DRAFT REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT

FORMER GEDDES MARINA PROPERTY
MARYSVILLE, WASHINGTON

Prepared for
CITY OF MARYSVILLE
MARYSVILLE, WASHINGTON
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ACRONYMS AND ABBREVIATIONS

AESI	Associated Earth Sciences, Inc.
AET	apparent effects threshold
bgs	below ground surface
bml	below mudline
BTEX	benzene, toluene, ethylbenzene, and total xylenes
the City	City of Marysville
COC	chemical of concern
COE	U.S. Army Corps of Engineers
cPAH	carcinogenic PAH
CSL	cleanup screening level
CSM	conceptual site model
CUL	cleanup level
DCA	disproportionate cost analysis
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EIC	ecological indicator concentration
ESA	environmental site assessment
FSA	focused site assessment
GRO	gasoline-range organics
HPAHs	high-molecular-weight PAHs
IRA	interim remedial action
LPAHs	low-molecular-weight PAHs
LRO	lube-oil-range organics
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
MTCA	Model Toxics Control Act
NWTPH	Northwest Total Petroleum Hydrocarbon
OHWM	ordinary high-water mark
OnSite	OnSite Environmental, Inc.
ORO	oil-range organics
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
pg/g	picograms per gram
POC	point of compliance
PQL	practical quantitation limit
the Property	former Geddes Marina Property
RBC	risk-based concentration
RI/FS	remedial investigation and feasibility study
Riley Group	The Riley Group, Inc.
SCO	sediment cleanup objective
SCUM II	Sediment Cleanup User's Manual II
Shannon & Wilson	Shannon & Wilson, Inc.
SMS	Sediment Management Standards

ACRONYMS AND ABBREVIATIONS (CONTINUED)

SVOC	semivolatile organic compound
TCDD	2,3,7,8-tetrachloro dibenzo-p-dioxin
TEE	terrestrial ecological evaluation
TEF	toxic equivalent factor
TEQ	toxic equivalent quotient
ug/L	micrograms per liter
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
WAC	Washington Administrative Code

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this remedial investigation and feasibility study (RI/FS) report for the City of Marysville (the City) for the former Geddes Marina property (the Property) at 1326 First Street in Marysville, Washington (see Figure 1-1). Historically, the Property was used for timber - and marine-related operations, including a marina, a boat launch, a marine supply store, marine maintenance facilities, and several upland and in-water boat shelters. The Property is currently vacant, with no buildings/structures present. A municipal stormwater outfall is present at the north end of the lagoon. The Property is owned by the City.

1.1 Regulatory Framework

This RI/FS was conducted in general accordance with the Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] 173-340), the Sediment Management Standards (SMS) stipulated in WAC 173-204, and applicable guidance documents issued by the Washington State Department of Ecology (Ecology.) The RI sampling activities were conducted consistent with industry standard techniques. The Property is listed with the following Ecology site identification numbers: cleanup site identification number 12515 and facility site identification number 22103. This RI/FS was completed as an independent action.

1.2 Purpose and Objectives

This report describes the nature and extent of contamination at the Property, based on previous environmental investigations and RI data collection activities conducted in October 2019. The data collected during the RI inform evaluation of potential risks to human health and ecological receptors and assessment of potential cleanup alternatives discussed in the FS. This RI/FS addresses characterization of the lagoon and adjacent upland area at the Property. Ebey Slough is adjacent to the Property and was not investigated. RI/FS objectives included the following:

- Develop data quality objectives for site characterization.
- Refine the conceptual site model (CSM) for the Property.
- Investigate hazardous substances in environmental media to identify potential sources of contamination and contaminant concentrations above MTCA cleanup levels (CULs) or other applicable screening criteria.
- Evaluate potential risks to current and reasonably likely future human and ecological receptors.
- Develop and evaluate potential cleanup action alternatives for impacted environmental media on the Property.

1.3 Organization

This RI/FS report is organized as follows:

- ***Section 2*** summarizes background information, including the Property history, previous investigations, the physical setting, and the environmental conditions identified during previous investigations.
- ***Section 3*** describes the field and analytical methods.
- ***Section 4*** presents the analytical results.
- ***Section 5*** presents the CSM.
- ***Section 6*** defines the applicable CULs specific to the Property.
- ***Section 7*** evaluates the analytical data relative to applicable CULs for the Property.
- ***Section 8*** identifies the remedial action objectives and presents the cleanup alternatives.
- ***Section 9*** evaluates the cleanup alternatives.
- ***Section 10*** summarizes the cleanup recommendations for the Property.

2 BACKGROUND

2.1 Property Description

The Property is located in section 33 of township 30 north and range 5 east of the Willamette Meridian (Figure 1-1). The approximately 5-acre Property is generally flat and contains a roughly rectangular lagoon with inlets that are connected to the municipal stormwater system to the north and the Snohomish River via Ebey Slough to the south. The Property is a few feet above mean sea level.

The physical address of the Property is 1326 First Street in Marysville, Washington. The Property is bordered by First Street and the Marysville Town Center retail mall to the north, Ebey Slough to the south, Ebey Waterfront Park and Boat Launch Facility to the east, and a Burlington Northern Santa Fe railroad embankment and former lumber mill operation (the Welco Lumber Company site) to the west. The Property is accessed from First Street, adjacent and to the north of the Property. The Property is zoned Downtown Commercial with a Waterfront Overlay.

The Property is currently vacant, with a chain link fence surrounding the upland Property boundary (see Figure 2-1). Some vegetation is present around the lagoon and adjacent to Ebey Slough, with partially paved surfaces and gravel dominating the ground surface along the boundaries of the Property. Historically, former mill operations were located adjacent to the west and east of the Property.

2.2 Property History

Historically, the Property has been the location of timber- and marine-related operations since the 1800s (MFA, 2014, 2015). In the early 1990s, the Property was converted to a marina and boat launch, including an area for boat repair services. In 2010, the City purchased the Property in the settlement of a lawsuit, filed by the previous owner, associated with discharge of the City's stormwater management system to the lagoon. The City plans to use the Property to help revitalize the waterfront near downtown Marysville. The City has demolished all structures on the Property.

In August 2016, MFA conducted an interim remedial action (IRA) on upland portions of the Property on behalf of the City. Demarcation geotextile fabric and a clean soil cap were placed on upland areas of the Property with elevated metals concentrations in order to prevent human and ecological receptors from coming in direct contact with contaminated soil. The upland cap consisted of a minimum of 6 inches of clean, imported soil.

2.3 Previous Investigations

The following subsurface investigations have been completed on the Property:

- **Underground Storage Tank (UST) Site Assessment (The Riley Group, Inc. [Riley Group], 2000).** In January 2000, the Riley Group conducted an assessment of an abandoned 500-gallon gasoline UST at the Property. The UST was located in the northeastern area of the Property, near the existing stormwater outfall (see Figure 2-1). The Riley Group verified that the UST had been closed in place and filled with a sand slurry. A former gasoline pump island foundation and associated product line to the UST were identified during the assessment. Soil samples were collected from hand-auger borings immediately adjacent to the UST system, including the UST, product line, and pump island foundation. Gasoline-range organics (GRO), and benzene, ethylbenzene, and total xylenes (BTEX) were detected above MTCA Method A CULs. One groundwater sample collected from a temporary boring adjacent to the UST system had concentrations of GRO and BTEX above MTCA Method A CULs. The Riley Group attributed the GRO and BTEX to the former operation of the UST.
- **Supplemental Soil Sampling (Shannon & Wilson, Inc. [Shannon & Wilson], 2000).** In July 2000, Shannon & Wilson conducted supplemental soil sampling in conjunction with the removal of the closed-in-place UST. Soil samples were collected from the sidewalls and bottom of the UST excavation. GRO and BTEX were identified in the soil samples; however, all the detections were below the MTCA Method A CULs applicable in 2000. MTCA Method A CULs were updated in 2001, resulting in exceedances of GRO and benzene along the west sidewall excavation limit.
- **Phase I and II Environmental Site Assessments (ESA) (Associated Earth Sciences, Inc. [AESI], 2010a,b).** AESI completed Phase I and Phase II ESAs for the Property. In August and September 2008, the Phase II ESA was conducted to assess sediment, soil, and groundwater on the Property, based on recognized environmental conditions identified in the 2010 Phase I ESA (see Figure 2-1). Concentrations of carcinogenic

polycyclic aromatic hydrocarbons (PAHs) and metals (including arsenic, lead, and cadmium) were identified in shallow soil above their respective MTCA Method A CULs in upland portions of the Property. Concentrations of arsenic in groundwater were detected above the MTCA Method A CUL throughout the Property. Lead, cadmium, chromium, and diesel-range organics (DRO) were detected above their respective MTCA Method A CULs in groundwater in the southeast corner of the Property. In sediment samples, mercury and zinc exceeded the marine SMS sediment cleanup objective (SCO) screening criteria but were below the marine SMS cleanup screening level (CSL) screening criteria. DRO and oil-range organics (ORO) were detected at elevated concentrations in sediment samples. No marine SMS criteria are available for DRO and ORO; however, some sediment samples contained concentrations of DRO and ORO above the freshwater SCOs and CSLs (WAC 173-204).

- **Focused Site Assessment (FSA) (MFA, 2015).** In February 2015, MFA conducted an FSA for the Property. MFA collected soil, sediment, and groundwater samples to evaluate potential environmental impacts from the former UST, former foundry machine and ironworks shop, municipal stormwater discharge, former and current auto/marine repair shops (since removed), and adjacent former mill and auto repair operations. In soil, arsenic, cadmium, and lead exceeded their applicable MTCA A or B CULs and ecological indicator concentrations (EICs) across the Property. Copper, mercury, and zinc exceeded EICs in soil, but not MTCA A or B CULs. In groundwater, several metals (antimony, arsenic, cadmium, copper, lead, manganese, and mercury), DRO, and ORO exceeded their respective MTCA CULs across the Property. In sediment samples, metals (including zinc, nickel, and mercury), phenolics, benzoates, and bis(2-ethylhexyl)phthalate exceeded the SMS marine SCOs. No marine SMS criteria was available for DRO and ORO; however, all sediment samples contained concentrations of DRO and ORO above the freshwater SCOs.
- **Upland IRA (MFA, 2016).** MFA conducted an IRA in 2016, as described in Section 2.2. Two monitoring wells (GM-5 and GM-7) were damaged during implementation of the IRA and are no longer present on the Property.

Historical soil, groundwater, and sediment analytical results are shown in Tables 2-1 through 2-3, respectively. Data validation memoranda and figures for previous investigations are included in associated reports (AESI, 2010a,b; MFA, 2015, 2016; Riley Group, 2000; Shannon & Wilson, 2000).

2.4 Physical Setting

The Property is located in the Snohomish River valley, formerly an arm of Puget Sound. The valley has gradually filled over the past 10,000 years as a delta front migrated down the valley to its present location (Century West, 2000). The valley contains the Marysville Trough, which is an expansive, nearly flat, alluvial plain. According to the geologic map of the Marysville quadrangle, the Property and vicinity are underlain by Quaternary younger alluvial and estuarine deposits. These deposits consist of "stream-laid stratified sediment containing sand, silt, and clay with considerable amounts of organic matter" (Minard, 1985). Development in the valley required that fill materials be imported to raise grades above flood and tide levels.

Soil observations from borings advanced during the RI indicate that the soil at the Property generally consists of silt and silty sand to 15 feet below ground surface (bgs), the maximum depth explored. Shallow groundwater is present in an unconfined aquifer within the fill and valley alluvium.

Groundwater elevations fluctuate in response to regional and seasonal aquifer conditions. In this area, the shallow groundwater and surface water conditions are closely interconnected. The groundwater table rises to the ground surface during rainy seasons, restricting infiltration of rainwater, and may result in local flooding (Otak, 2009). Groundwater elevations are also tidally influenced by Ebey Slough, a tidal distributary of the Snohomish River that bounds the Property to the south. Therefore, groundwater flow directions at the Property have not been well defined. However, it is likely that groundwater flows south and southwest, subparallel to flow in Ebey Slough (Parametrix, 2002). Static water levels measured at three monitoring wells on October 21, 2019, ranged from 1.71 to 4.90 feet bgs.

2.5 Environmental Conditions

During the previous investigations at the Property, several features of potential environmental concern were identified and assessed (MFA, 2015). The following are potential sources of contaminants that have been associated with confirmed contamination in soil, groundwater, and sediment on the Property:

- Historical releases to on-site soil and/or groundwater, including:
  - Surface releases from former repair operations
  - Subsurface releases from the former UST system
  - Off-Property impacts from adjacent former sawmill operations
- Historical releases to on-site surface water and/or sediment, including:
  - Unregulated dumping of materials into the lagoon
  - Releases from historical discharge of stormwater to the lagoon
- Current releases to on-site surface water and/or sediment from the stormwater outfall

The following chemicals were detected in soil above screening levels at the Property:

- Heavy oils (DRO and lube-oil-range organics [LRO])
- Metals (including arsenic, cadmium, chromium, lead, mercury, nickel, and zinc)

The following chemicals were detected in groundwater above screening levels at the Property:

- Heavy oils (DRO and LRO)
- Total and dissolved metals (including arsenic, copper, and manganese)

The following chemical groups are commonly associated with sediment toxicity and/or were previously evaluated as part of sediment investigations on the Property. Some of these chemical groups were evaluated only as a subset at previous sediment locations:

- Dioxin/furans
- Heavy oils (DRO and LRO)
- Metals (including arsenic, cadmium, chromium, lead, mercury, nickel, and zinc)
- Polychlorinated biphenyls (PCBs)
- Semivolatile organic compounds (SVOCs)/polycyclic aromatic hydrocarbons (PAHs)

3 FIELD AND ANALYTICAL METHODS

The RI was conducted between October 15 and October 21, 2019, in accordance with the work plan (MFA, 2019). The investigation included soil, groundwater, and sediment sample collection; laboratory analysis; field observations of physical conditions of environmental media; collection of salinity measurements in the lagoon; collection of groundwater level measurements; and collection of water quality parameters. Soil, groundwater, and sediment sample locations, depths, and dates and associated chemical analyses are summarized in Table 3-1; sample locations are shown on Figures 3-1 and 3-2.

3.1 Soil

A Geoprobe™ direct-push drill rig was used to advance continuous soil cores at six boring locations (GM-11 through GM-16) on October 15, 2019. In planned redevelopment areas , soil cores were advanced from the ground surface to a maximum depth of 15 feet bgs (see Figure 3-1). In order to characterize the lateral and vertical extent of impacts in areas of the Property intended for potential redevelopment, soil samples were collected from depths anticipated to be exposed to the surface and to possibly become sediment as part of redevelopment (i.e., as a result of creek restoration activities). Six soil samples were collected from the six boring locations (one sample per location; see Table 3-1).

Soil conditions were described and visual and olfactory observations (e.g., staining, hydrocarbon-like odor) were recorded during drilling. Soil was screened for volatile organic compounds with a photoionization detector; the screening results and soil descriptions were recorded on geologic boring logs (see Appendix A). Geographic coordinates for the soil boring locations were recorded using a handheld global positioning system device with submeter accuracy.

Samples were submitted, under standard chain-of-custody procedures, to OnSite Environmental, Inc. (OnSite) of Redmond, Washington for analysis. Soil samples were analyzed for a combination of the following chemicals:

- DRO and LRO by Northwest Total Petroleum Hydrocarbon (NWTPH)-Dx
- Metals (including arsenic, cadmium, chromium, lead, mercury, nickel, and zinc) by U.S. Environmental Protection Agency (USEPA) Method 6020

The two soil samples analyzed for DRO (GM14-S-12.0 and GM16-S-2.5) underwent silica gel cleanup to avoid biased high results for DRO due to a high organic content observed in these samples.

3.2 Groundwater

During previous investigations, groundwater samples were collected from temporary and permanent monitoring wells. Because groundwater data were last collected at the Property over four years ago, additional groundwater sampling was conducted to assess current groundwater conditions at the Property and to evaluate whether concentrations of chemicals in groundwater remain above MTCA Method A CULs.

In February 2015, MFA installed six monitoring wells, but only three of those wells (GM-2, GM-3, and GM-9) could be sampled (see Figure 3-1). GM-1 appeared to be buried beneath rock debris from a recent culvert replacement. As stated in Section 2.3, GM-5 and GM-7 were damaged during implementation of the IRA.

MFA used a water level probe to measure static water levels in GM-2, GM-3, and GM-9 (see Appendix B). Groundwater flow direction is tidally influenced; therefore, flow direction varies significantly as tides change. It is likely that groundwater flow is generally south and southwesterly, subparallel to the net flow in the slough (Parametrix, 2002).

3.2.1 Monitoring Well Redevelopment

Because over four years had elapsed since the last groundwater monitoring event was conducted in 2015, the existing monitoring wells on the Property were redeveloped prior to sampling to remove fines from the well screen and ensure a strong connection to the aquifer. GM-2, GM-3, and GM-9 were redeveloped on October 16, 2019. Redevelopment consisted of using a disposable bailer to surge and bail the well, followed by purging using a peristaltic pump and disposable tubing. Turbidity decreased during redevelopment, and groundwater parameters were recorded on the well development form (see Appendix C). Before the collection of groundwater samples, the redeveloped wells were allowed to recharge and stabilize for at least 24 hours.

3.2.2 Groundwater Sampling

MFA collected groundwater samples from the wells on October 21, 2019, after at least one pore volume had been extracted, the water quality parameters had stabilized, and turbidity had decreased (see the field sampling data sheets in Appendix B). Groundwater sampling activities were conducted in general accordance with industry standard sampling protocols and consistent with the sampling and analysis plan, included as an appendix to the work plan (MFA, 2019). Groundwater parameters were recorded on field sampling data sheets (see Appendix B). Four groundwater samples, including a field duplicate sample from GM-3, were collected using low-flow sampling techniques.

Under standard chain-of-custody procedures, samples were submitted to OnSite for analysis. Groundwater samples were analyzed using the following methods:

- DRO and ORO by NWTPH-Dx
- Total and dissolved metals (including arsenic, copper, and manganese) by USEPA Method 200.8 or 6020

3.3 Sediment

Sediment sampling was conducted to characterize the lateral and vertical extent of previously identified contamination and to facilitate remedial design for the lagoon. Sample locations in the lagoon were selected to increase spatial density of surface and subsurface sediment data. Sediment samples were collected near shorelines in former boathouses/storage facility areas where structures had previously prevented access.

Sediment samples were collected from 11 locations across the lagoon, including five surface, three subsurface, and three combined surface and subsurface sample locations (see Figure 3-2 and Table 3-1). All sediment samples were transferred to a stainless-steel bowl and homogenized with a stainless-steel spoon before they were placed in laboratory-supplied sample containers. Sediment observations were recorded on geologic boring logs (see Appendix A).

Nine surface sediment samples, including one field duplicate sample, were collected with a grab sampler from eight sampling locations. Samples were collected from a target depth of 0 to 10 centimeters below mudline (bml), representing a typical biologically active zone (Ecology, 2019a).

Thirteen subsurface sediment samples were collected from six sampling locations, using a Vibracore deployed from a subcontractor vessel. Six subsurface sediment samples were analyzed; the remaining seven sediment samples were archived (see Table 3-1).

Under standard chain-of-custody procedures, samples were submitted to OnSite for analysis by the following methods:

- Dioxins and furans by USEPA Method 1613B
- DRO and ORO by NWTPH-Dx
- Metals (including arsenic, cadmium, chromium, lead, mercury, nickel, and zinc) by USEPA Method 6020 or 200.8
- PCBs (as Aroclors) by USEPA Method 8082
- SVOCs/PAHs by USEPA Method 8270D selected ion monitoring

3.4 Salinity Testing

Ecology's Water Quality Atlas lists the portion of Ebey Slough adjacent to the Property as freshwater (Ecology, 2019b). Because of the lagoon's close proximity to Puget Sound and the strong tidal influence observed on water levels in the lagoon, salinity testing was conducted to assess whether freshwater, marine, or brackish conditions are present in the lagoon.

Conductivity was measured at three sediment sampling locations (S-18, S-20, and S-22) across the lagoon (see Figure 3-2). Measurements were collected with a YSI water quality meter in two-minute increments for ten minutes at each location (see Table 3-2). Final conductivity measurements were converted to salinity, using formulas presented by the Standard Methods for Examination of Water

and Wastewater (Standard Methods, 2018). The average conductivity across the lagoon was 11.5 parts per thousand, which is classified as brackish.

4 ANALYTICAL RESULTS

Laboratory analytical reports are provided in Appendix D. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they meet project-specific data quality objectives. This review was performed consistent with accepted USEPA procedures for evaluating laboratory analytical data (USEPA, 2017a,b) and appropriate laboratory and method-specific guidelines (OnSite, 2018). A data validation memorandum summarizing data evaluation procedures, usability of data, and deviations from specific field and/or laboratory methods is provided as Appendix E. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

The following is a summary of the soil, groundwater, and sediment analytical results for samples collected during the investigation. The analyses performed are summarized in Table 3-1; analytical results are summarized in Tables 4-1 through 4-3; and sample locations are shown in Figures 3-1 and 3-2.

4.1 Soil

Soil samples were collected from six borings (GM-11 through GM-16) in areas of potential redevelopment with previously identified elevated concentrations of metals and/or heavy oils (see Figure 3-1 and Table 4-1).

4.1.1 Heavy Oils

Soil from two borings (GM-14 and GM-16) advanced near the southern end of the Property were analyzed for heavy oils, including DRO and LRO.

DRO and LRO were detected in the soil sample from GM-16 at 2.5 feet bgs at 61 and 120 milligrams per kilogram (mg/kg), respectively. No heavy oils were detected in the soil sample from GM-14.

4.1.2 Metals

All soil samples were analyzed for metals (including arsenic, cadmium, chromium, lead, mercury, nickel, and zinc). All metals were detected at least once in the samples analyzed and at least one metal was detected in each sample (see Table 4-1). Metals were detected in soil to 12 feet bgs, the maximum depth sampled. Metals concentrations were generally consistent across locations, with the following exceptions:

- Lead was detected at GM-15 at 1.5 feet bgs at 1,800 mg/kg, and at GM-16 at 2.5 feet bgs at 1,400 mg/kg. This is higher than other analyzed samples at similar depths; lead was detected at GM-11 at 3 feet bgs at 9.3 mg/kg and GM-12 at 2 feet bgs at 7 mg/kg. Lead was detected in deeper soil samples collected at GM-13 at 7.5 feet bgs and GM-14 at 12 feet bgs at 9.1 and 6.1 mg/kg, respectively.
- Remaining detections ranged from 6.1 to 9.3 mg/kg.
- Zinc at GM-15 was detected at a higher concentration than in other analyzed samples, at 1,400 mg/kg. Remaining detections ranged from 69 to 98 mg/kg.

4.2 Groundwater

Groundwater samples were collected from three existing monitoring wells and were analyzed for metals and heavy oils (see Figure 3-1 and Table 4-2).

4.2.1 Heavy Oils

All groundwater samples were analyzed for heavy oils, including DRO and LRO, which were detected only in the groundwater samples collected from GM-3. DRO detections ranged from 350 micrograms per liter (ug/L) to 400 ug/L; LRO detections ranged from 600 ug/L to 680 ug/L.

4.2.2 Metals

All groundwater samples were analyzed for total and dissolved metals (including arsenic, copper, and manganese). Arsenic and copper were non-detect in all groundwater samples. Manganese was detected in all groundwater samples, with the highest concentrations of total and dissolved manganese detected at GM-3 at 1,200 ug/L.

4.3 Sediment

During the RI fieldwork, sediment samples were collected from 11 locations across the lagoon, including five surface, three subsurface, and three combined surface and subsurface sample locations (see Figure 3-2 and Table 4-3).

4.3.1 Dioxins/Furans

Fifteen sediment samples were analyzed for dioxins and furans: nine surface sediment samples, including one field duplicate sample, and six subsurface sediment samples. All dioxins and furans were detected at least once, and at least one dioxin or furan congener was detected in each sample (see Table 4-3). A dioxin and furan toxic equivalent quotient (TEQ) was calculated for analyzed samples, as discussed in Section 7.1. Dioxin and furan TEQs ranged between 0.0484 and 40.0 picograms per gram (pg/g). Dioxins and furans were detected in sediment to 4.5 feet bml, the maximum depth analyzed.

4.3.2 Heavy Oils

Sixteen sediment samples were analyzed for heavy oils, including DRO and LRO. DRO was detected in 12 sediment samples and ranged from 120 to 1,500 mg/kg. LRO was detected in 14 sediment samples and ranged from 170 to 11,000 mg/kg.

4.3.3 Metals

Eighteen sediment samples were analyzed for one or more metals (arsenic, cadmium, chromium, lead, mercury, nickel, and zinc). All metals were detected at least once, and at least one metal was detected in each sample (see Table 4-3). Metals in sediment were detected to 6.5 feet bml, the maximum depth sampled. Metals detections were typically relatively consistent across locations, with the exception of lead at S-15 at 3.5 feet bml, which was detected at 730 mg/kg.

4.3.4 PCBs

Fifteen sediment samples were analyzed for PCB Aroclors. Total freshwater and marine PCB Aroclors were calculated as a sum of selected Aroclors for analyzed samples, as discussed in Section 7.1. The following is a summary of PCB results:

- PCB Aroclors 1016, 1221, 1232, and 1248 were not detected in any sediment samples.
- PCB Aroclor 1242 was detected in one sediment sample at S-22 at 3.5 feet bml.
- PCB Aroclor 1254 was detected in nearly all samples. Detections ranged from 0.012 to 1.2 mg/kg.
- PCB Aroclor 1260 was detected in eight sediment samples. Detections ranged from 0.0067 to 0.016 mg/kg.
- Total PCB Aroclors for both freshwater and marine sediment evaluation ranged from 0.0273 to 1.2 mg/kg.

4.3.5 SVOCs/PAHs

Twenty sediment samples were analyzed for SVOCs, including PAHs. Total PAHs, total low-molecular weight PAHs (LPAHs), total high-molecular weight PAHs (HPAHs), and cPAHs TEQs were calculated for analyzed samples, as discussed in Section 7.1. The following SVOCs were identified:

- 3- & 4-Methylphenol (m,p-cresol) was detected in one subsurface sample at 0.023 mg/kg at S-21, collected between 0.5 and 2.5 feet bml, but was not detected in the deeper sample collected between 2.5 and 4.5 feet bml at the same location.
- Di-n-butyl phthalate was detected at two subsurface sample locations (S-21 and S-24) between 0.5 and 2.5 feet bml at 0.058 and 0.051 mg/kg, but was not detected in deeper samples collected between 2.5 and 4.5 feet bml at the same locations.

- Butylbenzylphthalate was detected at S-16, S-21, S-22, and S-24, with concentrations ranging between 0.077 and 0.34 mg/kg at depths between 0.5 and 2.5 feet bml.
- Bis(2-ethylhexyl)phthalate was detected in 16 samples from all 11 locations. Concentrations for bis(2-ethylhexyl)phthalate ranged between 0.081 and 32 mg/kg, with detections observed from the surface to 4.5 feet bml.
- Pentachlorophenol was detected in one subsurface sample at 0.045 mg/kg at S-21, collected between 0.5 and 2.5 feet bml, but was not detected in the deeper sample collected between 2.5 and 4.5 feet bml at the same location.

All PAHs were detected at least once, and at least one PAH was detected in each sample. Total PAHs ranged from 0.023 to 29 mg/kg, with detections observed from the surface to 6.4 feet bml, the maximum depth analyzed.

5 CONCEPTUAL SITE MODEL

The CSM describes potential chemical sources, release mechanisms, environmental transport processes, exposure routes, and receptors. The primary purpose of the CSM is to describe pathways by which human and ecological receptors could be exposed to site-related chemicals. A complete exposure pathway consists of four necessary elements: (1) a source and mechanism of chemical release to the environment, (2) an environmental transport medium for a released chemical, (3) a point of potential contact with the impacted medium (referred to as the exposure point), and (4) an exposure route (e.g., soil ingestion) at the exposure point.

The CSM describes potential exposure scenarios based on information collected during the Property investigations. Elements of potentially complete exposure scenarios relevant to human health and ecological receptors are discussed below and are presented in Figure 5-1. The CSM diagram focuses on Property receptors and potential exposure pathways related to historical releases from the Property. Limited data are available for areas outside the Property boundaries. The CSM may be subject to further modification if additional information becomes available. The CSM and exposure scenarios for a site play a role in selection of cleanup standards.

5.1 Source Characterization

Potential sources of contamination associated with historical operations at the Property were identified during previous environmental investigations at the Property, as described in the RI work plan (MFA, 2019). Based on documented historical uses and data obtained from interviews and property visits, it appears that the following historical operations/uses at the Property and/or at adjoining properties may have contributed to contamination at the Property:

- Historical releases to on-site soil and/or groundwater, including:
  - Surface releases from former repair operations

  - Subsurface releases from the former UST system
  - Off-Property impacts from adjacent former sawmill operations
- Historical releases to on-site surface water and/or sediment, including:
  - Unregulated dumping of materials into the lagoon
  - Releases from historical discharge of stormwater to the lagoon
- Current releases to on-site surface water and/or sediment from the stormwater outfall

These potential sources and release mechanisms may have resulted in contaminant releases to the soil, groundwater, and sediment.

5.2 Fate and Transport of Contaminants

The primary mechanisms likely to influence the fate and transport of chemicals at the Property include natural biodegradation, sorption to soil, advection and dispersion in groundwater, volatilization of chemicals from soil or groundwater to air, and leaching of chemicals from soil to groundwater. The relative importance of these processes varies, depending on the chemical and physical properties of the released contaminant. The properties of soil and the dynamics of groundwater flow also affect contaminant fate and transport.

The IRA completed in 2016 consisted of a soil cap placed on upland portions of the Property. The soil cap prevents exposure to contaminated soil and prevents direct contact with rainfall runoff, as well as precluding weathering or erosion of the contaminated soil beneath the cap. However, contaminants in the subsurface still have potential to migrate vertically downward to the water table, resulting in potential impacts to subsurface soil and shallow groundwater.

Volatile contaminants may partition to the vapor phase in a source area or downgradient of a source area via groundwater transport of dissolved-phase contamination. Volatile contaminants in surface and subsurface soil may also partition to the vapor phase; this could result in impacts to outdoor air quality or indoor air quality in buildings planned for redevelopment of the Property. Few volatile contaminants were identified in the subsurface at the Property, and these were detected at concentrations below applicable screening levels; therefore, partitioning of contaminants in soil or groundwater to outdoor or indoor air is unlikely and this exposure pathway is considered insignificant.

Shallow groundwater beneath the Property likely discharges to the lagoon on the Property. Dissolved-phase contamination also has the potential to migrate via groundwater flow, potentially resulting in surface water and sediment impacts via discharge. Fish intake of contaminated lagoon surface water or sediment could result in the bioaccumulation of contaminants in the fishes' fatty tissue.

5.3 Potential Receptors and Exposure Pathways

Potential human and ecological receptors and exposure pathways are shown in Figure 5-1. The Property is currently vacant and is widely vegetated, with large areas of unpaved ground surface. Human access is currently restricted via fencing, minimizing current exposure potential. However, planned future uses of the Property include commercial and open space. Redevelopment plans may

include exposing previously capped material as part of potential creek restoration activities.[1] Based on the future uses, potential human receptors include construction workers and visitors.

The lagoon on the Property is tidally connected to Ebey Slough, which empties into the Possession Sound region of Puget Sound. Ebey Slough and Possession Sound have been identified as salmon habitat areas. The lagoon provides intermittent fish habitat during high tide. Fish have the potential to migrate to Ebey Slough, where they may be caught and consumed by recreational fishers. Therefore, recreational fishers are potential current and future human receptors.

Impacted soil at the Property was capped during the 2016 IRA. Upland ecological receptors are present but are not expected to contact impacted soil. A simplified terrestrial ecological evaluation (TEE) shows that the Property is unlikely to pose a threat to upland ecological receptors (see Section 5.4). The lagoon provides habitat for a variety of aquatic receptors (e.g., benthic invertebrates and fish) and water-dependent receptors (e.g., piscivorous birds and mammals). These receptors could potentially be exposed to chemicals in the lagoon under current and future conditions, or to subsurface soils potentially converted to sediment as part of potential creek restoration activities.[2]

The exposure pathways considered potentially complete for human health and ecological receptors are summarized below and are presented in Figure 5-1.

On-Site Construction Workers and Visitors—Future construction workers and/or visitors may be exposed to chemically impacted soil, sediment, and/or groundwater by the following pathways:

- Direct skin contact with, incidental ingestion of, and inhalation of windborne particulates from impacted soil in excavations
- Direct skin contact with and incidental ingestion of surface water or sediment

Recreational Fishers—Recreational fishers could potentially be exposed to chemicals by the following pathways under current or future scenarios:

- Direct skin contact with and incidental ingestion of surface water or sediment (future conditions)
- Ingestion of chemicals bioaccumulated in the tissue of fish from impacted surface water or sediment (current and future conditions)

Ecological Receptors—Aquatic and water-dependent ecological receptors may be exposed to chemically impacted surface water, sediment, and/or fish tissue by the following pathways under current and future scenarios:

[1] If soil below the OHWM is exposed and inundated in the future, it will require evaluation as sediment. Therefore, sediment screening levels developed in this report should be applied, and any exceedances of those criteria will have to be considered as part of the redevelopment design to ensure that this future potential exposure pathway is evaluated.

[2] See footnote 1.

- Direct contact with and ingestion of surface water or sediment in the lagoon
- Ingestion of chemicals bioaccumulated in the tissue of fish from chemically impacted surface water or sediment in the lagoon at the Property

Off-Property Receptors—A search for water supply wells located within an approximate 0.5-mile radius of the Property was conducted using Ecology's online Well Log database (Ecology, 2020). No water supply wells within the search radius were identified. Groundwater was not assessed for potability as part of this investigation but is unlikely to be suitable for use as a drinking water supply because of salinity, tidal influence, and low yield. However, as no covenants currently restrict groundwater use, ingestion of and dermal contact with groundwater are considered potentially complete exposure pathways for human receptors. Consumption of Property groundwater is very unlikely, as it could not be used as a domestic drinking water supply (i.e., because of tidal influence and low yield).

5.4 Terrestrial Ecological Evaluation

A simplified TEE was completed for the Property to assess the potential for ecological exposure (Appendix F). The intent of a simplified TEE is to ensure protection of terrestrial wildlife at industrial or commercial sites, and of terrestrial plants, soil biota, and terrestrial wildlife at other sites, as provided under WAC 173-340-7490(3)(b). According to MTCA, the simplified TEE process is intended to identify sites that do not have a substantial potential to pose a threat of significant adverse effects to terrestrial ecological receptors. Therefore, a simplified TEE may be used to remove a site from further ecological consideration during the RI and cleanup process (WAC 173- 340-7492).

WAC 173-340-7492(2) provides the steps necessary for conducting the simplified TEE. MTCA Table 749-1 may be used to determine whether land use at a site and surrounding area is likely to result in substantial wildlife exposure. MTCA specifies that if this is demonstrated to be unlikely, no further evaluation is necessary to conclude that a site does not pose a substantial threat to potential ecological receptors.

The completed MTCA Table 749-1 included in Appendix F indicates that the Property is unlikely to pose a threat to ecological receptors and that no further evaluation is necessary. Appendix F includes a table presenting the rationale for the scoring on Table 749-1.

6 CLEANUP STANDARDS

Cleanup standards were developed based on prior investigations (MFA, 2015), the additional data collected during this RI, and the CSM presented in Section 5. According to MTCA, the cleanup standards for a site have two primary components: chemical-specific CULs and points of compliance (POCs). The CUL is the concentration of a chemical in a specific environmental medium that will not pose unacceptable risks to human health or the environment. The POC is the location where the CUL must be met.

6.1 Soil

In the 2015 FSA, soil was screened to MTCA Method A CULs for unrestricted land use. For certain constituents, MTCA Method A CULs were not available and Method B CULs were applied. The Method A values are for protection of human health via the direct-contact or ingestion pathways and protection of groundwater via the soil-leaching-to-groundwater pathway. For certain constituents, MTCA Method A CULs were not available and Method B CULs were applied. Soil CULs for the protection of potable groundwater (leaching-to-groundwater pathway) were not evaluated, because groundwater data were available to determine the potential for impacted soil to affect groundwater resources. The 2016 IRA capped soil concentrations that exceeded MTCA CULs. MTCA CULs account for multiple potential exposure pathways and are the applicable cleanup standards for soil.

Should redevelopment plans involve exposing capped soil and inundating it with surface water (i.e., resulting in soil becoming sediment), it is recommended that previously detected concentrations in soil be screened against sediment CULs (see Section 6.3).

6.1.1 Points of Compliance in Soil

The soil POC is the depth at which soil CULs shall be attained. The standard POC for soil is down to 15 feet bgs.

If soil on the Property is exposed and becomes sediment during redevelopment, the POC will be the depth at which sediment CULs shall be attained. The standard POC for sediment for human direct contact and for ecological receptors is from the surface to 10 centimeters bml. This standard POC should be applied to soil that could be exposed as sediment on the Property.

6.2 Groundwater

Groundwater was screened to MTCA Method A CULs. For certain constituents, MTCA Method A CULs were not available and Method B CULs were applied. Method A CULs are the applicable cleanup standards for groundwater; if these are unavailable, Method B CULs are applicable.

MTCA Method A and B CULs account for drinking groundwater, representing the maximum exposure scenario. Consumption of groundwater on the Property is very unlikely, as it could not be used as a domestic drinking water supply. However, groundwater is considered potable and available for use without an environmental covenant applied to the Property.

6.2.1 Points of Compliance in Groundwater

For groundwater, the POC is the point or points where the groundwater CULs must be attained for a site to comply with the cleanup standards. Groundwater CULs shall be attained in all groundwater from the POC to the outer boundary of the hazardous-substance plume. A conditional POC may be established if it is not practicable to meet the CULs throughout the site within a reasonable restoration time frame (WAC 173-340-720(8)(c)). A conditional POC for groundwater is not proposed at this time.

6.3 Sediment

Upper- and lower-tier sediment cleanup standards were established using criteria and procedures presented in the Sediment Cleanup User's Manual II (SCUM II; Ecology, 2019a). Based on the brackish salinity measurements collected from the lagoon, both freshwater and marine SMS criteria were incorporated into sediment CUL determinations consistent with Ecology guidance and common practice (Ecology, 2019a).

The lower-tier sediment CULs were established as the highest of the following (see Table 6-1):

- Natural background concentrations for Puget Sound
- Practical quantitation limits (PQLs)
- Risk-based concentrations (RBCs), which are the lowest of the following:
  - Freshwater SMS SCOs
  - Marine apparent effects threshold (AET) SCOs

The upper-tier sediment CULs were established as the highest of the following (see Table 6-2):

- Regional background concentrations for Port Gardner
- PQLs
- RBCs, which are the lowest of the following:
  - Freshwater SMS CSLs
  - Marine AET CSLs

Lower-tier cleanup standards are long-term goals for concentrations of chemicals in sediment; they are the lower end of chemical concentrations used as sediment CULs. Upper-tier cleanup standards are used to identify areas where sediment cleanup is warranted; they are the highest chemical concentrations allowed as sediment CULs.

The lower-tier sediment CULs should be established as the cleanup standard, unless actions required to reach lower-tier sediment CULs are not technically possible or would have net adverse environmental impacts.

Natural background. Natural background is defined in WAC 173-204-505(11) as "the concentration of a hazardous substance consistently present in the environment that has not been influenced by localized human activities." Natural background concentrations for selected analytes in marine sediment are provided by Ecology in the SCUM II. Natural background concentrations for freshwater sediment have not been developed by Ecology to date.

Regional background. Regional background is defined in WAC 173-204-505(16) as "the concentration of a contaminant within a department-defined geographic area that is primarily attributable to diffuse sources, such as atmospheric deposition or storm water, not attributable to a

specific source or release." 90/90 upper tolerance limits from the nearby Port Gardner Bay study were used to inform regional background for the Property (Ecology, 2014).

PQLs. The PQL is defined in WAC 173-204-505(15) as "the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods." PQLs provided in Table 11-1 of the SCUM II were used for sediment CUL determination (Ecology, 2019a).

RBCs. The lowest available freshwater SMS criteria or marine AETs presented in the SCUM II were used as RBCs. Two screening levels for both SMS and AET criteria are presented in the SCUM II: a lower level for no apparent adverse effects, called the SCO; and a higher screening level for minor adverse effects, called the CSL. Note that the SCOs and CSLs are criteria protective of aquatic receptors that are directly exposed to contaminants and do not account for bioaccumulative effects to higher-trophic-level species. Marine sediment AETs were used rather than SMS marine sediment SCO/CSLs because all samples analyzed for total organic carbon were above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.

Option 1 in the SCUM II was used to conservatively account for bioaccumulation. Option 1 accounts for natural background in the development of sediment CULs, thereby accounting for the bioaccumulative pathway. Ecology also provides an alternative (Option 2) for generating criteria protecting against the accumulation of chemicals in tissue and subsequent ingestion by higher trophic levels (i.e., fish, birds, mammals, and humans). Calculating biota-sediment accumulation factors via option 2 is a more time-intensive process that often results in criteria that are unattainable because they are below natural or regional background concentrations.

6.3.1.1 Points of Compliance in Sediment

For sediment, the POC is the point or points where the lower-tier CUL must be attained for a site to comply with the cleanup standards. The sediment POC depends on the selected CUL. If the CUL is based on the PQL or natural or regional background, the POC must be attained over an area-wide average in the top 10 centimeters bml.

For sediment CULs based on RBCs, the POC is the top 10 centimeters bml and must be attained on a point-by-point basis.

7 NATURE AND EXTENT

This section delineates areas of contamination based on available information from previous and current investigations. Groundwater, soil, and sediment sample results were compared to applicable CULs, as discussed in Section 6 (see Tables 4-2, 7-1, 7-2, and 7-3). Chemicals that exceed a screening level outlined below are considered chemicals of concern (COCs).

7.1 Data Usability

Analytical results were reviewed for usability and were qualified consistent with USEPA procedures and appropriate laboratory and method-specific guidelines (see Appendix E). Detected concentrations of some constituents were summed for comparison to applicable CULs as follows:

- The following sums were calculated for PCBs:
  - Selected PCBs were summed for comparison to freshwater sediment criteria.
  - Selected PCBs were summed for comparison to marine sediment criteria.
- The following sums were calculated for PAHs:
  - HPAHs
  - LPAHs
  - Total PAHs
- DRO and LRO were summed for comparison to the DRO CUL.
- A TEQ was calculated for cPAHs for comparison to the benzo(a)pyrene CUL.
- A TEQ was calculated for dioxins and furans.

Sums. For comparison to sum-based screening levels, the following groups of chemicals were summed using constituents detailed below:

- PCBs
  - **Freshwater PCBs** are the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260. Aroclor 1268 was not reported by the laboratory and is not included in the total PCB Aroclors calculation.
  - **Marine PCBs** are the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.
- PAHs
  - **Total HPAHs** are the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene.
  - **Total LPAHs** are the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene.
  - **Total PAHs** are the sum of 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene phenanthrene, and pyrene.

TEQs. Consistent with WAC 173-340-708(8), mixtures of dioxins and cPAHs are considered as single hazardous substances in evaluating compliance with CULs such that the toxicity of a particular

congener is expressed relative to the most toxic dioxin or cPAH congener (i.e., 2,3,7,8-tetrachloro dibenzo-p-dioxin [TCDD] and benzo(a)pyrene, respectively). The toxicity of dioxins and cPAHs as groups was assessed using a toxic equivalent approach. Each congener in the group is assigned a toxic equivalent factor (TEF) describing the toxicity of that congener relative to the toxicity of the reference compound, TCDD or benzo(a)pyrene. Multiplying the concentration of a congener by its TEF produces the concentration of TCDD or cPAH that is equivalent in toxicity to the congener concentration of concern. Summing those values permits expression of all congener concentrations in terms of a total TCDD or cPAH TEQ (i.e., dioxin TEQ and cPAH TEQ, respectively):

$$\text{Dioxin TEQ} = \sum_{i=1}^{k} \text{Ci x TEFi}$$

$$\text{cPAH TEQ} = \sum_{i=1}^{k} \text{Ci x TEFi}$$

Dioxin and cPAH TEQs were qualified and calculated as follows:

- Congeners qualified as non-detect and flagged with a "U" are used in the TEQ calculation at one-half the associated value.
- Congeners qualified as estimated and flagged with a "J" are used without modification in the TEQ calculation.
- Congeners qualified as non-detect with an estimated limit (i.e., flagged with a "UJ") are used in the TEQ calculation at one-half the associated value.
- If all congeners in a chemical group are undetected, the group sum is reported as undetected.

