-26-24	
Chromium	**16**	4.4	EPA 200.8	2-26-24	2-26-24	
Lead	**5.7**	0.44	EPA 200.8	2-26-24	2-26-24	
Mercury	**ND**	0.50	EPA 7470A	2-21-24	2-21-24	
Selenium	**ND**	2.2	EPA 200.8	2-26-24	2-26-24	
Silver	**ND**	4.4	EPA 200.8	2-26-24	2-26-24	
Client ID:	**GWMW-3**					
Laboratory ID:	02-238-03					
Arsenic	**3.4**	1.3	EPA 200.8	2-26-24	2-26-24	
Barium	**110**	11	EPA 200.8	2-26-24	2-26-24	
Cadmium	**ND**	1.8	EPA 200.8	2-26-24	2-26-24	
Chromium	**7.2**	4.4	EPA 200.8	2-26-24	2-26-24	
Lead	**2.6**	0.44	EPA 200.8	2-26-24	2-26-24	
Mercury	**ND**	0.50	EPA 7470A	2-21-24	2-21-24	
Selenium	**ND**	2.2	EPA 200.8	2-26-24	2-26-24	
Silver	**ND**	4.4	EPA 200.8	2-26-24	2-26-24	

Date of Report: February 26, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-238
Project: E2023/1103; Port of Pasco Lagoons

TOTAL METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0226WM1					
Arsenic	**ND**	3.3	EPA 200.8	2-26-24	2-26-24	
Barium	**ND**	28	EPA 200.8	2-26-24	2-26-24	
Cadmium	**ND**	4.4	EPA 200.8	2-26-24	2-26-24	
Chromium	**ND**	11	EPA 200.8	2-26-24	2-26-24	
Lead	**ND**	1.1	EPA 200.8	2-26-24	2-26-24	
Selenium	**ND**	5.6	EPA 200.8	2-26-24	2-26-24	
Silver	**ND**	11	EPA 200.8	2-26-24	2-26-24	
Laboratory ID:	MB0221W1					
Mercury	**ND**	0.50	EPA 7470A	2-21-24	2-21-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	01-067-08									
	ORIG	DUP								
Arsenic	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Barium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Cadmium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Laboratory ID:	02-238-01									
Mercury	**ND**	**ND**	NA	NA		NA	NA	NA	20	
MATRIX SPIKES										
Laboratory ID:	01-067-08									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**113**	**112**	111	111	ND	**102**	**101**	75-125	1	20
Barium	**124**	**123**	111	111	14.8	**99**	**98**	75-125	1	20
Cadmium	**111**	**109**	111	111	ND	**100**	**98**	75-125	2	20
Chromium	**112**	**111**	111	111	ND	**101**	**100**	75-125	1	20
Lead	**109**	**109**	111	111	ND	**99**	**98**	75-125	0	20
Selenium	**113**	**112**	111	111	ND	**102**	**101**	75-125	1	20
Silver	**96.9**	**95.3**	111	111	ND	**87**	**86**	75-125	2	20
Laboratory ID:	02-238-01									
Mercury	**12.7**	**12.9**	12.5	12.5	ND	**102**	**103**	75-125	2	20

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Laboratory Number: 02-238

Company: BMEC
Project Number: E2023/1103
Project Name: PORT OF PASCO LAGOONS
Project Manager: Y. MEYER/B. BERGERON
Sampled by: Y. MEYER

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☐)	NWTPH-Gx	NWTPH-Dx (SG Clean-up ☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664					% Moisture
1	GWMW-1	2-15-23	1215	H_2O	1														X								
2	GWMW-2	↓	1300	↓	↓														↓								
3	GWMW-3	↓	1340	↓	↓														↓								

	Signature	Company	Date	Time
Relinquished		BMEC	2-19-24	1000
Received	Nicholle Bifani	ESE	2/20/24	1000
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

APPENDIX F: Monitoring Well Map Provided by the Licensed Land Surveyor

DATUM

THE ELEVATIONS FOR THIS PROJECT WERE DERIVED BY GPS OBSERVATION USING THE WASHINGTON STATE REFERENCE NETWORK.

NORTHINGS AND EASTINGS PROVIDED FOR THIS SURVEY ARE US STATE PLANE 1983, NAD 1983, GEOID 12A, ZONE WASHINGTON SOUTH AND ARE PROVIDED IN US SURVEY FEET. ELEVATIONS ARE IN NAVD 88 AND PROVIDED IN US SURVEY FEET.

THIS SURVEY WAS PERFORMED WITH LEICA GS14 GNSS RECEIVER, LEICA MS–50 ROBOTIC TOTAL STATION AND LEICA CS15 FIELD CONTROLLER.

DESCRIPTION	NORTHING	EASTING	ELEVATION		LATITUDE	LONGITUDE	MEASURE MARK
			TOP LID	TOP PVC PIPE			
MW-1	322838.9281	2007411.229	352.18	351.98	N 46°12'33.81137"	W 119°03'01.10591"	BLACK MARK, NORTH SIDE PIPE
MW-2	322372.3137	2007273.229	352.46	352.15	N 46°12'29.23065"	W 119°03'03.18981"	BLACK MARK, NORTH SIDE PIPE
MW-3	322380.2708	2007394.526	352.25	351.96	N 46°12'29.28719"	W 119°03'01.46323"	BLACK MARK, NORTH SIDE PIPE

JOSEPH W. BAKER
STATE OF WASHINGTON
44333
REGISTERED
PROFESSIONAL LAND SURVEYOR

2-12-24

N
W
E
S
PLSA EST. 1964 59 SURVEYING ENGINEERING

100 0 100 FEET
SCALE: 1" = 100'

LEGEND

◓	MONITORING WELL LOCATION
MW–1	WELL DESIGNATION

PROJECT LOCATION – EAST AINSWORTH AVENUE
PASCO, WA

BMEC PROJECT NO. E2023/1103

PLSA
ENGINEERING–SURVEYING–PLANNING
521 NORTH 20th AVENUE, SUITE 3
YAKIMA, WASHINGTON 98902
(509) 575–6990

3

MONITORING WELL MAP
PORT OF PASCO
PREPARED FOR
BMEC
PTN NW 1/4, SEC. 3, T–8 N, R–30 E,WM

DRAWN BY: JOE
DATE: 2/12/2024
JOB NO. 24020
SHEET NO. 1 OF 1