The most recent effort to develop TCDD TEFs for dioxins, made at an expert meeting organized by the World Health Organization in 2005 (Van den Berg et al., 2006), used multiple lines of evidence to develop a consensus-based list of TEFs for mammal, bird, and fish receptors of dioxins. These TEFs were used to develop the dioxin/furan TEQ. TEFs for cPAHs were used consistent with WAC 173-340-708(8).

7.2 Soil

As discussed in Section 6.1, soil was screened against upper- and lower-tier sediment CULs to account for potential future conditions (see Table 7-1). Soil was not screened against soil CULs, since soil has been capped as part of the 2016 IRA.

7.2.1 Heavy Oils

Detected concentrations of DRO and LRO in GM-16 did not exceed applicable sediment CULs.

7.2.2 Metals

Below is a summary of metal CUL exceedances in soil:

- Arsenic was detected slightly above the lower-tier sediment CUL (14 mg/kg) at four borings (GM-11, GM-13, GM-15, and GM-16). Exceedances ranged from 23 to 29 mg/kg.
- Cadmium was detected slightly above the lower-tier sediment CUL in one boring (GM-15). Cadmium was detected at 2.3 mg/kg.
- Lead was detected above the upper- and lower-tier sediment CUL at GM-15, at 1.5 feet bgs; and at GM-16, at 2.5 feet bgs. Concentrations at GM-15 and GM-16 were 1,800 and 1,400 mg/kg, respectively, above the upper- and lower-tier sediment CUL of 530 mg/kg. All other lead detections were significantly below applicable sediment CULs.
- Mercury was detected slightly above the upper- and lower-tier sediment CUL in one boring (GM-15), at 3.9 mg/kg.
- Nickel was detected slightly above the lower-tier sediment CUL in one boring (GM-11), at 59 mg/kg.
- Zinc was detected above the upper- and lower-tier sediment CUL in one boring (GM-15), at 1400 mg/kg.
- Chromium and diesel were not detected above their applicable sediment CULs.

Based on these soil screening results, future redevelopment activities that may expose and inundate soil as part of creek restoration will require further evaluation.

7.3 Groundwater

Below is a summary of groundwater CUL exceedances:

- Total and dissolved manganese were detected above the MTCA Method B CUL at GM-3, at 10.9 feet bgs.
- LRO were detected above the MTCA Method A CUL at GM-3, at 10.9 feet bgs.
- No analyzed samples contained concentrations of COCs that exceeded applicable CULs in GM-2 or GM-9.

Historically, widespread elevated concentrations of arsenic, copper, and manganese were observed in groundwater across the Property. During the 2019 RI, total and dissolved arsenic and copper were not detected on the Property, suggesting that concentrations have decreased as a result of removal of upland sources (e.g., current repair shop and boathouses) and implementation of the 2016 IRA.

Elevated concentrations of manganese were detected in groundwater in the northeastern corner of the Property; however, elevated manganese concentrations are likely a result of the ongoing natural attenuation of petroleum hydrocarbons associated with historical releases from former repair operations and operation of the former UST system. Manganese acts as an electron receptor in the natural attenuation process. As anaerobic biodegradation of organic carbon progresses and petroleum hydrocarbon concentrations decrease, concentrations of manganese increase. Elevated concentrations

of heavy oils collocated with the manganese provide evidence of ongoing natural attenuation in these areas.

7.4 Sediment

Sediment CUL exceedances are detailed in Tables 7-2 and 7-3 and are illustrated on Figure 7-1. Historical sediment data were also screened to the sediment CULs developed in Section 6 and discussed below.

7.4.1 Dioxins/Furans

The dioxin/furan TEQ exceeded the sediment CUL of 5 pg/g in 15 analyzed samples collected from 14 of 16 locations (S-9 to S-19, S-22 to S-24). Exceedances ranged from 7.29 to 195 pg/g at depths to 4.5 feet bml. The highest concentrations of dioxin/furans were generally observed in the top 10 centimeters bml; however, exceedances extended to 4.5 feet bml, the maximum depth analyzed. Therefore, exceedances may extend beyond this depth. Concentrations also appear relatively higher on the northern end of the lagoon, with concentrations decreasing to the south.

7.4.2 Heavy Oils

DRO was detected above the upper- and lower-tier sediment CULs in ten locations (S-1 to S-3, S-4, S-9, S-11, S-12, S-13, S-15, and S-17) and above the lower-tier sediment CUL in three locations (S-7, S-10, and S-18). LRO was detected above the upper- and lower-tier sediment CUL in eight locations (S-2, S-3, S-9, S-11, S-12, S-15, S-17, and S-18) and above the lower-tier sediment CUL in one location (S-10).

DRO and LRO exceedances were significantly higher at locations on the north end of the lagoon (e.g., S-3, S-9, S-11, S-15). Similar to dioxin/furan concentrations, concentrations of heavy oils throughout the lagoon generally appear to decrease with depth.

7.4.3 Metals

The following is a summary of upper- and lower-tier sediment CUL exceedances for analyzed metals:

- Arsenic was detected above the lower-tier sediment CUL at 13 locations (S-2 to S-8, S-15, S-16, S-18, S-22, S-23, and S-24). Lower-tier exceedances ranged from 15 to 22 mg/kg. No concentrations exceeded the upper-tier sediment CUL.
- Lead was detected at S-15 at 3.5 feet bml, at a concentration of 730 mg/kg, which is above the upper and lower tier sediment CUL; and at S-2 between 1.5 and 2.5 feet bml, at a concentration of 376 mg/kg. No other detections of lead exceeded upper- or lower-tier sediment CULs.
- Nickel was detected slightly above the lower-tier sediment CUL in nine locations (S-3, S-10, S-11, S-12, S-13, S-18, S-21, S-22, and S-24). Lower-tier exceedances ranged from 50.5 to 66 mg/kg. No concentrations exceeded the upper-tier sediment CUL.

- One detection of cadmium exceeded the lower-tier sediment CUL, at S-3 at 3.73 mg/kg, but did not exceed the upper-tier sediment CUL.
- Chromium was detected above the lower-tier sediment CUL at two locations (S-11 and S-12), but did not exceed the upper-tier sediment CUL.
- One detection of mercury exceeded the lower-tier sediment CUL, at S-2 at 0.44 mg/kg, but did not exceed the upper-tier sediment CUL.
- Zinc was detected above the lower-tier sediment CUL at four locations (S-3, S-9, S-11, and S-12). Lower-tier exceedances ranged from 471 to 498 mg/kg. No concentrations exceeded the upper-tier sediment CUL.

Several metals exceeded the lower-tier sediment CULs at multiple locations. Elevated detections appear at the surface and at depth, with exceedances observed in sediment collected to 6.5 feet bml, the maximum depth sampled. Therefore, metal exceedances of sediment CULs may extend deeper in the lagoon. Lower-tier sediment CUL exceedances also appear uniform and widespread throughout the lagoon.

7.4.4 PCBs

Total PCB Aroclors were calculated for evaluation against freshwater and marine sediment CULs. Total freshwater PCB Aroclors exceeded the lower-tier sediment CUL in seven samples collected at six locations (S-9 and S-11 to S-15). Total freshwater PCB Aroclors exceeded the upper-tier sediment CUL in two locations (S-9 and S-10). Total freshwater PCB Aroclors exceeding CULs ranged from 0.31 to 12 mg/kg.

Total marine PCB Aroclors exceeded the lower-tier sediment CUL in four locations (S-9, S-11, S-12, and S-14). Total marine PCB Aroclors exceeded the upper-tier sediment CUL in five locations (S-9, S-10, S-11, S-13, and S-15). Total marine PCB Aroclors exceeding CULs ranged from 0.31 to 12 mg/kg. Exceedances were identified down to 4.5 feet bml, the maximum depth analyzed. Therefore, additional exceedances of PCBs may be present at greater depths in the lagoon.

7.4.5 SVOCs/PAHs

During the 2015 and 2019 investigations, samples were analyzed for SVOCs and PAHs (see Tables 7-2 and 7-3). Numerous SVOCs were detected above their upper-tier sediment CULs at five locations (S-9, S-10, S-11, S-12, S-13). Bis(2-ethylhexyl)phthalate exceeded the upper- and lower-tier sediment CUL at nine locations (S-15 to S-20 and S-22 to S-24) and the lower-tier sediment CUL at two locations (S-14 and S-24). Butylbenzylphthalate exceeded the lower-tier sediment CUL at four locations (S-16, S-21, S-22, and S-24).

The cPAH TEQ exceeded the upper-tier sediment CUL (based on the Port Gardner SMS regional background value) at every analyzed location (S-9 to S-24), with the exception of S-14, which exceeded the lower-tier sediment CUL. Upper-tier sediment exceedance concentrations ranged between 0.07 and 3.7 mg/kg, with exceedances observed in samples collected to 4.5 feet bml.

As with heavy oils and dioxins/furans, concentrations of SVOCs and PAHs elevated above their respective sediment CULs were identified in samples collected throughout the lagoon. Concentrations of SVOCs and PAHs were highest on the north end of the lagoon, with exceedances generally decreasing with depth.

7.4.6 Sediment Results Summary

As discussed above, multiple chemical groups exceed lower- and upper-tier CULs throughout the lagoon. Exceedances of upper- and lower-tier sediment CULs extend to 4.5 bml for heavy oils and SVOCs/PAHs. Exceedances of PCBs and dioxins/furans were identified to the maximum analyzed depth of 4.5 bml and metals to the maximum sampled depth of 6.5 bml; however, concentrations associated with these chemicals may extend deeper in the lagoon. Therefore, the investigations completed on the Property show that sediment impacts are widespread laterally and vertically in the lagoon.

8 CLEANUP ALTERNATIVES

In 2016, MFA completed an IRA to address identified impacts in the upland soils on the Property (MFA, 2016). Upland soils were covered with demarcation fabric, then capped with approximately 6 inches of imported, clean fill material. While future construction activities have the potential to expose impacted soils, the upland area has been remediated (MFA, 2016), and no further actions are considered for this area in this report. As discussed in Section 7.3, there is evidence of the likely occurrence of natural attenuation processes in groundwater. Additionally, previous upland remediation efforts are believed to have reduced the amount of COCs leaching into groundwater. No further actions are proposed for identified groundwater and soil impacts.

In 2018, the City received grant funding from Ecology to construct a stormwater treatment system on an existing upland portion of the Property that will remove contaminants prior to discharge from the outfall. Improvements to the stormwater system constitute an independent project and are not associated with any remedial actions on the Property. The timing for these stormwater upgrades is unknown, and therefore alteration to the stormwater system is included as a part of each alternative to account for the possibility that stormwater improvements may be made after a cleanup alternative is implemented. The alteration involves piping the existing stormwater outfall along the western portion of the lagoon to drain flow directly to the Ebey Slough.

Based on existing and historical data, cleanup alternatives were developed to address identified sediment impacts.

8.1 Remedial Action Objectives

A variety of cleanup technologies were considered and assembled into several cleanup alternatives. The objectives of these alternatives include:

- Reducing levels of COCs below the CULs in sediment or eliminating the exposure pathways for current or future receptors
- Preventing contaminant migration

8.2 Cleanup Alternatives

Based on the analytical results and the CSM discussed in previous sections, three cleanup alternatives were developed to meet the remedial action objectives.

Per Ecology's guidance, a permanent remedy where all impacted sediment is dredged and removed from the Property was initially considered. However, the dredging of all impacted sediment was deemed cost-prohibitive, with significant limitations to the technical implementability. Therefore, complete dredging was not developed into a cleanup alternative.

8.2.1 Alternative 1: No Further Action

No cleanup action will be taken at the Property. Alternative 1 assumes that existing contamination will be left in place to attenuate naturally to the maximum extent possible.

8.2.2 Alternative 2: Sediment Capping

Alternative 2 involves capping impacted sediment to the ordinary high-water mark (OHWM) with imported clean fill material. Specific elements of this alternative include:

Stormwater Diversion: The existing City stormwater system that drains into the northern portion of the lagoon will be diverted just upstream of the lagoon by installation of approximately 670 linear feet of pipe, which will route flow along the western portion of the Property out to Ebey Slough.

Lagoon Drainage: The inlet from Ebey Slough into the lagoon will be blocked during low tide and the lagoon will be left to drain to the extent possible within a reasonable construction timeframe. A dewatering and treatment system will be required to effectively drain the lagoon.

Sediment Capping: A stabilizing layer consisting of a geogrid, quarry spalls, geotextile liner, or other material approved by a geotechnical engineer licensed by the State of Washington will be placed on top of the existing sediment to allow for construction of and reduce uneven settling and consolidation of the proposed cap layer. Approximately 5 feet (15,300 cubic yards) of clean, imported fill and a 1-foot-thick stabilization layer made of a geotextile liner and rock will be used to cap impacted sediments. Cap depths were determined using existing survey data from the lagoon. The cap will extend up to the top of the existing lagoon bank., bringing the final grade above the OHWM.

Institutional Controls: Prepare a site management plan to prevent exposure to impacted soil/sediments as a part of future construction on the Property.

Cost: The probable cost of alternative 2 is $2,016,804 (+50/-35%). See Table 8-1 for a breakdown of estimated costs.

8.2.3 Alternative 3: Sediment Excavation

Alternative 3 involves removal of impacted sediment from the lagoon through the process of mechanical dredging. The scenario selected for Alternative 3 is removal of sediment with contaminant concentrations exceeding upper tier final sediment CULs. For the purposes of the FS, this is assumed to be the top 4 feet of sediment across the lagoon; sampling conducted during the design phase would be used to further refine the dredge prism.

Following sediment dredging, a 6-inch-thick clean sand layer would be placed over dredged areas and resulting (presumed) generated residuals. Monitoring of the enhanced natural recovery layer would ensure achievement of the upper tier final sediment CULs and continued effectiveness. Specific elements of this alternative include:

Stormwater Diversion: The existing stormwater outfall that drains into the northern portion of the lagoon will be diverted at the existing manhole by installation of approximately 670 linear feet of pipe, which will drain to the Ebey Slough.

Lagoon Drainage: The inlet between the Ebey Slough and the lagoon will be blocked during low tide and the lagoon will be left to drain to the extent possible within a reasonable construction timeframe. A dewatering and treatment system will be required to effectively drain the lagoon.

Sediment Excavation: Sediments in the lagoon will be excavated down to a maximum depth of 4 feet to remove the most impacted sediments (11,100 cubic yards). Excavated sediment will be dewatered and stabilized on site, then disposed of at a subtitle D landfill. Exposed sediment will be covered with a 6-inch-thick clean sand layer.

Residuals/Sediment Capping: Approximately 6 inches (1,600 cubic yards) of clean, imported fill will be placed from the shore to cap impacted sediments.

Shoreline Stabilization: The portion of the lagoon shoreline between the existing upland soil cap and the dredge prism will be capped with imported clean material to prevent erosion of site soils into the lagoon. That portion of the slope up to the OHWM will be covered with a layer of rounded cobbles underlain by a separation fabric or gravel filter layer. Exposed soil will be seeded with native plants to prevent erosion.

Cost: The probable cost of Alternative 3 is $3,860,560 (+50/-35%). See Table 8-2 for a breakdown of estimated costs.

9 EVALUATION OF ALTERNATIVES

9.1 Model Toxics Control Act Threshold Requirements

The following criteria, which are defined in the MTCA regulation (WAC 173-340-360), are used to evaluate cleanup alternatives:

- Threshold requirements:
  - Protect human health and the environment.
  - Comply with cleanup standards (WAC 173-340-700 through 173-340-760).
  - Comply with applicable state and federal laws (WAC 173-340-710).
  - Provide for compliance monitoring (WAC 173-340-410 and 173-340-720).
- Other requirements:
  - Use permanent solutions to the maximum extent practicable.
  - Provide for a reasonable restoration timeframe.
  - Consider public concerns (WAC 173-340-600).

To qualify for further evaluation, the cleanup alternative must meet the minimum threshold requirements. Alternative 1 does not meet these requirements and is not evaluated further.

9.2 Evaluation Factors

Consistent with WAC 173-340-360(3)(f), Alternatives 2 and 3 were evaluated with a disproportionate-cost analysis (DCA) (see Table 9-1). The criteria for performing the DCA can be found below. Alternatives 2 and 3 comply with MTCA threshold criteria and were included in the DCA.

Costs are determined to be disproportionate to benefits if the incremental cost of a more expensive alternative over that of a lower-cost alternative exceeds the incremental degree of benefits achieved by the more expensive alternative. The DCA includes evaluation criteria that are a mix of qualitative and quantitative factors, including protectiveness, permanence, long-term effectiveness, management of short-term risks, technical and administrative implementability, consideration of public concerns, and cost. A summary of the analysis is provided in Table 9-1; detailed cost estimates are provided as Tables 8-1 and 8-2.

9.2.1 Protectiveness

Protectiveness is a factor by which human health and the environment are protected by the cleanup action, including the degree to which existing risks are reduced; the time required to reduce risk at the

facility and attain cleanup standards; on-site and off-site risks resulting from implementing the cleanup option; and improvement of the overall environmental quality.

Both Alternatives received high scores for protectiveness. Alternative 2 is protective because it eliminates the exposure pathway by containing impacted sediments under 6 feet of clean, imported fill. The fill depth for this alternative would transform the lagoon into an upland area, reducing the risks of erosion reopening exposure pathways. Alternative 3 eliminates the exposure pathway by removing impacted sediment and capping remaining sediment with clean material. However, under Alternative 3, sediment could potentially be recontaminated by leaching of groundwater from surrounding site soils.

9.2.2 Permanence

Permanence is a factor by which the cleanup action alternative permanently reduces the toxicity, mobility, or volume of hazardous substances. It takes into account the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of the waste-treatment process, and the characteristics and quantity of treatment residuals generated.

Under the MTCA DCA process, preference is given to permanent solutions to the maximum extent practicable. A "permanent solution" is defined as a cleanup action in which the cleanup standards are met without further action being required at the site being cleaned up or at any other site involved with the cleanup action, other than the approved disposal of any residue from the treatment of hazardous substances.

Alternative 2 reduces the mobility of identified COCs, but does not destroy, remove, or reduce the concentrations of the COCs on the Property, earning a low score in this category. Alternative 3 scored higher in this category than Alternative 2, as it physically removes the majority of the impacted surface sediment and reduces mobility of COCs.

9.2.3 Effectiveness over the Long Term

Long-term effectiveness includes the degree of certainty that the alternative will be successful; the reliability of the alternative for the expected duration of hazardous substances remaining on site at concentrations that exceed CULs; the magnitude of residual risk with the alternative in place; and the effectiveness of controls required to manage treatment residues or remaining wastes.

Both Alternatives 2 and 3 are expected to effectively eliminate the exposure pathways for the life of the remedy. Proposed future use of the Property involves construction of a park that will bring additional fill onto the Property, increasing the depth of the protective cap. While there are indications that natural biodegradation of contaminants in soil and groundwater is ongoing, there is the potential for recontamination of sediment under Alternative 3 by groundwater flow to the lagoon.

9.2.4 Management of Short-Term Risks

Short-term risks to remediation workers, the public, and the environment are assessed under this criterion. Generally, short-term risks are expected to be linearly related to the amount of material handled, treated, and/or transported and disposed of (e.g., worker injury per cubic yard excavated [equipment failure], public exposure per cubic yard-mile transported [highway accident]).

This factor addresses the risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks. Potential public exposure during transport, handling, and excavation required for the alternatives could lead to short-term risks.

Alternative 2 does not require the handling, removal, or transportation of impacted material, significantly reducing the short-term risks. Alternative 3 has significant elements involving the removal, handling, transloading, and transportation of impacted sediments, contributing to higher short-term risk for this alternative.

9.2.5 Technical and Administrative Implementability

This factor addresses whether the alternative can be implemented and is technically possible. The availability of necessary materials, regulatory requirements, scheduling, access for construction operations and monitoring, and integration with existing and neighboring site uses must be considered.

Both alternatives can be implemented and are technically possible, but logistical challenges associated with construction reduce their respective scores in this category. For Alternative 2, equipment must be able to place the base layer of material without tracking impacted sediment on the site, which will require strategic phasing to successfully apply the cap. To successfully implement Alternative 3, a dewatering area and wheel wash will have to be set up in the upland area while enough access is maintained for excavation equipment, trucks, and other project equipment to move around the lagoon. These upland area spatial needs in conjunction with the need to transload sediment without contaminating upland soils present challenges to the implementability of Alternative 3.

9.2.6 Consider Public Concerns

This factor includes considering concerns from individuals, community groups, local governments, tribes, federal and state agencies, and any other organization that may have an interest in or knowledge of the site and that may have a preferred alternative. Specifically, the U.S. Army Corps of Engineers (COE) will review the design of the selected alternative and permit the project upon input from natural resources agencies/trustees and tribes.

Public comments on the project will be solicited from the community through publication of the expected State Environmental Policy Act determination of nonsignificance and the COE public notice. Common community concerns include noise and traffic, short- and long-term risks, and the time frame for any proposed cleanup actions. Community concerns will also be factored into local

permit processes, including responding to the City's shoreline ordinance and development permitting. Both alternatives 2 and 3 scored high for this criterion because they have the same permitting and public comment processes.

10 RECOMMENDATIONS

This section describes MFA's recommendations for addressing the Property, based on the current understanding of the nature and extent of CUL exceedances in the lagoon. As outlined in the disproportionate-cost analysis (Table 9-1), Alternative 2 is the recommended cleanup alternative to address sediment impacts on the Property.

Alternative 2 eliminates the exposure pathway for lagoon sediments by capping impacted sediments and transforming the lagoon into an upland area. Alternative 2 earned a high score in the protectiveness, long-term effectiveness, management of short-term risks, and implementability categories. Geotextile fabric and quarry spalls will provide a stabilizing layer to prevent significant or uneven settling of the cap. Furthermore, there are no anticipated long-term maintenance costs for this alternative, as significant erosion is unlikely with the amount of material used to create the cap. The recommended alternative reduces the amount of future soil disturbance and potential exposure of impacted materials by capping the lagoon in a manner that aligns with planned redevelopment of the Property. Compared to Alternative 3, the proposed sediment cap is more implementable, cost-effective, and better reduces short-term risks.

During the RI, soil samples were screened to the sediment cleanup criteria to account for the potential modification of portions of the Property during future development. At the time of such construction, should it take place, measures should be taken to ensure that freshly exposed soils are properly handled, contained, and capped. This may include the use of rounded cobbles, vegetation, and other bank-stabilization measures.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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TABLES

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:			GM1		GM2	GM3	GM4	GM5	GM6	GM7	GM8	GM9
Sample Name:			GM1-S-12.0	GMDUP-S-12.0	GM2-S-6.5	GM3-S-6.0	GM4-S-12.5	GM5-S-4.0	GM6-S-4.0	GM7-S-3.0	GM8-S-4.5	GM9-S-2.0
Collection Date:			02/03/2015	02/03/2015	02/03/2015	02/02/2015	02/03/2015	02/02/2015	02/02/2015	02/02/2015	02/02/2015	02/02/2015
Collection Depth (ft bgs):			12	12	6.5	6	12.5	4	4	3	4.5	2
	MTCA A/B	Natural Background Metals[b]										
Total Metals (mg/kg-dw)												
Antimony	32	NV	--	--	--	17 U	--	--	--	6.7 U	--	--
Arsenic[c]	20	7	--	--	7.1 U	**18**	--	--	**20**	**8.3**	**11**	**12**
Cadmium	2	1	--	--	0.71 U	1.7 U	--	--	0.9 U	0.67 U	0.95 U	0.86 U
Copper	3200	36	--	--	**15**	**39**	--	--	**41**	**19**	**110**	**44**
Lead	250	24	7.6 UJ	**24** J	**36**	**28**	--	--	**25**	**20**	**440**	8.6 U
Mercury[d]	2	0.07	--	--	0.35 U	0.87 U	--	--	0.45 U	0.34 U	0.48 U	0.43 U
Tin	48000	NV	--	--	--	17 U	--	--	--	6.7 U	--	--
Zinc	24000	85	--	--	--	**79**	--	--	--	**61**	--	--
VOCs (mg/kg-dw)												
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,1,1-Trichloroethane	2	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,1,2,2-Tetrachloroethane	5	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
1,1,2-Trichloroethane	18	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,1-Dichloroethane	180	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,1-Dichloroethene	4000	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,1-Dichloropropene	NV	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,2,3-Trichlorobenzene	NV	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
1,2,3-Trichloropropane	0.033	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
1,2-Dibromo-3-chloropropane	1.3	NA	--	--	--	1.6 U	0.0048 U	--	0.68 U	0.0056 U	--	--
1,2-Dibromoethane	0.005	NA	0.0016 U	0.0062 U	0.0011 U	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,2-Dichlorobenzene	7200	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
1,2-Dichloroethane	11	NA	0.0016 U	0.0062 U	0.0011 U	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,2-Dichloropropane	28	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
1,3-Dichloropropane	NV	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
1,4-Dichlorobenzene	185	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
2,2-Dichloropropane	NV	NA	--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
2-Chloroethylvinyl ether	NV	NA	--	--	--	0.012 U	0.0048 U	--	0.0091 U	0.0056 U	--	--
2-Chlorotoluene	1600	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
4-Chlorotoluene	NV	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--
Benzene	0.03	NA	**0.0021**	0.0062 U	0.0011 U	0.0025 U	--	0.00094 U	--	--	0.0017 U	0.0019 U
Bromobenzene	NV	NA	--	--	--	0.31 U	0.00097 U	--	0.14 U	0.0011 U	--	--

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Marysville, Washington

			Location:	GM1		GM2	GM3	GM4	GM5	GM6	GM7	GM8	GM9
			Sample Name:	GM1-S-12.0	GMDUP-S-12.0	GM2-S-6.5	GM3-S-6.0	GM4-S-12.5	GM5-S-4.0	GM6-S-4.0	GM7-S-3.0	GM8-S-4.5	GM9-S-2.0
			Collection Date:	02/03/2015	02/03/2015	02/03/2015	02/02/2015	02/03/2015	02/02/2015	02/02/2015	02/02/2015	02/02/2015	02/02/2015
			Collection Depth (ft bgs):	12	12	6.5	6	12.5	4	4	3	4.5	2
	MTCA A/B	Natural Background Metals[(b)]											
Bromodichloromethane	16	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Bromoform	127	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Bromomethane	112	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Carbon tetrachloride	14	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Chlorobenzene	1600	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Chlorobromomethane	NV	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Chloroethane	NV	NA		--	--	--	0.012 U	0.0048 U	--	0.0091 U	0.0056 U	--	--
Chloroform	32	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Chloromethane	NV	NA		--	--	--	0.012 U	0.0048 U	--	0.0091 U	0.0056 U	--	--
cis-1,2-Dichloroethene	160	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
cis-1,3-Dichloropropene	NV	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Dibromochloromethane	12	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Dibromomethane	800	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Dichlorodifluoromethane	16000	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Ethylbenzene	6	NA		0.0016 U	0.0062 U	0.0011 U	0.0025 U	--	0.00094 U	--	--	0.0017 U	0.0019 U
Hexachlorobutadiene	13	NA		--	--	--	1.6 U	0.0048 U	--	0.68 U	0.0056 U	--	--
m,p-Xylene	NV	NA		**0.013**	0.012 U	0.0022 U	0.005 U	--	0.0019 U	--	--	0.0035 U	0.0039 U
Methyl iodide	NV	NA		--	--	--	0.012 U	0.0048 U	--	0.0091 U	0.0056 U	--	--
Methyl tert-butyl ether	0.1	NA		0.0016 U	0.0062 U	0.0011 U	0.0025 U	--	--	--	--	--	--
Methylene chloride	0.02	NA		--	--	--	0.012 U	0.0048 U	--	0.0091 U	0.0056 U	--	--
n-Hexane	4800	NA		0.099 U	0.35 U	0.084 U	0.27 U	--	--	--	--	--	--
o-Xylene	16000	NA		**0.0033**	0.0062 U	0.0011 U	0.0025 U	--	0.00094 U	--	--	0.0017 U	0.0019 U
Tetrachloroethene	0.05	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Toluene	7	NA		0.008 U	0.031 U	0.0056 U	0.012 U	--	0.0047 U	--	--	0.0087 U	0.0096 U
trans-1,2-dichloroethene	1600	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
trans-1,3-Dichloropropene	NV	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Trichloroethene	0.03	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Trichlorofluoromethane	24000	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Vinyl chloride	240	NA		--	--	--	0.0025 U	0.00097 U	--	0.0018 U	0.0011 U	--	--
Xylenes, total[(e)]	9	NA		**0.0163**	0.0091 U	0.00165 U	0.00375 U	--	0.00142 U	--	--	0.0026 U	0.0029 U

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			Location:	GM1		GM2	GM3	GM4	GM5	GM6	GM7	GM8	GM9
			Sample Name:	GM1-S-12.0	GMDUP-S-12.0	GM2-S-6.5	GM3-S-6.0	GM4-S-12.5	GM5-S-4.0	GM6-S-4.0	GM7-S-3.0	GM8-S-4.5	GM9-S-2.0
			Collection Date:	02/03/2015	02/03/2015	02/03/2015	02/02/2015	02/03/2015	02/02/2015	02/02/2015	02/02/2015	02/02/2015	02/02/2015
			Collection Depth (ft bgs):	12	12	6.5	6	12.5	4	4	3	4.5	2
	MTCA A/B	Natural Background Metals[b]											
PAHs (mg/kg-dw)													
Benzo(a)anthracene	1.4	NA		--	--	--	0.023 U	--	--	--	0.009 U	--	--
Benzo(a)pyrene	0.1	NA		--	--	--	0.023 U	--	--	--	0.009 U	--	--
Benzo(b)fluoranthene	1.4	NA		--	--	--	0.023 U	--	--	--	0.009 U	--	--
Benzo(j+k)fluoranthene	14	NA		--	--	--	0.023 U	--	--	--	0.009 U	--	--
Chrysene	140	NA		--	--	--	**0.046**	--	--	--	0.009 U	--	--
Dibenzo(a,h)anthracene	0.14	NA		--	--	--	0.023 U	--	--	--	0.009 U	--	--
Indeno(1,2,3-cd)pyrene	1.4	NA		--	--	--	0.023 U	--	--	--	0.009 U	--	--
Naphthalene	5	NA		0.01 U	0.022 U	0.0095 U	**0.042**	--	--	--	--	--	--
PAH TEQ	0.1	NA		--	--	--	**0.018**	--	--	--	ND	--	--
TPH (mg/kg-dw)													
Gasoline-Range Hydrocarbons	30[f]	NA		**12**	35 U	8.4 U	27 U	5.8 U	6.3 U	14 U	8 U	15 U	13 U
Diesel-Range Hydrocarbons	2,000	NA		38 U	84 U	35 U	140 U	30 U	33 U	45 U	34 U	48 U	43 U
Lube-Oil-Range Hydrocarbons	2,000	NA		76 UJ	**400** J	71 U	**1,100**	60 U	**140**	90 U	**140**	95 U	**260**

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:			GM10	EB-1	EB-2	EB-3	EB-4	EB-5	EB-6	EB-7	HA-1	HA-2	HA-3
Sample Name:			GM10-S-4.0	EB-1 - 5'	EB-2 - 3'	EB-3 - 5'	EB-4 - 5.5	EB-5 - 6'	EB-6 - 5.5'	EB-7 - 5'	HA-1 - 1'	HA-2 - 1'	HA-3 - 1'
Collection Date:			02/03/2015	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008	08/19/2008	08/19/2008	08/19/2008
Collection Depth (ft bgs):			4	5	3	5	5.5	6	5.5	5	1	1	1
	MTCA A/B	Natural Background Metals[b]											
Total Metals (mg/kg-dw)													
Antimony	32	NV	--	--	--	--	--	--	--	--	--	--	--
Arsenic[c]	20	7	--	**5.04**	**3.5**	22.3	--	15	--	--	9.28	22	19.5
Cadmium	2	1	--	1 U	1 U	1 U	--	1 U	--	--	60.5	1 U	1 U
Copper	3200	36	--	**11.9**	**10.1**	41.1	--	45	--	--	204	98.9	41.3
Lead	250	24	--	**5.72**	**4.89**	27.2	--	43.5	--	--	95	63.2	10.7
Mercury[d]	2	0.07	--	ND	ND	ND	--	--	--	--	ND	0.21	ND
Tin	48000	NV	--	--	--	--	--	--	--	--	--	--	--
Zinc	24000	85	--	**19.5**	**17.8**	49.8	--	42.1	--	--	848	179	39.4
VOCs (mg/kg-dw)													
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	5	NA	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	18	NA	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	180	NA	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	4000	NA	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.033	NA	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	1.3	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7200	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	28	NA	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	185	NA	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1600	NA	--	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	0.0051 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	GM10	EB-1	EB-2	EB-3	EB-4	EB-5	EB-6	EB-7	HA-1	HA-2	HA-3
			Sample Name:	GM10-S-4.0	EB-1 - 5'	EB-2 - 3'	EB-3 - 5'	EB-4 - 5.5	EB-5 - 6'	EB-6 - 5.5'	EB-7 - 5'	HA-1 - 1'	HA-2 - 1'	HA-3 - 1'
			Collection Date:	02/03/2015	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008	08/19/2008	08/19/2008	08/19/2008
			Collection Depth (ft bgs):	4	5	3	5	5.5	6	5.5	5	1	1	1
	MTCA A/B	Natural Background Metals[(b)]												
Bromodichloromethane	16	NA		--	--	--	--	--	--	--	--	--	--	--
Bromoform	127	NA		--	--	--	--	--	--	--	--	--	--	--
Bromomethane	112	NA		--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA		--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	1600	NA		--	--	--	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Chloroethane	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Chloroform	32	NA		--	--	--	--	--	--	--	--	--	--	--
Chloromethane	NV	NA		--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	160	NA		--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	12	NA		--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	800	NA		--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	16000	NA		--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA		0.0051 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	13	NA		--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA		0.01 U	--	--	--	--	--	--	--	--	--	--
Methyl iodide	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA		--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA		--	--	--	--	--	--	--	--	--	--	--
n-Hexane	4800	NA		--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16000	NA		0.0051 U	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA		--	--	--	--	--	--	--	--	--	--	--
Toluene	7	NA		0.025 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	1600	NA		--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA		--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	24000	NA		--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	240	NA		--	--	--	--	--	--	--	--	--	--	--
Xylenes, total[(e)]	9	NA		0.00755 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:			GM10	EB-1	EB-2	EB-3	EB-4	EB-5	EB-6	EB-7	HA-1	HA-2	HA-3
Sample Name:			GM10-S-4.0	EB-1 - 5'	EB-2 - 3'	EB-3 - 5'	EB-4 - 5.5	EB-5 - 6'	EB-6 - 5.5'	EB-7 - 5'	HA-1 - 1'	HA-2 - 1'	HA-3 - 1'
Collection Date:			02/03/2015	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008	08/19/2008	08/19/2008	08/19/2008
Collection Depth (ft bgs):			4	5	3	5	5.5	6	5.5	5	1	1	1
	MTCA A/B	Natural Background Metals[(b)]											
PAHs (mg/kg-dw)													
Benzo(a)anthracene	1.4	NA	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.1	NA	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.4	NA	--	--	--	--	--	--	--	--	--	--	--
Benzo(j+k)fluoranthene	14	NA	--	--	--	--	--	--	--	--	--	--	--
Chrysene	140	NA	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	0.14	NA	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	1.4	NA	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--
PAH TEQ	0.1	NA	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg-dw)													
Gasoline-Range Hydrocarbons	30[(f)]	NA	28 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diesel-Range Hydrocarbons	2,000	NA	**130**	**590**	50 U	50 U	50 U	50 U	50 U	50 U	50 U	84	50 U
Lube-Oil-Range Hydrocarbons	2,000	NA	**760**	250 U	250 U	250 U	250 U	250 U	750	250 U	250 U	250 U	250 U

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:			HA-4	HA-5	HA-6	HA-7	HA-8	HA-9	HA-10	HA-11	HA-12	HA-13	HA-14
Sample Name:			HA-4 - 1'	HA-5 - 1'	HA-6 - 1'	HA-7 - 1'	HA-8 - 1'	HA-9 - 1'	HA-10 - 1'	HA-11 - 0.5'	HA-12 - 0.5'	HA-13 - 0.5'	HA-14 - 0.5'
Collection Date:			08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008
Collection Depth (ft bgs):			1	1	1	1	1	1	1	0.5	0.5	0.5	0.5
	MTCA A/B	Natural Background Metals[b]											
Total Metals (mg/kg-dw)													
Antimony	32	NV	--	--	--	--	--	--	--	--	--	--	--
Arsenic[c]	20	7	13.5	6.29	2.42	56.9	21.1	16.3	23.5	14.8	3.45	25.8	7.48
Cadmium	2	1	3.42	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.97	4.09	1.09
Copper	3200	36	124	47	14.5	111	47.2	42.9	132	27.1	35.9	37.5	75.7
Lead	250	24	117	105	14.8	101	16.9	30.9	544	26.4	17.4	41.7	66.8
Mercury[d]	2	0.07	0.29	ND	ND	ND	ND	ND	0.22	ND	ND	ND	ND
Tin	48000	NV	--	--	--	--	--	--	--	--	--	--	--
Zinc	24000	85	897	29.5	26.6	73.6	40.5	46.9	243	271	135	61.7	133
VOCs (mg/kg-dw)													
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	5	NA	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	18	NA	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	180	NA	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	4000	NA	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.033	NA	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	1.3	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7200	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	28	NA	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	185	NA	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1600	NA	--	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	HA-4	HA-5	HA-6	HA-7	HA-8	HA-9	HA-10	HA-11	HA-12	HA-13	HA-14
			Sample Name:	HA-4 - 1'	HA-5 - 1'	HA-6 - 1'	HA-7 - 1'	HA-8 - 1'	HA-9 - 1'	HA-10 - 1'	HA-11 - 0.5'	HA-12 - 0.5'	HA-13 - 0.5'	HA-14 - 0.5'
			Collection Date:	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008
			Collection Depth (ft bgs):	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5
	MTCA A/B	Natural Background Metals[(b)]												
Bromodichloromethane	16	NA		--	--	--	--	--	--	--	--	--	--	--
Bromoform	127	NA		--	--	--	--	--	--	--	--	--	--	--
Bromomethane	112	NA		--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA		--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	1600	NA		--	--	--	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Chloroethane	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Chloroform	32	NA		--	--	--	--	--	--	--	--	--	--	--
Chloromethane	NV	NA		--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	160	NA		--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	12	NA		--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	800	NA		--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	16000	NA		--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	13	NA		--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Methyl iodide	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA		--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA		--	--	--	--	--	--	--	--	--	--	--
n-Hexane	4800	NA		--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16000	NA		--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA		--	--	--	--	--	--	--	--	--	--	--
Toluene	7	NA		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	1600	NA		--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA		--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA		--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	24000	NA		--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	240	NA		--	--	--	--	--	--	--	--	--	--	--
Xylenes, total[(e)]	9	NA		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:			HA-4	HA-5	HA-6	HA-7	HA-8	HA-9	HA-10	HA-11	HA-12	HA-13	HA-14
Sample Name:			HA-4 - 1'	HA-5 - 1'	HA-6 - 1'	HA-7 - 1'	HA-8 - 1'	HA-9 - 1'	HA-10 - 1'	HA-11 - 0.5'	HA-12 - 0.5'	HA-13 - 0.5'	HA-14 - 0.5'
Collection Date:			08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008
Collection Depth (ft bgs):			1	1	1	1	1	1	1	0.5	0.5	0.5	0.5
	MTCA A/B	Natural Background Metals[(b)]											
PAHs (mg/kg-dw)													
Benzo(a)anthracene	1.4	NA	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.1	NA	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.4	NA	--	--	--	--	--	--	--	--	--	--	--
Benzo(j+k)fluoranthene	14	NA	--	--	--	--	--	--	--	--	--	--	--
Chrysene	140	NA	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	0.14	NA	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	1.4	NA	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--
PAH TEQ	0.1	NA	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg-dw)													
Gasoline-Range Hydrocarbons	30[(f)]	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diesel-Range Hydrocarbons	2,000	NA	50 U	50 U	50 U	50 U	50 U	57	50 U	50 U	50 U	50 U	50 U
Lube-Oil-Range Hydrocarbons	2,000	NA	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	150 U	150 U

Table 2-1
Summary of Historical Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Results that exceed MTCA A cleanup level, or a MTCA B cleanup level if no MTCA A value is available, are shaded. Non-detect results are not evaluated against cleanup criteria.

Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.

MTCA A or B CUL

Natural background metals

-- = not analyzed.

CUL = cleanup level.

ft bgs = feet below ground surface.

J = Result is an estimated value.

mg/kg-dw = milligrams per kilogram dry weight.

MTCA A = Model Toxics Control Act Method A, unrestricted land use.

MTCA B = Model Toxics Control Act Method B, lower of cancer or noncancer.

NA = not available.

ND = non-detect.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

TEQ = toxic equivalent quotient.

TPH = total petroleum hydrocarbons.

U = Analyte not detected at or above method reporting limit.

VOC = volatile organic compound.

[(a)]Ecological indicator concentrations were obtained from MTCA Table 749-3.

[(b)]Natural background metals concentrations for soil are the Puget Sound 90th percentile values obtained from the 1994 Washington State Department of Ecology study.

[(c)]Plant and soil biota screening levels are for arsenic V; wildlife screening level is for arsenic III.

[(d)]Screening level is for inorganic mercury.

[(e)]Total xylenes are calculated as sum of m,p-xylene and o-xylene.

[(f)]MTCA CUL level is for gasoline-range organics with benzene present.

Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

	Location:	GM1	GM2	GM3	GM4	GM5	GM6	GM7	GM8	GM9
	Sample Name:	GM1-W-9.0	GM2-W-9.0	GM3-W-9.0	GM4-W-9.0	GM5-W-8.0	GM6-W-11.0	GM7-W-9.0	GM8-W-10.0	GM9-W-9.0
	Collection Date:	02/04/2015	02/04/2015	02/04/2015	02/03/2015	02/04/2015	02/02/2015	02/04/2015	02/02/2015	02/04/2015
	Collection Depth (ft bgs):	9	9	9	9	8	11	9	10	9
	MTCA A/B	Surface Water Criteria								
Dissolved Metals (ug/L)										
Antimony	6.4	640	--	--	--	--	--	5 U	--	--
Arsenic	5	0.14	--	--	--	--	--	3 U	--	--
Cadmium	5	0.72	--	--	--	--	--	4 U	--	--
Copper	320	1,300	--	--	--	--	--	10 U	--	--
Lead	15	3.2	--	--	--	--	--	1 U	--	--
Manganese	2,240	50	--	--	--	--	--	2,600	--	--
Tin	9,600	--	--	--	--	--	--	25 U	--	--
Zinc	4,800	120	--	--	--	--	--	51	--	--
Total Metals (ug/L)										
Antimony	6.4	640	--	--	5.6 U	--	--	--	6.5	--	--
Arsenic	5	0.14	--	3.3 U	3.3 U	--	--	13	3.9	--	7.6
Cadmium	5	0.72	--	4.4 U	4.4 U	--	--	4.4 U	4.4 U	--	4.4 U
Copper	320	1,300	--	11 U	11 U	--	--	26	15	--	11 U
Ferrous Iron	NV	NV	9,000	--	6,140	--	--	--	41,900	--	--
Lead	15	3.2	3.5	1.1 U	1.1 U	--	--	7.1	13	--	2.3
Manganese	2,240	50	1,600	--	490	--	--	--	2,700	--	--
Mercury	2	0.77	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	--	0.5 U
Tin	9,600	--	--	--	28 U	--	--	--	28 U	--	--
Zinc	4,800	120	--	--	28 U	--	--	--	66	--	--
VOCs (ug/L)										
1,1,1,2-Tetrachloroethane	1.7	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,1,1-Trichloroethane	200	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,1,2,2-Tetrachloroethane	0.22	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,1,2-Trichloroethane	0.77	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,1-Dichloroethane	7.7	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,1-Dichloroethene	400	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,1-Dichloropropene	NV	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,2,3-Trichlorobenzene	NV	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,2,3-Trichloropropane	0.0015	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,2,4-Trichlorobenzene	1.5	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,2-Dibromo-3-chloropropane	0.055	--	--	--	1 U	--	--	1 U	1 U	--	--
1,2-Dibromoethane	0.01	--	0.0097 U	0.0097 U	0.0097 U	--	--	0.2 U	0.2 U	--	--
1,2-Dichlorobenzene	720	--	--	--	0.2 U	--	--	0.2 U	0.2 U	--	--

Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	GM1	GM2	GM3	GM4	GM5	GM6	GM7	GM8	GM9
			Sample Name:	GM1-W-9.0	GM2-W-9.0	GM3-W-9.0	GM4-W-9.0	GM5-W-8.0	GM6-W-11.0	GM7-W-9.0	GM8-W-10.0	GM9-W-9.0
			Collection Date:	02/04/2015	02/04/2015	02/04/2015	02/03/2015	02/04/2015	02/02/2015	02/04/2015	02/02/2015	02/04/2015
			Collection Depth (ft bgs):	9	9	9	9	8	11	9	10	9
	MTCA A/B	Surface Water Criteria										
1,2-Dichloroethane	5	--		0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	--	--
1,2-Dichloropropane	1.2	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,3-Dichlorobenzene	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,3-Dichloropropane	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
1,4-Dichlorobenzene	8.1	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
2,2-Dichloropropane	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
2-Chloroethylvinyl ether	NV	--		--	--	1 U	--	--	1 U	1 U	--	--
2-Chlorotoluene	160	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
4-Chlorotoluene	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Benzene	5	0.58		0.2 U	0.2 U	0.2 U	--	0.2 U	--	--	0.22	0.2 U
Bromobenzene	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Bromodichloromethane	0.71	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Bromoform	5.5	--		--	--	1 U	--	--	1 U	1 U	--	--
Bromomethane	11.2	--		--	--	0.43 U	--	--	0.43 U	0.43 U	--	--
Carbon tetrachloride	0.63	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Chlorobenzene	160	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Chlorobromomethane	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Chloroethane	NV	--		--	--	1 U	--	--	1 U	1 U	--	--
Chloroform	1.4	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Chloromethane	NV	--		--	--	1 U	--	--	1 U	1 U	--	--
cis-1,2-Dichloroethene	16	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
cis-1,3-Dichloropropene	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Dibromochloromethane	0.52	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Dibromomethane	80	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Dichlorodifluoromethane	1,600	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Ethylbenzene	700	--		0.2 U	0.2 U	0.2 U	--	0.2 U	--	--	0.2 U	0.2 U
Hexachlorobutadiene	0.56	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
m,p-Xylene	NV	--		0.4 U	0.4 U	0.4 U	--	0.4 U	--	--	0.4 U	0.4 U
Methyl iodide	NV	--		--	--	1.9 U	--	--	1.9 U	1.9 U		
Methyl tert-butyl ether	20	NV		0.2 U	0.46	0.2 U	--	--	--	--	--	--
Methylene chloride	5	--		--	--	1 U	--	--	1 U	1 U	--	--
n-Hexane	480	--		1 U	1 U	1 U	--	--	--	--	--	--
o-Xylene	1,600	--		0.2 U	0.2 U	0.2 U	--	0.2 U	--	--	0.2 U	0.2 U
Tetrachloroethene	5	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--

Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	GM1	GM2	GM3	GM4	GM5	GM6	GM7	GM8	GM9
			Sample Name:	GM1-W-9.0	GM2-W-9.0	GM3-W-9.0	GM4-W-9.0	GM5-W-8.0	GM6-W-11.0	GM7-W-9.0	GM8-W-10.0	GM9-W-9.0
			Collection Date:	02/04/2015	02/04/2015	02/04/2015	02/03/2015	02/04/2015	02/02/2015	02/04/2015	02/02/2015	02/04/2015
			Collection Depth (ft bgs):	9	9	9	9	8	11	9	10	9
	MTCA A/B	Surface Water Criteria										
Toluene	1,000	--		1 U	1 U	1 U	--	1 U	--	--	1 U	1 U
trans-1,2-Dichloroethene	160	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
trans-1,3-Dichloropropene	NV	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Trichloroethene	5	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Trichlorofluoromethane	2,400	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Vinyl chloride	0.2	--		--	--	0.2 U	--	--	0.2 U	0.2 U	--	--
Xylenes, total[(a)]	1,000	--		--	--	0.3 U	--	0.3 U	--	--	0.3 U	0.3 U
PAHs (ug/L)												
Benzo(a)anthracene	0.12	0.0012		--	--	0.0099 U	--	--	--	0.012	--	--
Benzo(a)pyrene	0.1	--		--	--	0.0099 U	--	--	--	0.0097 U	--	--
Benzo(b)fluoranthene	0.12	--		--	--	0.0099 U	--	--	--	0.0097 U	--	--
Benzo(j+k)fluoranthene	1.2	--		--	--	0.0099 U	--	--	--	0.0097 U	--	--
Chrysene	12	--		--	--	0.0099 U	--	--	--	0.0097 U	--	--
Dibenzo(a,h)anthracene	0.012	--		--	--	0.0099 U	--	--	--	0.0097 U	--	--
Indeno(1,2,3-cd)pyrene	0.12	--		--	--	0.0099 U	--	--	--	0.0097 U	--	--
Naphthalene	160	--		0.099 U	0.095 U	0.099 U	--	--	--	--	--	--
PAH TEQ	0.1	0.018		--	--	ND	--	--	--	0.0080	--	--
TPH (ug/L)												
Gasoline-Range Hydrocarbons	800[(b)]	--		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Diesel-Range Hydrocarbons	500	NV		280 U	260 U	280 U	280 U	410	260	530	770 U	280 U
Lube-Oil-Range Hydrocarbons	500	NV		450 U	410 U	450 U	510	540	400 U	470 U	1,800	450 U
Conventionals (mg/L)												
Nitrate as Nitrogen	NV	NV		2.4	--	0.065	--	--	--	0.067	--	--
Sulfate	NV	NV		5 U	--	5 U	--	--	--	25 U	--	--
Dissolved Gases (ug/L)												
Methane	NV	NV		8,900	--	8,100	--	--	--	2,700	--	--

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Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	GM10	EB-1	EB-2	EB-3	EB-4	EB-5	EB-6	EB-7
			Sample Name:	GM10-W-9.0	EB-1 - 5'	EB-2 - 5'	EB-3 - 5'	EB-4 - 2-3'	EB-5 - 2-3'	EB-6 - 2-3	EB-7 - 2-3'
			Collection Date:	02/03/2015	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008
			Collection Depth (ft bgs):	9	5	5	5	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
	MTCA A/B	Surface Water Criteria									
Dissolved Metals (ug/L)											
Antimony	6.4	640	--	--	--	--	--	--	--	--	--
Arsenic	5	0.14	--	--	--	--	--	--	--	--	--
Cadmium	5	0.72	--	--	--	--	--	--	--	--	--
Copper	320	1,300	--	--	--	--	--	--	--	--	--
Lead	15	3.2	--	--	--	--	--	--	--	--	--
Manganese	2,240	50	--	--	--	--	--	--	--	--	--
Tin	9,600	--	--	--	--	--	--	--	--	--	--
Zinc	4,800	120	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)											
Antimony	6.4	640	--	--	--	--	--	--	--	--	--
Arsenic	5	0.14	--	10.7	23.5	62	33.8	77.9	178	44.2	
Cadmium	5	0.72	--	1 U	1 U	1 U	5 U	5 U	19	10 U	
Copper	320	1,300	--	16.5	16.7	49.5	65.7	258	1,050	118	
Ferrous Iron	NV	NV	--	--	--	--	--	--	--	--	
Lead	15	3.2	--	26.2	8.52	9.27	79.9	188	2,030	3,040	
Manganese	2,240	50	--	--	--	--	--	--	--	--	
Mercury	2	0.77	--	NA	NA	NA	0.2	0.29	3	0.26	
Tin	9,600	--	--	--	--	--	--	--	--	--	
Zinc	4,800	120	--	35	17.6	47.6	79.3	271	1,940	253	
VOCs (ug/L)											
1,1,1,2-Tetrachloroethane	1.7	--	0.2 U	--	--	--	--	--	--	--	
1,1,1-Trichloroethane	200	--	0.2 U	--	--	--	--	--	--	--	
1,1,2,2-Tetrachloroethane	0.22	--	0.2 U	--	--	--	--	--	--	--	
1,1,2-Trichloroethane	0.77	--	0.2 U	--	--	--	--	--	--	--	
1,1-Dichloroethane	7.7	--	0.2 U	--	--	--	--	--	--	--	
1,1-Dichloroethene	400	--	0.2 U	--	--	--	--	--	--	--	
1,1-Dichloropropene	NV	--	0.2 U	--	--	--	--	--	--	--	
1,2,3-Trichlorobenzene	NV	--	0.2 U	--	--	--	--	--	--	--	
1,2,3-Trichloropropane	0.0015	--	0.2 U	--	--	--	--	--	--	--	
1,2,4-Trichlorobenzene	1.5	--	0.2 U	--	--	--	--	--	--	--	
1,2-Dibromo-3-chloropropane	0.055	--	1 U	--	--	--	--	--	--	--	
1,2-Dibromoethane	0.01	--	0.2 U	--	--	--	--	--	--	--	
1,2-Dichlorobenzene	720	--	0.2 U	--	--	--	--	--	--	--	

Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	GM10	EB-1	EB-2	EB-3	EB-4	EB-5	EB-6	EB-7
			Sample Name:	GM10-W-9.0	EB-1 - 5'	EB-2 - 5'	EB-3 - 5'	EB-4 - 2-3'	EB-5 - 2-3'	EB-6 - 2-3	EB-7 - 2-3'
			Collection Date:	02/03/2015	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008
			Collection Depth (ft bgs):	9	5	5	5	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
	MTCA A/B	Surface Water Criteria									
1,2-Dichloroethane	5	--		0.2 U	--	--	--	--	--	--	--
1,2-Dichloropropane	1.2	--		0.2 U	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	--		0.2 U	--	--	--	--	--	--	--
1,3-Dichloropropane	NV	--		0.2 U	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	--		0.2 U	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	--		0.2 U	--	--	--	--	--	--	--
2-Chloroethylvinyl ether	NV	--		1 U	--	--	--	--	--	--	--
2-Chlorotoluene	160	--		0.2 U	--	--	--	--	--	--	--
4-Chlorotoluene	NV	--		0.2 U	--	--	--	--	--	--	--
Benzene	5	0.58		0.2 U	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	NV	--		0.2 U	--	--	--	--	--	--	--
Bromodichloromethane	0.71	--		0.2 U	--	--	--	--	--	--	--
Bromoform	5.5	--		1 U	--	--	--	--	--	--	--
Bromomethane	11.2	--		0.43 U	--	--	--	--	--	--	--
Carbon tetrachloride	0.63	--		0.2 U	--	--	--	--	--	--	--
Chlorobenzene	160	--		0.2 U	--	--	--	--	--	--	--
Chlorobromomethane	NV	--		0.2 U	--	--	--	--	--	--	--
Chloroethane	NV	--		1 U	--	--	--	--	--	--	--
Chloroform	1.4	--		0.2 U	--	--	--	--	--	--	--
Chloromethane	NV	--		1 U	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	16	--		0.2 U	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	--		0.2 U	--	--	--	--	--	--	--
Dibromochloromethane	0.52	--		0.2 U	--	--	--	--	--	--	--
Dibromomethane	80	--		0.2 U	--	--	--	--	--	--	--
Dichlorodifluoromethane	1,600	--		0.2 U	--	--	--	--	--	--	--
Ethylbenzene	700	--		0.2 U	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.56	--		0.2 U	--	--	--	--	--	--	--
m,p-Xylene	NV	--		0.4 U	--	--	--	--	--	--	--
Methyl iodide	NV	--		1.9 U	--	--	--	--	--	--	--
Methyl tert-butyl ether	20	NV		--	--	--	--	--	--	--	--
Methylene chloride	5	--		1 U	--	--	--	--	--	--	--
n-Hexane	480	--		--	--	--	--	--	--	--	--
o-Xylene	1,600	--		0.2 U	--	--	--	--	--	--	--
Tetrachloroethene	5	--		0.2 U	--	--	--	--	--	--	--

Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

			Location:	GM10	EB-1	EB-2	EB-3	EB-4	EB-5	EB-6	EB-7
			Sample Name:	GM10-W-9.0	EB-1 - 5'	EB-2 - 5'	EB-3 - 5'	EB-4 - 2-3'	EB-5 - 2-3'	EB-6 - 2-3	EB-7 - 2-3'
			Collection Date:	02/03/2015	08/19/2008	08/19/2008	08/19/2008	09/12/2008	09/12/2008	09/12/2008	09/12/2008
			Collection Depth (ft bgs):	9	5	5	5	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
	MTCA A/B	Surface Water Criteria									
Toluene	1,000	--		1 U	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	160	--		0.2 U	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	--		0.2 U	--	--	--	--	--	--	--
Trichloroethene	5	--		0.2 U	--	--	--	--	--	--	--
Trichlorofluoromethane	2,400	--		0.2 U	--	--	--	--	--	--	--
Vinyl chloride	0.2	--		0.2 U	--	--	--	--	--	--	--
Xylenes, total[(a)]	1,000	--		0.3 U	ND	ND	ND	ND	ND	3	ND
PAHs (ug/L)											
Benzo(a)anthracene	0.12	0.0012		--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.1	--		--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	0.12	--		--	--	--	--	--	--	--	--
Benzo(j+k)fluoranthene	1.2	--		--	--	--	--	--	--	--	--
Chrysene	12	--		--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	0.012	--		--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.12	--		--	--	--	--	--	--	--	--
Naphthalene	160	--		--	--	--	--	--	--	--	--
PAH TEQ	0.1	0.018		--	--	--	--	--	--	--	--
TPH (ug/L)											
Gasoline-Range Hydrocarbons	800[(b)]	--		100 U	ND	ND	ND	ND	ND	160	ND
Diesel-Range Hydrocarbons	500	NV		280 U	920	50 U	50 U	78	7,000	87	300
Lube-Oil-Range Hydrocarbons	500	NV		440 U	270 U	250 U	250 U	290 U	25,000	320	490
Conventionals (mg/L)											
Nitrate as Nitrogen	NV	NV		--	--	--	--	--	--	--	--
Sulfate	NV	NV		--	--	--	--	--	--	--	--
Dissolved Gases (ug/L)											
Methane	NV	NV		--	--	--	--	--	--	--	--

Table 2-2
Summary of Historical Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Results that exceed MTCA A cleanup level, or a MTCA B cleanup level if no MTCA A value is available, are shaded. Non-detect results are not evaluated against cleanup criteria.

Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.

MTCA A CUL

MTCA B CUL

Surface water criteria

Surface water ARARs for detected constituents are the minimum of the state and federal marine life and human health marine water quality standards.

-- = not analyzed.

ARAR = applicable or relevant and appropriate requirement.

CUL = cleanup level.

ft bgs = feet below ground surface.

mg/L = milligrams per liter.

MTCA A = Model Toxics Control Act Method A, unrestricted land use.

MTCA B = Model Toxics Control Act Method B, lower of cancer or noncancer.

NA = not available.

ND = non-detect.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

TEQ = toxic equivalent quotient.

TPH = total petroleum hydrocarbons.

U = Analyte not detected at or above method reporting limit.

ug/L = micrograms per liter.

VOC = volatile organic compound.

[a]Total xylenes are calculated as sum of m,p-xylene and o-xylene.

[b]MTCA CUL level is for gasoline-range organics with benzene present.

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location: / Sample Name: / Collection Date: / Collection Depth (ft bml):[a]	SMS Freshwater Sediment		SMS Marine Sediment		Port Gardner Bay Background 90/90 UTL	S-1 S-1 - 5' 09/10/2008 1.5-2.5	S-2 S-2 - 3' 09/10/2008 1.5-2.5	S-3 S-3 - 5' 09/10/2008 1.5-2.5	S-4 S-4 - 5.5' 09/10/2008 1.5-2.5	S-5 S-5 - 6' 09/10/2008 1.5-2.5	S-6 S-6 - 5.5' 09/10/2008 1.5-2.5	S-7 S-7 - 5' 09/10/2008 1.5-2.5
	SCO	CSL	SCO	CSL								
Total Metals (mg/kg-dw)												
Arsenic	14	120	57	93	12	6.21	15.5	17.2	20.7	19	17.9	16.2
Cadmium	2.1	5.4	5.1	6.7	0.52	1.3	1.94	3.73	1 U	1 U	1 U	1 U
Chromium	72	88	260	270	NV	26	36.5	65.9	35.9	54.1	42.2	45.2
Copper	400	1,200	390	390	NV	49.4	55.8	129	54.1	65.5	61.5	91.3
Lead	360	> 1,300	450	530	NV	120	376	302	31.3	99.3	64.7	110
Mercury	0.66	0.8	0.41	0.59	0.14	0.2 U	0.44	0.31	0.2 U	0.2 U	0.2 U	0.22
Nickel	26	110	NV	NV	NV	27	29.5	50.5	35.4	42.4	36.4	36.8
Selenium	11	> 20	NV	NV	NV	--	--	--	--	--	--	--
Silver	0.57	1.7	6.1	6.1	NV	--	--	--	--	--	--	--
Zinc	3,200	> 4,200	410	960	NV	251	276	471	81.6	106	105	153
PCB Aroclors (mg/kg-dw)												
Aroclor 1016	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1221	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1232	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1242	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1248	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1254	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1260	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total PCBs (ND=0)	110	2,500	12	65	NV	--	--	--	--	--	--	--
SVOCs (mg/kg-dw)												
1,2,4-Trichlorobenzene	NV	NV	0.81	1.8	NV	--	--	--	--	--	--	--
1,2-Dichlorobenzene	NV	NV	2.3	2.3	NV	--	--	--	--	--	--	--
1,4-Dichlorobenzene	NV	NV	3.1	9	NV	--	--	--	--	--	--	--
2,4-Dimethylphenol	NV	NV	0.029	0.029	NV	--	--	--	--	--	--	--
2-Methylphenol	NV	NV	0.063	0.063	NV	--	--	--	--	--	--	--
4-Methylphenol	0.26	2	0.67	0.67	NV	--	--	--	--	--	--	--
Benzoic acid	2.9	3.8	0.65	0.65	NV	--	--	--	--	--	--	--
Benzyl alcohol	NV	NV	0.057	0.073	NV	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	0.5	22	47	78	NV	--	--	--	--	--	--	--
Butylbenzylphthalate	NV	NV	4.9	6.4	NV	--	--	--	--	--	--	--
Dibenzofuran	0.2	0.68	15	58	NV	--	--	--	--	--	--	--
Diethylphthalate	NV	NV	61	110	NV	--	--	--	--	--	--	--
Dimethyl phthalate	NV	NV	53	53	NV	--	--	--	--	--	--	--
Di-n-butyl phthalate	0.38	1	220	1700	NV	--	--	--	--	--	--	--
Di-n-octyl phthalate	0.039	> 1.1	58	4500	NV	--	--	--	--	--	--	--
Hexachlorobenzene	NV	NV	0.38	2.3	NV	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	3.9	6.2	NV	--	--	--	--	--	--	--

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location: / Sample Name: / Collection Date: / Collection Depth (ft bml):[a]	SMS Freshwater Sediment		SMS Marine Sediment		Port Gardner Bay Background 90/90 UTL	S-1 S-1 - 5' 09/10/2008 1.5-2.5	S-2 S-2 - 3' 09/10/2008 1.5-2.5	S-3 S-3 - 5' 09/10/2008 1.5-2.5	S-4 S-4 - 5.5' 09/10/2008 1.5-2.5	S-5 S-5 - 6' 09/10/2008 1.5-2.5	S-6 S-6 - 5.5' 09/10/2008 1.5-2.5	S-7 S-7 - 5' 09/10/2008 1.5-2.5
	SCO	CSL	SCO	CSL								
N-Nitrosodiphenylamine	NV	NV	11	11	NV	--	--	--	--	--	--	--
Pentachlorophenol	1.2	> 1.2	0.36	0.69	NV	--	--	--	--	--	--	--
Phenol	0.12	0.21	0.42	1.2	NV	--	--	--	--	--	--	--
PAHs (mg/kg-dw)												
2-Methylnaphthalene	NV	NV	38	64	NV	--	--	--	--	--	--	--
Acenaphthene	NV	NV	16	57	NV	--	--	--	--	--	--	--
Acenaphthylene	NV	NV	66	66	NV	--	--	--	--	--	--	--
Anthracene	NV	NV	220	1,200	NV	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NV	110	270	NV	--	--	--	--	--	--	--
Benzo(a)pyrene	NV	NV	99	210	NV	--	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	31	78	NV	--	--	--	--	--	--	--
Chrysene	NV	NV	110	460	NV	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NV	12	33	NV	--	--	--	--	--	--	--
Fluoranthene	NV	NV	160	1,200	NV	--	--	--	--	--	--	--
Fluorene	NV	NV	23	79	NV	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	34	88	NV	--	--	--	--	--	--	--
Naphthalene	NV	NV	99	170	NV	--	--	--	--	--	--	--
Phenanthrene	NV	NV	100	480	NV	--	--	--	--	--	--	--
Pyrene	NV	NV	1,000	1,400	NV	--	--	--	--	--	--	--
Total Benzofluoranthenes	NV	NV	230	450	NV	--	--	--	--	--	--	--
Total PAHs (ND = 0)	17	30	NV	NV	NV	--	--	--	--	--	--	--
Total HPAHs	NV	NV	960	5,300	NV	--	--	--	--	--	--	--
Total LPAHs	NV	NV	370	780	NV	--	--	--	--	--	--	--
cPAH TEQ (ND=0)	NV	NV	NV	NV	0.056	--	--	--	--	--	--	--
TPH (mg/kg-dw)												
Gasoline-Range Hydrocarbons	NV	NV	NV	NV	NV	ND	ND	ND	ND	ND	ND	ND
Diesel-Range Hydrocarbons	340	510	NV	NV	NV	650	1,600	4,700	300	250	690	420
Motor-Oil-Range Hydrocarbons	3,600	4,400	NV	NV	NV	3,100	5,700	18,000	1,500	1,300	3,400	2,000
BTEX (mg/kg-dw)	NV	NV	NV	NV	NV	ND	ND	ND	ND	ND	ND	ND

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location: / Sample Name: / Collection Date: / Collection Depth (ft bml):[a]	SMS Freshwater Sediment SCO	SMS Freshwater Sediment CSL	SMS Marine Sediment SCO	SMS Marine Sediment CSL	Port Gardner Bay Background 90/90 UTL	S-1 S-1 - 5' 09/10/2008 1.5-2.5	S-2 S-2 - 3' 09/10/2008 1.5-2.5	S-3 S-3 - 5' 09/10/2008 1.5-2.5	S-4 S-4 - 5.5' 09/10/2008 1.5-2.5	S-5 S-5 - 6' 09/10/2008 1.5-2.5	S-6 S-6 - 5.5' 09/10/2008 1.5-2.5	S-7 S-7 - 5' 09/10/2008 1.5-2.5
Dioxins/Furans (pg/g-dw)												
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2,3,7,8-TCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
OCDD	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
OCDF	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total HpCDDs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total HpCDFs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total HxCDDs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total HxCDFs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total PeCDDs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total PeCDFs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total TCDDs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total TCDFs	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Dioxin TEQ (ND=0)	NV	NV	NV	NV	3.9	--	--	--	--	--	--	--
Organotins (ug/kg-dw)												
Di-n-butyltin Cation[b]	540	> 4,800	NV	NV	NV	--	--	--	--	--	--	--
Monobutyltin[b]	910	130,000	NV	NV	NV	--	--	--	--	--	--	--
Tetrabutyltin[b]	47	320	NV	NV	NV	--	--	--	--	--	--	--
Tri-n-butyltin Cation[b]	97	> 97	NV	NV	NV	--	--	--	--	--	--	--
Conventionals												
Total Organic Carbon (%)	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	NV	--	--	--	--	--	--	--

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Freshwater Sediment		SMS Marine Sediment		Port Gardner Bay Background 90/90 UTL	S-8	S-9		S-10	S-11		S-12	S-13
Sample Name:						S-8 - 1'	S-09-0.33	S-09-1.2	S-10-0.33	S-11-0.33	S-11-2.0	S-12-0.33	S-13-0.33
Collection Date:	SCO	CSL	SCO	CSL		09/10/2008	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015
Collection Depth (ft bml):[(a)]						1	0-0.33	0.33-1.2	0-0.33	0-0.33	0.33-2.0	0-0.33	0-0.33
Total Metals (mg/kg-dw)													
Arsenic	14	120	57	93	12	17.4	20 U	11	10 U	20 U	10 U	20 U	10 U
Cadmium	2.1	5.4	5.1	6.7	0.52	1 U	2	0.7	0.9	1.7	0.9	1.5	1
Chromium	72	88	260	270	NV	41	54	54.4	44	69	73	73	67
Copper	400	1,200	390	390	NV	49.2	99.8	29.8	60.8	129	56.9	133	113
Lead	360	> 1,300	450	530	NV	16.5	184	109	53	98	31	86	37
Mercury	0.66	0.8	0.41	0.59	0.14	0.2 U	0.11	0.06	0.07	0.16	0.09	0.16	0.11
Nickel	26	110	NV	NV	NV	50	44	37	42	54	66	57	57
Selenium	11	> 20	NV	NV	NV	--	20 U	9 U	10 U	20 U	10 U	20 U	10 U
Silver	0.57	1.7	6.1	6.1	NV	--	1 U	0.5 U	0.6 U	0.9 U	0.8 U	1 U	0.8 U
Zinc	3,200	> 4,200	410	960	NV	57.4	486	108	340	498	107	483	232
PCB Aroclors (mg/kg-dw)													
Aroclor 1016	NV	NV	NV	NV	NV	--	0.12 U	0.33 U	0.29 U	0.15 U	0.27 U	0.15 U	0.64 U
Aroclor 1221	NV	NV	NV	NV	NV	--	0.12 U	0.33 U	0.29 U	0.15 U	0.27 U	0.15 U	0.64 U
Aroclor 1232	NV	NV	NV	NV	NV	--	0.12 U	0.33 U	0.29 U	0.15 U	0.27 U	0.15 U	0.64 U
Aroclor 1242	NV	NV	NV	NV	NV	--	0.12 U	0.33 U	0.29 U	0.15 U	0.27 U	0.15 U	0.64 U
Aroclor 1248	NV	NV	NV	NV	NV	--	0.12 U	4.8 J	0.29 U	0.26 U	0.27 U	0.15 U	0.94 U
Aroclor 1254	NV	NV	NV	NV	NV	--	0.31	6.8	2.9	0.76	0.39	0.44	1.4
Aroclor 1260	NV	NV	NV	NV	NV	--	0.12 U	0.67 U	0.68	0.37	0.27 U	0.23	0.64 U
Total PCBs (ND=0)	110	2,500	12	65	NV	--	0.31	12 J	3.5	1.1	0.39	0.67	1.4
SVOCs (mg/kg-dw)													
1,2,4-Trichlorobenzene	NV	NV	0.81	1.8	NV	--	0.35 U	0.17 U	0.44 U	0.55 U	0.042 J	0.42 U	0.98 U
1,2-Dichlorobenzene	NV	NV	2.3	2.3	NV	--	0.35 U	0.17 U	0.44 U	0.55 U	0.049 J	0.42 U	0.98 U
1,4-Dichlorobenzene	NV	NV	3.1	9	NV	--	0.35 U	0.17 U	0.44 U	0.55 U	0.040 J	0.42 U	0.98 U
2,4-Dimethylphenol	NV	NV	0.029	0.029	NV	--	1.7 U	0.57 J	2.2 U	2.7 U	0.36 U	2.1 U	4.7 U
2-Methylphenol	NV	NV	0.063	0.063	NV	--	0.34 J	0.53 J	0.44 U	0.40 J	0.14	0.45	2.4
4-Methylphenol	0.26	2	0.67	0.67	NV	--	3.1	4.3	33	3.7	0.36	3.2	4.4
Benzoic acid	2.9	3.8	0.65	0.65	NV	--	22	4.7 J	21	22 J	7.1 J	18	26 J
Benzyl alcohol	NV	NV	0.057	0.073	NV	--	2.3	0.48 J	2.1	2.5	0.27 J	4.8	4.0
Bis(2-ethylhexyl)phthalate	0.5	22	47	78	NV	--	209	35	122	242	8.0	129	98
Butylbenzylphthalate	NV	NV	4.9	6.4	NV	--	2.3	0.70	0.9	3.3	0.28	0.4 J	3.1 J
Dibenzofuran	0.2	0.68	15	58	NV	--	1.4 U	2.3	1.7 U	3.5 J	0.28 U	1.7 U	1.4 J
Diethylphthalate	NV	NV	61	110	NV	--	1.4 U	0.67 U	1.7 U	2.2 U	0.28 U	1.7 U	4.0 U
Dimethyl phthalate	NV	NV	53	53	NV	--	0.35 U	0.17 U	27	0.55 U	0.22 J	0.42 U	0.94 J
Di-n-butyl phthalate	0.38	1	220	1700	NV	--	1.4 U	0.67 U	1.74 U	2.2 U	0.28 U	0.76 J	4.0 U
Di-n-octyl phthalate	0.039	> 1.1	58	4500	NV	--	4.8 J	0.67 U	1.74 U	2.2 U	0.28 U	1.7 U	4.0 U
Hexachlorobenzene	NV	NV	0.38	2.3	NV	--	0.35 U	0.17 U	0.44 U	0.55 U	0.04 J	0.42 U	0.98 U
Hexachlorobutadiene	NV	NV	3.9	6.2	NV	--	0.35 U	0.17 U	0.44 U	0.55 U	0.04 J	0.42 U	0.98 U

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Freshwater Sediment		SMS Marine Sediment		Port Gardner Bay Background 90/90 UTL	S-8	S-9		S-10	S-11		S-12	S-13
Sample Name:						S-8 - 1'	S-09-0.33	S-09-1.2	S-10-0.33	S-11-0.33	S-11-2.0	S-12-0.33	S-13-0.33
Collection Date:						09/10/2008	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015
Collection Depth (ft bml):[(a)]	SCO	CSL	SCO	CSL		1	0-0.33	0.33-1.2	0-0.33	0-0.33	0.33-2.0	0-0.33	0-0.33
N-Nitrosodiphenylamine	NV	NV	11	11	NV	--	0.35 U	0.27	0.44 U	0.55 U	0.07 U	0.42 U	0.98 U
Pentachlorophenol	1.2	> 1.2	0.36	0.69	NV	--	2.1	3.3 U	5.1	2.2 J	0.28 U	1.4 J	4.0 U
Phenol	0.12	0.21	0.42	1.2	NV	--	4.2	1.7	4.8	3.3	1.0	1.7 U	3.1 J
PAHs (mg/kg-dw)													
2-Methylnaphthalene	NV	NV	38	64	NV	--	1.4 U	2.0	1.7 U	1.3 J	0.28 U	1.7 U	4.0 U
Acenaphthene	NV	NV	16	57	NV	--	1.4 U	0.80	1.0 J	3.5	0.28 U	1.7 U	4.0 U
Acenaphthylene	NV	NV	66	66	NV	--	1.4 U	4.2	1.7 U	2.2 U	0.28 U	1.7 U	4.0 U
Anthracene	NV	NV	220	1,200	NV	--	2.5	4.0	5.4	4.2	0.25 J	1.9	4.0
Benzo(a)anthracene	NV	NV	110	270	NV	--	11	12	25	18	0.62	9.1	10
Benzo(a)pyrene	NV	NV	99	210	NV	--	13	15	30	21	0.70	11	12
Benzo(ghi)perylene	NV	NV	31	78	NV	--	8.6 J	12	16 J	11 J	0.82	6.1 J	13
Chrysene	NV	NV	110	460	NV	--	20	18	43	36	1.2	19	20
Dibenzo(a,h)anthracene	NV	NV	12	33	NV	--	2.3	3.3	5.5	3.2	0.27	1.6	2.9 J
Fluoranthene	NV	NV	160	1,200	NV	--	32	28	68	57	1.6	27	32
Fluorene	NV	NV	23	79	NV	--	1.1 J	2.3	2.2	4.7	0.18 J	1.3 J	1.5 J
Indeno(1,2,3-cd)pyrene	NV	NV	34	88	NV	--	8.0 J	11	16 J	11 J	0.56	6.1 J	10
Naphthalene	NV	NV	99	170	NV	--	3.2	4.8	2.7	3.2	0.48	3.1	2.6 J
Phenanthrene	NV	NV	100	480	NV	--	13	32	29	24	0.92	9.1	8.4
Pyrene	NV	NV	1,000	1,400	NV	--	25	27	54	45	1.4	23	31
Total Benzofluoranthenes	NV	NV	230	450	NV	--	34	27	79	61	1.8	33	37
Total PAHs (ND = 0)	17	30	NV	NV	NV	--	175 J	198	377 J	305 J	11	150 J	185
Total HPAHs	NV	NV	960	5,300	NV	--	155 J	152	337 J	264 J	9.0	135 J	168
Total LPAHs	NV	NV	370	780	NV	--	20 J	46	40 J	41 J	1.8	15 J	17
cPAH TEQ (ND=0)	NV	NV	NV	NV	0.056	--	3.1 J	1.2	2.7 J	4.1 J	0.070	2.2 J	0.54
TPH (mg/kg-dw)													
Gasoline-Range Hydrocarbons	NV	NV	NV	NV	NV	ND	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	340	510	NV	NV	NV	50 U	2,400	450	470	2,300	140	1,600	570
Motor-Oil-Range Hydrocarbons	3,600	4,400	NV	NV	NV	250 U	8,500	1,400	3,900	8,300	460	6,000	2,200
BTEX (mg/kg-dw)	NV	NV	NV	NV	NV	ND	--	--	--	--	--	--	--

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Freshwater Sediment		SMS Marine Sediment		Port Gardner Bay Background 90/90 UTL	S-8	S-9		S-10	S-11		S-12	S-13
Sample Name:						S-8 - 1'	S-09-0.33	S-09-1.2	S-10-0.33	S-11-0.33	S-11-2.0	S-12-0.33	S-13-0.33
Collection Date:	SCO	CSL	SCO	CSL		09/10/2008	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015
Collection Depth (ft bml):[a]						1	0-0.33	0.33-1.2	0-0.33	0-0.33	0.33-2.0	0-0.33	0-0.33
Dioxins/Furans (pg/g-dw)													
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	--	4,760	336	2,590	5,390	93.3	4,090	1,370
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	--	1,120	73.6	566	1,060	18.9	864	301
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	--	69.1	5.35	48.8	81	1.2	57.5	19
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	--	87.8	5.03	42.7	88.9	1.64	75.4	26.7
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	--	40.5	4.67	22.6	43.3	0.987 J	33.5	11.4
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	--	197	15	96.4	204	4.25	168	59.4
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	--	41.1	4.34	19.8	39.5	0.905 J	34.3	12
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	--	198	10.7	90.1	190	3.56	170	58.6
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	--	9.34	1.72	5.41	10.2	0.313 U	8.02	3.96
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	--	42.7	3.22	20.9	43.5	0.909 J	39.3	14
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	--	5.83	1.35	2.86 J	6.21	0.244 U	5.21	2.2
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	--	63.9	6.98	30.1	62.7	1.43	51.4	10.9 U
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	--	7.12	2.46	3.66	7.59	0.364 J	6.24	3.05
2,3,7,8-TCDD	NV	NV	NV	NV	NV	--	4.31	56.5	2.49	4.96	0.853 U	4.87	1.86
2,3,7,8-TCDF	NV	NV	NV	NV	NV	--	4.35	2.77	2.23 U	7.3 J	0.389 U	4.62	3.11
OCDD	NV	NV	NV	NV	NV	--	36,200	2,860	25,700	43,800 J	714	30,400	10,600 J
OCDF	NV	NV	NV	NV	NV	--	3,850	217	2,430	3,600	56	2,820	887
Total HpCDDs	NV	NV	NV	NV	NV	--	7,920	568	4,340	8,840	159	6,730	2,360 U
Total HpCDFs	NV	NV	NV	NV	NV	--	2,970	222	1,810 U	3,050 U	52.4	2,310 U	801
Total HxCDDs	NV	NV	NV	NV	NV	--	1,250	108 U	614	1,270 U	29.8 U	1,090	422 U
Total HxCDFs	NV	NV	NV	NV	NV	--	1,300 U	127 U	649 U	1,250 U	23.6 U	1,020 U	321 U
Total PeCDDs	NV	NV	NV	NV	NV	--	173	30.6	87.3	170	6.5 U	156	61.4
Total PeCDFs	NV	NV	NV	NV	NV	--	335 U	125 U	168 U	277 U	13.1 U	286 U	112 U
Total TCDDs	NV	NV	NV	NV	NV	--	41.6 U	81.2 U	23.8 U	27.2 U	5.85 U	42 U	29.4 U
Total TCDFs	NV	NV	NV	NV	NV	--	94.6 U	78.6 U	55.5 U	86.4 U	7.97 U	85.1 U	49 U
Dioxin TEQ (ND=0)	NV	NV	NV	NV	3.9	--	185	70.7	95.8 J	195 J	3.66	161	54.7 J
Organotins (ug/kg-dw)													
Di-n-butyltin Cation[b]	540	> 4,800	NV	NV	NV	--	30	4.8 J	5.1 J	80	5.3 U	47	14
Monobutyltin[b]	910	130,000	NV	NV	NV	--	14	4 U	7.5	33	3.8 U	34	6.3
Tetrabutyltin[b]	47	320	NV	NV	NV	--	4.7 UR	4.9 UR	4.6 UR	4.9 UR	4.6 UR	5 UR	4.7 UR
Tri-n-butyltin Cation[b]	97	> 97	NV	NV	NV	--	18	7.1	4	49	5.8	14	12
Conventionals													
Total Organic Carbon (%)	NV	NV	NV	NV	NV	--	16.3	5.99	6.31	13.2	6.73	13.2	2.97
Total solids (%)	NV	NV	NV	NV	NV	--	23.11	51.32	46.17	30.82	40.78	28.07	35.58

Table 2-3
Summary of Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.

SMS Freshwater SCO

SMS Freshwater CSL

SMS Marine SCO

SMS Marine CSL

Port Gardner Bay Background 90/90 UTL

-- = not analyzed.

BTEX = benzene, toluene, ethylbenzene, and total xylenes; analyzed by USEPA Method 8021B.

cPAH TEQ = carcinogenic PAH.

ft bml = feet below mudline.

HPAHs = high-molecular-weight PAHs.

J = Result is an estimated value.

LOQ = limit of quantitation.

LPAHs = low-molecular-weight PAHs.

ND = not detected.

NV = no value.

NWTPH = Northwest Total Petroleum Hydrocarbons.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g-dw = picograms per gram dry weight.

SCO = sediment cleanup objective.

SMS = Sediment Management Standards.

SVOC = semivolatile organic compound. When samples were analyzed by both 8270D and 8270D SIM methods, or when samples were reanalyzed, the higher detected value or lower non-detect value was used.

TEQ = toxic equivalent quotient.

TPH = total petroleum hydrocarbons.

U = Result is non-detect at method reporting limit.

ug/kg-dw = micrograms per kilogram dry weight.

UR = Result is non-detect at or above method reporting limit. Reported value rejected during data validation.

USEPA = U.S. Environmental Protection Agency.

UTL = upper tolerance limit.

WAC = Washington Administrative Code.

[(a)]Sample depths from S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8 were estimated based on Associated Earth Sciences, Inc. 2010 Phase II Environmental Assessment Report.

[(b)]Calculated value; only detected values are summed.

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Table 3-1
Sampling and Analyses Summary
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Sample Location	Date Collected	Location Type	Sample Matrix	Sample Interval (feet bgs or bml)	Sample Name	DRO/ORO	As, Cd, Cr, Pb, Hg, Ni, Zn	As, Cu, Mn	Dioxin/ Furans	PCBs	PAHs/SVOCs
GM-2	10/21/2019	MW	GW	4 - 14	GM2-GW-8.2	X	--	X	--	--	--
GM-3	10/21/2019	MW	GW	5 - 15	GM3-GW-10.9	X	--	X	--	--	--
					GMDUP-GW-10.9	X	--	X	--	--	--
GM-9	10/21/2019	MW	GW	3.5 - 13.5	GM9-GW-7.7	X	--	X	--	--	--
GM-11	10/15/2019	Boring	Soil	2.8 - 3.2	GM11-S-3.0	--	X	--	--	--	--
GM-12	10/15/2019	Boring	Soil	1.7 - 2.3	GM12-S-2.0	--	X	--	--	--	--
GM-13	10/15/2019	Boring	Soil	7.2 - 7.8	GM13-S-7.5	--	X	--	--	--	--
GM-14	10/15/2019	Boring	Soil	11.7 - 12.3	GM14-S-12.0	X	X	--	--	--	--
GM-15	10/15/2019	Boring	Soil	1.3 - 1.8	GM15-S-1.5	--	X	--	--	--	--
GM-16	10/15/2019	Boring	Soil	2.2 - 2.7	GM16-S-2.5	X	X	--	--	--	--
S-14	10/17/2019	Vibracore	SED	0.5 - 2.5	S14-SED-1.5	*Not analyzed*					
				2.5 - 3.3	S14-SED-3.0	X	X	--	X	X	X
S-15	10/17/2019	Vibracore	SED	0.5 - 2.5	S15-SED-1.5	*Not analyzed*					
				2.5 - 4.5	S15-SED-3.5	X	X	--	X	X	X
				4.5 - 6.5	S15-SED-5.5	X	X[(a)]	--	--	--	X
S-16	10/18/2019	Grab	SED	0 - 0.95	S16-SED-0.33	X	X	--	X	X	X
	10/17/2019	Vibracore		0.5 - 2.5	S16-SED-1.5	--	--	--	--	--	X
				2.5 - 3.8	S16-SED-3.0	X	X	--	X	X	X
S-17	10/18/2019	Grab	SED	0 - 0.75	S17-SED-0.33	X	X	--	X	X	X
S-18	10/18/2019	Grab	SED	0 - 0.98	S18-SED-0.33	X	X	--	X	X	X
S-19	10/18/2019	Grab	SED	0 - 0.92	S19-SED-0.33	X	X	--	X	X	X
S-20	10/18/2019	Grab	SED	0 - 0.92	S20-SED-0.33	X	X	--	X	X	X

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Table 3-1
Sampling and Analyses Summary
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Sample Location	Date Collected	Location Type	Sample Matrix	Sample Interval (feet bgs or bml)	Sample Name	DRO/ORO	As, Cd, Cr, Pb, Hg, Ni, Zn	As, Cu, Mn	Dioxin/ Furans	PCBs	PAHs/SVOCs
S-21	10/17/2019	Vibracore	SED	0.5 - 2.5	S21-SED-1.5	--	--	--	--	--	X
		Vibracore		2.5 - 4.5	S21-SED-3.5	X	X	--	X	X	X
		Vibracore		4.5 - 6.5	S21-SED-5.5	--	X[(b)]	--	--	--	--
		Vibracore		6.5 - 7.9	S21-SED-7.5	*Not analyzed*					
S-22	10/18/2019	Grab	SED	0 - 0.95	S22-SED-0.33	X	X	--	X	X	X
	10/17/2019	Vibracore	SED	0.5 - 2.5	S22-SED-1.5	--	--	--	--	--	X
				2.5 - 4.5	S22-SED-3.5	X	X	--	X	X	X
				4.5 - 6.5	S22-SED-5.5	--	X[(c)]	--	--	--	--
				6.5 - 7.5	S22-SED-7.0	*Not analyzed*					
S-23	10/18/2019	Grab	SED	0 - 0.75	S23-SED-0.33	X	X	--	X	X	X
S-24	10/18/2019	Grab	SED	0 - 0.82	S24-SED-0.33	X	X	--	X	X	X
	10/17/2019	Vibracore		0.5 - 2.5	S24-SED-1.5	--	--	--	--	--	X
				2.5 - 4.5	S24-SED-3.5	X	X	--	X	X	X

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Table 3-1
Sampling and Analyses Summary
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

All metal analyses will be performed by USEPA Method 6020.

Groundwater samples collected from monitoring wells were analyzed for total and dissolved metals; dissolved metals were field filtered.

-- = not analyzed.

As = arsenic.

bgs = below ground surface.

bml = below mudline.

Cd = cadmium.

Cr = chromium.

Cu = copper.

DRO = diesel-range organics; analysis by NWTPH-Dx.

GW = groundwater.

Hg = mercury.

Mn = manganese.

MW = monitoring well.

Ni = nickel.

NWTPH-Dx = Northwest Total Petroleum Hydrocarbons—Diesel- and Heavy-Oil-Range Organics method.

ORO = oil-range organics; analysis by NWTPH-Dx.

PAHs = polycyclic aromatic hydrocarbons.

Pb = lead.

PCBs = polychlorinated biphenyls.

SED = sediment.

SVOCs = semivolatile organic compounds; analysis by USEPA Method 8270 selected ion monitoring method.

USEPA = U.S. Environmental Protection Agency.

X = analyzed.

Zn = zinc.

[a]S15-SED-5.5 was analyzed for Ni, As, and Pb.

[b]S21-SED-5.5 was analyzed for Ni only.

[c]S22-SED-5.5 was analyzed for Ni only.

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Table 4-2
Summary of Groundwater Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	MTCA A/B	GM2	GM3		GM9
Sample Name:		GM2-GW-8.2	GM3-GW-10.9	GMDUP-GW-10.9	GM9-GW-7.7
Collection Date:		10/21/2019	10/21/2019	10/21/2019	10/21/2019
Collection Depth (ft bgs):		8.2	10.9	10.9	7.7
Dissolved Metals (ug/L)					
Arsenic	5	3 U	3 U	3 U	3 U
Copper	640	10 U	10 U	10 U	10 U
Manganese	750[(a)]	210	1,200	1,200	630
Total Metals (ug/L)					
Arsenic	5	3.3 U	3.3 U	3.3 U	3.3 U
Copper	640	11	11 U	11 U	11 U
Manganese	750[(a)]	210	1,200	1,200	610
TPH (ug/L)					
Diesel-Range Hydrocarbons	500	250 U	400	350	260 U
Lube-Oil-Range Hydrocarbons	500	410 U	680	600	410 U
Diesel + Lube Oil[(b)]	500	410 U	1,080	950	410 U

NOTES:

Shading indicates a MTCA Method A or B screening criteria exceedance; non-detect results were not compared to screening criteria.

-- = not analyzed.

ft bgs = feet below ground surface.

J = Result is an estimated value.

MTCA A/B = Model Toxics Control Act Method A or Method B (lower of cancer or noncancer) value was used when Method A was not available.

NV = no value.

TPH = total petroleum hydrocarbons.

U = Analyte not detected at or above method reporting limit.

ug/L = micrograms per liter.

[(a)]Manganese cleanup level is for non-diet.

[(b)]The sum of diesel- and lube-oil-range hydrocarbons. When both results are non-detect, the higher reporting limit is shown.

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Table 4-1
Summary of Soil Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	GM-11	GM-12	GM-13	GM-14	GM-15	GM-16
Sample Name:	GM11-S-3.0	GM12-S-2.0	GM13-S-7.5	GM14-S-12.0	GM15-S-1.5	GM16-S-2.5
Collection Date:	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019
Collection Depth (ft bgs):	3	2	7.5	12	1.5	2.5
Total Metals (mg/kg-dw)						
Arsenic	29	12	27	14	25	23
Cadmium	1.2 U	0.87 U	1.1 U	0.86 U	2.3	1.1 U
Chromium	61	58	54	44	59	42
Lead	9.3	7	9.1	6.1	1,800 J	1,400
Mercury	0.25 U	0.17 U	0.23 U	0.17 U	3.9	0.21 U
Nickel	59	50	49	47	40	35
Zinc	76	72	74	69	1400 J	98
TPH with Silica-Gel (mg/kg-dw)						
Diesel-Range Hydrocarbons	--	--	--	35 U	--	61 J
Lube-Oil-Range Hydrocarbons	--	--	--	69 U	--	120
Diesel + Lube Oil[(a)]	--	--	--	69 U	--	181 J

NOTES:

Results are not compared to screening criteria, as soil was capped as part of the 2016 remedial action.

-- = not analyzed.

ft bgs = feet below ground surface.

J = Result is an estimated value.

mg/kg-dw = milligrams per kilogram dry weight.

TPH = total petroleum hydrocarbons.

U = Analyte not detected at or above method reporting limit.

[(a)]The sum of diesel- and lube-oil-range hydrocarbons. When both results are non-detect, the higher reporting limit is shown.

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[a]		Port Gardner Regional Background 90/90 UTL	S-14	S-15		S-16			S-17	S-18	S-19	S-20	
Sample Name:						S14-SED-3.0	S15-SED-3.5	S15-SED-5.5	S16-SED-0.33	S16-SED-1.5	S16-SED-3.0	S17-SED-0.33	S18-SED-0.33	S19-SED-0.33	S20-SED-0.33	SDUP-SED-0.33
Collection Date:	SCO	CSL	SCO	CSL		10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019
Collection Depth (ft bgs):						2.5-3.3	2.5-4.5	4.5-6.4	0-0.33	0.5-2.5	2.5-3.8	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Total Metals (mg/kg-dw)																
Arsenic	14	120	57	93	12	9.8	22	2.7	14	--	18	12	15	13	13	12
Cadmium	2.1	5.4	5.1	6.7	0.52	0.68 U	1.2	--	0.51 U	--	1.9 U	1.2	0.9	0.71	0.51 U	0.51 U
Chromium	72	88	260	270	NV	47	67	--	54	--	47	55	61	51	51	45
Lead	360	>1,300	450	530	NV	150	730	7.6	44	--	18	120	64	54	34	32
Mercury	0.66	0.8	0.41	0.59	0.14	0.14 U	0.25	--	0.12	--	0.37 U	0.14	0.16	0.13	0.1 U	0.1 U
Nickel	26	110	NV	NV	NV	36	48	31	49	--	48	49	55	47	46	41
Zinc	3,200	>4,200	410	960	NV	100	260	--	220	--	82	340	260	230	170	160
PCB Aroclors (mg/kg-dw)																
Aroclor 1016	NV	NV	NV	NV	NV	0.073 U	0.49 U	--	0.0071 U	--	0.01 U	0.0065 U	0.007 U	0.0069 U	0.0063 U	0.0063 U
Aroclor 1221	NV	NV	NV	NV	NV	0.073 U	0.49 U	--	0.0071 U	--	0.01 U	0.0065 U	0.007 U	0.0069 U	0.0063 U	0.0063 U
Aroclor 1232	NV	NV	NV	NV	NV	0.073 U	0.49 U	--	0.0071 U	--	0.01 U	0.0065 U	0.007 U	0.0069 U	0.0063 U	0.0063 U
Aroclor 1242	NV	NV	NV	NV	NV	0.073 U	0.49 U	--	0.0071 U	--	0.01 U	0.013 U	0.007 U	0.0069 U	0.0063 U	0.0063 U
Aroclor 1248	NV	NV	NV	NV	NV	0.073 U	0.49 U	--	0.0071 U	--	0.01 U	0.0065 U	0.007 U	0.0069 U	0.0063 U	0.0063 U
Aroclor 1254	NV	NV	NV	NV	NV	0.51	1.2	--	0.02	--	0.01 U	0.046	0.026	0.024	0.021	0.019
Aroclor 1260	NV	NV	NV	NV	NV	0.073 U	0.49 U	--	0.0073	--	0.01 U	0.016	0.013	0.0092	0.0081	0.0063 U
Total PCBs[b] (ND=0)	0.11	2.5	NV	NV	NV	0.51	1.2	--	0.0273	--	0.01 U	0.062	0.039	0.0332	0.0291	0.019
Total PCBs[c](ND=0)	NV	NV	0.13	1	NV	0.51	1.2	--	0.0273	--	0.01 U	0.062	0.039	0.0332	0.0291	0.019
SVOCs (mg/kg-dw)																
1,2,4-Trichlorobenzene	NV	NV	0.031	0.051	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
1,2-Dichlorobenzene	NV	NV	0.035	0.05	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
1,2-Dinitrobenzene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
1,3-Dichlorobenzene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
1,3-Dinitrobenzene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
1,4-Dichlorobenzene	NV	NV	0.11	0.11	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
1,4-Dinitrobenzene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,2'-oxybis(2-chloropropane)	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,3,5,6-Tetrachlorophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,3-Dichloroaniline	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,4-Dichlorophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,4-Dimethylphenol	NV	NV	0.029	0.029	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
2,4-Dinitrophenol	NV	NV	NV	NV	NV	0.68 U	7.1 U	0.12 U	10 U	1.9 U	0.37 U	19 U	10 U	9.8 U	9.1 U	9.1 U
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2-Chloronaphthalene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2-Chlorophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2-Methylphenol	NV	NV	0.063	0.063	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
2-Nitroaniline	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
2-Nitrophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[(a)]		Port Gardner Regional Background 90/90 UTL	S-14	S-15		S-16			S-17	S-18	S-19	S-20	
Sample Name:						S14-SED-3.0	S15-SED-3.5	S15-SED-5.5	S16-SED-0.33	S16-SED-1.5	S16-SED-3.0	S17-SED-0.33	S18-SED-0.33	S19-SED-0.33	S20-SED-0.33	SDUP-SED-0.33
Collection Date:	SCO	CSL	SCO	CSL		10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019
Collection Depth (ft bgs):						2.5-3.3	2.5-4.5	4.5-6.4	0-0.33	0.5-2.5	2.5-3.8	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
3- & 4-Methylphenol (m,p-Cresol)[(d)]	0.26	2	0.67	0.67	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.37 U	12 U	6.6 U	6.5 U	6 U	6 U
3-Nitroaniline	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	0.68 U	6 U	0.12 U	8.6 U	1.9 U	0.37 U	16 U	8.5 U	8.4 U	7.7 U	7.7 U
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
4-Chloroaniline	NV	NV	NV	NV	NV	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.37 U	12 U	6.6 U	6.5 U	6 U	6 U
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
4-Nitroaniline	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
4-Nitrophenol	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Aniline	NV	NV	NV	NV	NV	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.37 U	12 U	6.6 U	6.5 U	6 U	6 U
Benzidine	NV	NV	NV	NV	NV	1.4 U	9.3 U	0.25 U	13 U	3.9 U	0.75 U	24 U	13 U	13 U	12 U	12 U
Benzoic acid	2.9	3.8	0.65	0.65	NV	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.65 U	12 U	6.6 U	6.5 U	6 U	6 U
Benzyl alcohol	NV	NV	0.057	0.073	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Bis(2-ethylhexyl)phthalate	0.5	22	1.3	1.9	NV	1	12	0.081	6.4	4.3	0.5 U	18	32	6.1	3.4	3.1
Butylbenzylphthalate	NV	NV	0.063	0.9	NV	0.068 U	0.49 U	0.012 U	0.66 U	0.22	0.037 U	1.3 U	0.66 U	0.65 U	0.6 U	0.6 U
Carbazole	0.9	1.1	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Di(2-ethylhexyl)adipate	NV	NV	NV	NV	NV	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.37 U	12 U	6.6 U	6.5 U	6 U	6 U
Dibenzofuran	0.2	0.68	0.54	0.54	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Diethyl phthalate	NV	NV	0.2	>1.2	NV	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.37 U	12 U	6.6 U	6.5 U	6 U	6 U
Dimethyl phthalate	NV	NV	0.071	0.16	NV	0.14 U	0.46 U	0.025 U	0.66 U	0.39 U	0.075 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Di-n-butyl phthalate	0.38	1	1.4	1.4	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Di-n-octyl phthalate	0.039	> 1.1	6.2	6.2	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Hexachlorobenzene	NV	NV	0.022	0.07	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Hexachlorobutadiene	NV	NV	0.011	0.12	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Hexachloroethane	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Hydrazine, 1,2-diphenyl	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Isophorone	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Nitrobenzene	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
N-Nitrosodimethylamine	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
N-Nitrosodiphenylamine	NV	NV	0.028	0.04	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Pentachlorophenol	1.2	> 1.2	0.36	0.69	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Phenol	0.12	0.21	0.42	1.2	NV	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Pyridine	NV	NV	NV	NV	NV	1.4 U	9.3 U	0.25 U	13 U	3.9 U	0.75 U	24 U	13 U	13 U	12 U	12 U

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[a]		Port Gardner Regional Background 90/90 UTL	S-14	S-15		S-16			S-17	S-18	S-19	S-20	
Sample Name:						S14-SED-3.0	S15-SED-3.5	S15-SED-5.5	S16-SED-0.33	S16-SED-1.5	S16-SED-3.0	S17-SED-0.33	S18-SED-0.33	S19-SED-0.33	S20-SED-0.33	SDUP-SED-0.33
Collection Date:	SCO	CSL	SCO	CSL		10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019
Collection Depth (ft bgs):						2.5-3.3	2.5-4.5	4.5-6.4	0-0.33	0.5-2.5	2.5-3.8	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
PAHs (mg/kg-dw)																
1-Methylnaphthalene	NV	NV	NV	NV	NV	0.027 U	0.037 U	0.0049 U	0.053 U	0.015 U	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
2-Methylnaphthalene	NV	NV	0.67	0.67	NV	0.027 U	0.037 U	0.0049 U	0.053 U	0.015 U	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
Acenaphthene	NV	NV	0.5	0.5	NV	0.027 U	0.062	0.0049 U	0.053 U	0.017	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
Acenaphthylene	NV	NV	1.3	1.3	NV	0.027 U	0.042	0.0049 U	0.053 U	0.026	0.015 U	0.098 U	0.071	0.052 U	0.048 U	0.048 U
Anthracene	NV	NV	0.96	0.96	NV	0.027 U	0.14	0.0049 U	0.061	0.061	0.015 U	0.31	0.15	0.08	0.054	0.054
Benzo(a)anthracene	NV	NV	1.3	1.6	NV	0.037	0.62	0.0049 U	0.33	0.33	0.015 U	2	1	0.58	0.33	0.32
Benzo(a)pyrene	NV	NV	1.6	1.6	NV	0.041	0.67	0.0049 U	0.51	0.4	0.025	2.6	1.3	0.72	0.43	0.37
Benzo(b)fluoranthene	NV	NV	NV	NV	NV	0.063	1	0.0061	1	0.68	0.035	4.2	2.5	1.2	0.74	0.66
Benzo(ghi)perylene	NV	NV	0.67	0.72	NV	0.056	0.73	0.0049 U	0.66	0.48	0.026	2.4	1.4	0.76	0.48	0.41
Benzo(j+k)fluoranthene	NV	NV	NV	NV	NV	0.027 U	0.28	0.0049 U	0.25	0.17	0.015 U	1.2	0.5	0.35	0.21	0.19
Chrysene	NV	NV	1.4	2.8	NV	0.047	0.93	0.005	0.52	0.44	0.02	2.7	1.4	0.66	0.44	0.4
Dibenzo(a,h)anthracene	NV	NV	0.23	0.23	NV	0.027 U	0.12	0.0049 U	0.08	0.055	0.015 U	0.36	0.2	0.1	0.069	0.058
Fluoranthene	NV	NV	1.7	2.5	NV	0.049	1.3	0.0078	1	0.83	0.041	5.2	2.8	1.4	0.69	0.69
Fluorene	NV	NV	0.54	0.54	NV	0.027 U	0.094	0.0049 U	0.053 U	0.018	0.015 U	0.11	0.052 U	0.052 U	0.048 U	0.048 U
Indeno(1,2,3-cd)pyrene	NV	NV	0.6	0.69	NV	0.04	0.58	0.0049 U	0.62	0.47	0.024	2.6	1.6	0.77	0.45	0.41
Naphthalene	NV	NV	2.1	2.1	NV	0.027 U	0.037 U	0.0049 U	0.053 U	0.026	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
Phenanthrene	NV	NV	1.5	1.5	NV	0.027	0.5	0.0049 U	0.14	0.098	0.015 U	1.1	0.39	0.26	0.19	0.2
Pyrene	NV	NV	2.6	3.3	NV	0.084	1.5	0.0071	0.81	0.76	0.042	4.6	2.7	1.3	0.62	0.61
Total benzofluoranthenes (ND=0)	NV	NV	3.2	3.6	NV	0.063	1.28	0.00855	1.25	0.85	0.035	5.4	3	1.55	0.95	0.85
Total HPAHs[e]	NV	NV	12	17	NV	0.42	7.7	0.026	5.8	4.6	0.21	28	15	7.8	4.5	4.1
Total LPAHs[f]	NV	NV	2.5	5.2	NV	0.027	0.84	0.0049 U	0.2	0.25	0.015 U	1.5	0.61	0.34	0.24	0.25
Total PAHs[g]	17	30	NV	NV	NV	0.44	8.6	0.026	6.0	4.9	0.21	29	16	8.2	4.7	4.4
cPAH TEQ (ND=0)	NV	NV	NV	NV	0.056	0.055	0.94	0.00066	0.74	0.57	0.031	3.7	1.9	1	0.61	0.54
TPH (mg/kg-dw)																
Diesel-Range Hydrocarbons	340	510	NV	NV	NV	160 J	1,500 J	25 U	190 J	--	120 J	620 J	440 J	250 J	140 J	130 J
Lube-Oil-Range Hydrocarbons	3,600	4,400	NV	NV	NV	1,100	11,000	50 U	1,900	--	660	5,900	4,500	2,500	1,400	1,300
Dioxins/Furans (pg/g-dw)																
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	173	493	--	242	--	11.7	580	601	561	152	111
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	39.5	114	--	50.3	--	2.45 J	123	100	85.1	32.1	20.1
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	3.86 J	7.8	--	3.5 J	--	0.69 U	8.08	7.5	5.29	2.54 J	1.68 J
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	1.95 J	6.96	--	4.35 J	--	0.575 U	9.51	8.59	6.93	2.67 UJK	2.09 J
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	3.92 J	8.18	--	1.82 J	--	0.438 UJK	4.22 J	3.52 J	3.31 J	1.01 J	0.876 J
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	5.92	22.8	--	8.75	--	0.604 U	22.2	19.5	17.7	5.89	3.82 J
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	2.97 J	6.73 J	--	2.01 J	--	0.252 J	4.42 J	3.57 J	3.44 J	1.41 J	0.964 J
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	3.9 J	15.7	--	8.77	--	0.601 U	21.3	18.1	16	5.73 UK	3.62 J
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	1.31 J	2.52 J	--	0.585 J	--	0.318 U	1.01 J	0.997 J	1.07 J	0.34 UJK	0.262 U
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	1.41 J	4.14 J	--	2.34 J	--	0.415 U	4.96	4.2 J	3.71 J	1.38 J	0.948 UJK
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	0.783 J	2.09 J	--	0.501 UJK	--	0.28 U	0.859 J	0.744 J	0.822 J	0.345 UJK	0.206 J
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	4.44 J	10.2	--	3 J	--	0.326 UJK	6.84	6.2	5.05 J	1.93 J	1.16 J
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	5.57	10.5	--	0.783 J	--	0.386 J	2.1 J	1.74 J	1.68 J	0.652 UJK	0.166 U
2,3,7,8-TCDD	NV	NV	NV	NV	NV	18.3	17.3	--	0.335 J	--	0.258 U	0.604 J	0.7 J	0.526 J	0.43 UJK	0.16 U

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Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[(a)]		Port Gardner Regional Background 90/90 UTL	S-14	S-15		S-16			S-17	S-18	S-19	S-20	
Sample Name:						S14-SED-3.0	S15-SED-3.5	S15-SED-5.5	S16-SED-0.33	S16-SED-1.5	S16-SED-3.0	S17-SED-0.33	S18-SED-0.33	S19-SED-0.33	S20-SED-0.33	SDUP-SED-0.33
Collection Date:	SCO	CSL	SCO	CSL		10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019
Collection Depth (ft bgs):						2.5-3.3	2.5-4.5	4.5-6.4	0-0.33	0.5-2.5	2.5-3.8	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
2,3,7,8-TCDF	NV	NV	NV	NV	NV	1.24	4.03	--	0.41 J	--	0.352 U	0.926 J	1.01 UJK	0.704 J	0.424 J	0.266 U
OCDD	NV	NV	NV	NV	NV	3010	4610 J	--	2330	--	120	6550 J	5230 J	6280 J	1830	1270
OCDF	NV	NV	NV	NV	NV	94.6	267	--	141	--	5.56 J	351	286	211	94.8 J	54.3 J
Total HpCDDs	NV	NV	NV	NV	NV	366	872	--	637	--	25.1	1090	2930 J	1510	335	256
Total HpCDFs	NV	NV	NV	NV	NV	129 JK	367 JK	--	134 JK	--	6.88 J	344 J	282 J	231 J	87.8 J	53.7 J
Total HxCDDs	NV	NV	NV	NV	NV	56.3 J	159 J	--	73 JK	--	4.85 UJK	155 J	240 J	156 JK	42.8 JK	31.5 J
Total HxCDFs	NV	NV	NV	NV	NV	80.6 JK	234 J	--	54 J	--	5.06 JK	149 JK	114 JK	103 JK	34.8 JK	22.7 J
Total PeCDDs	NV	NV	NV	NV	NV	13.9 JK	42.7 J	--	9.91 JK	--	0.532 UJK	24.7 JK	21 JK	20.7 JK	6.45 JK	3.23 UJK
Total PeCDFs	NV	NV	NV	NV	NV	82 JK	161 J	--	17.6 JK	--	4.63 JK	45.1 JK	34.2 JK	32.4 J	11.5 UJK	7.64 J
Total TCDDs	NV	NV	NV	NV	NV	26.2 JK	38.8 JK	--	2.62 JK	--	1.4 UJK	4.94 JK	5.53 JK	4.53 JK	1.35 UJK	0.478 UJK
Total TCDFs	NV	NV	NV	NV	NV	39 JK	84 JK	--	5.67 JK	--	2.68 UJK	14.5 JK	10.6 UJK	8.74 JK	3.56 JK	0.876 UJK
Dioxin/Furan TEQ (ND=0)	NV	NV	NV	NV	3.90	27.1 J	40.0 J	--	9.58 J	--	0.320 J	22.4 J	20.2 J	18.6 J	4.89 J	2.98 J
Conventionals (%)																
Percent Solids	NV	NV	NV	NV	NV	73	54	81	38	61	27	41	38	39	42	42
Total Organic Carbon	NV	NV	NV	NV	NV	--	6.8 J	--	--	--	--	7.6 J	--	--	--	--

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[a]		S-21			S-22				S-23	S-24		
Sample Name:					S21-SED-1.5	S21-SED-3.5	S21-SED-5.5	S22-SED-0.33	S22-SED-1.5	S22-SED-3.5	S22-SED-5.5	S23-SED-0.33	S24-SED-0.33	S24-SED-1.5	S24-SED-3.5
Collection Date:	SCO	CSL	SCO	CSL	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019
Collection Depth (ft bgs):					0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0-0.33	0.5-2.5	2.5-4.5
Total Metals (mg/kg-dw)															
Arsenic	14	120	57	93	--	12	--	15	--	18	16	15	19	--	11
Cadmium	2.1	5.4	5.1	6.7	--	0.91 U	--	0.89	--	1 U	--	0.51 U	1 U	--	0.78 U
Chromium	72	88	260	270	--	54	--	61	--	62	--	53	60	--	47
Lead	360	>1,300	450	530	--	8.4	--	55	--	17	--	42	59	--	7.1
Mercury	0.66	0.8	0.41	0.59	--	0.18 U	--	0.11 U	--	0.2 U	--	0.11	0.21 U	--	0.18
Nickel	26	110	NV	NV	--	50	52	56	--	54	63	49	55	--	42
Zinc	3,200	>4,200	410	960	--	72	--	320	--	87	--	190	200	--	61
PCB Aroclors (mg/kg-dw)															
Aroclor 1016	NV	NV	NV	NV	--	0.0048 U	--	0.0075 U	--	0.0055 U	--	0.0065 U	0.0055 U	--	0.0042 U
Aroclor 1221	NV	NV	NV	NV	--	0.0048 U	--	0.0075 U	--	0.0055 U	--	0.0065 U	0.0055 U	--	0.0042 U
Aroclor 1232	NV	NV	NV	NV	--	0.0048 U	--	0.0075 U	--	0.0055 U	--	0.0065 U	0.0055 U	--	0.0042 U
Aroclor 1242	NV	NV	NV	NV	--	0.0048 U	--	0.0075 U	--	0.046	--	0.0065 U	0.0055 U	--	0.0042 U
Aroclor 1248	NV	NV	NV	NV	--	0.0048 U	--	0.0075 U	--	0.0055 U	--	0.0065 U	0.0055 U	--	0.0042 U
Aroclor 1254	NV	NV	NV	NV	--	0.0048 U	--	0.041	--	0.012	--	0.028	0.016	--	0.0042 U
Aroclor 1260	NV	NV	NV	NV	--	0.0048 U	--	0.011	--	0.0055 U	--	0.0093	0.0067	--	0.0042 U
Total PCBs[b] (ND=0)	0.11	2.5	NV	NV	--	0.0048 U	--	0.052	--	0.058	--	0.0373	0.0227	--	0.0042 U
Total PCBs[c](ND=0)	NV	NV	0.13	1	--	0.0048 U	--	0.052	--	0.058	--	0.0373	0.0227	--	0.0042 U
SVOCs (mg/kg-dw)															
1,2,4-Trichlorobenzene	NV	NV	0.031	0.051	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
1,2-Dichlorobenzene	NV	NV	0.035	0.05	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
1,2-Dinitrobenzene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
1,3-Dichlorobenzene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
1,3-Dinitrobenzene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
1,4-Dichlorobenzene	NV	NV	0.11	0.11	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
1,4-Dinitrobenzene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,2'-oxybis(2-chloropropane)	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,3,5,6-Tetrachlorophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,3-Dichloroaniline	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,4-Dichlorophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,4-Dimethylphenol	NV	NV	0.029	0.029	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
2,4-Dinitrophenol	NV	NV	NV	NV	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
2,4-Dinitrotoluene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2,6-Dinitrotoluene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2-Chloronaphthalene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2-Chlorophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2-Methylphenol	NV	NV	0.063	0.063	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
2-Nitroaniline	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
2-Nitrophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[a]		S-21			S-22				S-23	S-24		
Sample Name:					S21-SED-1.5	S21-SED-3.5	S21-SED-5.5	S22-SED-0.33	S22-SED-1.5	S22-SED-3.5	S22-SED-5.5	S23-SED-0.33	S24-SED-0.33	S24-SED-1.5	S24-SED-3.5
Collection Date:	SCO	CSL	SCO	CSL	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019
Collection Depth (ft bgs):					0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0-0.33	0.5-2.5	2.5-4.5
3- & 4-Methylphenol (m,p-Cresol)[d]	0.26	2	0.67	0.67	0.023	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
3,3-Dichlorobenzidine	NV	NV	NV	NV	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
3-Nitroaniline	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
4-Bromophenylphenyl ether	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
4-Chloroaniline	NV	NV	NV	NV	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
4-Chlorophenylphenyl ether	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
4-Nitroaniline	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
4-Nitrophenol	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Aniline	NV	NV	NV	NV	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
Benzidine	NV	NV	NV	NV	0.38 U	0.36 U	--	5.6 U	3.3 U	0.41 U	--	2.5 U	2.1 U	0.38 U	0.31 U
Benzoic acid	2.9	3.8	0.65	0.65	0.19 U	0.65 U	--	4.1 U	1.7 U	0.65 U	--	1.8 U	1.6 U	0.19 U	0.65 U
Benzyl alcohol	NV	NV	0.057	0.073	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Bis(2-chloroethyl)ether	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Bis(2-ethylhexyl)phthalate	0.5	22	1.3	1.9	0.85	0.5 U	--	7	6.1	0.5 U	--	3.8	4	0.98	0.5 U
Butylbenzylphthalate	NV	NV	0.063	0.9	0.077	0.018 U	--	0.28 U	0.34	0.49 U	--	0.49 U	0.49 U	0.13	0.016 U
Carbazole	0.9	1.1	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Di(2-ethylhexyl)adipate	NV	NV	NV	NV	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
Dibenzofuran	0.2	0.68	0.54	0.54	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Diethyl phthalate	NV	NV	0.2	>1.2	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
Dimethyl phthalate	NV	NV	0.071	0.16	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Di-n-butyl phthalate	0.38	1	1.4	1.4	0.058	0.018 U	--	0.28 U	0.17 U	0.38 U	--	0.12 U	0.1 U	0.051	0.016 U
Di-n-octyl phthalate	0.039	> 1.1	6.2	6.2	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Hexachlorobenzene	NV	NV	0.022	0.07	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Hexachlorobutadiene	NV	NV	0.011	0.12	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Hexachloroethane	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Hydrazine, 1,2-diphenyl	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Isophorone	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Nitrobenzene	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
N-Nitrosodimethylamine	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
N-Nitrosodiphenylamine	NV	NV	0.028	0.04	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
N-Nitrosodipropylamine	NV	NV	NV	NV	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Pentachlorophenol	1.2	> 1.2	0.36	0.69	0.045	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Phenol	0.12	0.21	0.42	1.2	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Pyridine	NV	NV	NV	NV	0.38 U	0.36 U	--	5.6 U	3.3 U	0.41 U	--	2.5 U	2.1 U	0.38 U	0.31 U

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[a]		S-21			S-22				S-23	S-24		
Sample Name:					S21-SED-1.5	S21-SED-3.5	S21-SED-5.5	S22-SED-0.33	S22-SED-1.5	S22-SED-3.5	S22-SED-5.5	S23-SED-0.33	S24-SED-0.33	S24-SED-1.5	S24-SED-3.5
Collection Date:	SCO	CSL	SCO	CSL	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019
Collection Depth (ft bgs):					0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0-0.33	0.5-2.5	2.5-4.5
PAHs (mg/kg-dw)															
1-Methylnaphthalene	NV	NV	NV	NV	0.0076 U	0.0072 U	--	0.11 U	0.013 U	0.0082 U	--	0.049 U	0.041 U	0.0077 U	0.0063 U
2-Methylnaphthalene	NV	NV	0.67	0.67	0.014	0.0072 U	--	0.11 U	0.013 U	0.0082 U	--	0.049 U	0.041 U	0.0077 U	0.0063 U
Acenaphthene	NV	NV	0.5	0.5	0.013	0.0072 U	--	0.11 U	0.055	0.0082 U	--	0.049 U	0.041 U	0.0077 U	0.0063 U
Acenaphthylene	NV	NV	1.3	1.3	0.02	0.0072 U	--	0.11 U	0.031	0.0082 U	--	0.049 U	0.041 U	0.011	0.0063 U
Anthracene	NV	NV	0.96	0.96	0.021	0.0072 U	--	0.11 U	0.1	0.0082 U	--	0.049 U	0.041 U	0.022	0.0063 U
Benzo(a)anthracene	NV	NV	1.3	1.6	0.048	0.0072 U	--	0.32	0.34	0.011	--	0.28	0.19	0.083	0.0063 U
Benzo(a)pyrene	NV	NV	1.6	1.6	0.051	0.0072 U	--	0.46	0.41	0.017	--	0.37	0.27	0.1	0.0063 U
Benzo(b)fluoranthene	NV	NV	NV	NV	0.08	0.0072 U	--	0.95	0.85	0.033	--	0.73	0.57	0.18	0.0063 U
Benzo(ghi)perylene	NV	NV	0.67	0.72	0.073	0.0072 U	--	0.59	0.5	0.023	--	0.39	0.39	0.11	0.0063 U
Benzo(j+k)fluoranthene	NV	NV	NV	NV	0.027	0.0072 U	--	0.26	0.28	0.0095	--	0.2	0.21	0.059	0.0063 U
Chrysene	NV	NV	1.4	2.8	0.082	0.0072 U	--	0.43	0.52	0.019	--	0.43	0.29	0.11	0.0063 U
Dibenzo(a,h)anthracene	NV	NV	0.23	0.23	0.0086	0.0072 U	--	0.11 U	0.07	0.0082 U	--	0.074	0.05	0.014	0.0063 U
Fluoranthene	NV	NV	1.7	2.5	0.13	0.0072 U	--	0.87	1.3	0.035	--	0.67	0.44	0.22	0.0076
Fluorene	NV	NV	0.54	0.54	0.015	0.0072 U	--	0.11 U	0.031	0.0082 U	--	0.049 U	0.041 U	0.012	0.0063 U
Indeno(1,2,3-cd)pyrene	NV	NV	0.6	0.69	0.048	0.0072 U	--	0.52	0.45	0.019	--	0.34	0.31	0.087	0.0063 U
Naphthalene	NV	NV	2.1	2.1	0.04	0.0072 U	--	0.11 U	0.02	0.0082 U	--	0.049 U	0.041 U	0.011	0.0063 U
Phenanthrene	NV	NV	1.5	1.5	0.086	0.0072 U	--	0.13	0.19	0.012	--	0.13	0.066	0.052	0.0063 U
Pyrene	NV	NV	2.6	3.3	0.17	0.0072 U	--	0.94	1.1	0.044	--	0.74	0.5	0.24	0.015
Total benzofluoranthenes (ND=0)	NV	NV	3.2	3.6	0.107	0.0072 U	--	1.21	1.13	0.0425	--	0.93	0.78	0.239	0.0063 U
Total HPAHs[e]	NV	NV	12	17	0.72	0.0072 U	--	5.3	5.8	0.21	--	4.2	3.2	1.2	0.023
Total LPAHs[f]	NV	NV	2.5	5.2	0.2	0.0072 U	--	0.13	0.43	0.012	--	0.13	0.066	0.11	0.0063 U
Total PAHs[g]	17	30	NV	NV	0.93	0.0072 U	--	5.5	6.2	0.22	--	4.4	3.3	1.3	0.023
cPAH TEQ (ND=0)	NV	NV	NV	NV	0.073	0.0072 U	--	0.67	0.61	0.024	--	0.54	0.41	0.14	0.0063 U
TPH (mg/kg-dw)															
Diesel-Range Hydrocarbons	340	510	NV	NV	--	36 U	--	220 J	--	41 U	--	150 J	150 J	--	31 U
Lube-Oil-Range Hydrocarbons	3,600	4,400	NV	NV	--	170	--	2,500	--	170	--	1,700	1,700	--	63 U
Dioxins/Furans (pg/g-dw)															
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	--	6.86	--	359	--	13.5	--	196	374 J	--	3.61 J
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	--	1.21 J	--	82	--	3.09 J	--	41	83 J	--	0.548 UJK
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	--	0.389 U	--	5.56 J	--	0.323 U	--	2.89 J	5.15 J	--	0.308 U
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	--	0.277 U	--	6.56	--	0.483 U	--	3.45 UJK	6.57 J	--	0.489 U
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	--	0.151 U	--	2.88 J	--	0.182 U	--	1.72 J	3.16 J	--	0.202 U
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	--	0.395 UJK	--	13.3	--	0.758 J	--	6.88	12.7 J	--	0.479 U
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	--	0.155 U	--	3.32 J	--	0.301 UJK	--	1.69 J	2.93 J	--	0.182 U
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	--	0.285 U	--	12.9	--	0.679 UJK	--	7.84	13.7 UK	--	0.491 U
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	--	0.206 U	--	0.929 UJK	--	0.254 U	--	0.423 J	0.992 UJ	--	0.265 U
1,2,3,7,8-PeCDD	NV	NV	NV	NV	--	0.222 U	--	3.15 J	--	0.291 U	--	1.95 J	3.77 J	--	0.22 U
1,2,3,7,8-PeCDF	NV	NV	NV	NV	--	0.169 U	--	0.484 J	--	0.214 U	--	0.343 UJK	0.713 UJK	--	0.129 U
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	--	0.158 UJK	--	4.58 J	--	0.342 UJK	--	2.72 UJK	4.46 UJK	--	0.181 U
2,3,4,7,8-PeCDF	NV	NV	NV	NV	--	0.252 J	--	1.38 J	--	0.564 UJK	--	0.85 UJK	1.78 J	--	0.119 U
2,3,7,8-TCDD	NV	NV	NV	NV	--	0.14 U	--	0.505 UJK	--	0.173 U	--	0.341 J	0.505 UJ	--	0.186 U

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	SMS Criteria, Freshwater		AET Criteria, Marine[a]		S-21			S-22				S-23	S-24		
Sample Name:					S21-SED-1.5	S21-SED-3.5	S21-SED-5.5	S22-SED-0.33	S22-SED-1.5	S22-SED-3.5	S22-SED-5.5	S23-SED-0.33	S24-SED-0.33	S24-SED-1.5	S24-SED-3.5
Collection Date:	SCO	CSL	SCO	CSL	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019
Collection Depth (ft bgs):					0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0-0.33	0.5-2.5	2.5-4.5
2,3,7,8-TCDF	NV	NV	NV	NV	--	0.191 U	--	0.779 J	--	0.436 U	--	0.556 J	1.52 J	--	0.166 U
OCDD	NV	NV	NV	NV	--	69.6	--	3340	--	98.8	--	2190	3850 J	--	41.1
OCDF	NV	NV	NV	NV	--	3.15 J	--	205	--	5.76 J	--	114	227 J	--	0.964 UJK
Total HpCDDs	NV	NV	NV	NV	--	16.6	--	826	--	33.1	--	487	736 J	--	9.47 J
Total HpCDFs	NV	NV	NV	NV	--	4.03 J	--	208 JK	--	8.39 J	--	112 J	229 J	--	1.2 UJK
Total HxCDDs	NV	NV	NV	NV	--	4.09 UJK	--	103 J	--	8.13 JK	--	59.6 JK	99.6 JK	--	2.72 J
Total HxCDFs	NV	NV	NV	NV	--	2.8 UJK	--	85.1 JK	--	5.91 UJK	--	46.7 JK	86.9 JK	--	0.324 UJK
Total PeCDDs	NV	NV	NV	NV	--	0.772 UJK	--	15.4 JK	--	2.13 UJK	--	9.36 JK	16.7 JK	--	0.349 J
Total PeCDFs	NV	NV	NV	NV	--	3.44 JK	--	30.1 JK	--	6.49 UJK	--	15.9 UJK	33.7 JK	--	0.324 J
Total TCDDs	NV	NV	NV	NV	--	2.57 UJK	--	4.34 UJK	--	2.55 UJK	--	3.16 JK	5.4 UJK	--	2.29 J
Total TCDFs	NV	NV	NV	NV	--	1.53 UJK	--	8.64 JK	--	3.34 UJK	--	5.07 JK	9.68 JK	--	0.86 UJK
Dioxin/Furan TEQ (ND=0)	NV	NV	NV	NV	--	0.178 J	--	13.5 J	--	0.273 J	--	7.29 J	12.8 J	--	0.0484 J
Conventionals (%)															
Percent Solids	NV	NV	NV	NV	47	55	47	35	55	49	42	41	48	48	64
Total Organic Carbon	NV	NV	NV	NV	--	--	--	--	--	--	--	--	4.7 J	4.4 J	--

Table 4-3
Summary of Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:
Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.
SMS Freshwater Sediment, SCO
SMS Freshwater Sediment, CSL
SMS Marine AET, SCO
SMS Marine AET, CSL
Port Gardner Bay Background 90/90 UTL
-- = not analyzed.
% = percent.
> greater than.
AET = apparent effects threshold.
cPAH = carcinogenic PAH.
CSL = cleanup screening level.
ft bgs = feet below ground surface.
HPAHs = high-molecular-weight PAHs.
J = Result is an estimated value.
JK = Result is an estimated maximum potential concentration.
LPAHs = low-molecular-weight PAHs.
mg/kg-dw = milligrams per kilogram (parts per million) dry weight.
MTCA A/B = Model Toxics Control Act Method A, unrestricted land use or Method B (lower of cancer or non-cancer value) when Method A was not available.
ND = not detected.
NV = no value.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
pg/g-dw = picograms per gram dry weight.
SCO = sediment cleanup objective.
SMS = Washington State Department of Ecology Sediment Management Standards.
SVOC = semivolatile organic compound.
TEQ = toxic equivalent quotient.
TPH = total petroleum hydrocarbons.
U = Analyte not detected at or above detection limit for dioxin/furan results or method reporting limit for remaining results.
UTL = upper tolerance limit.
[a]Results are evaluated against marine sediment AETs instead of SMS marine sediment SCO/CSLs because the four samples selected for analysis had total organic carbon results above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.
[b]Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown. Aroclor 1268 was not reported by the laboratory and so is not included in the total PCB Aroclors calculation.
[c]Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown.
[d]Screened against SMS criteria for 4-methylphenol.
[e]Total HPAH is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.
[f]Total LPAH is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. When all results are non-detect, the higher reporting limit is shown.
[g]Total PAHs is the sum of 1-methylnaphthalene, 2-methylnaphthalene , acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a])pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. When all results are non-detect the higher reporting limit is shown.

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Table 6-1
Lower Tier Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Analyte	Natural Background, Marine[a]	Risk-Based Concentration		Practical Quantitation Limit	Point of Compliance Area
		SMS SCO, Freshwater	AET SCO, Marine[b]		
Total Metals (mg/kg-dw)					
Arsenic	11	14	57	0.3	P
Cadmium	0.8	2.1	5.1	0.07	P
Chromium	62	72	260	0.2	P
Lead	21	360	450	0.1	P
Mercury	0.2	0.66	0.41	0.02	P
Nickel	50	26	NV	0.2	A
Zinc	93	3200	410	1	P
PCB Aroclors (mg/kg-dw)					
Total PCBs[c] (ND=0)	0.0035	0.11	NV	0.0007	A
Total PCBs[d](ND=0)	0.0035	NV	0.13	0.0007	A
SVOCs (mg/kg-dw)					
1,2,4-Trichlorobenzene	NV	NV	0.031	NV	P
1,2-Dichlorobenzene	NV	NV	0.035	NV	P
1,4-Dichlorobenzene	NV	NV	0.11	NV	P
2,4-Dimethylphenol	NV	NV	0.029	NV	P
2-Methylphenol	NV	NV	0.063	NV	P
3- & 4-Methylphenol (m,p-Cresol)[e]	NV	0.26	0.67	NV	P
Benzoic acid	NV	2.9	0.65	NV	P
Benzyl alcohol	NV	NV	0.057	NV	P
Bis(2-ethylhexyl)phthalate	NV	0.5	1.3	NV	P
Butylbenzylphthalate	NV	NV	0.063	NV	P
Carbazole	NV	0.9	NV	NV	P
Dibenzofuran	NV	0.2	0.54	NV	P
Diethyl phthalate	NV	NV	0.2	NV	P
Dimethyl phthalate	NV	NV	0.071	NV	P
Di-n-butyl phthalate	NV	0.38	1.4	NV	P
Di-n-octyl phthalate	NV	0.039	6.2	NV	P
Hexachlorobenzene	NV	NV	0.022	NV	P
Hexachlorobutadiene	NV	NV	0.011	NV	P
N-Nitrosodiphenylamine	NV	NV	0.028	NV	P
Pentachlorophenol	NV	1.2	0.36	NV	P
Phenol	NV	0.12	0.42	NV	P

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Table 6-1
Lower Tier Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Analyte	Natural Background, Marine[a]	Risk-Based Concentration		Practical Quantitation Limit	Point of Compliance Area
		SMS SCO, Freshwater	AET SCO, Marine[b]		
PAHs (mg/kg-dw)					
2-Methylnaphthalene	NV	NV	0.67	NV	P
Acenaphthene	NV	NV	0.5	NV	P
Acenaphthylene	NV	NV	1.3	NV	P
Anthracene	NV	NV	0.96	NV	P
Benzo(a)anthracene	NV	NV	1.3	NV	P
Benzo(a)pyrene	NV	NV	1.6	NV	P
Benzo(ghi)perylene	NV	NV	0.67	NV	P
Chrysene	NV	NV	1.4	NV	P
Dibenzo(a,h)anthracene	NV	NV	0.23	NV	P
Fluoranthene	NV	NV	1.7	NV	P
Fluorene	NV	NV	0.54	NV	P
Indeno(1,2,3-cd)pyrene	NV	NV	0.6	NV	P
Naphthalene	NV	NV	2.1	NV	P
Phenanthrene	NV	NV	1.5	NV	P
Pyrene	NV	NV	2.6	NV	P
Total benzofluoranthenes (ND=0)	NV	NV	3.2	NV	P
Total HPAHs[f]	NV	NV	12	NV	P
Total LPAHs[g]	NV	NV	5.2	NV	P
Total PAHs[h]	NV	17	NV	NV	P
cPAH TEQ (ND=0)	0.021	NV	NV	0.009	A
TPH (mg/kg-dw)					
Diesel-Range Hydrocarbons	NV	340	NV	NV	P
Lube-Oil-Range Hydrocarbons	NV	3,600	NV	NV	P
Dioxins/Furans (pg/g-dw)					
Dioxin/Furan TEQ (ND=0)	4	NV	NV	5	A

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Table 6-1
Lower Tier Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Shading indicates the selected lower tier sediment cleanup standard.

% = percent.

> greater than.

A = area-wide point of compliance.

AET = apparent effects threshold.

cPAH = carcinogenic PAH.

CSL = cleanup screening level.

HPAHs = high-molecular-weight PAHs.

LPAHs = low-molecular-weight PAHs.

mg/kg-dw = milligrams per kilogram dry weight.

ND = not detected.

NV = no value.

P = point-based point of compliance.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g-dw = picograms per gram dry weight.

SCO = sediment cleanup objective.

SMS = Washington State Department of Ecology Sediment Management Standards.

SVOC = semivolatile organic compound.

TEQ = toxic equivalent quotient.

TOC = total organic carbon.

TPH = total petroleum hydrocarbons.

UTL = upper tolerance limit.

[a]Puget Sound Marine SMS Natural Background 90/90 UTL.

[b]Marine sediment AETs were used rather than SMS marine sediment SCO/CSLs because the four samples analyzed for TOC contained concentrations above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.

[c]Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, 1260, and 1268. When all results are non-detect, the highest reporting limit is shown. Aroclor 1268 was not reported by the laboratory and so is not included in total PCB Aroclors calculation.

[d]Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown.

[e]Screened against SMS criteria for 4-methylphenol.

[f]Total HPAHs is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

[g]Total LPAHs is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. When all results are non-detect, the higher reporting limit is shown.

[h]Total PAHs is the sum of 1-methylnaphthalene, 2-methylnaphthalene , acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

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Table 6-2
Upper Tier Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Analyte	Regional Background, Marine[a]	Risk-Based Concentration		Practical Quantitation Limit	Point of Compliance Area
		SMS CSL, Freshwater	AET CSL, Marine[b]		
Total Metals (mg/kg-dw)					
Arsenic	12	120	93	0.3	P
Cadmium	0.8	5.4	6.7	0.07	P
Chromium	62	88	270	0.2	P
Lead	21	> 1,300	530	0.1	P
Mercury	0.2	0.8	0.59	0.02	P
Nickel	50	110	NV	0.2	P
Zinc	NV	> 4,200	960	1	P
PCB Aroclors (mg/kg-dw)					
Total PCBs[c] (ND=0)	0.0035	2.5	NV	0.0007	P
Total PCBs[d](ND=0)	0.0035	NV	1	0.0007	P
SVOCs (mg/kg-dw)					
1,2,4-Trichlorobenzene	NV	NV	0.051	NV	P
1,2-Dichlorobenzene	NV	NV	0.05	NV	P
1,4-Dichlorobenzene	NV	NV	0.11	NV	P
2,4-Dimethylphenol	NV	NV	0.029	NV	P
2-Methylphenol	NV	NV	0.063	NV	P
3- & 4-Methylphenol (m,p-Cresol)[e]	NV	2	0.67	NV	P
Benzoic acid	NV	3.8	0.65	NV	P
Benzyl alcohol	NV	NV	0.073	NV	P
Bis(2-ethylhexyl)phthalate	NV	22	1.9	NV	P
Butylbenzylphthalate	NV	NV	0.9	NV	P
Carbazole	NV	1.1	NV	NV	P
Dibenzofuran	NV	0.68	0.54	NV	P
Diethyl phthalate	NV	NV	> 1.2	NV	P
Dimethyl phthalate	NV	NV	0.16	NV	P
Di-n-butyl phthalate	NV	1	1.4	NV	P
Di-n-octyl phthalate	NV	> 1.1	6.2	NV	P
Hexachlorobenzene	NV	NV	0.07	NV	P
Hexachlorobutadiene	NV	NV	0.12	NV	P
N-Nitrosodiphenylamine	NV	NV	0.04	NV	P
Pentachlorophenol	NV	> 1.2	0.69	NV	P
Phenol	NV	0.21	1.2	NV	P

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Table 6-2
Upper Tier Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Analyte	Regional Background, Marine[a]	Risk-Based Concentration		Practical Quantitation Limit	Point of Compliance Area
		SMS CSL, Freshwater	AET CSL, Marine[b]		
PAHs (mg/kg-dw)					
2-Methylnaphthalene	NV	NV	0.67	NV	P
Acenaphthene	NV	NV	0.5	NV	P
Acenaphthylene	NV	NV	1.3	NV	P
Anthracene	NV	NV	0.96	NV	P
Benzo(a)anthracene	NV	NV	1.6	NV	P
Benzo(a)pyrene	NV	NV	1.6	NV	P
Benzo(ghi)perylene	NV	NV	0.72	NV	P
Chrysene	NV	NV	2.8	NV	P
Dibenzo(a,h)anthracene	NV	NV	0.23	NV	P
Fluoranthene	NV	NV	2.5	NV	P
Fluorene	NV	NV	0.54	NV	P
Indeno(1,2,3-cd)pyrene	NV	NV	0.69	NV	P
Naphthalene	NV	NV	2.1	NV	P
Phenanthrene	NV	NV	1.5	NV	P
Pyrene	NV	NV	3.3	NV	P
Total benzofluoranthenes (ND=0)	NV	NV	3.6	NV	P
Total HPAHs[f]	NV	NV	17	NV	P
Total LPAHs[g]	NV	NV	5.2	NV	P
Total PAHs[h]	NV	30	NV	NV	P
cPAH TEQ (ND=0)	0.056	NV	NV	0.009	A
TPH (mg/kg-dw)					
Diesel-Range Hydrocarbons	NV	510	NV	NV	P
Lube-Oil-Range Hydrocarbons	NV	4,400	NV	NV	P
Dioxins/Furans (pg/g-dw)					
Dioxin/Furan TEQ (ND=0)	4	NV	NV	5	A

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Table 6-2
Upper Tier Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Shading indicates the selected lower tier sediment cleanup standard.

> greater than.

A = area-wide point of compliance.

AET = apparent effects threshold.

cPAH = carcinogenic PAH.

CSL = cleanup screening level.

HPAHs = high-molecular-weight PAHs.

LPAHs = low-molecular-weight PAHs.

mg/kg-dw = milligrams per kilogram dry weight.

ND = not detected.

NV = no value.

P = point-based point of compliance.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g-dw = picograms per gram dry weight.

SCO = sediment cleanup objective.

SMS = Washington State Department of Ecology Sediment Management Standards.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalent quotient.

TOC = total organic carbon.

TPH = total petroleum hydrocarbons.

UTL = upper tolerance limit.

[a]Port Gardner SMS Regional Background 90/90 UTL.

[b]Marine sediment AETs were used rather than SMS marine sediment SCO/CSLs because the four samples analyzed for TOC contained concentrations above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.

[c]Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown. Aroclor 1268 was not reported by the laboratory and so is not included in the total PCB Aroclors calculation.

[d]Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown.

[e]Screened against SMS criteria for 4-methylphenol.

[f]Total HPAHs is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

[g]Total LPAHs is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. When all results are non-detect, the higher reporting limit is shown.

[h]Total PAHs is the sum of 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

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Table 7-1
Soil Results Screened to Sediment Cleanup Levels
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				GM-11	GM-12	GM-13	GM-14	GM-15	GM-16
Sample Name:					GM11-S-3.0	GM12-S-2.0	GM13-S-7.5	GM14-S-12.0	GM15-S-1.5	GM16-S-2.5
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019
Collection Depth (ft bgs):					3	2	7.5	12	1.5	2.5
Total Metals (mg/kg-dw)										
Arsenic	14	P	93	P	29	12	27	14	25	23
Cadmium	2.1	P	5.4	P	1.2 U	0.87 U	1.1 U	0.86 U	2.3	1.1 U
Chromium	72	P	88	P	61	58	54	44	59	42
Lead	360	P	530	P	9.3	7	9.1	6.1	1,800 J	1,400
Mercury	0.41	P	0.59	P	0.25 U	0.17 U	0.23 U	0.17 U	3.9	0.21 U
Nickel	50	A	110	P	59	50	49	47	40	35
Zinc	410	P	960	P	76	72	74	69	1400 J	98
TPH with Silica-Gel (mg/kg-dw)										
Diesel-Range Hydrocarbons	340	P	510	P	--	--	--	35 U	--	61 J
Lube-Oil-Range Hydrocarbons	3,600	P	4,400	P	--	--	--	69 U	--	120

NOTES:

Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.

Lower tier sediment cleanup level.

Upper tier sediment cleanup level.

-- = not analyzed.

A = area-wide.

AETs = apparent effects threshold.

CSL = cleanup screening level.

ft bgs = feet below ground surface.

J = Result is an estimated value.

mg/kg-dw = milligrams per kilogram dry weight.

P = point-based.

POC = point of compliance.

SCO = sediment cleanup objective.

SCUM II = Sediment Cleanup User's Manual II.

SMS = Washington State Department of Ecology Sediment Management Standards.

TPH = total petroleum hydrocarbons.

U = Analyte not detected at or above method reporting limit.

[a]Final sediment cleanup levels were developed consistent with SCUM II criteria. Marine sediment AETs were incorporated into development of final sediment cleanup levels rather than SMS marine sediment SCO/CSLs because the four samples selected for analysis had total organic carbon results above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.

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Table 7-2
Cleanup Level Exceedances in Sediment
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-14	S-15		S-16			S-17	S-18	S-19	S-20	
Sample Name:					S14-SED-3.0	S15-SED-3.5	S15-SED-5.5	S16-SED-0.33	S16-SED-1.5	S16-SED-3.0	S17-SED-0.33	S18-SED-0.33	S19-SED-0.33	S20-SED-0.33	SDUP-SED-0.33
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019
Collection Depth (ft bgs):					2.5-3.3	2.5-4.5	4.5-6.4	0-0.33	0.5-2.5	2.5-3.8	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Total Metals (mg/kg-dw)															
Arsenic	14	P	93	P	9.8	22	2.7	14	--	18	12	15	13	13	12
Cadmium	2.1	P	5.4	P	0.68 U	1.2	--	0.51 U	--	1.9 U	1.2	0.9	0.71	0.51 U	0.51 U
Chromium	72	P	88	P	47	67	--	54	--	47	55	61	51	51	45
Lead	360	P	530	P	150	730	7.6	44	--	18	120	64	54	34	32
Mercury	0.41	P	0.59	P	0.14 U	0.25	--	0.12	--	0.37 U	0.14	0.16	0.13	0.1 U	0.1 U
Nickel	50	A	110	P	36	48	31	49	--	48	49	55	47	46	41
Zinc	410	P	960	P	100	260	--	220	--	82	340	260	230	170	160
PCB Aroclors (mg/kg-dw)															
Total PCBs[b] (ND=0)	0.11	A	2.5	P	0.51	1.2	--	0.0273	--	0.01 U	0.062	0.039	0.0332	0.0291	0.019
Total PCBs[c](ND=0)	0.13	A	1	P	0.51	1.2	--	0.0273	--	0.01 U	0.062	0.039	0.0332	0.0291	0.019
SVOCs (mg/kg-dw)															
1,2,4-Trichlorobenzene	0.031	P	0.051	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
1,2-Dichlorobenzene	0.035	P	0.05	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
1,4-Dichlorobenzene	0.11	P	0.11	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
2,4-Dimethylphenol	0.029	P	0.029	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
2-Methylphenol	0.063	P	0.063	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
3- & 4-Methylphenol (m,p-Cresol)	0.26	P	0.67	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Benzoic acid	0.65	P	0.65	P	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.65 U	12 U	6.6 U	6.5 U	6 U	6 U
Benzyl alcohol	0.057	P	0.073	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Bis(2-ethylhexyl)phthalate	0.5	P	1.9	P	1	12	0.081	6.4	4.3	0.5 U	18	32	6.1	3.4	3.1
Butylbenzylphthalate	0.063	P	0.9	P	0.068 U	0.49 U	0.012 U	0.66 U	0.22	0.037 U	1.3 U	0.66 U	0.65 U	0.6 U	0.6 U
Carbazole	0.9	P	1.1	P	0.14 U	0.93 U	0.025 U	1.3 U	0.39 U	0.075 U	2.4 U	1.3 U	1.3 U	1.2 U	1.2 U
Dibenzofuran	0.2	P	0.54	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Diethyl phthalate	0.2	P	> 1.2	P	0.68 U	4.6 U	0.12 U	6.6 U	1.9 U	0.37 U	12 U	6.6 U	6.5 U	6 U	6 U
Dimethyl phthalate	0.071	P	0.16	P	0.14 U	0.46 U	0.025 U	0.66 U	0.39 U	0.075 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Di-n-butyl phthalate	0.38	P	1	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Di-n-octyl phthalate	0.039	P	> 1.1	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Hexachlorobenzene	0.022	P	0.07	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Hexachlorobutadiene	0.011	P	0.12	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
N-Nitrosodiphenylamine	0.028	P	0.04	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Pentachlorophenol	0.36	P	0.69	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U
Phenol	0.12	P	0.21	P	0.068 U	0.46 U	0.012 U	0.66 U	0.19 U	0.037 U	1.2 U	0.66 U	0.65 U	0.6 U	0.6 U

Table 7-2
Cleanup Level Exceedances in Sediment
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-14	S-15		S-16			S-17	S-18	S-19	S-20	
Sample Name:					S14-SED-3.0	S15-SED-3.5	S15-SED-5.5	S16-SED-0.33	S16-SED-1.5	S16-SED-3.0	S17-SED-0.33	S18-SED-0.33	S19-SED-0.33	S20-SED-0.33	SDUP-SED-0.33
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019	10/18/2019
Collection Depth (ft bgs):					2.5-3.3	2.5-4.5	4.5-6.4	0-0.33	0.5-2.5	2.5-3.8	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
PAHs (mg/kg-dw)															
2-Methylnaphthalene	0.67	P	0.67	P	0.027 U	0.037 U	0.0049 U	0.053 U	0.015 U	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
Acenaphthene	0.5	P	0.5	P	0.027 U	0.062	0.0049 U	0.053 U	0.017	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
Acenaphthylene	1.3	P	1.3	P	0.027 U	0.042	0.0049 U	0.053 U	0.026	0.015 U	0.098 U	0.071	0.052 U	0.048 U	0.048 U
Anthracene	0.96	P	0.96	P	0.027 U	0.14	0.0049 U	0.061	0.061	0.015 U	0.31	0.15	0.08	0.054	0.054
Benzo(a)anthracene	1.3	P	1.6	P	0.037	0.62	0.0049 U	0.33	0.33	0.015 U	2	1	0.58	0.33	0.32
Benzo(a)pyrene	1.6	P	1.6	P	0.041	0.67	0.0049 U	0.51	0.4	0.025	2.6	1.3	0.72	0.43	0.37
Benzo(ghi)perylene	0.67	P	0.72	P	0.056	0.73	0.0049 U	0.66	0.48	0.026	2.4	1.4	0.76	0.48	0.41
Chrysene	1.4	P	2.8	P	0.047	0.93	0.005	0.52	0.44	0.02	2.7	1.4	0.66	0.44	0.4
Dibenzo(a,h)anthracene	0.23	P	0.23	P	0.027 U	0.12	0.0049 U	0.08	0.055	0.015 U	0.36	0.2	0.1	0.069	0.058
Fluoranthene	1.7	P	2.5	P	0.049	1.3	0.0078	1	0.83	0.041	5.2	2.8	1.4	0.69	0.69
Fluorene	0.54	P	0.54	P	0.027 U	0.094	0.0049 U	0.053 U	0.018	0.015 U	0.11	0.052 U	0.052 U	0.048 U	0.048 U
Indeno(1,2,3-cd)pyrene	0.6	P	0.69	P	0.04	0.58	0.0049 U	0.62	0.47	0.024	2.6	1.6	0.77	0.45	0.41
Naphthalene	2.1	P	2.1	P	0.027 U	0.037 U	0.0049 U	0.053 U	0.026	0.015 U	0.098 U	0.052 U	0.052 U	0.048 U	0.048 U
Phenanthrene	1.5	P	1.5	P	0.027	0.5	0.0049 U	0.14	0.098	0.015 U	1.1	0.39	0.26	0.19	0.2
Pyrene	2.6	P	3.3	P	0.084	1.5	0.0071	0.81	0.76	0.042	4.6	2.7	1.3	0.62	0.61
Total benzofluoranthenes (ND=0)	3.2	P	3.6	P	0.063	1.28	0.00855	1.25	0.85	0.035	5.4	3	1.55	0.95	0.85
Total HPAHs[d]	12	P	17	P	0.42	7.7	0.026	5.8	4.6	0.21	28	15	7.8	4.5	4.1
Total LPAHs[e]	5.2	P	5.2	P	0.027	0.84	0.0049 U	0.2	0.25	0.015 U	1.5	0.61	0.34	0.24	0.25
Total PAHs[f]	17	P	30	P	0.44	8.6	0.026	6.0	4.9	0.21	29	16	8.2	4.7	4.4
cPAH TEQ (ND=0)	0.021	A	0.056	A	0.055	0.94	0.00066	0.74	0.57	0.031	3.7	1.9	1	0.61	0.54
TPH (mg/kg-dw)															
Diesel-Range Hydrocarbons	340	P	510	P	160 J	1,500 J	25 U	190 J	--	120 J	620 J	440 J	250 J	140 J	130 J
Lube-Oil-Range Hydrocarbons	3,600	P	4,400	P	1,100	11,000	50 U	1,900	--	660	5,900	4,500	2,500	1,400	1,300
Dioxins/Furans (pg/g-dw)															
Dioxin/Furan TEQ (ND=0)	5	A	5	A	27.1 J	40.0 J	--	9.58 J	--	0.320 J	22.4 J	20.2 J	18.6 J	4.89 J	2.98 J

Table 7-2
Cleanup Level Exceedances in Sediment
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-21			S-22				S-23	S-24		
Sample Name:					S21-SED-1.5	S21-SED-3.5	S21-SED-5.5	S22-SED-0.33	S22-SED-1.5	S22-SED-3.5	S22-SED-5.5	S23-SED-0.33	S24-SED-0.33	S24-SED-1.5	S24-SED-3.5
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019
Collection Depth (ft bgs):					0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0-0.33	0.5-2.5	2.5-4.5
Total Metals (mg/kg-dw)															
Arsenic	14	P	93	P	--	12	--	15	--	18	16	15	19	--	11
Cadmium	2.1	P	5.4	P	--	0.91 U	--	0.89	--	1 U	--	0.51 U	1 U	--	0.78 U
Chromium	72	P	88	P	--	54	--	61	--	62	--	53	60	--	47
Lead	360	P	530	P	--	8.4	--	55	--	17	--	42	59	--	7.1
Mercury	0.41	P	0.59	P	--	0.18 U	--	0.11 U	--	0.2 U	--	0.11	0.21 U	--	0.18
Nickel	50	A	110	P	--	50	52	56	--	54	63	49	55	--	42
Zinc	410	P	960	P	--	72	--	320	--	87	--	190	200	--	61
PCB Aroclors (mg/kg-dw)															
Total PCBs[b] (ND=0)	0.11	A	2.5	P	--	0.0048 U	--	0.052	--	0.058	--	0.0373	0.0227	--	0.0042 U
Total PCBs[c](ND=0)	0.13	A	1	P	--	0.0048 U	--	0.052	--	0.058	--	0.0373	0.0227	--	0.0042 U
SVOCs (mg/kg-dw)															
1,2,4-Trichlorobenzene	0.031	P	0.051	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
1,2-Dichlorobenzene	0.035	P	0.05	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
1,4-Dichlorobenzene	0.11	P	0.11	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
2,4-Dimethylphenol	0.029	P	0.029	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
2-Methylphenol	0.063	P	0.063	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
3- & 4-Methylphenol (m,p-Cresol)	0.26	P	0.67	P	0.023	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Benzoic acid	0.65	P	0.65	P	0.19 U	0.65 U	--	4.1 U	1.7 U	0.65 U	--	1.8 U	1.6 U	0.19 U	0.65 U
Benzyl alcohol	0.057	P	0.073	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Bis(2-ethylhexyl)phthalate	0.5	P	1.9	P	0.85	0.5 U	--	7	6.1	0.5 U	--	3.8	4	0.98	0.5 U
Butylbenzylphthalate	0.063	P	0.9	P	0.077	0.018 U	--	0.28 U	0.34	0.49 U	--	0.49 U	0.49 U	0.13	0.016 U
Carbazole	0.9	P	1.1	P	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Dibenzofuran	0.2	P	0.54	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Diethyl phthalate	0.2	P	> 1.2	P	0.19 U	0.18 U	--	2.8 U	1.7 U	0.21 U	--	1.2 U	1 U	0.19 U	0.16 U
Dimethyl phthalate	0.071	P	0.16	P	0.038 U	0.036 U	--	0.56 U	0.33 U	0.041 U	--	0.25 U	0.21 U	0.038 U	0.031 U
Di-n-butyl phthalate	0.38	P	1	P	0.058	0.018 U	--	0.28 U	0.17 U	0.38 U	--	0.12 U	0.1 U	0.051	0.016 U
Di-n-octyl phthalate	0.039	P	> 1.1	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Hexachlorobenzene	0.022	P	0.07	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Hexachlorobutadiene	0.011	P	0.12	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
N-Nitrosodiphenylamine	0.028	P	0.04	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Pentachlorophenol	0.36	P	0.69	P	0.045	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U
Phenol	0.12	P	0.21	P	0.019 U	0.018 U	--	0.28 U	0.17 U	0.021 U	--	0.12 U	0.1 U	0.019 U	0.016 U

Table 7-2
Cleanup Level Exceedances in Sediment
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-21			S-22				S-23	S-24		
Sample Name:					S21-SED-1.5	S21-SED-3.5	S21-SED-5.5	S22-SED-0.33	S22-SED-1.5	S22-SED-3.5	S22-SED-5.5	S23-SED-0.33	S24-SED-0.33	S24-SED-1.5	S24-SED-3.5
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/17/2019	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019
Collection Depth (ft bgs):					0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0.5-2.5	2.5-4.5	4.5-6.5	0-0.33	0-0.33	0.5-2.5	2.5-4.5
PAHs (mg/kg-dw)															
2-Methylnaphthalene	0.67	P	0.67	P	0.014	0.0072 U	--	0.11 U	0.013 U	0.0082 U	--	0.049 U	0.041 U	0.0077 U	0.0063 U
Acenaphthene	0.5	P	0.5	P	0.013	0.0072 U	--	0.11 U	0.055	0.0082 U	--	0.049 U	0.041 U	0.0077 U	0.0063 U
Acenaphthylene	1.3	P	1.3	P	0.02	0.0072 U	--	0.11 U	0.031	0.0082 U	--	0.049 U	0.041 U	0.011	0.0063 U
Anthracene	0.96	P	0.96	P	0.021	0.0072 U	--	0.11 U	0.1	0.0082 U	--	0.049 U	0.041 U	0.022	0.0063 U
Benzo(a)anthracene	1.3	P	1.6	P	0.048	0.0072 U	--	0.32	0.34	0.011	--	0.28	0.19	0.083	0.0063 U
Benzo(a)pyrene	1.6	P	1.6	P	0.051	0.0072 U	--	0.46	0.41	0.017	--	0.37	0.27	0.1	0.0063 U
Benzo(ghi)perylene	0.67	P	0.72	P	0.073	0.0072 U	--	0.59	0.5	0.023	--	0.39	0.39	0.11	0.0063 U
Chrysene	1.4	P	2.8	P	0.082	0.0072 U	--	0.43	0.52	0.019	--	0.43	0.29	0.11	0.0063 U
Dibenzo(a,h)anthracene	0.23	P	0.23	P	0.0086	0.0072 U	--	0.11 U	0.07	0.0082 U	--	0.074	0.05	0.014	0.0063 U
Fluoranthene	1.7	P	2.5	P	0.13	0.0072 U	--	0.87	1.3	0.035	--	0.67	0.44	0.22	0.0076
Fluorene	0.54	P	0.54	P	0.015	0.0072 U	--	0.11 U	0.031	0.0082 U	--	0.049 U	0.041 U	0.012	0.0063 U
Indeno(1,2,3-cd)pyrene	0.6	P	0.69	P	0.048	0.0072 U	--	0.52	0.45	0.019	--	0.34	0.31	0.087	0.0063 U
Naphthalene	2.1	P	2.1	P	0.04	0.0072 U	--	0.11 U	0.02	0.0082 U	--	0.049 U	0.041 U	0.011	0.0063 U
Phenanthrene	1.5	P	1.5	P	0.086	0.0072 U	--	0.13	0.19	0.012	--	0.13	0.066	0.052	0.0063 U
Pyrene	2.6	P	3.3	P	0.17	0.0072 U	--	0.94	1.1	0.044	--	0.74	0.5	0.24	0.015
Total benzofluoranthenes (ND=0)	3.2	P	3.6	P	0.107	0.0072 U	--	1.21	1.13	0.0425	--	0.93	0.78	0.239	0.0063 U
Total HPAHs[d]	12	P	17	P	0.72	0.0072 U	--	5.3	5.8	0.21	--	4.2	3.2	1.2	0.023
Total LPAHs[e]	5.2	P	5.2	P	0.2	0.0072 U	--	0.13	0.43	0.012	--	0.13	0.066	0.11	0.0063 U
Total PAHs[f]	17	P	30	P	0.93	0.0072 U	--	5.5	6.2	0.22	--	4.4	3.3	1.3	0.023
cPAH TEQ (ND=0)	0.021	A	0.056	A	0.073	0.0072 U	--	0.67	0.61	0.024	--	0.54	0.41	0.14	0.0063 U
TPH (mg/kg-dw)															
Diesel-Range Hydrocarbons	340	P	510	P	--	36 U	--	220 J	--	41 U	--	150 J	150 J	--	31 U
Lube-Oil-Range Hydrocarbons	3,600	P	4,400	P	--	170	--	2,500	--	170	--	1,700	1,700	--	63 U
Dioxins/Furans (pg/g-dw)															
Dioxin/Furan TEQ (ND=0)	5	A	5	A	--	0.178 J	--	13.5 J	--	0.273 J	--	7.29 J	12.8 J	--	0.0484 J

Table 7-2
Cleanup Level Exceedances in Sediment
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.

Lower tier sediment cleanup level.

Upper tier sediment cleanup level.

-- = not analyzed.

> greater than.

A = area-wide.

AET = apparent effects threshold.

cPAH = carcinogenic PAH.

CSL = cleanup screening level.

ft bgs = feet below ground surface.

HPAHs = high-molecular weight PAHs.

J = Result is an estimated value.

LPAHs = low-molecular weight PAHs.

mg/kg-dw = milligrams per kilogram (parts per million) dry weight.

ND = not detected.

P = point-based.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g-dw = picograms per gram dry weight.

POC = point of compliance.

SCO = sediment cleanup objective.

SCUM II = Sediment Cleanup User's Manual II.

SMS = Washington State Department of Ecology Sediment Management Standards.

SVOC = semivolatile organic compound.

TEQ = toxic equivalent quotient.

TPH = total petroleum hydrocarbons.

U = Analyte not detected at or above detection limit for dioxin/furan results or method reporting limit for remaining results.

[a]Final sediment cleanup levels were developed consistent with SCUM II criteria. Marine sediment AETs were incorporated into development of final sediment cleanup levels rather than SMS marine sediment SCO/CSLs because the four samples selected for analysis had total organic carbon results above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.

[b]Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown. Aroclor 1268 was not reported by the laboratory and so is not included in the total PCB Aroclors

[c]Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown.

[d]Total HPAHs is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

[e]Total LPAHs is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. When all results are non-detect, the higher reporting limit is shown.

[f]Total PAHs is the sum of 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

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Table 7-3
Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8
Sample Name:					S-1-5'	S-2-3'	S-3-5'	S-4-5.5'	S-5-6'	S-6-5.5'	S-7-5'	S-8-1'
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008
Collection Depth (ft bml):[b]					1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1
Total Metals (mg/kg-dw)												
Arsenic	14	P	93	P	6.21	15.5	17.2	20.7	19	17.9	16.2	17.4
Cadmium	2.1	P	5.4	P	1.3	1.94	3.73	1 U	1 U	1 U	1 U	1 U
Chromium	72	P	88	P	26	36.5	65.9	35.9	54.1	42.2	45.2	41
Lead	360	P	530	P	120	376	302	31.3	99.3	64.7	110	16.5
Mercury	0.41	P	0.59	P	0.2 U	0.44	0.31	0.2 U	0.2 U	0.2 U	0.22	0.2 U
Nickel	50	A	110	P	27	29.5	50.5	35.4	42.4	36.4	36.8	50
Zinc	410	P	960	P	251	276	471	81.6	106	105	153	57.4
PCB Aroclors (mg/kg-dw)												
Total PCBs (ND=0)[c]	0.11	A	2.5	P	--	--	--	--	--	--	--	--
Total PCBs (ND=0)[d]	0.13	A	1	P	--	--	--	--	--	--	--	--
SVOCs (mg/kg-dw)												
1,2,4-Trichlorobenzene	0.031	P	0.051	P	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	0.035	P	0.05	P	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	0.11	P	0.11	P	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	0.029	P	0.029	P	--	--	--	--	--	--	--	--
2-Methylphenol	0.063	P	0.063	P	--	--	--	--	--	--	--	--
Benzoic acid	0.65	P	0.65	P	--	--	--	--	--	--	--	--
Benzyl alcohol	0.057	P	0.073	P	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	0.5	P	1.9	P	--	--	--	--	--	--	--	--
Butylbenzylphthalate	0.063	P	0.9	P	--	--	--	--	--	--	--	--
Dibenzofuran	0.2	P	0.54	P	--	--	--	--	--	--	--	--
Diethylphthalate	0.2	P	> 1.2	P	--	--	--	--	--	--	--	--
Dimethyl phthalate	0.071	P	0.16	P	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	0.38	P	1	P	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	0.039	P	> 1.1	P	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.022	P	0.07	P	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.011	P	0.12	P	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	0.028	P	0.04	P	--	--	--	--	--	--	--	--
Pentachlorophenol	0.36	P	0.69	P	--	--	--	--	--	--	--	--
Phenol	0.12	P	0.21	P	--	--	--	--	--	--	--	--

Table 7-3
Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8
Sample Name:					S-1-5'	S-2-3'	S-3-5'	S-4-5.5'	S-5-6'	S-6-5.5'	S-7-5'	S-8-1'
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008	09/10/2008
Collection Depth (ft bml):[b]					1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5	1
PAHs (mg/kg-dw)												
2-Methylnaphthalene	0.67	P	0.67	P	--	--	--	--	--	--	--	--
Acenaphthene	0.5	P	0.5	P	--	--	--	--	--	--	--	--
Acenaphthylene	1.3	P	1.3	P	--	--	--	--	--	--	--	--
Anthracene	0.96	P	0.96	P	--	--	--	--	--	--	--	--
Benzo(a)anthracene	1.3	P	1.6	P	--	--	--	--	--	--	--	--
Benzo(a)pyrene	1.6	P	1.6	P	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	0.67	P	0.72	P	--	--	--	--	--	--	--	--
Chrysene	1.4	P	2.8	P	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	0.23	P	0.23	P	--	--	--	--	--	--	--	--
Fluoranthene	1.7	P	2.5	P	--	--	--	--	--	--	--	--
Fluorene	0.54	P	0.54	P	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.6	P	0.69	P	--	--	--	--	--	--	--	--
Naphthalene	2.1	P	2.1	P	--	--	--	--	--	--	--	--
Phenanthrene	1.5	P	1.5	P	--	--	--	--	--	--	--	--
Pyrene	2.6	P	3.3	P	--	--	--	--	--	--	--	--
Total Benzofluoranthenes	3.2	P	3.6	P	--	--	--	--	--	--	--	--
Total PAHs[e]	17	P	30	P	--	--	--	--	--	--	--	--
Total HPAHs[f]	12	P	17	P	--	--	--	--	--	--	--	--
Total LPAHs[g]	5.2	P	5.2	P	--	--	--	--	--	--	--	--
cPAH TEQ (ND=0)	0.021	A	0.056	A	--	--	--	--	--	--	--	--
TPH (mg/kg-dw)												
Diesel-Range Hydrocarbons	340	P	510	P	650	1,600	4,700	300	250	690	420	50 U
Lube-Oil-Range Hydrocarbons	3,600	P	4,400	P	3,100	5,700	18,000	1,500	1,300	3,400	2,000	250 U
Dioxins/Furans (pg/g-dw)												
Dioxin/Furan TEQ (ND = 0)	5	A	5	A	--	--	--	--	--	--	--	--

Table 7-3
Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-9		S-10	S-11		S-12	S-13
Sample Name:					S-09-0.33	S-09-1.2	S-10-0.33	S-11-0.33	S-11-2.0	S-12-0.33	S-13-0.33
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015
Collection Depth (ft bml):[b]					0-0.33	0.33-1.2	0-0.33	0-0.33	0.33-2.0	0-0.33	0-0.33
Total Metals (mg/kg-dw)											
Arsenic	14	P	93	P	20 U	11	10 U	20 U	10 U	20 U	10 U
Cadmium	2.1	P	5.4	P	2	0.7	0.9	1.7	0.9	1.5	1
Chromium	72	P	88	P	54	54.4	44	69	73	73	67
Lead	360	P	530	P	184	109	53	98	31	86	37
Mercury	0.41	P	0.59	P	0.11	0.06	0.07	0.16	0.09	0.16	0.11
Nickel	50	A	110	P	44	37	42	54	66	57	57
Zinc	410	P	960	P	486	108	340	498	107	483	232
PCB Aroclors (mg/kg-dw)											
Total PCBs (ND=0)[c]	0.11	A	2.5	P	0.31	12 J	3.5	1.1	0.39	0.67	1.4
Total PCBs (ND=0)[d]	0.13	A	1	P	0.31	12 J	3.5	1.1	0.39	0.67	1.4
SVOCs (mg/kg-dw)											
1,2,4-Trichlorobenzene	0.031	P	0.051	P	0.35 U	0.17 U	0.44 U	0.55 U	0.042 J	0.42 U	0.98 U
1,2-Dichlorobenzene	0.035	P	0.05	P	0.35 U	0.17 U	0.44 U	0.55 U	0.049 J	0.42 U	0.98 U
1,4-Dichlorobenzene	0.11	P	0.11	P	0.35 U	0.17 U	0.44 U	0.55 U	0.040 J	0.42 U	0.98 U
2,4-Dimethylphenol	0.029	P	0.029	P	1.7 U	0.57 J	2.2 U	2.7 U	0.36 U	2.1 U	4.7 U
2-Methylphenol	0.063	P	0.063	P	0.34 J	0.53 J	0.44 U	0.40 J	0.14	0.45	2.4
Benzoic acid	0.65	P	0.65	P	22	4.7 J	21	22 J	7.1 J	18	26 J
Benzyl alcohol	0.057	P	0.073	P	2.3	0.48 J	2.1	2.5	0.27 J	4.8	4.0
Bis(2-ethylhexyl)phthalate	0.5	P	1.9	P	209	35	122	242	8.0	129	98
Butylbenzylphthalate	0.063	P	0.9	P	2.3	0.70	0.9	3.3	0.28	0.4 J	3.1 J
Dibenzofuran	0.2	P	0.54	P	1.4 U	2.3	1.7 U	3.5 J	0.28 U	1.7 U	1.4 J
Diethylphthalate	0.2	P	> 1.2	P	1.4 U	0.67 U	1.7 U	2.2 U	0.28 U	1.7 U	4.0 U
Dimethyl phthalate	0.071	P	0.16	P	0.35 U	0.17 U	27	0.55 U	0.22 J	0.42 U	0.94 J
Di-n-butyl phthalate	0.38	P	1	P	1.4 U	0.67 U	1.74 U	2.2 U	0.28 U	0.76 J	4.0 U
Di-n-octyl phthalate	0.039	P	> 1.1	P	4.8 J	0.67 U	1.74 U	2.2 U	0.28 U	1.7 U	4.0 U
Hexachlorobenzene	0.022	P	0.07	P	0.35 U	0.17 U	0.44 U	0.55 U	0.04 J	0.42 U	0.98 U
Hexachlorobutadiene	0.011	P	0.12	P	0.35 U	0.17 U	0.44 U	0.55 U	0.04 J	0.42 U	0.98 U
N-Nitrosodiphenylamine	0.028	P	0.04	P	0.35 U	0.27	0.44 U	0.55 U	0.07 U	0.42 U	0.98 U
Pentachlorophenol	0.36	P	0.69	P	2.1	3.3 U	5.1	2.2 J	0.28 U	1.4 J	4.0 U
Phenol	0.12	P	0.21	P	4.2	1.7	4.8	3.3	1.0	1.7 U	3.1 J

Table 7-3
Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Location:	Final Sediment Cleanup Levels[a]				S-9		S-10	S-11		S-12	S-13
Sample Name:					S-09-0.33	S-09-1.2	S-10-0.33	S-11-0.33	S-11-2.0	S-12-0.33	S-13-0.33
Collection Date:	Lower Tier	POC Area	Upper Tier	POC Area	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015
Collection Depth (ft bml):[b]					0-0.33	0.33-1.2	0-0.33	0-0.33	0.33-2.0	0-0.33	0-0.33
PAHs (mg/kg-dw)											
2-Methylnaphthalene	0.67	P	0.67	P	1.4 U	2.0	1.7 U	1.3 J	0.28 U	1.7 U	4.0 U
Acenaphthene	0.5	P	0.5	P	1.4 U	0.80	1.0 J	3.5	0.28 U	1.7 U	4.0 U
Acenaphthylene	1.3	P	1.3	P	1.4 U	4.2	1.7 U	2.2 U	0.28 U	1.7 U	4.0 U
Anthracene	0.96	P	0.96	P	2.5	4.0	5.4	4.2	0.25 J	1.9	4.0
Benzo(a)anthracene	1.3	P	1.6	P	11	12	25	18	0.62	9.1	10
Benzo(a)pyrene	1.6	P	1.6	P	13	15	30	21	0.70	11	12
Benzo(ghi)perylene	0.67	P	0.72	P	8.6 J	12	16 J	11 J	0.82	6.1 J	13
Chrysene	1.4	P	2.8	P	20	18	43	36	1.2	19	20
Dibenzo(a,h)anthracene	0.23	P	0.23	P	2.3	3.3	5.5	3.2	0.27	1.6	2.9 J
Fluoranthene	1.7	P	2.5	P	32	28	68	57	1.6	27	32
Fluorene	0.54	P	0.54	P	1.1 J	2.3	2.2	4.7	0.18 J	1.3 J	1.5 J
Indeno(1,2,3-cd)pyrene	0.6	P	0.69	P	8.0 J	11	16 J	11 J	0.56	6.1 J	10
Naphthalene	2.1	P	2.1	P	3.2	4.8	2.7	3.2	0.48	3.1	2.6 J
Phenanthrene	1.5	P	1.5	P	13	32	29	24	0.92	9.1	8.4
Pyrene	2.6	P	3.3	P	25	27	54	45	1.4	23	31
Total Benzofluoranthenes	3.2	P	3.6	P	34	27	79	61	1.8	33	37
Total PAHs[e]	17	P	30	P	175 J	198	377 J	305 J	11	150 J	185
Total HPAHs[f]	12	P	17	P	155 J	152	337 J	264 J	9.0	135 J	168
Total LPAHs[g]	5.2	P	5.2	P	20 J	46	40 J	41 J	1.8	15 J	17
cPAH TEQ (ND=0)	0.021	A	0.056	A	3.1 J	1.2	2.7 J	4.1 J	0.070	2.2 J	0.54
TPH (mg/kg-dw)											
Diesel-Range Hydrocarbons	340	P	510	P	2,400	450	470	2,300	140	1,600	570
Lube-Oil-Range Hydrocarbons	3,600	P	4,400	P	8,500	1,400	3,900	8,300	460	6,000	2,200
Dioxins/Furans (pg/g-dw)											
Dioxin/Furan TEQ (ND = 0)	5	A	5	A	185	70.7	95.8 J	195 J	3.66	161	54.7 J

Table 7-3
Historical Sediment Analytical Results
Former Geddes Marina Property
City of Marysville
Marysville, Washington

NOTES:

Shading indicates screening criteria exceedances (color key below); non-detect results were not compared to screening criteria.

Lower tier sediment cleanup level.

Upper tier sediment cleanup level.

-- = not analyzed.

A = area-wide.

AETs = apparent effects threshold.

cPAH = carcinogenic PAH.

ft bml = feet below mudline.

HPAHs = high-molecular-weight PAHs.

J = Result is an estimated value.

LPAHs = low-molecular-weight PAHs.

mg/kg-dw = milligrams per kilogram dry weight.

ND = not detected.

P = point-based.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g-dw = picograms per gram dry weight.

POC = point of compliance.

SCO = sediment cleanup objective.

SCUM II = Sediment Cleanup User's Manual II.

SVOC = semivolatile organic compound. When samples were analyzed by both 8270D and 8270D SIM methods, or when samples were reanalyzed, the higher detected value or lower non-detect value was used.

TEQ = toxic equivalent quotient.

TPH = total petroleum hydrocarbons.

U = Result is non-detect at method reporting limit.

USEPA = U.S. Environmental Protection Agency.

[a]Final sediment cleanup levels were developed consistent with SCUM II criteria. Marine sediment AETs were incorporated into development of final sediment cleanup levels rather than SMS marine sediment SCO/CSLs because the four samples selected for analysis had total organic carbon results above the recommended range of 0.5 to 3.5 percent for organic carbon normalization.

[b]Sample depths from S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8 were estimated based on Associated Earth Sciences, Inc., 2010 Phase II Environmental Assessment Report.

[c]Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown. Aroclor 1268 was not reported by the laboratory and so is not included in the total PCB Aroclors calculation.

[d]Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. When all results are non-detect, the highest reporting limit is shown.

[e]Total HPAHs is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

[f]Total LPAHs is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. When all results are non-detect, the higher reporting limit is shown.

[g]Total PAHs is the sum of 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. When all results are non-detect, the higher reporting limit is shown.

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Table 8-1
Alternative 2 Probable Cost—Sediment Capping
Former Geddes Marina Property
City of Marysville
Marysville, Washington

MAUL FOSTER ALONGI

Client:	City of Marysville
Prepared By:	E. Lundeen
Checked By:	T. Shabram
Date:	3/23/2020
Revision #No.:	0

1329 N State Street, Suite 301
Bellingham, WA 98225
971.544.2139 (p); 971.544.2140 (f)

Cost Estimate Summary—Feasibility Level

Schedule A—Site Preparation		$	160,020
Schedule B—Stormwater Bypass		$	127,500
Schedule C—Lagoon Dewatering		$	80,000
Schedule D—Sediment Cap		$	970,200
Schedule E—Professional and Technical Services		$	342,944
Schedule F—Contingency		$	336,140
	Total:	**$**	**2,016,804**

Assumptions:

1. The existing stormwater outfall will have to be bypassed, and the lagoon will be blocked off from the Ebey Slough to drain the lagoon to the maximum extent possible.
2. A dewatering and treatment system will be used on the site.
3. The cap will consist of a geogrid or separation fabric, 2-feet of quarry spalls, and 4 feet of clean structural fill material approved by the engineer.
4. Structural fill material will be placed in 12-inch lifts and compacted.
5. The cap will require periodic maintenance and repair every five years.
6. After or within 15 years from the initial remedy, the lagoon will be filled as part of planned park construction.
7. Cost estimates are assumed to be within a +50/-35 percent accuracy.

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Table 8-1
Alternative 2 Probable Cost—
Sediment Capping
Former Geddes Marina Property
City of Marysville
Marysville, Washington

MAUL FOSTER ALONGI

Schedule A—Site Preparation							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
A.1	Mobilization/Demobilization—10% of Capital Costs	10%	LS	$	1,195,200.00	$	119,520.00
A.2	Rough Grading and Site Staging	1	LS	$	7,500.00	$	7,500.00
A.3	Construction Entrance and Upland Area Rock	1	LS	$	8,000.00	$	8,000.00
A.4	Construction Staking and Surveying	1	LS	$	20,000.00	$	20,000.00
A.5	Erosion and Sediment Control	1	LS	$	5,000.00	$	5,000.00
				Subtotal Schedule A:		**$**	**160,020**

Schedule B—Stormwater Bypass							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
B.1	Demolish Existing Outfall	1	LS	$	1,000.00	$	1,000.00
B.2	Install 4' diameter, Precast Concrete Manhole	4	EA	$	4,000.00	$	16,000.00
B.3	Install 48" Schedule A Diversion Pipe	670	LF	$	150.00	$	100,500.00
B.4	Install Outfall Splash Pad	1	LS	$	10,000.00	$	10,000.00
				Subtotal Schedule B:		**$**	**127,500**

Schedule C—Lagoon Dewatering							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
C.1	Water Treatment System	1	MO	$	20,000.00	$	20,000.00
C.2	Treatment System Mob/Demob	1	LS	$	23,000.00	$	23,000.00
C.3	Dewatering Pumps and Sumps	1	LS	$	5,000.00	$	5,000.00
C.4	Treatment System Operation	1	MO	$	32,000.00	$	32,000.00
				Subtotal Schedule C:		**$**	**80,000**

Schedule D—Sediment Cap							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
D.1	Separation Geotextile	9,200	SY	$	3.00	$	27,600.00
D.2	Crushed Rock	6,200	CY	$	45.00	$	279,000.00
D.3	Structural Fill Material	12,300	CY	$	36.00	$	442,800.00
D.4	Material Placement and Compaction	18,400	CY	$	12.00	$	220,800.00
				Subtotal Schedule D:		**$**	**970,200**

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Table 8-1
Alternative 2 Probable Cost—Sediment Capping
Former Geddes Marina Property
City of Marysville
Marysville, Washington

MAUL FOSTER ALONGI

Schedule E—Professional and Technical Services							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
E.1	Project Management—6% of Capital Costs	6%	LS	$	1,195,200	$	71,712.00
E.2	Permitting	1.00	LS	$	80,000	$	80,000.00
E.3	Remedial Design—8% of Capital Costs	8%	LS	$	1,195,200	$	95,616.00
E.4	Construction Management—8% of Capital Costs	8%	LS	$	1,195,200	$	95,616.00
				Subtotal Schedule E:		**$**	**342,944**

Schedule F—Contingency							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
F.1	Contingency	20%	LS	$	1,680,700.00	$	336,140.00
				Subtotal Schedule F:		**$**	**336,140**

NOTES:

CY = cubic yard.

EA = each.

LF = lineal foot.

LS = lump sum.

MO = month.

SY = square yards.

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Table 8-2
Alternative 3 Probable Cost—Sediment Excavation
Former Geddes Marina Property
City of Marysville
Marysville, Washington

MAUL FOSTER ALONGI

Client:	City of Marysville
Prepared By:	E. Lundeen
Checked By:	T. Shabram
Date:	3/23/2020
Revision No.:	0

1329 N State Street, Suite 301
Bellingham, WA 98225
971.544.2139 (p); 971.544.2140 (f)

Cost Estimate Summary—Feasibility Level

Schedule A—Site Preparation		$	298,600
Schedule B—Stormwater Bypass		$	127,500
Schedule C—Sediment Excavation		$	1,887,850
Schedule D—Residuals Cap		$	239,600
Schedule E—Soft Cost		$	565,200
Schedule F—Operation and Maintenance		$	98,400
Schedule G—Contingency		$	643,430
	Total:	**$**	**3,860,580**

Assumptions:

1. The existing stormwater outfall will have to be bypassed, and the lagoon will be blocked off from the Ebey Slough to drain the lagoon.
2. The top 4 feet of impacted sediment will be removed from the lagoon. Excavation will be backfilled with 6-inches of clean sand material.
3. Sediment will be removed using a mechanical clamshell and truck-mounted crane positioned on the shoreline.
4. Excavated material will be dewatered, amended with Portland cement, and disposed of at a Subtitle D facility.
5. On-site water treatment and a wheel wash will be required.
6. The cap will be placed from the shore, using a material slinger. Placement will take one week.
7. The estimate is within a +50%/-35% confidence interval.

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Table 8-2
Alternative 3 Probable Cost—Sediment Excavation
Former Geddes Marina Property
City of Marysville
Marysville, Washington

MAUL FOSTER ALONGI

Schedule A—Site Preparation							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
A.1	Mobilization/Demobilization—10% of Capital Costs	10%	LS	$	2,300,450	$	230,050
A.2	Rough Grading and Site Staging	1	LS	$	2,500	$	2,500
A.2	Erosion and Sediment Control	1	LS	$	2,000	$	2,000
A.3	Construction Staking and Surveying	1	LS	$	20,000.00	$	20,000.00
A.4	Sediment Dewatering Cell	1	LS	$	14,000.00	$	14,000.00
A.5	Construction Entrance and Upland Area Rock	1	LS	$	13,000.00	$	13,000.00
A.6	Mechanical Wheel Wash	1	LS	$	17,000.00	$	17,000.00
				Subtotal Schedule A:		**$**	**298,600**

Schedule B—Stormwater Bypass							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
B.1	Demolish Existing Outfall	1	LS	$	1,000.00	$	1,000.00
B.2	Install 4'-diameter, Precast Concrete Manhole	4	EA	$	4,000.00	$	16,000.00
B.3	Install 48"-diameter Schedule A Diversion Pipe	670	LF	$	150.00	$	100,500.00
B.4	Install Outfall Splash Pad	1	LS	$	10,000.00	$	10,000.00
				Subtotal Schedule B:		**$**	**127,500**

Schedule C—Sediment Excavation							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
C.1	Excavation	11,100	BCY	$	20.00	$	222,000.00
C.2	Material Dewatering and Stabilization	11,100	BCY	$	12.00	$	133,200.00
C.3	Water Treatment System	3	MO	$	20,000.00	$	60,000.00
C.4	Treatment System Mob/Demob	1	LS	$	23,000.00	$	23,000.00
C.5	Dewatering Pumps and Sumps	1	LS	$	5,000.00	$	5,000.00
C.6	Treatment System Operation	3	MO	$	32,000.00	$	96,000.00
C.7	Off-site Waste Transportation and Disposal	14,985	TON	$	90.00	$	1,348,650.00
				Subtotal Schedule C:		**$**	**1,887,850**

Schedule D—Residuals Cap and Bank Stabilization							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
D.1	Cap Material (Purchase and Transportation Cost)	1,600	CY	$	36.00	$	57,600.00
D.2	Bank Stabilization	3,600	CY	$	47.00	$	169,200.00
D.3	Sand Placement	1,600	CY	$	8.00	$	12,800.00
				Subtotal Schedule D:		**$**	**239,600**

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Table 8-2
Alternative 3 Probable Cost—Sediment Excavation
Former Geddes Marina Property
City of Marysville
Marysville, Washington

MAUL FOSTER ALONGI

Schedule E—Soft Cost							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
E.1	Project Management—5% of Capital Costs	5%	LS	$	2,553,550	$	127,677.50
E.2	Permitting	1	LS	$	80,000	$	80,000.00
E.3	Remedial Design—8% of Capital Costs	8%	LS	$	2,553,550	$	204,284.00
E.4	Construction Management—6% of Capital Costs	6%	LS	$	2,553,550	$	153,213.00
				Subtotal Schedule E:		**$**	**565,200**

Schedule F—Operation and Maintenance					
Operations and Maintenance Costs					
Discount Rate	1.94%				
Description		*Unit Cost*	*Unit*	*Years*	*Present Value*
F.1	Annual Cap Inspection	$ 3,000	YR	0 -15	$38,721.39
F.2	Year 5 Cap Repair	$ 24,000	LS	5	$ 21,801.59
F.3	Year 10 Cap Repair	$ 24,000	LS	10	$ 19,804.55
F.4	Year 15 Cap Repair	$ 24,000	LS	15	$ 17,990.44
				Subtotal Schedule F:	**$ 98,400**

Schedule G—Contingency							
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*	
G.1	Contingency	20%	LS	$	3,217,150.00	$	643,430.00
				Subtotal Schedule G:		**$**	**643,430**

NOTES:

BCY = bank cubic yard.

CY = cubic yard.

EA = each.

LF = lineal foot.

LS = lump sum.

MO = month.

YR = year.

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Table 9-1
Disproportionate-Cost Analysis
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Alternative	Description	Protectiveness	Permanence	Long-Term Effectiveness	Management of Short-Term Risks	Implementability	**Average**	Public Concerns	**Total Cost**
Alternative 1	No Action	--							
Alternative 2	Sediment Capping	4	3	5	5	4	**4.2**	TBD	$ 2,016,804
Alternative 3	Sediment Excavation	4	5	4	2	3	**3.6**	TBD	$ 3,860,580

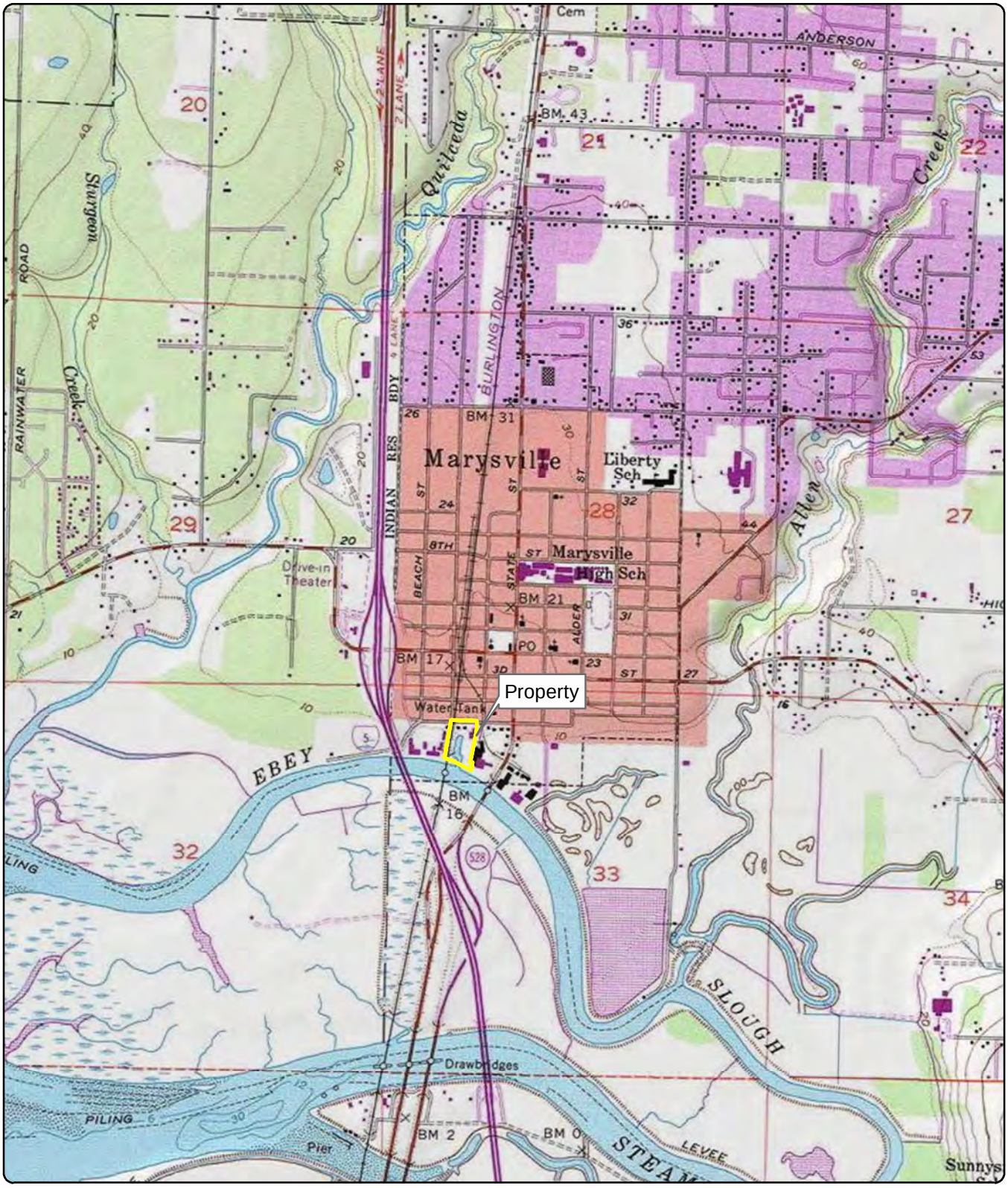
NOTES:

1: lowest possible score, does not meet criteria standards; 5: highest possible score, does meet all criteria standards.

'--' = not applicable.

TBD = to be determined.

FIGURES



Address: 1326 First Street, Marysville, Washington.
Section 33, Township 30 North, Range 5 East.

Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Marysville.

Note:
All features are approximate.

Legend

Property Boundary

Figure 1-1
Property Location

Former Geddes Marina Property
City of Marysville
Marysville, Washington

0 1,000 2,000
Feet

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Path: X:\0689.01 City of Marysville\05\Projects\Fig_PropertyLocation.mxd
Print Date: 3/20/2020
Approved By: cwise
Produced By: abixby
Project: 0689.01.05

Sources: Aerial photograph obtained from Mapbox.
Tax parcels obtained from Snohomish County assessor.

Notes:
BNSF = Burlington Northern Santa Fe.
UST = underground storage tank.
All features are approximate.
Former monitoring wells were damaged or buried beneath debris and could not be sampled.

Legend

- Stormwater Outfall
- BNSF Railroad
- Property Boundary
- Tax Parcel
- Former Monitoring Well
- Monitoring Well

Figure 2-1
Property Features
Former Geddes Marina Property
City of Marysville
Marysville, Washington

0 40 80
Feet

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Path: X:\0689.01 City of Marysville\05\Projects\Fig_PropertyFeatures.mxd
Print Date: 3/20/2020
Approved By: cwise
Produced By: abixby
Project: 0689.01.05

Sources: Aerial photograph obtained from Mapbox.
Tax parcels obtained from Snohomish County assessor.

Notes:
BNSF = Burlington Northern Santa Fe.
UST = underground storage tank.
All features are approximate.
Former monitoring wells were damaged or buried beneath debris and could not be sampled.

Legend

- Boring
- Hand Auger Location
- Former Monitoring Well
- Monitoring Well
- Stormwater Outfall
- BNSF Railroad
- Property Boundary
- Tax Parcel

Figure 3-1
Upland Sample Locations

Former Geddes Marina Property
City of Marysville
Marysville, Washington

0 40 80
Feet

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Path: X:\0689.01 City of Marysville\05\Projects\Fig_UplandSamplingLocations.mxd
Print Date: 12/27/2019
Approved By: cwise
Produced By: abixby
Project: 0689.01.05

Sources: Aerial photograph obtained from Mapbox.
Tax parcels obtained from Snohomish County assessor.

Notes:
BNSF = Burlington Northern Santa Fe.
UST = underground storage tank.
All features are approximate.
Former monitoring wells were damaged or buried beneath debris and could not be sampled.

Legend

- Former Monitoring Well
- Monitoring Well
- **Sediment Sample**
  - Surface
  - Subsurface
  - Surface & Subsurface
- Stormwater Outfall
- BNSF Railroad
- Property Boundary
- Tax Parcel

0 50 100
Feet

Figure 3-2
Sediment Sample Locations

Former Geddes Marina Property
City of Marysville
Marysville, Washington

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Path: X:\0689.01 City of Marysville\05\Projects\Fig_SedimentSamplingLocations.mxd
Print Date: 3/20/2020
Approved By: cwise
Produced By: abixby
Project: 0689.01.05

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Figure 5-1
Conceptual Site Model
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Primary Sources	Primary Release Mechanism	Secondary Sources	Secondary Release Mechanism	Point of Potential Contact	Exposure Route	Potential Receptors					
						Construction Workers (Future Conditions)	Visitors (Future Conditions)	Fishers	Off-Property Receptors (Drinking Water)[a]	Upland Ecological Receptors	Aquatic/Water-Dependent Ecological Receptors
Historical Releases to On-Site Soil				Soil	Ingestion Dermal Contact Inhalation	✓ ✓ ✓	∅ ∅ ∅	∅ ∅ ∅	∅ ∅ ∅	∅ ∅ ∅	∅ ∅ ∅
				Indoor air	Inhalation	∅	∅	∅	∅	∅	∅
			Volatilization	Outdoor air	Inhalation	I	I	I	∅	I	I
	Leaching	Groundwater		Groundwater	Ingestion Dermal Contact Inhalation	✓ ✓ ✓	∅ ∅ ∅	∅ ∅ ∅	✓ ✓ ✓	∅ ∅ ∅	∅ ∅ ∅
Historical Releases to On-Site Surface Water			Discharge to the Lagoon	Pore and Surface Water	Ingestion Dermal Contact	I I	I I	I I	∅ ∅	∅ ∅	✓ ✓
Stormwater Outfall				Fish Tissue (via Bioaccumulation)	Ingestion	∅	∅	✓	∅	∅	✓
Historical Releases to On-Site Sediment				Sediment	Ingestion Dermal Contact	✓ ✓	✓ ✓	✓ ✓	∅ ∅	∅ ∅	✓ ✓

NOTES:

——→ Primary pathway.

- - -→ Potential pathway.

✓ Potentially complete exposure route.

∅ Incomplete exposure route.

I Insignificant exposure route.

[a]Property groundwater is not currently used as drinking water, and future use as drinking water is unlikely. However, the pathway is shown because demonstrations (e.g., beneficial use determination) and/or controls (e.g., institutional controls) are not currently in place.

Notes:
BNSF = Burlington Northern Santa Fe.
PAHs = polycyclic aromatic hydrocarbons.
PCBs = polychlorinated biphenyls.
SVOCs = semivolatile organic compounds.
UST = underground storage tank.
All features are approximate.
Lower tier sediment cleanup level exceedances are shown.
Former monitoring wells were damaged or buried beneath debris and could not be sampled.

Legend

- Former Monitoring Well
- Monitoring Well

Sediment Sample

- Subsurface
- Surface
- Surface & Subsurface

- Stormwater Outfall
- BNSF Railroad
- Property Boundary
- Tax Parcel

Sources: Aerial photograph obtained from Mapbox.
Tax parcels obtained from Snohomish County assessor.

0 50 100
Feet

Figure 7-1
Sediment Cleanup Level Exceedances

Former Geddes Marina Property
City of Marysville
Marysville, Washington

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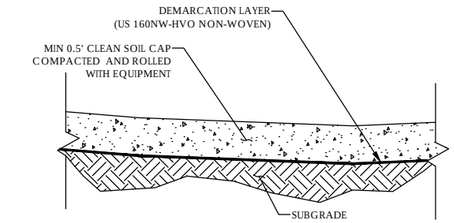
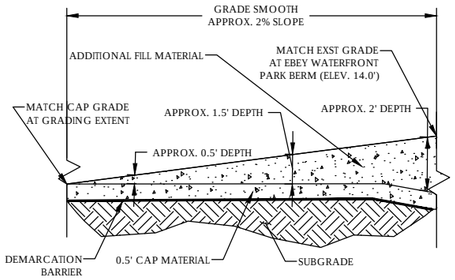
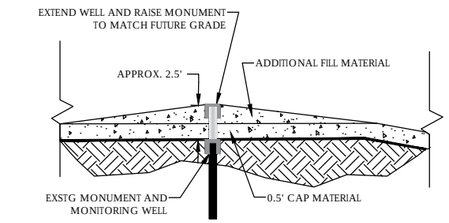
Path: X:\0689.01 City of Marysville\05\Projects\Fig_SedimentSamplingLocations_Exceedances.mxd
Print Date: 3/20/2020
Approved By: cwise
Produced By: abixby
Project: 0689.01.05



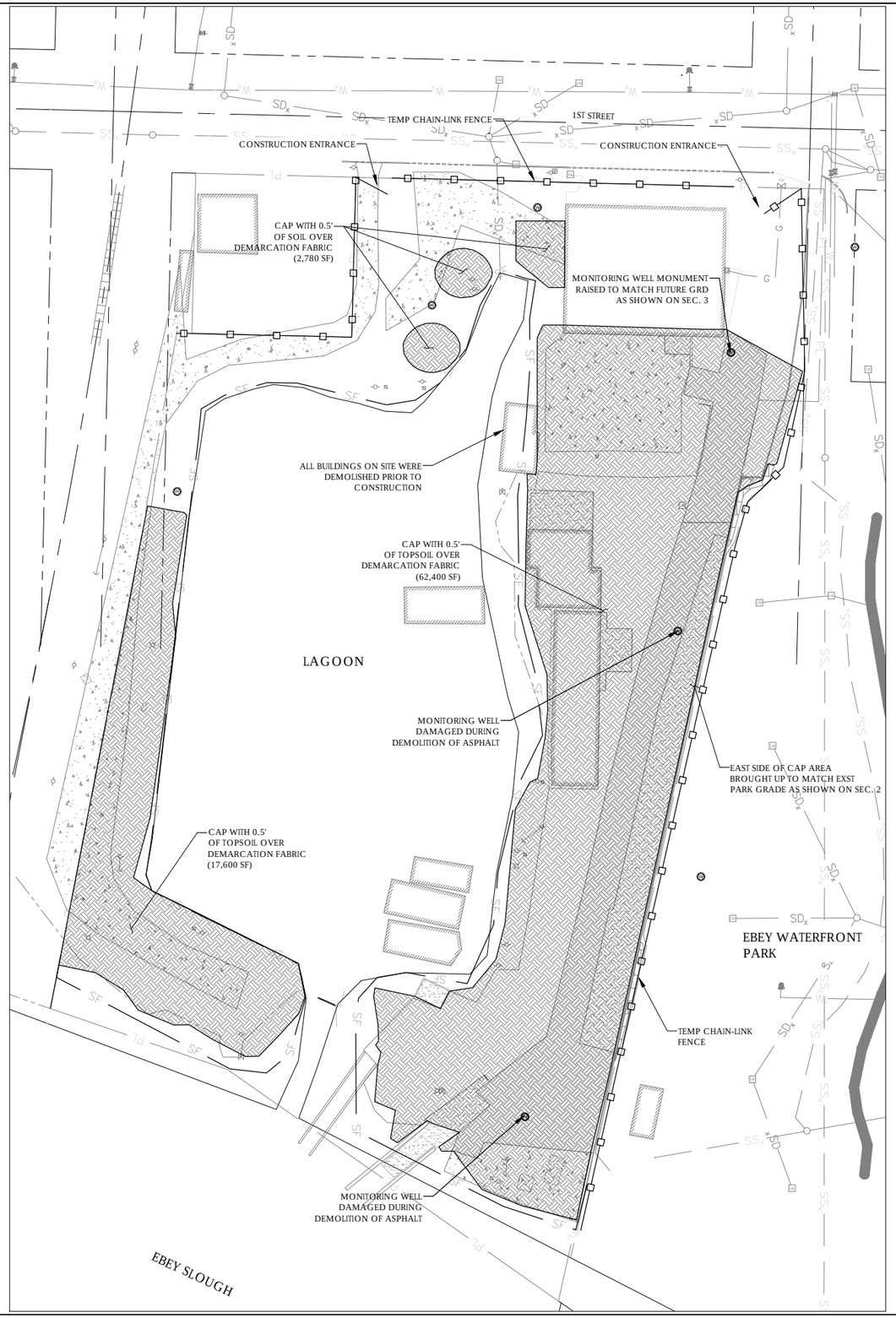
1 SOIL CAP SECTION
SCALE: NTS



2 ADDITIONAL FILL SECTION TAPER
SCALE: NTS



3 RAISE MONITORING WELL
SCALE: NTS



NOTES:

1) SILT FENCE AND TEMPORARY CHAIN-LINK FENCE (6' HIGH) LEFT IN-PLACE AT THE CITY'S REQUEST.
2) SOIL CAP MATERIAL TRACKED BY CONTRACTOR. CITY WILL CONDUCT ADDITIONAL STABILIZATION MEASURES, SUCH AS HYDROSEEDING.
3) TWO GROUNDWATER MONITORING WELLS DAMAGED DURING SITE PREPARATION (DEMOLITION OF ASPHALT). CITY WILL PROPERLY DECOMMISSION AND RE-INSTALL THESE TWO WELLS.

MAUL FOSTER ALONGI
2815 SECOND AVE, SUITE 540
SEATTLE, WA 98121
PHONE: 206.858.7620
www.maulfoster.com

GEDDES MARINA INTERIM
REMEDIAL ACTION
CITY OF MARYSVILLE
MARYSVILLE, WA

ISSUE	DATE	DESCRIPTION

PROJECT: 0689.01.03
DESIGNED: A. KAPAROS
DRAWN: A. KAPAROS
CHECKED: J. CLARY
SCALE
0 40' 80'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
CAP CONSTRUCTION PLAN

SHEET
FIGURE 3

PLOTTED ON: 2016-08-30 9:41 AM PLOTTED BY: Andrew Kaparos FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0689.01 City of Marysville\EXHIBIT\Updated IRA Completion Report\Figure 3 - Cap Construction Plan_0830316.dwg

APPENDIX A

GEOLOGIC LOGS

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**GM-11**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/15/2019 to 10/15/2019**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**5.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**74**	**GP**		**PID = 0.7**			*0 to 0.2 feet: GRAVELLY SILT (ML); brown; 40% fines, silt; 30% sand, fine to coarse grained; 30% gravel, fine to medium size, angular; loose; trace organic material (rootlets); moist.*
						PID = 0.7			*0.2 to 1.5 feet: GRAVELLY SAND WITH SILT (SW-SM); gray; 10% fines; 60% sand, fine to coarse grained; 30% gravel, fine to medium size, angular; loose; dry.*
2									*@ 1.0 feet: Color changes to brown.*
									@ 1.4 feet: Color changes to orangish brown.
3				**GRAB**		**GM11-S-3.0**			*1.5 to 3.7 feet: SILT (ML); blackish brown; 95% fines, low plasticity; 5% sand, fine grained; firm; trace organic material (black wood fragments); moist.*
						PID = 0.9			
4						**PID = 1.1**			*@ 3.5 to 3.7 feet: Wood fragments.*
									3.7 to 5.0 feet: No recovery.
5									

Total Depth = 5.0 feet bgs.

Borehole Completion Details:
0 to 5.0 feet: 2.25-inch borehole.
0 to 5.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1. bgs = below ground surface. 2. Depths are relative to feet bgs. 3. GP = Geoprobe. 4. PID = photoionization detector. 5. PID results shown in parts per million.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**GM-12**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/15/2019 to 10/15/2019**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**5.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**46**	**GP**		**PID = 1.2**			*0 to 0.4 feet: SAND WITH SILT (SW-SM); brown; 10% fines; 75% sand, fine to coarse grained; 15% gravel, fine to medium size, subangular to angular; loose; trace organic material (rootlets); moist.*
2						**PID = 1.3**			*0.4 to 2.3 feet: SILT (ML); brown; 90% fines, medium plasticity; 10% sand, fine grained; medium dense; trace organic material (wood fragments, rootlets); moist.*
3				**GRAB**		**GM12-S-2.0** **PID = 1.9**			*@ 0.5 to 0.9 feet: Orange mottling.*
4									*2.3 to 5.0 feet: No recovery.*
5									

Total Depth = 5.0 feet bgs.

Borehole Completion Details:
0 to 5.0 feet: 2.25-inch borehole.
0 to 5.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1. bgs = below ground surface. 2. Depths are relative to feet bgs. 3. GP = Geoprobe. 4. PID = photoionization detector. 5. PID results shown in parts per million.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**GM-13**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/15/2019 to 10/15/2019**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**10.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**46**	**GP**		**PID = 0.9**			*0 to 0.3 feet: SILTY SAND (SM); brown; 25% fines; 70% sand, fine to coarse grained; 5% gravel, very fine size; medium dense; trace organic material (rootlets); moist.*
2						**PID = 0.7**			*0.3 to 0.8 feet: GRAVELLY SAND WITH SILT (SW); brown; 10% fines; 60% sand, fine to coarse grained; 30% gravel, fine size, subangular to subrounded; loose; dry.*
3						**PID = 1.1**			*0.8 to 2.3 feet: SILT (ML); dark reddish brown; 95% fines, low plasticity; 5% sand, very fine grained; firm; trace organic material (orange wood fragments); moist.*
4									*@ 2.0 feet: Color changes to gray.*
5									*2.3 to 5.0 feet: No recovery.*
6			**56**	**GP**		**PID = 1.4**			*5.0 to 7.8 feet: SILT (ML); gray; 95% fines, low plasticity; 5% sand, very fine grained; soft; trace organic material (orange wood fragments); moist.*
7									*@ 6.2 feet: Wood material.*
8				**GRAB**		**GM13-S-7.5**			*@ 6.3 feet: Becomes dense.*
9						**PID = 1.3**			*@ 7.0 feet: Becomes soft.*
10									*7.8 to 10.0 feet: No recovery.*

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1. bgs = below ground surface. 2. Depths are relative to feet bgs. 3. GP = Geoprobe. 4. PID = photoionization detector. 5. PID results shown in parts per million.*

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**GM-14**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/15/2019 to 10/15/2019**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**15.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**60**	**GP**		**PID = 1.1**			*0 to 0.5 feet: SILTY SAND WITH GRAVEL (SM); grayish brown; 25% fines, low plasticity; 65% sand, very fine to medium grained; 10% gravel, fine size, subangular; loose; trace organic material (rootlets) near top; moist. (FILL)*
						PID = 1.1			*@ 0.5 feet: Orange demarcation liner.*
2									*0.5 to 1.3 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 10% fines; 50% sand, fine to coarse grained; 40% gravel, angular to subangular; loose; dry to moist.*
3						**PID = 0.9**			*0.9 feet: Becomes moist; color changes to orangish brown; increasing gravel.*
4									*1.3 to 3.0 feet: SILT (ML); gray; 100% fines, medium plasticity; firm; black mottling throughout; moist.*
5									*3.0 to 5.0 feet: No recovery.*
6			**70**	**GP**					*5.0 to 8.5 feet: SILT (ML); gray; 100% fines, medium plasticity; firm; trace organic material (wood fragments); black mottling throughout; moist.*
7						**PID = 1.1**			*@ 5.2 feet: Very thin sand lens.*
8									*@ 6.0 feet: Very thin sand lens.*
9						**PID = 1.0**			*@ 6.5 to 6.7 feet: Black layer of organic material (wood fragments).*
10									*8.5 to 10.0 feet: No recovery.*
11			**70**	**GP**					*10.0 to 12.8 feet: SILT (ML); blackish gray; 100% fines, medium plasticity; firm; organic material (wood fragments); moist.*
						PID = 1.2			*@ 10.2 to 10.4 feet: Sand lens.*
12									*@ 10.6 feet: brick fragment, 1-inch, angular.*
				GRAB		**GM14-S-12.0**			
13						**PID = 1.4**			
						PID = 0.8			*12.8 to 13.0 feet: WOOD; reddish brown; 100% organic material (wood fragments); dense; moist.*
14									*@ 12.9 feet: Color changes to light orange.*
									13.0 to 15.0 feet: No recovery.
15									

Total Depth = 15.0 feet bgs.

Borehole Completion Details:
0 to 15.0 feet: 2.25-inch borehole.
0 to 15.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1. bgs = below ground surface. 2. Depths are relative to feet bgs. 3. GP = Geoprobe. 4. PID = photoionization detector. 5. PID results shown in parts per million.*

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**GM-15**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/15/2019 to 10/15/2019**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**5.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**38**	**GP**		**PID = 2.4**			*0 to 0.2 feet: SILT WITH SAND (ML); brown; 85% fines, low plasticity; 10% sand, very fine to fine grained; 5% gravel, fine size, angular; soft; trace organic material (rootlets); moist.*
2						**GM15-S-1.5 PID = 0.7**			*0.2 to 1.9 feet: SILT (ML); black; 100% fines, low plasticity; 30% organic material (wood fragments); very soft; moist.* *@ 1.5 feet: Color changes to gray.*
3									*1.9 to 5.0 feet: No recovery.*
4									
5									

Total Depth = 5.0 feet bgs.

Borehole Completion Details:
0 to 5.0 feet: 2.25-inch borehole.
0 to 5.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1. bgs = below ground surface. 2. Depths are relative to feet bgs. 3. GP = Geoprobe. 4. PID = photoionization detector. 5. PID results shown in parts per million.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**GM-16**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/15/2019 to 10/15/2019**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**5.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**54**	**GP**		**PID = 0.3**			*0 to 0.2 feet: SILTY SAND (SM); brown; 20% fines, low plasticity; 75% sand, fine to coarse grained; 5% gravel, fine size, angular; loose; trace organic material (rootlets); moist. (FILL)*
2						**PID = 1.2**			*@ 0.2 feet: Orange demarcation liner.* *0.2 to 1.1 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 10% fines; 50% sand, fine to coarse grained; 40% gravel, very fine to medium size, angular to subangular; loose; trace rope material; dry.*
3						**GM16-S-2.5** **PID = 1.4**			*@ 0.75 to 0.85 feet: Black silt layer with trace wood fragments.* *1.1 to 2.7 feet: SILT (ML); black; 95% fines; 5% sand, very fine to fine grained; soft; trace rope material throughout; moist.*
4									*@ 1.3 feet: 0.6-inch thick layer of abundant white shell fragments.* *@ 2.0 feet: 1.2-inch thick layer of abundant white shell fragments.*
5									*@ 2.6 feet: 1.2-inch thick layer of abundant white shell fragments.* *2.7 to 5.0 feet: No recovery.*

Total Depth = 5.0 feet bgs.

Borehole Completion Details:
0 to 5.0 feet: 2.25-inch borehole.
0 to 5.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1. bgs = below ground surface. 2. Depths are relative to feet bgs. 3. GP = Geoprobe. 4. PID = photoionization detector. 5. PID results shown in parts per million.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-14**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/17/2019 to 10/17/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Vibracore**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**4.2-feet**
Sample Method	**Core Barrel**	Outer Hole Diam	**4.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**79**	**CB**					*0 to 1.5 feet: SAND WITH SILT (SW-SM); brown; 10% fines, low plasticity; 75% sand, fine to coarse grained; 15% gravel, fine to coarse size, subangular to angular; loose; trace organic material (twigs, pine needles); moist to wet.*
2				**GRAB**		**S14-SED-1.5**			*1.5 to 2.5 feet: SILT WITH SAND (ML); brownish black; 70% fines, low plasticity; 30% sand, fine to medium grained; medium dense; trace organic material; no odor or sheen; moist.*
3				**GRAB**		**S14-SED-3.0**			*2.5 to 3.3 feet: SILTY SAND (SM); dark brownish gray; 30% fines, low plasticity; 70% sand, very fine to medium grained; medium dense; trace organic material (rootlets, twigs); no odor or sheen; moist.* *@ 2.5 feet: Trace anthropogenic material (yellow plastic).*
4									*3.3 to 4.2 feet: No recovery.*

Total Depth = 4.2 feet bml.
Depth to Mudline = 4.6 feet.

Borehole Completion Details:
0 to 4.2 feet: 4.25-inch borehole.
0 to 4.2 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CB = core barrel. 3. Depths are relative to feet bml.*

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-15**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/17/2019 to 10/17/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Vibracore**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**8.0-feet**
Sample Method	**Core Barrel**	Outer Hole Diam	**4.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**80**	**CB**					*0 to 4.0 feet: SANDY SILT (ML); blackish brown; 80% fines, low plasticity; 20% sand, very fine to medium grained; soft; abundant organic material (leaves, twigs, pine needles, roots); slight organic odor, no sheen; moist.*
2				**GRAB**		**S15-SED-1.5**			*@ 0.8 feet: Trace anthropogenic material (ketchup packet, tape).*
									@ 1.8 feet: Trace anthropogenic material (green plastic).
3									*@ 2.4 feet: 1.2-inch thick layer of organic material (leaves).*
4				**GRAB**		**S15-SED-3.5**			
5									*4.0 to 6.4 feet: SAND (SW); grayish brown; 5% fines; 90% sand, very fine to medium grained; 5% gravel, fine size, subangular; medium dense; trace organic material (wood fragments); moist.*
6				**GRAB**		**S15-SED-5.5**			
7									*6.4 to 8.0 feet: No recovery.*
8									

Total Depth = 8.0 feet bml.
Depth to Mudline = 3.7 feet.

Borehole Completion Details:
0 to 4.0 feet: 4.25-inch borehole.
0 to 4.0 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CB = core barrel. 3. Depths are relative to feet bml.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-16**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/17/2019 to 10/18/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Vibracore/Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**4.0-feet**
Sample Method	**Core Barrel/Clam Shell**	Outer Hole Diam	**4.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**95**	**CB**		**S16-SED-0.33**			*0 to 3.8 feet: SILT (ML); blackish gray; 100% fines, low plasticity; soft; trace organic material (pine needles, wood, rootlets, grasses, twigs); slight organic odor, no sheen; moist to wet.*
				CS					
2				**GRAB**		**S16-SED-1.5**			*@ 0.2 feet: Color changes to gray.*
3				**GRAB**		**S16-SED-3.0**			*@ 3.0 feet: Color changes to brownish gray; 40% woody material.*
4									*3.8 to 4.0 feet: No recovery.*

Total Depth = 4.0 feet bml.
Depth to Mudline = 4.7 feet.

Borehole Completion Details:
0 to 4.0 feet: 4.25-inch borehole.
0 to 4.0 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CB = core barrel; subsurface sediment samples were collected with a Vibracore on 10/17/19. 3. CS = clam shell; surface sediment samples were collected with a Power Grab on 10/18/19. 4. Depths are relative to feet bml. 5. Surface and subsurface sediment sampling locations are colocated.*

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-17**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/18/19 to 10/18/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**0.8-feet**
Sample Method	**Clam Shell**	Outer Hole Diam	**-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
			100	**CS**	**CS**	**S17-SED-0.33**			*0 to 0.75 feet: SANDY SILT (ML); grayish brown; 60% fines, low plasticity; 40% sand, very fine to fine grained; loose; abundant organic material (pine needles, wood fragments) in upper 2 inches; trace aquatic biota throughout (worms); rainbow sheen; organic odor; wet.*

Total Depth = 0.75 feet bml.
Depth to Mudline = 3.5 feet.

Completion Details:
0 to 0.75 feet: Open excavation.
0 to 0.75 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CS = clam shell. 3. Depths are relative to feet bml.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-18**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/18/19 to 10/18/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**1.0-feet**
Sample Method	**Clam Shell**	Outer Hole Diam	**-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
			100	**CS**	**CS**	**S18-SED-0.33**			0 to 0.98 feet: SILT (ML); dark grayish brown; 100% fines, low plasticity; loose; trace organic material (rootlets); no odor; no sheen; moist to wet.

Total Depth = 0.98 feet bml.
Depth to Mudline = 3.5 feet.

Completion Details:
0 to 0.98 feet: Open excavation.
0 to 0.98 feet: Sluffed sediment.

NOTES: 1. bml = below mudline. 2. CS = clam shell. 3. Depths are relative to feet bml.

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-19**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/18/19 to 10/18/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**0.9-feet**
Sample Method	**Clam Shell**	Outer Hole Diam	**-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
			100	**CS**	**CS**	**S19-SED-0.33**			0 to 0.92 feet: SILT (ML); dark gray; 100% fines, low plasticity; firm; trace aquatic biota (worms); slight sheen, organic odor; wet.

Total Depth = 0.92 feet bml.
Depth to Mudline = 5.0 feet.

Completion Details:
0 to 0.92 feet: Open excavation.
0 to 0.92 feet: Sluffed sediment.

NOTES: 1. bml = below mudline. 2. CS = clam shell. 3. Depths are relative to feet bml.

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-20**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/18/19 to 10/18/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**0.9-feet**
Sample Method	**Clam Shell**	Outer Hole Diam	**-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
			100	**CS**	**CS**	**S20-SED-0.33**			*0 to 0.92 feet: SILT WITH SAND (ML); black; 80% fines, low plasticity; 20% sand, very fine grained; soft to firm; trace organic material (grass, rootlets, white shells); trace aquatic biota (worms); no odor or sheen; wet.*

Total Depth = 0.92 feet bml.
Depth to Mudline = 3.9 feet.

Completion Details:
0 to 0.92 feet: Open excavation.
0 to 0.92 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CS = clam shell. 3. Depths are relative to feet bml.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-21**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/17/2019 to 10/17/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Vibracore**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**9.1-feet**
Sample Method	**Core Barrel**	Outer Hole Diam	**4.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			87	CB					0 to 7.4 feet: SILT (ML); gray; 100% fines, low plasticity; soft; trace organic material (wood, rootlets); organic odor; moist to wet.
									@ 1.0 feet: Becomes firm.
2				GRAB		S21-SED-1.5			
3									
4				GRAB		S21-SED-3.5			@ 3.8 feet: Increasing organic material (wood).
5									
6				GRAB		S21-SED-5.5			@ 6.0 feet: Decreasing organic material (wood).
7									
8				GRAB		S21-SED-7.5			7.4 to 7.9 feet: SAND WITH SILT (SW-SM); gray; 10% fines; 90% sand, fine to medium grained; firm; no odor or sheen; moist to wet.
9									7.9 to 9.1 feet: No recovery.

Total Depth = 9.1 feet bml.
Depth to Mudline = 1.6 feet.

Borehole Completion Details:
0 to 9.1 feet: 4.25-inch borehole.
0 to 9.1 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CB = core barrel. 3. Depths are relative to feet bml.*

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-22**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/17/2019 to 10/17/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Vibracore/Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**9.0-feet**
Sample Method	**Core Barrel/Clam Shell**	Outer Hole Diam	**4.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**83**	**CB**		**S22-SED-0.33**			*0 to 7.5 feet: SILT (ML); dark gray; 95% fines, low plasticity; 5% sand, very fine to fine grained; loose; abundant organic material (rootlets, twigs, wood); trace aquatic biota (worms) in upper foot; slight organic odor; moist to wet.*
				CS					
2				**GRAB**		**S22-SED-1.5**			
3									*@ 2.5 feet: Becomes moist.*
									@ 2.7 feet: Color changes to grayish brown.
4				**GRAB**		**S22-SED-3.5**			*@ 3.4 feet: 1.5-foot long wood fragment.*
5									
6				**GRAB**		**S22-SED-5.5**			*@ 5.4 feet: Woody material.*
									@ 6.0 feet: Becomes dense.
7				**GRAB**		**S22-SED-7.0**			
8									*7.5 to 9.0 feet: No recovery.*
9									

Total Depth = 9.0 feet bml.
Depth to Mudline = 3.7 feet.

Borehole Completion Details:
0 to 9.0 feet: 4.25-inch borehole.
0 to 9.0 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CB = core barrel; subsurface sediment samples were collected with a Vibracore on 10/17/19. 3. CS = clam shell; surface sediment samples were collected with a Power Grab on 10/18/19. 4. Depths are relative to feet bml. 5. Surface and subsurface sediment sampling locations are colocated.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-23**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/18/19 to 10/18/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**0.8-feet**
Sample Method	**Clam Shell**	Outer Hole Diam	**-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
			100	**CS**					*0 to 0.75 feet: SILT (ML); blackish gray; 100% fines, low plasticity; firm; trace aquatic biota (worms); slight organic odor, slight sheen; moist to wet.*
				CS		**S23-SED-0.33**			*@ 0.5 feet: Color becomes lighter gray.*

Total Depth = 0.75 feet bml.
Depth to Mudline = 3.8 feet.

Completion Details:
0 to 0.75 feet: Open excavation.
0 to 0.75 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CS = clam shell. 3. Depths are relative to feet bml.*

GBLWC W:\GINT\GINTW\PROJECTS\0689.01 CITY OF MARYSVILLE\05 GEDDES MARINA\RI BORING LOGS.GPJ 11/22/19

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0689.01.05	**S-24**	**1 of 1**

Project Name	**Geddes Marina**	TOC Elevation (feet)	
Project Location	**1326 First Street, Marysville, Washington**	Surface Elevation (feet)	
Start/End Date	**10/17/2019 to 10/17/2019**	Northing	
Driller/Equipment	**Research Support Services, Inc./Vibracore/Power Grab**	Easting	
Geologist/Engineer	**A. Bixby**	Hole Depth	**5.4-feet**
Sample Method	**Core Barrel/Clam Shell**	Outer Hole Diam	**4.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**83**	**CB**		**S24-SED-0.33**			*0 to 3.5 feet: SILT (ML); brownish black; 95% fines, low plasticity; 5% sand, very fine to fine grained; firm; abundant organic material (established grass, roots, reeds) in upper 0.3 foot; trace organic material (wood, rootlets) throughout; no odor or sheen; moist to wet.*
				CS					
2				**GRAB**		**S24-SED-1.5**			*@ 1.3 feet: Color changes to dark grayish brown.*
3									
4				**GRAB**		**S24-SED-3.5**			*3.5 to 4.5 feet: SANDY SILT (ML); grayish brown; 65% fines, low plasticity; 35% sand, very fine to medium grained; medium dense; no odor or sheen; moist.*
5									*4.5 to 5.4 feet: No recovery.*

Total Depth = 5.4 feet bml.
Depth to Mudline = 2.55 feet.

Borehole Completion Details:
0 to 5.4 feet: 4.25-inch borehole.
0 to 5.4 feet: Sluffed sediment.

NOTES: *1. bml = below mudline. 2. CB = core barrel; subsurface sediment samples were collected with a Vibracore on 10/17/19. 3. CS = clam shell; surface sediment samples were collected with a Power Grab on 10/18/19. 4. Depths are relative to feet bml. 5. Surface and subsurface sediment sampling locations are colocated.*

APPENDIX B

FIELD SAMPLING DATA SHEETS

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of Marysville	**Sample Location**	GM-2		
Project #	0689.01.05	**Sampler**	A. Bixby		
Project Name	Geddes Marina	**Sampling Date**	10/21/2019		
Sampling Event	October 2019	**Sample Name**	GM1-GW-8.2		
Sub Area		**Sample Depth**	8.2		
FSDS QA:	A. Bixby 11/11/2019	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/21/2019	12:45	14.72		1.71		13.01	2.12

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	1:15:00 PM	1.7	0.3	6.59	14.35	260	0.67	-48.8	10.8
	1:20:00 PM	2	0.3	6.6	14.29	257	0.63	-52.2	7.89
Final Field Parameters	1:25:00 PM	2.3	0.3	6.56	14.26	248	0.62	-48.4	5.32

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; no odor; no sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:30:00 PM	VOA-Glass		
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purge at 12:50.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of Marysville	**Sample Location**	GM-3		
Project #	0689.01.05	**Sampler**	A. Bixby		
Project Name	Geddes Marina	**Sampling Date**	10/21/2019		
Sampling Event	October 2019	**Sample Name**	GM3-GW-10.9		
Sub Area		**Sample Depth**	10.9		
FSDS QA:	A. Bixby 11/11/2019	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/21/2019	8:45	16.98		4.9		12.08	1.97

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	9:40:00 AM	2	0.3	6.36	13.97	349	2.96	47.2	13.9
	9:55:00 AM	2.5	0.3	6.41	14.08	347	2.5	26.3	11.6
	10:00:00 AM	2.7	0.3	6.42	14.04	348	2.44	22.6	6.77
Final Field Parameters	10:05:00 AM	3	0.3	6.43	14.09	350	2.42	19.6	4.96

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; no odor; no sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:10:00 AM	VOA-Glass		
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purge at 8:50. Collected field duplicate GMDUP-GW-10.9.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of Marysville	**Sample Location**	GM-9		
Project #	0689.01.05	**Sampler**	A. Bixby		
Project Name	Geddes Marina	**Sampling Date**	10/21/2019		
Sampling Event	October 2019	**Sample Name**	GM9-GW-7.7		
Sub Area		**Sample Depth**	7.7		
FSDS QA:	A. Bixby 11/11/2019	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/21/2019	11:00	11.35		3.95		7.4	1.21

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	10:35:00 AM	0.2	0.2						46.3
	11:10:00 AM	1.2	0.2						94.1
	11:50:00 AM	1.4	0.2	6.49	13.13	8578	5.83	-9.8	32.9
	11:55:00 AM	1.5	0.2	6.52	13.11	8432	5.4	-13.1	31.6
	12:00:00 PM	1.7	0.2	6.53	13.09	8369	5.74	-16.7	27.3
Final Field Parameters	12:05:00 PM	1.9	0.2	6.55	13.09	8273	5.63	-21.3	23

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; no odor; no sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:10:00 PM	VOA-Glass		
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purge at 11:05. Poor recharge.

APPENDIX C

WELL DEVELOPMENT FORMS

MAUL FOSTER ALONGI

Well Development Form

Project No.	0689.01.05	Date	10/16/2019		
Site Location:	1326 First St., Marysville, Washington	Well:	GM-2		
Name:	Former Geddes Marina Property	Initial DTB:	14.71	Final DTB:	14.70
Development Method:	Surge and purge	Initial DTW:	2.00	Final DTW:	2.82
Total Water Removed	11.1 gallons	Pore Volume:	2.07 gallons		
Water Contained	55 gallon drums	Casing Diameter:	2 inches		

Time	Cum. Vol Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
8:25	0.0	--	--	--	--	--	--	Surge with bailer.
8:30	0.0	--	--	--	--	--	--	Purge with bailer.
8:45	5.0	--	--	--	--	--	--	Purge with peristaltic pump.
9:05	6.5	58.7	--	--	--	--	--	
9:20	7.5	55.3	--	--	--	--	--	
9:40	9.0	26.2	--	--	--	--	--	Hook up YSI.
9:50	9.5	22	6.98	197	14.95	0.87	-2.9	
10:10	10.5	16.4	7.07	187	14.76	0.93	-40.8	
10:15	10.7	15.9	7.08	184	14.69	0.89	-49.9	
10:20	11.1	15.4	7.10	182	14.66	0.87	-50.2	Complete well development.

Notes:

DO = dissolved oxygen.

DTB = depth to bottom.

DTW = depth to water.

mg/L = milligrams per liter.

mV = millivolts.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microSiemens per centimeter.

MAUL FOSTER ALONGI

Well Development Form

Project No.	0689.01.05	Date	10/16/2019		
Site Location:	1326 First St., Marysville, Washington	Well:	GM-3		
Name:	Former Geddes Marina Property	Initial DTB:	17.00	Final DTB:	17.00
Development Method:	Surge and purge	Initial DTW:	5.72	Final DTW:	6.86
Total Water Removed	18.0 gallons	Pore Volume:	1.80 gallons		
Water Contained	55 gallon drums	Casing Diameter:	2 inches		

Time	Cum. Vol Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
12:00	0.0	--	--	--	--	--	--	Surge with bailer.
12:10	0.0	--	--	--	--	--	--	Purge with bailer.
12:50	10.0	--	--	--	--	--	--	Purge with peristaltic pump.
13:25	12.5	436	--	--	--	--	--	
13:40	13.0	39.7	--	--	--	--	--	
14:00	14.0	41.8	--	--	--	--	--	
14:20	15.0	25.5	--	--	--	--	--	
14:30	15.5	22.5	--	--	--	--	--	Hook up YSI.
14:55	17.0	20	6.64	471	14.70	1.21	-73.6	
15:00	17.5	13.3	6.65	472	14.69	1.21	-74.9	
15:05	18.0	10.2	6.65	471	14.70	1.19	-75.7	Complete well development.

Notes:

DO = dissolved oxygen.

DTB = depth to bottom.

DTW = depth to water.

mg/L = milligrams per liter.

mV = millivolts.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microSiemens per centimeter.

MAUL FOSTER ALONGI

Well Development Form

Project No.	0689.01.05	Date	10/16/2019		
Site Location:	1326 First St., Marysville, Washington	Well:	GM-9		
Name:	Former Geddes Marina Property	Initial DTB:	10.77	Final DTB:	10.77
Development Method:	Surge and purge	Initial DTW:	2.89	Final DTW:	NA
Total Water Removed	4.7 gallons	Pore Volume:	1.20 gallons		
Water Contained	55 gallon drums	Casing Diameter:	2 inches		

Time	Cum. Vol Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
11:10	0.0	--	--	--	--	--	--	Surge with bailer.
11:20	0.0	--	--	--	--	--	--	Purge with bailer.
11:25	1.5	--	--	--	--	--	--	Well dry. Allow recharge.
15:41	1.5	--	--	--	--	--	--	Water level at 5.17 feet bgs.
15:50	1.5	--	--	--	--	--	--	Purge with peristaltic pump.
16:20	2.5	--	--	--	--	--	--	Slow recharge. Move tubing down.
16:25	2.6	--	--	--	--	--	--	Well dry. Complete well development for the day.
12:10	2.6	--	--	--	--	--	--	Resume well development. Water level at 2.43 feet bgs; depth to bottom at 11.33 feet bgs.
12:15	2.6	112	--	--	--	--	--	
12:25	2.8	62.9	--	--	--	--	--	
12:45	3.6	50.9	--	--	--	--	--	
13:15	4.6	31.0	--	--	--	--	--	
13:20	4.7	--	--	--	--	--	--	Well dry. Complete well development.

Notes:

bgs = below ground surface.

DO = dissolved oxygen.

DTB = depth to bottom.

DTW = depth to water.

mg/L = milligrams per liter.

mV = millivolts.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microSiemens per centimeter.

APPENDIX D

ANALYTICAL LABORATORY REPORTS

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

November 12, 2019

Carolyn Wise
Maul Foster & Alongi, Inc.
Bay Vista Tower
2815 2nd Avenue, Suite 540
Seattle, WA 98121

Re: Analytical Data for Project 0689.01.05
Laboratory Reference No. 1910-262

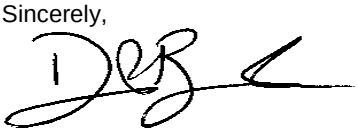
Dear Carolyn:

Enclosed are the analytical results and associated quality control data for samples submitted on October 18, 2019.

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: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

Case Narrative

Samples were collected on October 15, 17 and 18, 2019 and received by the laboratory on October 18, 2019. 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.

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.

Semivolatiles EPA 8270E/SIM Analysis

Due to the problematic nature of these samples, as well as the necessary dilutions required, not all desired PQL's could be attained.

Sample S24-SED-1.5 had two surrogate recoveries outside of control limits, believed to be caused by matrix interference. All other QC was in control, no further action was performed.

Total Metals EPA 6020B/7471B Analysis

Due to the high concentration of Lead and Zinc in the QC sample, the amount spiked was insufficient for meaningful MS/MSD recovery data. The Spike Blank recovery for Lead was 98%. The Spike Blank recovery for Zinc was 91%.

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

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GM14-S-12.0**					
Laboratory ID:	10-262-04					
Diesel Range Organics	**ND**	35	NWTPH-Dx	10-24-19	10-24-19	X1
Lube Oil Range Organics	**ND**	69	NWTPH-Dx	10-24-19	10-24-19	X1
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***74***	***50-150***				
Client ID:	**GM16-S-2.5**					
Laboratory ID:	10-262-06					
Diesel Range Organics	**61**	43	NWTPH-Dx	10-24-19	10-24-19	X1,N
Lube Oil Range Organics	**120**	86	NWTPH-Dx	10-24-19	10-24-19	X1
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***82***	***50-150***				
Client ID:	**S24-SED-3.5**					
Laboratory ID:	10-262-08					
Diesel Range Organics	**ND**	31	NWTPH-Dx	10-24-19	10-24-19	
Lube Oil Range Organics	**ND**	63	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***71***	***50-150***				
Client ID:	**S14-SED-3.0**					
Laboratory ID:	10-262-10					
Diesel Range Organics	**160**	27	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**1100**	55	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***79***	***50-150***				
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
Diesel Range Organics	**1500**	190	NWTPH-Dx	10-24-19	10-25-19	N
Lube Oil	**11000**	370	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***82***	***50-150***				
Client ID:	**S22-SED-3.5**					
Laboratory ID:	10-262-15					
Diesel Range Organics	**ND**	41	NWTPH-Dx	10-24-19	10-24-19	
Lube Oil Range Organics	**170**	82	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***65***	***50-150***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-3.0**					
Laboratory ID:	10-262-18					
Diesel Range Organics	**120**	75	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil Range Organics	**660**	150	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***74***	***50-150***				
Client ID:	**S21-SED-3.5**					
Laboratory ID:	10-262-20					
Diesel Range Organics	**ND**	36	NWTPH-Dx	10-24-19	10-24-19	
Lube Oil Range Organics	**170**	72	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***81***	***50-150***				
Client ID:	**S16-SED-0.33**					
Laboratory ID:	10-262-23					
Diesel Range Organics	**190**	53	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**1900**	110	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***75***	***50-150***				
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
Diesel Range Organics	**620**	240	NWTPH-Dx	10-24-19	10-25-19	N
Lube Oil	**5900**	490	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***76***	***50-150***				
Client ID:	**S18-SED-0.33**					
Laboratory ID:	10-262-25					
Diesel Range Organics	**440**	260	NWTPH-Dx	10-24-19	10-25-19	N
Lube Oil	**4500**	530	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***81***	***50-150***				
Client ID:	**S19-SED-0.33**					
Laboratory ID:	10-262-26					
Diesel Range Organics	**250**	52	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**2500**	100	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***77***	***50-150***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S20-SED-0.33**					
Laboratory ID:	10-262-27					
Diesel Range Organics	**140**	48	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**1400**	95	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***78***	***50-150***				
Client ID:	**S22-SED-0.33**					
Laboratory ID:	10-262-28					
Diesel Range Organics	**220**	56	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**2500**	110	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***78***	***50-150***				
Client ID:	**S23-SED-0.33**					
Laboratory ID:	10-262-29					
Diesel Range Organics	**150**	49	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**1700**	98	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***79***	***50-150***				
Client ID:	**SDUP-SED-0.33**					
Laboratory ID:	10-262-30					
Diesel Range Organics	**130**	48	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**1300**	95	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***80***	***50-150***				
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
Diesel Range Organics	**150**	42	NWTPH-Dx	10-24-19	10-24-19	N
Lube Oil	**1700**	83	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***82***	***50-150***				

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1024S1					
Diesel Range Organics	**ND**	20	NWTPH-Dx	10-24-19	10-24-19	
Lube Oil Range Organics	**ND**	40	NWTPH-Dx	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***84***	***50-150***				
Laboratory ID:	MB1024S1					
Diesel Range Organics	**ND**	20	NWTPH-Dx	10-24-19	10-24-19	X1
Lube Oil Range Organics	**ND**	40	NWTPH-Dx	10-24-19	10-24-19	X1
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***103***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-262-15										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range Organics	**82.8**	**46.9**	NA	NA		NA		NA	55	NA	
Surrogate:											
o-Terphenyl						***65***	***69***	***50-150***			
Laboratory ID:	SB1024S1										
	ORIG	DUP									
Diesel Fuel #2	**83.8**	**80.8**	NA	NA		NA		NA	4	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						***80***	***81***	***50-150***			
SPIKE BLANK											
Laboratory ID:	SB1024S1										
Diesel Fuel #2	**83.8**		100		NA	**84**		68-137	NA	NA	
Surrogate:											
o-Terphenyl						***80***		***50-150***			

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
CCV1024F-T1	100	97.6	2.4	+/-15%
CCV1024F-T2	100	97.5	2.5	+/-15%
CCV1024F-T3	100	101	-1.2	+/-15%
CCV1024F-T4	100	106	-6.5	+/-15%
CCV1024R-T1	100	91.2	8.8	+/-15%
CCV1024R-T2	100	92.0	8.0	+/-15%
CCV1024R-T3	100	101	-0.7	+/-15%
CCV1024R-T4	100	103	-2.7	+/-15%
CCV1025F-T1	100	102	-1.5	+/-15%
CCV1025F-T2	100	107	-6.9	+/-15%
CCV1025R-T1	100	101	-0.9	+/-15%
CCV1025R-T2	100	103	-3.0	+/-15%

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-3.5**					
Laboratory ID:	10-262-08					
n-Nitrosodimethylamine	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	0.31	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-3.5**					
Laboratory ID:	10-262-08					
2,4-Dinitrophenol	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.031	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.0076**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	0.31	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.015**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	0.16	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**ND**	0.50	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.016	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**ND**	0.0063	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	0.65	EPA 8270E	10-25-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***46***	***21 - 107***				
Phenol-d6	***65***	***30 - 106***				
Nitrobenzene-d5	***62***	***28 - 109***				
2-Fluorobiphenyl	***75***	***37 - 107***				
2,4,6-Tribromophenol	***88***	***39 - 116***				
Terphenyl-d14	***84***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S14-SED-3.0**					
Laboratory ID:	10-262-10					
n-Nitrosodimethylamine	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	1.4	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S14-SED-3.0**					
Laboratory ID:	10-262-10					
2,4-Dinitrophenol	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**0.027**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.14	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.049**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	1.4	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.084**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**0.037**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.047**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**1.0**	0.068	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.068	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**0.063**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.041**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.040**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.056**	0.027	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	0.68	EPA 8270E	10-25-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***61***	***21 - 107***				
Phenol-d6	***78***	***30 - 106***				
Nitrobenzene-d5	***80***	***28 - 109***				
2-Fluorobiphenyl	***90***	***37 - 107***				
2,4,6-Tribromophenol	***91***	***39 - 116***				
Terphenyl-d14	***94***	***41 - 113***				

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Project: 0689.01.05

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
n-Nitrosodimethylamine	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	9.3	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	4.6	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	4.6	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**0.042**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
2,4-Dinitrophenol	**ND**	7.1	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**0.062**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	4.6	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Fluorene	**0.094**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**0.50**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.14**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.93	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**1.3**	0.93	EPA 8270E	10-25-19	10-25-19	
Benzidine	**ND**	9.3	EPA 8270E	10-25-19	10-25-19	
Pyrene	**1.5**	0.93	EPA 8270E	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.49	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	4.6	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	4.6	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**0.62**	0.037	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.93**	0.93	EPA 8270E	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**12**	0.46	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.46	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**1.0**	0.074	EPA 8270E/SIM	10-25-19	10-28-19	
Benzo(j,k)fluoranthene	**0.28**	0.074	EPA 8270E/SIM	10-25-19	10-28-19	
Benzo[a]pyrene	**0.67**	0.074	EPA 8270E/SIM	10-25-19	10-28-19	
Indeno[1,2,3-cd]pyrene	**0.58**	0.074	EPA 8270E/SIM	10-25-19	10-28-19	
Dibenz[a,h]anthracene	**0.12**	0.074	EPA 8270E/SIM	10-25-19	10-28-19	
Benzo[g,h,i]perylene	**0.73**	0.074	EPA 8270E/SIM	10-25-19	10-28-19	
Benzoic Acid	**ND**	4.6	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***30***	***21 - 107***				
Phenol-d6	***46***	***30 - 106***				
Nitrobenzene-d5	***50***	***28 - 109***				
2-Fluorobiphenyl	***65***	***37 - 107***				
2,4,6-Tribromophenol	***73***	***39 - 116***				
Terphenyl-d14	***77***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-3.5**					
Laboratory ID:	10-262-15					
n-Nitrosodimethylamine	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	0.41	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-3.5**					
Laboratory ID:	10-262-15					
2,4-Dinitrophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**0.012**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.041	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.38	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.035**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	0.41	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.044**	0.041	EPA 8270E	10-25-19	10-28-19	
Butylbenzylphthalate	**ND**	0.49	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**0.011**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.019**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**ND**	0.50	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.021	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**0.033**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**0.0095**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.017**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.019**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.023**	0.0082	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	0.65	EPA 8270E	10-25-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***63***	***21 - 107***				
Phenol-d6	***75***	***30 - 106***				
Nitrobenzene-d5	***75***	***28 - 109***				
2-Fluorobiphenyl	***78***	***37 - 107***				
2,4,6-Tribromophenol	***88***	***39 - 116***				
Terphenyl-d14	***79***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-3.0**					
Laboratory ID:	10-262-18					
n-Nitrosodimethylamine	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	0.75	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-3.0**					
Laboratory ID:	10-262-18					
2,4-Dinitrophenol	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.075	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.041**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	0.75	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.042**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	0.37	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.020**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**ND**	0.50	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.037	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**0.035**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.025**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.024**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.026**	0.015	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	0.65	EPA 8270E	10-25-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***48***	***21 - 107***				
Phenol-d6	***63***	***30 - 106***				
Nitrobenzene-d5	***64***	***28 - 109***				
2-Fluorobiphenyl	***72***	***37 - 107***				
2,4,6-Tribromophenol	***81***	***39 - 116***				
Terphenyl-d14	***73***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S21-SED-3.5**					
Laboratory ID:	10-262-20					
n-Nitrosodimethylamine	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	0.36	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S21-SED-3.5**					
Laboratory ID:	10-262-20					
2,4-Dinitrophenol	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.036	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	0.36	EPA 8270E	10-25-19	10-28-19	
Pyrene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	0.18	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**ND**	0.50	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.018	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**ND**	0.0072	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	0.65	EPA 8270E	10-25-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***51***	***21 - 107***				
Phenol-d6	***69***	***30 - 106***				
Nitrobenzene-d5	***65***	***28 - 109***				
2-Fluorobiphenyl	***78***	***37 - 107***				
2,4,6-Tribromophenol	***87***	***39 - 116***				
Terphenyl-d14	***81***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-0.33**					
Laboratory ID:	10-262-23					
n-Nitrosodimethylamine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	13	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**ND**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-0.33**					
Laboratory ID:	10-262-23					
2,4-Dinitrophenol	**ND**	10	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Fluorene	**ND**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	8.6	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**0.14**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.061**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**1.0**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	13	EPA 8270E	10-25-19	10-25-19	
Pyrene	**0.81**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**0.33**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.52**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**6.4**	0.66	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**1.0**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**0.25**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.51**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.62**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**0.080**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.66**	0.053	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***74***	***21 - 107***				
Phenol-d6	***85***	***30 - 106***				
Nitrobenzene-d5	***83***	***28 - 109***				
2-Fluorobiphenyl	***84***	***37 - 107***				
2,4,6-Tribromophenol	***89***	***39 - 116***				
Terphenyl-d14	***87***	***41 - 113***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
n-Nitrosodimethylamine	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	24	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	12	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**ND**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
2,4-Dinitrophenol	**ND**	19	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	12	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Fluorene	**0.11**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	16	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**1.1**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.31**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	2.4	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**5.2**	2.4	EPA 8270E	10-25-19	10-25-19	
Benzidine	**ND**	24	EPA 8270E	10-25-19	10-25-19	
Pyrene	**4.6**	2.4	EPA 8270E	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	U1
bis-2-Ethylhexyladipate	**ND**	12	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**2.0**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**2.7**	2.4	EPA 8270E	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**18**	1.2	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**4.2**	2.4	EPA 8270E	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**1.2**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**2.6**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**2.6**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**0.36**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**2.4**	0.098	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***54***	***21 - 107***				
Phenol-d6	***72***	***30 - 106***				
Nitrobenzene-d5	***73***	***28 - 109***				
2-Fluorobiphenyl	***82***	***37 - 107***				
2,4,6-Tribromophenol	***89***	***39 - 116***				
Terphenyl-d14	***90***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S18-SED-0.33**					
Laboratory ID:	10-262-25					
n-Nitrosodimethylamine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	13	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**0.071**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S18-SED-0.33**					
Laboratory ID:	10-262-25					
2,4-Dinitrophenol	**ND**	10	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Fluorene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	8.5	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**0.39**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.15**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**2.8**	1.3	EPA 8270E	10-25-19	10-25-19	
Benzidine	**ND**	13	EPA 8270E	10-25-19	10-25-19	
Pyrene	**2.7**	1.3	EPA 8270E	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**1.0**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**1.4**	1.3	EPA 8270E	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**32**	0.66	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.66	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**2.5**	1.3	EPA 8270E	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**0.50**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**1.3**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**1.6**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**0.20**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**1.4**	1.3	EPA 8270E	10-25-19	10-25-19	
Benzoic Acid	**ND**	6.6	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***70***	***21 - 107***				
Phenol-d6	***82***	***30 - 106***				
Nitrobenzene-d5	***87***	***28 - 109***				
2-Fluorobiphenyl	***88***	***37 - 107***				
2,4,6-Tribromophenol	***93***	***39 - 116***				
Terphenyl-d14	***94***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S19-SED-0.33**					
Laboratory ID:	10-262-26					
n-Nitrosodimethylamine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	13	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	6.5	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	6.5	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	

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Samples Submitted: October 18, 2019
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Project: 0689.01.05

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S19-SED-0.33**					
Laboratory ID:	10-262-26					
2,4-Dinitrophenol	**ND**	9.8	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	6.5	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Fluorene	**ND**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	8.4	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**0.26**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.080**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	1.3	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**1.4**	1.3	EPA 8270E	10-25-19	10-25-19	
Benzidine	**ND**	13	EPA 8270E	10-25-19	10-25-19	
Pyrene	**1.3**	1.3	EPA 8270E	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	6.5	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	6.5	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**0.58**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.66**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**6.1**	0.65	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**1.2**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**0.35**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.72**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.77**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**0.10**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.76**	0.052	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	6.5	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***68***	***21 - 107***				
Phenol-d6	***80***	***30 - 106***				
Nitrobenzene-d5	***80***	***28 - 109***				
2-Fluorobiphenyl	***81***	***37 - 107***				
2,4,6-Tribromophenol	***85***	***39 - 116***				
Terphenyl-d14	***83***	***41 - 113***				

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Project: 0689.01.05

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S20-SED-0.33**					
Laboratory ID:	10-262-27					
n-Nitrosodimethylamine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S20-SED-0.33**					
Laboratory ID:	10-262-27					
2,4-Dinitrophenol	**ND**	9.1	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Fluorene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	7.7	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**0.19**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.054**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**0.69**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Pyrene	**0.62**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**0.33**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.44**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**3.4**	0.60	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**0.74**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**0.21**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.43**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.45**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**0.069**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.48**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***62***	***21 - 107***				
Phenol-d6	***76***	***30 - 106***				
Nitrobenzene-d5	***71***	***28 - 109***				
2-Fluorobiphenyl	***77***	***37 - 107***				
2,4,6-Tribromophenol	***89***	***39 - 116***				
Terphenyl-d14	***89***	***41 - 113***				

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Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-0.33**					
Laboratory ID:	10-262-28					
n-Nitrosodimethylamine	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	5.6	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-0.33**					
Laboratory ID:	10-262-28					
2,4-Dinitrophenol	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**0.13**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.56	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.87**	0.56	EPA 8270E	10-25-19	10-28-19	
Benzidine	**ND**	5.6	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.94**	0.56	EPA 8270E	10-25-19	10-28-19	
Butylbenzylphthalate	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	2.8	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**0.32**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.43**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**7.0**	0.28	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.28	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**0.95**	0.56	EPA 8270E	10-25-19	10-28-19	
Benzo(j,k)fluoranthene	**0.26**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.46**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.52**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.11	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.59**	0.56	EPA 8270E	10-25-19	10-28-19	
Benzoic Acid	**ND**	4.1	EPA 8270E	10-25-19	10-28-19	U1
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***51***	***21 - 107***				
Phenol-d6	***72***	***30 - 106***				
Nitrobenzene-d5	***63***	***28 - 109***				
2-Fluorobiphenyl	***78***	***37 - 107***				
2,4,6-Tribromophenol	***88***	***39 - 116***				
Terphenyl-d14	***87***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S23-SED-0.33**					
Laboratory ID:	10-262-29					
n-Nitrosodimethylamine	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	2.5	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
4-Chloroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
1-Methylnaphthalene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
Hexachlorocyclopentadiene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
3-Nitroaniline	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S23-SED-0.33**					
Laboratory ID:	10-262-29					
2,4-Dinitrophenol	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
4-Nitrophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
4,6-Dinitro-2-methylphenol	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**0.13**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
Anthracene	**ND**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
Carbazole	**ND**	0.25	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.67**	0.25	EPA 8270E	10-25-19	10-28-19	
Benzidine	**ND**	2.5	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.74**	0.25	EPA 8270E	10-25-19	10-28-19	
Butylbenzylphthalate	**ND**	0.49	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	1.2	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**0.28**	0.25	EPA 8270E	10-25-19	10-28-19	
Chrysene	**0.43**	0.25	EPA 8270E	10-25-19	10-28-19	
bis(2-Ethylhexyl)phthalate	**3.8**	0.12	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.12	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**0.73**	0.25	EPA 8270E	10-25-19	10-28-19	
Benzo(j,k)fluoranthene	**0.20**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
Benzo[a]pyrene	**0.37**	0.25	EPA 8270E	10-25-19	10-28-19	
Indeno[1,2,3-cd]pyrene	**0.34**	0.25	EPA 8270E	10-25-19	10-28-19	
Dibenz[a,h]anthracene	**0.074**	0.049	EPA 8270E/SIM	10-25-19	10-28-19	
Benzo[g,h,i]perylene	**0.39**	0.25	EPA 8270E	10-25-19	10-28-19	
Benzoic Acid	**ND**	1.8	EPA 8270E	10-25-19	10-28-19	U1
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***65***	***21 - 107***				
Phenol-d6	***78***	***30 - 106***				
Nitrobenzene-d5	***80***	***28 - 109***				
2-Fluorobiphenyl	***84***	***37 - 107***				
2,4,6-Tribromophenol	***85***	***39 - 116***				
Terphenyl-d14	***90***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SDUP-SED-0.33**					
Laboratory ID:	10-262-30					
n-Nitrosodimethylamine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SDUP-SED-0.33**					
Laboratory ID:	10-262-30					
2,4-Dinitrophenol	**ND**	9.1	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Fluorene	**ND**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	7.7	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**0.20**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**0.054**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	1.2	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**0.69**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	12	EPA 8270E	10-25-19	10-25-19	
Pyrene	**0.61**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**0.32**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.40**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**3.1**	0.60	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.60	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**0.66**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**0.19**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**0.37**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**0.41**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**0.058**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.41**	0.048	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	6.0	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***68***	***21 - 107***				
Phenol-d6	***84***	***30 - 106***				
Nitrobenzene-d5	***82***	***28 - 109***				
2-Fluorobiphenyl	***86***	***37 - 107***				
2,4,6-Tribromophenol	***87***	***39 - 116***				
Terphenyl-d14	***82***	***41 - 113***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

SEMIVOLATILE ORGANICS EPA 8270E/SIM
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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
n-Nitrosodimethylamine	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Pyridine	**ND**	2.1	EPA 8270E	10-25-19	10-28-19	
Phenol	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Aniline	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethyl)ether	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2-Chlorophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
1,3-Dichlorobenzene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
1,4-Dichlorobenzene	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Benzyl alcohol	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
1,2-Dichlorobenzene	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
2-Methylphenol (o-Cresol)	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroisopropyl)ether	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
n-Nitroso-di-n-propylamine	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Hexachloroethane	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Nitrobenzene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Isophorone	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2-Nitrophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,4-Dimethylphenol	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
bis(2-Chloroethoxy)methane	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,4-Dichlorophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
1,2,4-Trichlorobenzene	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Naphthalene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
Hexachlorobutadiene	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
4-Chloro-3-methylphenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2-Methylnaphthalene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,4,6-Trichlorophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,3-Dichloroaniline	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,4,5-Trichlorophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2-Chloronaphthalene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2-Nitroaniline	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
1,4-Dinitrobenzene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Dimethylphthalate	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
1,3-Dinitrobenzene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,6-Dinitrotoluene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
1,2-Dinitrobenzene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Acenaphthylene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

SEMIVOLATILE ORGANICS EPA 8270E/SIM
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
2,4-Dinitrophenol	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
Acenaphthene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,4-Dinitrotoluene	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Dibenzofuran	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Diethylphthalate	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
4-Chlorophenyl-phenylether	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
4-Nitroaniline	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Fluorene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
n-Nitrosodiphenylamine	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
1,2-Diphenylhydrazine	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
4-Bromophenyl-phenylether	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Hexachlorobenzene	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Pentachlorophenol	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Phenanthrene	**0.066**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.21	EPA 8270E	10-25-19	10-28-19	
Di-n-butylphthalate	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Fluoranthene	**0.44**	0.21	EPA 8270E	10-25-19	10-28-19	
Benzidine	**ND**	2.1	EPA 8270E	10-25-19	10-28-19	
Pyrene	**0.50**	0.21	EPA 8270E	10-25-19	10-28-19	
Butylbenzylphthalate	**ND**	0.49	EPA 8270E	10-25-19	10-28-19	
bis-2-Ethylhexyladipate	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
3,3'-Dichlorobenzidine	**ND**	1.0	EPA 8270E	10-25-19	10-28-19	
Benzo[a]anthracene	**0.19**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**0.29**	0.21	EPA 8270E	10-25-19	10-28-19	
bis(2-Ethylhexyl)phthalate	**4.0**	0.10	EPA 8270E	10-25-19	10-28-19	
Di-n-octylphthalate	**ND**	0.10	EPA 8270E	10-25-19	10-28-19	
Benzo[b]fluoranthene	**0.57**	0.21	EPA 8270E	10-25-19	10-28-19	
Benzo(j,k)fluoranthene	**0.21**	0.21	EPA 8270E	10-25-19	10-28-19	
Benzo[a]pyrene	**0.27**	0.21	EPA 8270E	10-25-19	10-28-19	
Indeno[1,2,3-cd]pyrene	**0.31**	0.21	EPA 8270E	10-25-19	10-28-19	
Dibenz[a,h]anthracene	**0.050**	0.041	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**0.39**	0.21	EPA 8270E	10-25-19	10-28-19	
Benzoic Acid	**ND**	1.6	EPA 8270E	10-25-19	10-28-19	U1
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***53***	***21 - 107***				
Phenol-d6	***74***	***30 - 106***				
Nitrobenzene-d5	***72***	***28 - 109***				
2-Fluorobiphenyl	***84***	***37 - 107***				
2,4,6-Tribromophenol	***89***	***39 - 116***				
Terphenyl-d14	***91***	***41 - 113***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL
page 1 of 2

Matrix: Solid
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1025S1					
n-Nitrosodimethylamine	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Pyridine	**ND**	0.20	EPA 8270E	10-25-19	10-25-19	
Phenol	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Aniline	**ND**	0.10	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethyl)ether	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2-Chlorophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
1,3-Dichlorobenzene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
1,4-Dichlorobenzene	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Benzyl alcohol	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
1,2-Dichlorobenzene	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
2-Methylphenol (o-Cresol)	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroisopropyl)ether	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
n-Nitroso-di-n-propylamine	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Hexachloroethane	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Nitrobenzene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Isophorone	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2-Nitrophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,4-Dimethylphenol	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
bis(2-Chloroethoxy)methane	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,4-Dichlorophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
1,2,4-Trichlorobenzene	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Naphthalene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
4-Chloroaniline	**ND**	0.10	EPA 8270E	10-25-19	10-25-19	
Hexachlorobutadiene	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
4-Chloro-3-methylphenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2-Methylnaphthalene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
1-Methylnaphthalene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Hexachlorocyclopentadiene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,4,6-Trichlorophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,3-Dichloroaniline	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,4,5-Trichlorophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2-Chloronaphthalene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2-Nitroaniline	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
1,4-Dinitrobenzene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Dimethylphthalate	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
1,3-Dinitrobenzene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,6-Dinitrotoluene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
1,2-Dinitrobenzene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Acenaphthylene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
3-Nitroaniline	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1025S1					
2,4-Dinitrophenol	**ND**	0.15	EPA 8270E	10-25-19	10-25-19	
Acenaphthene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
4-Nitrophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,4-Dinitrotoluene	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Dibenzofuran	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Diethylphthalate	**ND**	0.10	EPA 8270E	10-25-19	10-25-19	
4-Chlorophenyl-phenylether	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
4-Nitroaniline	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Fluorene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
4,6-Dinitro-2-methylphenol	**ND**	0.13	EPA 8270E	10-25-19	10-25-19	
n-Nitrosodiphenylamine	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
1,2-Diphenylhydrazine	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
4-Bromophenyl-phenylether	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Hexachlorobenzene	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Pentachlorophenol	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Phenanthrene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Anthracene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Carbazole	**ND**	0.020	EPA 8270E	10-25-19	10-25-19	
Di-n-butylphthalate	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Fluoranthene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Benzidine	**ND**	0.20	EPA 8270E	10-25-19	10-25-19	
Pyrene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Butylbenzylphthalate	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
bis-2-Ethylhexyladipate	**ND**	0.10	EPA 8270E	10-25-19	10-25-19	
3,3'-Dichlorobenzidine	**ND**	0.10	EPA 8270E	10-25-19	10-25-19	
Benzo[a]anthracene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Chrysene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
bis(2-Ethylhexyl)phthalate	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Di-n-octylphthalate	**ND**	0.010	EPA 8270E	10-25-19	10-25-19	
Benzo[b]fluoranthene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[a]pyrene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Indeno[1,2,3-cd]pyrene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Dibenz[a,h]anthracene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Benzo[g,h,i]perylene	**ND**	0.0040	EPA 8270E/SIM	10-25-19	10-25-19	
Benzoic Acid	**ND**	0.65	EPA 8270E	10-25-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***64***	***21 - 107***				
Phenol-d6	***77***	***30 - 106***				
Nitrobenzene-d5	***74***	***28 - 109***				
2-Fluorobiphenyl	***76***	***37 - 107***				
2,4,6-Tribromophenol	***100***	***39 - 116***				
Terphenyl-d14	***92***	***41 - 113***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL

Matrix: Solid
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1025S1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	**0.650**	**0.648**	0.800	0.800	81	81	44 - 106	0	26	
2-Chlorophenol	**0.654**	**0.666**	0.800	0.800	82	83	45 - 108	2	28	
1,4-Dichlorobenzene	**0.305**	**0.316**	0.400	0.400	76	79	40 - 109	4	31	
n-Nitroso-di-n-propylamine	**0.331**	**0.323**	0.400	0.400	83	81	47 - 108	2	24	
1,2,4-Trichlorobenzene	**0.344**	**0.339**	0.400	0.400	86	85	47 - 111	1	28	
4-Chloro-3-methylphenol	**0.786**	**0.741**	0.800	0.800	98	93	58 - 109	6	19	
Acenaphthene	**0.341**	**0.334**	0.400	0.400	85	84	54 - 105	2	19	
4-Nitrophenol	**0.912**	**0.916**	0.800	0.800	114	115	50 - 118	0	18	
2,4-Dinitrotoluene	**0.359**	**0.366**	0.400	0.400	90	92	49 - 109	2	20	
Pentachlorophenol	**0.918**	**0.896**	0.800	0.800	115	112	42 - 142	2	23	
Pyrene	**0.374**	**0.372**	0.400	0.400	94	93	57 - 110	1	16	
Surrogate:										
2-Fluorophenol					***78***	***80***	***21 - 107***			
Phenol-d6					***89***	***89***	***30 - 106***			
Nitrobenzene-d5					***87***	***85***	***28 - 109***			
2-Fluorobiphenyl					***86***	***86***	***37 - 107***			
2,4,6-Tribromophenol					***104***	***102***	***39 - 116***			
Terphenyl-d14					***92***	***96***	***41 - 113***			

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

PCBs EPA 8082A

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-3.5**					
Laboratory ID:	10-262-08					
Aroclor 1016	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Aroclor 1221	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Aroclor 1232	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Aroclor 1242	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Aroclor 1248	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Aroclor 1254	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Aroclor 1260	**ND**	0.0042	EPA 8082A	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***44***	***37-122***				
Client ID:	**S14-SED-3.0**					
Laboratory ID:	10-262-10					
Aroclor 1016	**ND**	0.073	EPA 8082A	10-24-19	10-28-19	
Aroclor 1221	**ND**	0.073	EPA 8082A	10-24-19	10-28-19	
Aroclor 1232	**ND**	0.073	EPA 8082A	10-24-19	10-28-19	
Aroclor 1242	**ND**	0.073	EPA 8082A	10-24-19	10-28-19	
Aroclor 1248	**ND**	0.073	EPA 8082A	10-24-19	10-28-19	
Aroclor 1254	**0.51**	0.073	EPA 8082A	10-24-19	10-28-19	
Aroclor 1260	**ND**	0.073	EPA 8082A	10-24-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***---***	***37-122***				S
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
Aroclor 1016	**ND**	0.49	EPA 8082A	10-24-19	10-28-19	
Aroclor 1221	**ND**	0.49	EPA 8082A	10-24-19	10-28-19	
Aroclor 1232	**ND**	0.49	EPA 8082A	10-24-19	10-28-19	
Aroclor 1242	**ND**	0.49	EPA 8082A	10-24-19	10-28-19	
Aroclor 1248	**ND**	0.49	EPA 8082A	10-24-19	10-28-19	
Aroclor 1254	**1.2**	0.49	EPA 8082A	10-24-19	10-28-19	
Aroclor 1260	**ND**	0.49	EPA 8082A	10-24-19	10-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***---***	***37-122***				S

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PCBs EPA 8082A

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-3.5**					
Laboratory ID:	10-262-15					
Aroclor 1016	**ND**	0.0055	EPA 8082A	10-24-19	10-24-19	
Aroclor 1221	**ND**	0.0055	EPA 8082A	10-24-19	10-24-19	
Aroclor 1232	**ND**	0.0055	EPA 8082A	10-24-19	10-24-19	
Aroclor 1242	**0.046**	0.0055	EPA 8082A	10-24-19	10-24-19	
Aroclor 1248	**ND**	0.0055	EPA 8082A	10-24-19	10-24-19	
Aroclor 1254	**0.012**	0.0055	EPA 8082A	10-24-19	10-24-19	
Aroclor 1260	**ND**	0.0055	EPA 8082A	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***67***	***37-122***				
Client ID:	**S16-SED-3.0**					
Laboratory ID:	10-262-18					
Aroclor 1016	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Aroclor 1221	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Aroclor 1232	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Aroclor 1242	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Aroclor 1248	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Aroclor 1254	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Aroclor 1260	**ND**	0.010	EPA 8082A	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***73***	***37-122***				
Client ID:	**S21-SED-3.5**					
Laboratory ID:	10-262-20					
Aroclor 1016	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Aroclor 1221	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Aroclor 1232	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Aroclor 1242	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Aroclor 1248	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Aroclor 1254	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Aroclor 1260	**ND**	0.0048	EPA 8082A	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***82***	***37-122***				

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PCBs EPA 8082A

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-0.33**					
Laboratory ID:	10-262-23					
Aroclor 1016	**ND**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1221	**ND**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1232	**ND**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1242	**ND**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1248	**ND**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1254	**0.020**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1260	**0.0073**	0.0071	EPA 8082A	10-24-19	10-25-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***55***	***37-122***				
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
Aroclor 1016	**ND**	0.0065	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1221	**ND**	0.0065	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1232	**ND**	0.0065	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1242	**ND**	0.013	EPA 8082A	10-24-19	10-25-19	U1,X
Aroclor 1248	**ND**	0.0065	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1254	**0.046**	0.0065	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1260	**0.016**	0.0065	EPA 8082A	10-24-19	10-25-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***47***	***37-122***				
Client ID:	**S18-SED-0.33**					
Laboratory ID:	10-262-25					
Aroclor 1016	**ND**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1221	**ND**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1232	**ND**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1242	**ND**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1248	**ND**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1254	**0.026**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1260	**0.013**	0.0070	EPA 8082A	10-24-19	10-25-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***84***	***37-122***				

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PCBs EPA 8082A

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S19-SED-0.33**					
Laboratory ID:	10-262-26					
Aroclor 1016	**ND**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1221	**ND**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1232	**ND**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1242	**ND**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1248	**ND**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1254	**0.024**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1260	**0.0092**	0.0069	EPA 8082A	10-24-19	10-25-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***84***	***37-122***				
Client ID:	**S20-SED-0.33**					
Laboratory ID:	10-262-27					
Aroclor 1016	**ND**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1221	**ND**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1232	**ND**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1242	**ND**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1248	**ND**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1254	**0.021**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1260	**0.0081**	0.0063	EPA 8082A	10-24-19	10-25-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***101***	***37-122***				
Client ID:	**S22-SED-0.33**					
Laboratory ID:	10-262-28					
Aroclor 1016	**ND**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1221	**ND**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1232	**ND**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1242	**ND**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1248	**ND**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1254	**0.041**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1260	**0.011**	0.0075	EPA 8082A	10-24-19	10-28-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***97***	***37-122***				

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PCBs EPA 8082A

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S23-SED-0.33**					
Laboratory ID:	10-262-29					
Aroclor 1016	**ND**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1221	**ND**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1232	**ND**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1242	**ND**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1248	**ND**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1254	**0.028**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1260	**0.0093**	0.0065	EPA 8082A	10-24-19	10-28-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***113***	***37-122***				
Client ID:	**SDUP-SED-0.33**					
Laboratory ID:	10-262-30					
Aroclor 1016	**ND**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1221	**ND**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1232	**ND**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1242	**ND**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1248	**ND**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1254	**0.019**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1260	**ND**	0.0063	EPA 8082A	10-24-19	10-28-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***112***	***37-122***				
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
Aroclor 1016	**ND**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1221	**ND**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1232	**ND**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1242	**ND**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1248	**ND**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1254	**0.016**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Aroclor 1260	**0.0067**	0.0055	EPA 8082A	10-24-19	10-28-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***86***	***37-122***				

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PCBs EPA 8082A
QUALITY CONTROL

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1024S1					
Aroclor 1016	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Aroclor 1221	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Aroclor 1232	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Aroclor 1242	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Aroclor 1248	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Aroclor 1254	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Aroclor 1260	**ND**	0.0027	EPA 8082A	10-24-19	10-24-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***94***	***37-122***				
Laboratory ID:	MB1024S1					
Aroclor 1016	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1221	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1232	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1242	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1248	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1254	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Aroclor 1260	**ND**	0.0027	EPA 8082A	10-24-19	10-25-19	X
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***90***	***37-122***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	10-262-08										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.0172**	**0.0173**	0.0200	0.0200	ND	**86**	**86**	38-120	1	15	
Surrogate:											
DCB						***77***	***64***	***37-122***			
SPIKE BLANK											
Laboratory ID:	SB1024S1										
Aroclor 1260	**0.0237**		0.0200		N/A	**119**		49-125	NA	NA	
Surrogate:											
DCB						***104***		***37-122***			

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Project: 0689.01.05

PCBs EPA 8082A
CONTINUING CALIBRATION SUMMARY

Lab ID	Analyte	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Column 1					
PCBCCV 1024-1	Aroclor 1016	500	497	0.60	+/- 20%
PCBCCV 1024-1	Aroclor 1260	500	496	0.80	+/- 20%
Column 2					
PCBCCV 1024-1	Aroclor 1016	500	474	5.2	+/- 20%
PCBCCV 1024-1	Aroclor 1260	500	488	2.4	+/- 20%
Column 1					
PCBCCV 1024-2	Aroclor 1016	500	472	5.6	+/- 20%
PCBCCV 1024-2	Aroclor 1260	500	457	8.6	+/- 20%
Column 2					
PCBCCV 1024-2	Aroclor 1016	500	490	2.0	+/- 20%
PCBCCV 1024-2	Aroclor 1260	500	439	12	+/- 20%
Column 1					
PCBCCV 1024-3	Aroclor 1016	500	515	-3.0	+/- 20%
PCBCCV 1024-3	Aroclor 1260	500	509	-1.8	+/- 20%
Column 2					
PCBCCV 1024-3	Aroclor 1016	500	491	1.8	+/- 20%
PCBCCV 1024-3	Aroclor 1260	500	501	-0.20	+/- 20%
Column 1					
PCBCCV 1024-4	Aroclor 1016	500	520	-4.0	+/- 20%
PCBCCV 1024-4	Aroclor 1260	500	535	-7.0	+/- 20%
Column 2					
PCBCCV 1024-4	Aroclor 1016	500	504	-0.80	+/- 20%
PCBCCV 1024-4	Aroclor 1260	500	522	-4.4	+/- 20%
Column 1					
PCBCCV 1025-1	Aroclor 1016	500	518	-3.6	+/- 20%
PCBCCV 1025-1	Aroclor 1260	500	536	-7.2	+/- 20%
Column 2					
PCBCCV 1025-1	Aroclor 1016	500	494	1.2	+/- 20%
PCBCCV 1025-1	Aroclor 1260	500	524	-4.8	+/- 20%

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PCBs EPA 8082A
CONTINUING CALIBRATION SUMMARY

Lab ID	Analyte	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Column 1					
PCBCCV 1025-2	Aroclor 1016	500	495	1.0	+/- 20%
PCBCCV 1025-2	Aroclor 1260	500	485	3.0	+/- 20%
Column 2					
PCBCCV 1025-2	Aroclor 1016	500	495	1.0	+/- 20%
PCBCCV 1025-2	Aroclor 1260	500	464	7.2	+/- 20%
Column 1					
PCBCCV 1025-6	Aroclor 1016	500	525	-5.0	+/- 20%
PCBCCV 1025-6	Aroclor 1260	500	539	-7.8	+/- 20%
Column 2					
PCBCCV 1025-6	Aroclor 1016	500	497	0.60	+/- 20%
PCBCCV 1025-6	Aroclor 1260	500	516	-3.2	+/- 20%
Column 1					
PCBCCV 1025-7	Aroclor 1016	500	524	-4.8	+/- 20%
PCBCCV 1025-7	Aroclor 1260	500	489	2.2	+/- 20%
Column 2					
PCBCCV 1025-7	Aroclor 1016	500	505	-1.0	+/- 20%
PCBCCV 1025-7	Aroclor 1260	500	468	6.4	+/- 20%
Column 1					
PCBCCV 1028-1	Aroclor 1016	500	528	-5.6	+/- 20%
PCBCCV 1028-1	Aroclor 1260	500	504	-0.80	+/- 20%
Column 2					
PCBCCV 1028-1	Aroclor 1016	500	509	-1.8	+/- 20%
PCBCCV 1028-1	Aroclor 1260	500	491	1.8	+/- 20%
Column 1					
PCBCCV 1028-2	Aroclor 1016	500	506	-1.2	+/- 20%
PCBCCV 1028-2	Aroclor 1260	500	474	5.2	+/- 20%
Column 2					
PCBCCV 1028-2	Aroclor 1016	500	492	1.6	+/- 20%
PCBCCV 1028-2	Aroclor 1260	500	460	8.0	+/- 20%

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GM11-S-3.0**					
Laboratory ID:	10-262-01					
Arsenic	**29**	3.1	EPA 6020B	10-25-19	10-25-19	
Cadmium	**ND**	1.2	EPA 6020B	10-25-19	10-25-19	
Chromium	**61**	12	EPA 6020B	10-24-19	10-25-19	
Lead	**9.3**	3.1	EPA 6020B	10-25-19	10-25-19	
Mercury	**ND**	0.25	EPA 7471B	10-25-19	10-25-19	
Nickel	**59**	12	EPA 6020B	10-25-19	10-25-19	
Zinc	**76**	12	EPA 6020B	10-25-19	10-25-19	
Client ID:	**GM12-S-2.0**					
Laboratory ID:	10-262-02					
Arsenic	**12**	2.2	EPA 6020B	10-25-19	10-25-19	
Cadmium	**ND**	0.87	EPA 6020B	10-25-19	10-25-19	
Chromium	**58**	8.7	EPA 6020B	10-24-19	10-25-19	
Lead	**7.0**	2.2	EPA 6020B	10-25-19	10-25-19	
Mercury	**ND**	0.17	EPA 7471B	10-25-19	10-25-19	
Nickel	**50**	8.7	EPA 6020B	10-25-19	10-25-19	
Zinc	**72**	8.7	EPA 6020B	10-25-19	10-25-19	
Client ID:	**GM13-S-7.5**					
Laboratory ID:	10-262-03					
Arsenic	**27**	2.9	EPA 6020B	10-25-19	10-25-19	
Cadmium	**ND**	1.1	EPA 6020B	10-25-19	10-25-19	
Chromium	**54**	11	EPA 6020B	10-24-19	10-25-19	
Lead	**9.1**	2.9	EPA 6020B	10-25-19	10-25-19	
Mercury	**ND**	0.23	EPA 7471B	10-25-19	10-25-19	
Nickel	**49**	11	EPA 6020B	10-25-19	10-25-19	
Zinc	**74**	11	EPA 6020B	10-25-19	10-25-19	

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GM14-S-12.0**					
Laboratory ID:	10-262-04					
Arsenic	**14**	2.2	EPA 6020B	10-25-19	10-25-19	
Cadmium	**ND**	0.86	EPA 6020B	10-25-19	10-25-19	
Chromium	**44**	8.6	EPA 6020B	10-24-19	10-25-19	
Lead	**6.1**	2.2	EPA 6020B	10-25-19	10-25-19	
Mercury	**ND**	0.17	EPA 7471B	10-25-19	10-25-19	
Nickel	**47**	8.6	EPA 6020B	10-25-19	10-25-19	
Zinc	**69**	8.6	EPA 6020B	10-25-19	10-25-19	
Client ID:	**GM15-S-1.5**					
Laboratory ID:	10-262-05					
Arsenic	**25**	2.0	EPA 6020B	10-25-19	10-25-19	
Cadmium	**2.3**	0.79	EPA 6020B	10-25-19	10-25-19	
Chromium	**59**	7.9	EPA 6020B	10-24-19	10-25-19	
Lead	**1800**	50	EPA 6020B	10-25-19	10-25-19	
Mercury	**3.9**	0.79	EPA 7471B	10-25-19	10-25-19	
Nickel	**40**	7.9	EPA 6020B	10-25-19	10-25-19	
Zinc	**1400**	200	EPA 6020B	10-25-19	10-25-19	
Client ID:	**GM16-S-2.5**					
Laboratory ID:	10-262-06					
Arsenic	**23**	2.7	EPA 6020B	10-25-19	10-25-19	
Cadmium	**ND**	1.1	EPA 6020B	10-25-19	10-25-19	
Chromium	**42**	11	EPA 6020B	10-24-19	10-25-19	
Lead	**1400**	11	EPA 6020B	10-25-19	10-25-19	
Mercury	**ND**	0.21	EPA 7471B	10-25-19	10-25-19	
Nickel	**35**	11	EPA 6020B	10-25-19	10-25-19	
Zinc	**98**	11	EPA 6020B	10-25-19	10-25-19	

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TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1025SM4					
Arsenic	**ND**	0.63	EPA 6020B	10-25-19	10-25-19	
Cadmium	**ND**	0.25	EPA 6020B	10-25-19	10-25-19	
Lead	**ND**	2.5	EPA 6020B	10-25-19	10-25-19	
Nickel	**ND**	2.5	EPA 6020B	10-25-19	10-25-19	
Zinc	**ND**	2.5	EPA 6020B	10-25-19	10-25-19	
Laboratory ID:	MB1025S1					
Mercury	**ND**	0.10	EPA 7471B	10-25-19	10-25-19	
Laboratory ID:	MB1024SM1					
Chromium	**ND**	2.5	EPA 6020B	10-24-19	10-25-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	10-262-05									
	ORIG	DUP								
Arsenic	**15.8**	**14.4**	NA	NA		NA	NA	9	20	
Cadmium	**1.46**	**2.34**	NA	NA		NA	NA	46	20	C
Lead	**1140**	**2970**	NA	NA		NA	NA	89	20	K
Nickel	**25.3**	**25.5**	NA	NA		NA	NA	1	20	
Zinc	**906**	**1640**	NA	NA		NA	NA	58	20	K
Laboratory ID:	10-262-01									
Mercury	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Laboratory ID:	10-262-05									
	ORIG	DUP								
Chromium	**37.0**	**38.0**	NA	NA		NA	NA	3	20	

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TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	10-262-05										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**93.3**	**114**	100	100	15.8	**78**	**98**	75-125	20	20	
Cadmium	**41.5**	**45.3**	50.0	50.0	1.46	**80**	**88**	75-125	9	20	
Lead	**2350**	**2710**	250	250	1140	**485**	**628**	75-125	14	20	
Nickel	**109**	**118**	100	100	25.3	**83**	**92**	75-125	8	20	
Zinc	**1340**	**1310**	100	100	906	**438**	**406**	75-125	2	20	
Laboratory ID:	10-262-01										
Mercury	**0.454**	**0.468**	0.500	0.500	0.0369	**83**	**86**	80-120	3	20	
Laboratory ID:	10-262-05										
	MS	MSD	MS	MSD		MS	MSD				
Chromium	**130**	**132**	100	100	37.0	**93**	**95**	75-125	2	20	
SPIKE BLANK											
Laboratory ID:	SB1025SM4										
Arsenic	**90.0**		100		N/A	**90**		80-120			
Cadmium	**45.3**		50.0		N/A	**91**		80-120			
Lead	**244**		250		N/A	**98**		80-120			
Nickel	**97.3**		100		N/A	**97**		80-120			
Zinc	**91.3**		100		N/A	**91**		80-120			
Laboratory ID:	SB1025S1										
Mercury	**0.508**		0.500		N/A	**102**		80-120			
Laboratory ID:	SB1025S1										
Chromium	**93.8**		100		N/A	**94**		80-120			

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TOTAL METALS
EPA 6020B/7471B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV102519X	0.0500	0.0487	2.6	+/- 10%
Cadmium	ICV102519X	0.0500	0.0479	4.2	+/- 10%
Chromium	ICV102519X	0.0500	0.0509	-1.8	+/- 10%
Lead	ICV102519X	0.0500	0.0509	-1.8	+/- 10%
Mercury	ICV102519Y	0.00500	0.00476	4.8	+/- 10%
Nickel	ICV102519X	0.0500	0.0504	-0.80	+/- 10%
Zinc	ICV102519X	0.0500	0.0491	1.8	+/- 10%
Arsenic	LLV102819X	0.000500	0.000469	6.2	+/- 20%
Cadmium	LLV102819X	0.000200	0.000168	16	+/- 20%
Chromium	LLV102819X	0.00200	0.00211	-5.5	+/- 20%
Lead	LLV102819X	0.000500	0.000505	-1.0	+/- 20%
Nickel	LLV102819X	0.00200	0.00201	-0.50	+/- 20%
Zinc	LLV102819X	0.00200	0.00196	2.0	+/- 20%
Arsenic	CCV1102519X	0.0400	0.0409	-2.3	+/- 10%
Cadmium	CCV1102519X	0.0400	0.0407	-1.8	+/- 10%
Chromium	CCV1102519X	0.0400	0.0403	-0.75	+/- 10%
Lead	CCV1102519X	0.0400	0.0413	-3.3	+/- 10%
Mercury	CCV1102519Y	0.00500	0.00514	-2.8	+/- 20%
Nickel	CCV1102519X	0.0400	0.0413	-3.3	+/- 10%
Zinc	CCV1102519X	0.0400	0.0402	-0.50	+/- 10%
Arsenic	CCV2102519X	0.0400	0.0411	-2.7	+/- 10%
Cadmium	CCV2102519X	0.0400	0.0407	-1.8	+/- 10%
Chromium	CCV2102519X	0.0400	0.0396	1.0	+/- 10%
Lead	CCV2102519X	0.0400	0.0417	-4.3	+/- 10%
Mercury	CCV2102519Y	0.00500	0.00508	-1.6	+/- 20%
Nickel	CCV2102519X	0.0400	0.0405	-1.3	+/- 10%
Zinc	CCV2102519X	0.0400	0.0404	-1.0	+/- 10%
Arsenic	CCV3102519X	0.0400	0.0409	-2.3	+/- 10%
Cadmium	CCV3102519X	0.0400	0.0399	0.25	+/- 10%
Chromium	CCV3102519X	0.0400	0.0387	3.3	+/- 10%
Lead	CCV3102519X	0.0400	0.0418	-4.5	+/- 10%
Mercury	CCV3102519Y	0.00500	0.00509	-1.8	+/- 20%
Nickel	CCV3102519X	0.0400	0.0414	-3.5	+/- 10%
Zinc	CCV3102519X	0.0400	0.0402	-0.50	+/- 10%

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EPA 6020B/7471B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	CCV4102519X	0.0400	0.0401	-0.25	+/- 10%
Cadmium	CCV4102519X	0.0400	0.0391	2.3	+/- 10%
Chromium	CCV4102519X	0.0400	0.0382	4.5	+/- 10%
Lead	CCV4102519X	0.0400	0.0416	-4.0	+/- 10%
Mercury	CCV4102519Y	0.00500	0.00510	-2.0	+/- 20%
Nickel	CCV4102519X	0.0400	0.0407	-1.8	+/- 10%
Zinc	CCV4102519X	0.0400	0.0392	2.0	+/- 10%
Arsenic	CCV5102519X	0.0400	0.0388	3.0	+/- 10%
Cadmium	CCV5102519X	0.0400	0.0392	2.0	+/- 10%
Chromium	CCV5102519X	0.0400	0.0373	6.8	+/- 10%
Lead	CCV5102519X	0.0400	0.0421	-5.2	+/- 10%
Mercury	CCV5102519Y	0.00500	0.00508	-1.6	+/- 20%
Nickel	CCV5102519X	0.0400	0.0412	-3.0	+/- 10%
Zinc	CCV5102519X	0.0400	0.0389	2.8	+/- 10%
Arsenic	CCV6102519X	0.0400	0.0407	-1.8	+/- 10%
Cadmium	CCV6102519X	0.0400	0.0399	0.25	+/- 10%
Chromium	CCV6102519X	0.0400	0.0373	6.8	+/- 10%
Lead	CCV6102519X	0.0400	0.0421	-5.2	+/- 10%
Mercury	CCV6102519Y	0.00500	0.00505	-1.0	+/- 20%
Nickel	CCV6102519X	0.0400	0.0417	-4.3	+/- 10%
Zinc	CCV6102519X	0.0400	0.0392	2.0	+/- 10%
Arsenic	CCV7102519X	0.0400	0.0396	1.0	+/- 10%
Cadmium	CCV7102519X	0.0400	0.0391	2.3	+/- 10%
Chromium	CCV7102519X	0.0400	0.0367	8.2	+/- 10%
Lead	CCV7102519X	0.0400	0.0422	-5.5	+/- 10%
Mercury	CCV7102519Y	0.00500	0.00518	-3.6	+/- 20%
Nickel	CCV7102519X	0.0400	0.0408	-2.0	+/- 10%
Zinc	CCV7102519X	0.0400	0.0384	4.0	+/- 10%
Arsenic	CCV8102519X	0.0400	0.0407	-1.8	+/- 10%
Cadmium	CCV8102519X	0.0400	0.0391	2.3	+/- 10%
Chromium	CCV8102519X	0.0400	0.0366	8.5	+/- 10%
Lead	CCV8102519X	0.0400	0.0423	-5.7	+/- 10%
Mercury	CCV8102519Y	0.00500	0.00521	-4.2	+/- 20%
Nickel	CCV8102519X	0.0400	0.0410	-2.5	+/- 10%
Zinc	CCV8102519X	0.0400	0.0382	4.5	+/- 10%

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TOTAL METALS
EPA 6020B/7471B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	CCV9102519X	0.0400	0.0423	-5.7	+/- 10%
Cadmium	CCV9102519X	0.0400	0.0395	1.3	+/- 10%
Chromium	CCV9102519X	0.0400	0.0373	6.8	+/- 10%
Lead	CCV9102519X	0.0400	0.0425	-6.3	+/- 10%
Nickel	CCV9102519X	0.0400	0.0418	-4.5	+/- 10%
Zinc	CCV9102519X	0.0400	0.0389	2.8	+/- 10%

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-3.5**					
Laboratory ID:	10-262-08					
Arsenic	**11**	3.9	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.78	EPA 6020B	10-24-19	10-25-19	
Chromium	**47**	7.8	EPA 6020B	10-24-19	10-25-19	
Lead	**7.1**	2.0	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.18**	0.16	EPA 7471B	10-25-19	10-25-19	
Nickel	**42**	7.8	EPA 6020B	10-24-19	10-25-19	
Zinc	**61**	7.8	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S14-SED-3.0**					
Laboratory ID:	10-262-10					
Arsenic	**9.8**	3.4	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.68	EPA 6020B	10-24-19	10-25-19	
Chromium	**47**	6.8	EPA 6020B	10-24-19	10-25-19	
Lead	**150**	1.7	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.14	EPA 7471B	10-25-19	10-25-19	
Nickel	**36**	6.8	EPA 6020B	10-24-19	10-25-19	
Zinc	**100**	6.8	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
Arsenic	**22**	4.6	EPA 6020B	10-24-19	10-25-19	
Cadmium	**1.2**	0.93	EPA 6020B	10-24-19	10-25-19	
Chromium	**67**	9.3	EPA 6020B	10-24-19	10-25-19	
Lead	**730**	4.6	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.25**	0.19	EPA 7471B	10-25-19	10-25-19	
Nickel	**48**	9.3	EPA 6020B	10-24-19	10-25-19	
Zinc	**260**	9.3	EPA 6020B	10-24-19	10-25-19	

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-3.5**					
Laboratory ID:	10-262-15					
Arsenic	**18**	5.1	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	1.0	EPA 6020B	10-24-19	10-25-19	
Chromium	**62**	10	EPA 6020B	10-24-19	10-25-19	
Lead	**17**	2.6	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.20	EPA 7471B	10-25-19	10-25-19	
Nickel	**54**	10	EPA 6020B	10-24-19	10-25-19	
Zinc	**87**	10	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S16-SED-3.0**					
Laboratory ID:	10-262-18					
Arsenic	**18**	9.3	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	1.9	EPA 6020B	10-24-19	10-25-19	
Chromium	**47**	19	EPA 6020B	10-24-19	10-25-19	
Lead	**18**	4.6	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.37	EPA 7471B	10-25-19	10-25-19	
Nickel	**48**	19	EPA 6020B	10-24-19	10-25-19	
Zinc	**82**	19	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S21-SED-3.5**					
Laboratory ID:	10-262-20					
Arsenic	**12**	4.5	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.91	EPA 6020B	10-24-19	10-25-19	
Chromium	**54**	9.1	EPA 6020B	10-24-19	10-25-19	
Lead	**8.4**	2.3	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.18	EPA 7471B	10-25-19	10-25-19	
Nickel	**50**	9.1	EPA 6020B	10-24-19	10-25-19	
Zinc	**72**	9.1	EPA 6020B	10-24-19	10-25-19	

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-0.33**					
Laboratory ID:	10-262-23					
Arsenic	**14**	2.6	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.51	EPA 6020B	10-24-19	10-25-19	
Chromium	**54**	5.1	EPA 6020B	10-24-19	10-25-19	
Lead	**44**	1.3	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.12**	0.10	EPA 7471B	10-25-19	10-25-19	
Nickel	**49**	5.1	EPA 6020B	10-24-19	10-25-19	
Zinc	**220**	5.1	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
Arsenic	**12**	2.8	EPA 6020B	10-24-19	10-25-19	
Cadmium	**1.2**	0.56	EPA 6020B	10-24-19	10-25-19	
Chromium	**55**	5.6	EPA 6020B	10-24-19	10-25-19	
Lead	**120**	1.4	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.14**	0.11	EPA 7471B	10-25-19	10-25-19	
Nickel	**49**	5.6	EPA 6020B	10-24-19	10-25-19	
Zinc	**340**	11	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S18-SED-0.33**					
Laboratory ID:	10-262-25					
Arsenic	**15**	2.6	EPA 6020B	10-24-19	10-25-19	
Cadmium	**0.90**	0.52	EPA 6020B	10-24-19	10-25-19	
Chromium	**61**	5.2	EPA 6020B	10-24-19	10-25-19	
Lead	**64**	1.3	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.16**	0.10	EPA 7471B	10-25-19	10-25-19	
Nickel	**55**	5.2	EPA 6020B	10-24-19	10-25-19	
Zinc	**260**	5.2	EPA 6020B	10-24-19	10-25-19	

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S19-SED-0.33**					
Laboratory ID:	10-262-26					
Arsenic	**13**	2.8	EPA 6020B	10-24-19	10-25-19	
Cadmium	**0.71**	0.55	EPA 6020B	10-24-19	10-25-19	
Chromium	**51**	5.5	EPA 6020B	10-24-19	10-25-19	
Lead	**54**	1.4	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.13**	0.11	EPA 7471B	10-25-19	10-25-19	
Nickel	**47**	5.5	EPA 6020B	10-24-19	10-25-19	
Zinc	**230**	5.5	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S20-SED-0.33**					
Laboratory ID:	10-262-27					
Arsenic	**13**	2.6	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.51	EPA 6020B	10-24-19	10-25-19	
Chromium	**51**	5.1	EPA 6020B	10-24-19	10-25-19	
Lead	**34**	1.3	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.10	EPA 7471B	10-25-19	10-25-19	
Nickel	**46**	5.1	EPA 6020B	10-24-19	10-25-19	
Zinc	**170**	5.1	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S22-SED-0.33**					
Laboratory ID:	10-262-28					
Arsenic	**15**	2.8	EPA 6020B	10-24-19	10-25-19	
Cadmium	**0.89**	0.55	EPA 6020B	10-24-19	10-25-19	
Chromium	**61**	5.5	EPA 6020B	10-24-19	10-25-19	
Lead	**55**	1.4	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.11	EPA 7471B	10-25-19	10-25-19	
Nickel	**56**	5.5	EPA 6020B	10-24-19	10-25-19	
Zinc	**320**	11	EPA 6020B	10-24-19	10-25-19	

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TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S23-SED-0.33**					
Laboratory ID:	10-262-29					
Arsenic	**15**	2.6	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.51	EPA 6020B	10-24-19	10-25-19	
Chromium	**53**	5.1	EPA 6020B	10-24-19	10-25-19	
Lead	**42**	1.3	EPA 6020B	10-24-19	10-25-19	
Mercury	**0.11**	0.10	EPA 7471B	10-25-19	10-25-19	
Nickel	**49**	5.1	EPA 6020B	10-24-19	10-25-19	
Zinc	**190**	5.1	EPA 6020B	10-24-19	10-25-19	
Client ID:	**SDUP-SED-0.33**					
Laboratory ID:	10-262-30					
Arsenic	**12**	2.5	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.51	EPA 6020B	10-24-19	10-25-19	
Chromium	**45**	5.1	EPA 6020B	10-24-19	10-25-19	
Lead	**32**	1.3	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.10	EPA 7471B	10-25-19	10-25-19	
Nickel	**41**	5.1	EPA 6020B	10-24-19	10-25-19	
Zinc	**160**	5.1	EPA 6020B	10-24-19	10-25-19	
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
Arsenic	**19**	5.2	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	1.0	EPA 6020B	10-24-19	10-25-19	
Chromium	**60**	10	EPA 6020B	10-24-19	10-25-19	
Lead	**59**	2.6	EPA 6020B	10-24-19	10-25-19	
Mercury	**ND**	0.21	EPA 7471B	10-25-19	10-25-19	
Nickel	**55**	10	EPA 6020B	10-24-19	10-25-19	
Zinc	**200**	10	EPA 6020B	10-24-19	10-25-19	

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Project: 0689.01.05

TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1024SM2					
Arsenic	**ND**	1.3	EPA 6020B	10-24-19	10-25-19	
Cadmium	**ND**	0.25	EPA 6020B	10-24-19	10-25-19	
Chromium	**ND**	2.5	EPA 6020B	10-24-19	10-25-19	
Lead	**ND**	2.5	EPA 6020B	10-24-19	10-25-19	
Nickel	**ND**	2.5	EPA 6020B	10-24-19	10-25-19	
Zinc	**ND**	2.5	EPA 6020B	10-24-19	10-25-19	
Laboratory ID:	MB1025S2					
Mercury	**ND**	0.10	EPA 7471B	10-25-19	10-25-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	10-262-10									
	ORIG	DUP								
Arsenic	**7.15**	**7.70**	NA	NA		NA	NA	7	20	
Cadmium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Chromium	**34.3**	**35.0**	NA	NA		NA	NA	2	20	
Lead	**107**	**94.0**	NA	NA		NA	NA	12	20	
Nickel	**26.5**	**28.5**	NA	NA		NA	NA	7	20	
Zinc	**76.3**	**72.0**	NA	NA		NA	NA	6	20	
Laboratory ID:	10-262-10									
Mercury	**ND**	**ND**	NA	NA		NA	NA	NA	20	

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TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	10-262-05										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**93.3**	**114**	100	100	15.8	**78**	**98**	75-125	20	20	
Cadmium	**41.5**	**45.3**	50.0	50.0	1.46	**80**	**88**	75-125	9	20	
Lead	**2350**	**2710**	250	250	1140	**485**	**628**	75-125	14	20	
Nickel	**109**	**118**	100	100	25.3	**83**	**92**	75-125	8	20	
Zinc	**1340**	**1310**	100	100	906	**438**	**406**	75-125	2	20	
Laboratory ID:	10-262-01										
Mercury	**0.454**	**0.468**	0.500	0.500	0.0369	**83**	**86**	80-120	3	20	
Laboratory ID:	10-262-05										
	MS	MSD	MS	MSD		MS	MSD				
Chromium	**130**	**132**	100	100	37.0	**93**	**95**	75-125	2	20	
SPIKE BLANK											
Laboratory ID:	SB1025SM4										
Arsenic	**90.0**		100		N/A	**90**		80-120			
Cadmium	**45.3**		50.0		N/A	**91**		80-120			
Lead	**244**		250		N/A	**98**		80-120			
Nickel	**97.3**		100		N/A	**97**		80-120			
Zinc	**91.3**		100		N/A	**91**		80-120			
Laboratory ID:	SB1025S1										
Mercury	**0.508**		0.500		N/A	**102**		80-120			
Laboratory ID:	SB1025S1										
Chromium	**93.8**		100		N/A	**94**		80-120			

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TOTAL METALS
EPA 6020B/7471B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV102519X	0.0500	0.0487	2.6	+/- 10%
Cadmium	ICV102519X	0.0500	0.0479	4.2	+/- 10%
Chromium	ICV102519X	0.0500	0.0509	-1.8	+/- 10%
Lead	ICV102519X	0.0500	0.0509	-1.8	+/- 10%
Mercury	ICV102519Y	0.00500	0.00476	4.8	+/- 10%
Nickel	ICV102519X	0.0500	0.0504	-0.80	+/- 10%
Zinc	ICV102519X	0.0500	0.0491	1.8	+/- 10%
Arsenic	LLV102819X	0.000500	0.000469	6.2	+/- 20%
Cadmium	LLV102819X	0.000200	0.000168	16	+/- 20%
Chromium	LLV102819X	0.00200	0.00211	-5.5	+/- 20%
Lead	LLV102819X	0.000500	0.000505	-1.0	+/- 20%
Nickel	LLV102819X	0.00200	0.00201	-0.50	+/- 20%
Zinc	LLV102819X	0.00200	0.00196	2.0	+/- 20%
Arsenic	CCV1102519X	0.0400	0.0409	-2.3	+/- 10%
Cadmium	CCV1102519X	0.0400	0.0407	-1.8	+/- 10%
Chromium	CCV1102519X	0.0400	0.0403	-0.75	+/- 10%
Lead	CCV1102519X	0.0400	0.0413	-3.3	+/- 10%
Mercury	CCV1102519Y	0.00500	0.00514	-2.8	+/- 20%
Nickel	CCV1102519X	0.0400	0.0413	-3.3	+/- 10%
Zinc	CCV1102519X	0.0400	0.0402	-0.50	+/- 10%
Arsenic	CCV2102519X	0.0400	0.0411	-2.7	+/- 10%
Cadmium	CCV2102519X	0.0400	0.0407	-1.8	+/- 10%
Chromium	CCV2102519X	0.0400	0.0396	1.0	+/- 10%
Lead	CCV2102519X	0.0400	0.0417	-4.3	+/- 10%
Mercury	CCV2102519Y	0.00500	0.00508	-1.6	+/- 20%
Nickel	CCV2102519X	0.0400	0.0405	-1.3	+/- 10%
Zinc	CCV2102519X	0.0400	0.0404	-1.0	+/- 10%
Arsenic	CCV3102519X	0.0400	0.0409	-2.3	+/- 10%
Cadmium	CCV3102519X	0.0400	0.0399	0.25	+/- 10%
Chromium	CCV3102519X	0.0400	0.0387	3.3	+/- 10%
Lead	CCV3102519X	0.0400	0.0418	-4.5	+/- 10%
Mercury	CCV3102519Y	0.00500	0.00509	-1.8	+/- 20%
Nickel	CCV3102519X	0.0400	0.0414	-3.5	+/- 10%
Zinc	CCV3102519X	0.0400	0.0402	-0.50	+/- 10%

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TOTAL METALS
EPA 6020B/7471B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	CCV4102519X	0.0400	0.0401	-0.25	+/- 10%
Cadmium	CCV4102519X	0.0400	0.0391	2.3	+/- 10%
Chromium	CCV4102519X	0.0400	0.0382	4.5	+/- 10%
Lead	CCV4102519X	0.0400	0.0416	-4.0	+/- 10%
Mercury	CCV4102519Y	0.00500	0.00510	-2.0	+/- 20%
Nickel	CCV4102519X	0.0400	0.0407	-1.8	+/- 10%
Zinc	CCV4102519X	0.0400	0.0392	2.0	+/- 10%
Arsenic	CCV5102519X	0.0400	0.0388	3.0	+/- 10%
Cadmium	CCV5102519X	0.0400	0.0392	2.0	+/- 10%
Chromium	CCV5102519X	0.0400	0.0373	6.8	+/- 10%
Lead	CCV5102519X	0.0400	0.0421	-5.2	+/- 10%
Mercury	CCV5102519Y	0.00500	0.00508	-1.6	+/- 20%
Nickel	CCV5102519X	0.0400	0.0412	-3.0	+/- 10%
Zinc	CCV5102519X	0.0400	0.0389	2.8	+/- 10%
Arsenic	CCV6102519X	0.0400	0.0407	-1.8	+/- 10%
Cadmium	CCV6102519X	0.0400	0.0399	0.25	+/- 10%
Chromium	CCV6102519X	0.0400	0.0373	6.8	+/- 10%
Lead	CCV6102519X	0.0400	0.0421	-5.2	+/- 10%
Mercury	CCV6102519Y	0.00500	0.00505	-1.0	+/- 20%
Nickel	CCV6102519X	0.0400	0.0417	-4.3	+/- 10%
Zinc	CCV6102519X	0.0400	0.0392	2.0	+/- 10%
Mercury	CCV7102519Y	0.00500	0.00518	-3.6	+/- 20%
Mercury	CCV8102519Y	0.00500	0.00521	-4.2	+/- 20%

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Laboratory Reference: 1910-262
Project: 0689.01.05

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:	**S15-SED-5.5**					
Laboratory ID:	10-262-13					
Diesel Range Organics	**ND**	25	NWTPH-Dx	10-31-19	11-1-19	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	10-31-19	11-1-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***84***	***50-150***				

Date of Report: November 12, 2019
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Laboratory Reference: 1910-262
Project: 0689.01.05

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:	MB1031S3					
Diesel Range Organics	**ND**	25	NWTPH-Dx	10-31-19	11-1-19	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	10-31-19	11-1-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***93***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	SB1031S3									
	ORIG	DUP								
Diesel Fuel #2	**71.1**	**69.5**	NA	NA		NA	NA	2	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						***96*** ***95***	***50-150***			
SPIKE BLANK										
Laboratory ID:	SB1031S3									
Diesel Fuel #2	**71.1**		80.0		NA	**89**	68-137	NA	NA	
Surrogate:										
o-Terphenyl						***96***	***50-150***			

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
CCV1101F-V1	100	99.8	0.2	+/-15%
CCV1101F-V2	100	98.6	1.4	+/-15%
CCV1101R-V1	100	89.4	10.6	+/-15%
CCV1101R-V2	100	89.3	10.7	+/-15%

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SEMIVOLATILE ORGANICS EPA 8270E/SIM
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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-1.5**					
Laboratory ID:	10-262-07					
n-Nitrosodimethylamine	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Pyridine	**ND**	0.38	EPA 8270E	10-31-19	11-4-19	
Phenol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Aniline	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethyl)ether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Chlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,3-Dichlorobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,4-Dichlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Benzyl alcohol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
1,2-Dichlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
2-Methylphenol (o-Cresol)	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroisopropyl)ether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
n-Nitroso-di-n-propylamine	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Hexachloroethane	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Nitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Isophorone	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Nitrophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4-Dimethylphenol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethoxy)methane	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4-Dichlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,2,4-Trichlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Naphthalene	**0.011**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
4-Chloroaniline	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Hexachlorobutadiene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
4-Chloro-3-methylphenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Methylnaphthalene	**ND**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
1-Methylnaphthalene	**ND**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
Hexachlorocyclopentadiene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4,6-Trichlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,3-Dichloroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4,5-Trichlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Chloronaphthalene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Nitroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,4-Dinitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Dimethylphthalate	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,3-Dinitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,6-Dinitrotoluene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,2-Dinitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Acenaphthylene	**0.011**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
3-Nitroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-1.5**					
Laboratory ID:	10-262-07					
2,4-Dinitrophenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Acenaphthene	**ND**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
4-Nitrophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4-Dinitrotoluene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Dibenzofuran	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Diethylphthalate	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
4-Chlorophenyl-phenylether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
4-Nitroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Fluorene	**0.012**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
4,6-Dinitro-2-methylphenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
n-Nitrosodiphenylamine	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
1,2-Diphenylhydrazine	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
4-Bromophenyl-phenylether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Hexachlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Pentachlorophenol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Phenanthrene	**0.052**	0.038	EPA 8270E	10-31-19	11-4-19	
Anthracene	**0.022**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
Carbazole	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Di-n-butylphthalate	**0.051**	0.019	EPA 8270E	10-31-19	11-4-19	
Fluoranthene	**0.22**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzidine	**ND**	0.38	EPA 8270E	10-31-19	11-4-19	
Pyrene	**0.24**	0.038	EPA 8270E	10-31-19	11-4-19	
Butylbenzylphthalate	**0.13**	0.019	EPA 8270E	10-31-19	11-4-19	
bis-2-Ethylhexyladipate	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
3,3'-Dichlorobenzidine	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Benzo[a]anthracene	**0.083**	0.038	EPA 8270E	10-31-19	11-4-19	
Chrysene	**0.11**	0.038	EPA 8270E	10-31-19	11-4-19	
bis(2-Ethylhexyl)phthalate	**0.98**	0.019	EPA 8270E	10-31-19	11-4-19	
Di-n-octylphthalate	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Benzo[b]fluoranthene	**0.18**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzo(j,k)fluoranthene	**0.059**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzo[a]pyrene	**0.10**	0.038	EPA 8270E	10-31-19	11-4-19	
Indeno[1,2,3-cd]pyrene	**0.087**	0.038	EPA 8270E	10-31-19	11-4-19	
Dibenz[a,h]anthracene	**0.014**	0.0077	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[g,h,i]perylene	**0.11**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzoic Acid	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***18***	***21 - 107***				Q
Phenol-d6	***29***	***30 - 106***				Q
Nitrobenzene-d5	***29***	***28 - 109***				
2-Fluorobiphenyl	***42***	***37 - 107***				
2,4,6-Tribromophenol	***50***	***39 - 116***				
Terphenyl-d14	***49***	***41 - 113***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S15-SED-5.5**					
Laboratory ID:	10-262-13					
n-Nitrosodimethylamine	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Pyridine	**ND**	0.25	EPA 8270E	10-31-19	11-4-19	
Phenol	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Aniline	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethyl)ether	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2-Chlorophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
1,3-Dichlorobenzene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
1,4-Dichlorobenzene	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Benzyl alcohol	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
1,2-Dichlorobenzene	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
2-Methylphenol (o-Cresol)	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroisopropyl)ether	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
n-Nitroso-di-n-propylamine	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Hexachloroethane	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Nitrobenzene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Isophorone	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2-Nitrophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,4-Dimethylphenol	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethoxy)methane	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,4-Dichlorophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
1,2,4-Trichlorobenzene	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Naphthalene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
4-Chloroaniline	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
Hexachlorobutadiene	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
4-Chloro-3-methylphenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2-Methylnaphthalene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
1-Methylnaphthalene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Hexachlorocyclopentadiene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,4,6-Trichlorophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,3-Dichloroaniline	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,4,5-Trichlorophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2-Chloronaphthalene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2-Nitroaniline	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
1,4-Dinitrobenzene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Dimethylphthalate	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
1,3-Dinitrobenzene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,6-Dinitrotoluene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
1,2-Dinitrobenzene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Acenaphthylene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
3-Nitroaniline	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	

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Project: 0689.01.05

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S15-SED-5.5**					
Laboratory ID:	10-262-13					
2,4-Dinitrophenol	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
Acenaphthene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
4-Nitrophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,4-Dinitrotoluene	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Dibenzofuran	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Diethylphthalate	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
4-Chlorophenyl-phenylether	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
4-Nitroaniline	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Fluorene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
4,6-Dinitro-2-methylphenol	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
n-Nitrosodiphenylamine	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
1,2-Diphenylhydrazine	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
4-Bromophenyl-phenylether	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Hexachlorobenzene	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Pentachlorophenol	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Phenanthrene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Anthracene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Carbazole	**ND**	0.025	EPA 8270E	10-31-19	11-4-19	
Di-n-butylphthalate	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Fluoranthene	**0.0078**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Benzidine	**ND**	0.25	EPA 8270E	10-31-19	11-4-19	
Pyrene	**0.0071**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Butylbenzylphthalate	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
bis-2-Ethylhexyladipate	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
3,3'-Dichlorobenzidine	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
Benzo[a]anthracene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Chrysene	**0.0050**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
bis(2-Ethylhexyl)phthalate	**0.081**	0.012	EPA 8270E	10-31-19	11-4-19	
Di-n-octylphthalate	**ND**	0.012	EPA 8270E	10-31-19	11-4-19	
Benzo[b]fluoranthene	**0.0061**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[a]pyrene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Indeno[1,2,3-cd]pyrene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Dibenz[a,h]anthracene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[g,h,i]perylene	**ND**	0.0049	EPA 8270E/SIM	10-31-19	11-1-19	
Benzoic Acid	**ND**	0.12	EPA 8270E	10-31-19	11-4-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***45***	***21 - 107***				
Phenol-d6	***60***	***30 - 106***				
Nitrobenzene-d5	***55***	***28 - 109***				
2-Fluorobiphenyl	***66***	***37 - 107***				
2,4,6-Tribromophenol	***79***	***39 - 116***				
Terphenyl-d14	***77***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-1.5**					
Laboratory ID:	10-262-14					
n-Nitrosodimethylamine	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Pyridine	**ND**	3.3	EPA 8270E	10-31-19	11-4-19	
Phenol	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Aniline	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethyl)ether	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2-Chlorophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
1,3-Dichlorobenzene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
1,4-Dichlorobenzene	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Benzyl alcohol	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
1,2-Dichlorobenzene	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
2-Methylphenol (o-Cresol)	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroisopropyl)ether	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
n-Nitroso-di-n-propylamine	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Hexachloroethane	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Nitrobenzene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Isophorone	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2-Nitrophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,4-Dimethylphenol	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethoxy)methane	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,4-Dichlorophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
1,2,4-Trichlorobenzene	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Naphthalene	**0.020**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
4-Chloroaniline	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
Hexachlorobutadiene	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
4-Chloro-3-methylphenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2-Methylnaphthalene	**ND**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
1-Methylnaphthalene	**ND**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
Hexachlorocyclopentadiene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,4,6-Trichlorophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,3-Dichloroaniline	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,4,5-Trichlorophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2-Chloronaphthalene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2-Nitroaniline	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
1,4-Dinitrobenzene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Dimethylphthalate	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
1,3-Dinitrobenzene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,6-Dinitrotoluene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
1,2-Dinitrobenzene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Acenaphthylene	**0.031**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
3-Nitroaniline	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S22-SED-1.5**					
Laboratory ID:	10-262-14					
2,4-Dinitrophenol	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
Acenaphthene	**0.055**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
4-Nitrophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,4-Dinitrotoluene	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Dibenzofuran	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Diethylphthalate	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
4-Chlorophenyl-phenylether	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
4-Nitroaniline	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Fluorene	**0.031**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
4,6-Dinitro-2-methylphenol	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
n-Nitrosodiphenylamine	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
1,2-Diphenylhydrazine	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
4-Bromophenyl-phenylether	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Hexachlorobenzene	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Pentachlorophenol	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Phenanthrene	**0.19**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
Anthracene	**0.10**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
Carbazole	**ND**	0.33	EPA 8270E	10-31-19	11-4-19	
Di-n-butylphthalate	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Fluoranthene	**1.3**	0.33	EPA 8270E	10-31-19	11-4-19	
Benzidine	**ND**	3.3	EPA 8270E	10-31-19	11-4-19	
Pyrene	**1.1**	0.33	EPA 8270E	10-31-19	11-4-19	
Butylbenzylphthalate	**0.34**	0.17	EPA 8270E	10-31-19	11-4-19	
bis-2-Ethylhexyladipate	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
3,3'-Dichlorobenzidine	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
Benzo[a]anthracene	**0.34**	0.33	EPA 8270E	10-31-19	11-4-19	
Chrysene	**0.52**	0.33	EPA 8270E	10-31-19	11-4-19	
bis(2-Ethylhexyl)phthalate	**6.1**	0.17	EPA 8270E	10-31-19	11-4-19	
Di-n-octylphthalate	**ND**	0.17	EPA 8270E	10-31-19	11-4-19	
Benzo[b]fluoranthene	**0.85**	0.33	EPA 8270E	10-31-19	11-4-19	
Benzo(j,k)fluoranthene	**0.28**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[a]pyrene	**0.41**	0.33	EPA 8270E	10-31-19	11-4-19	
Indeno[1,2,3-cd]pyrene	**0.45**	0.33	EPA 8270E	10-31-19	11-4-19	
Dibenz[a,h]anthracene	**0.070**	0.013	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[g,h,i]perylene	**0.50**	0.33	EPA 8270E	10-31-19	11-4-19	
Benzoic Acid	**ND**	1.7	EPA 8270E	10-31-19	11-4-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***43***	***21 - 107***				
Phenol-d6	***56***	***30 - 106***				
Nitrobenzene-d5	***55***	***28 - 109***				
2-Fluorobiphenyl	***68***	***37 - 107***				
2,4,6-Tribromophenol	***71***	***39 - 116***				
Terphenyl-d14	***74***	***41 - 113***				

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Samples Submitted: October 18, 2019
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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-1.5**					
Laboratory ID:	10-262-17					
n-Nitrosodimethylamine	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Pyridine	**ND**	3.9	EPA 8270E	10-31-19	11-4-19	
Phenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Aniline	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethyl)ether	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2-Chlorophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
1,3-Dichlorobenzene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
1,4-Dichlorobenzene	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Benzyl alcohol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
1,2-Dichlorobenzene	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
2-Methylphenol (o-Cresol)	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroisopropyl)ether	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
n-Nitroso-di-n-propylamine	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Hexachloroethane	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Nitrobenzene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Isophorone	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2-Nitrophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,4-Dimethylphenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethoxy)methane	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,4-Dichlorophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
1,2,4-Trichlorobenzene	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Naphthalene	**0.026**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
4-Chloroaniline	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
Hexachlorobutadiene	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
4-Chloro-3-methylphenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2-Methylnaphthalene	**ND**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
1-Methylnaphthalene	**ND**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Hexachlorocyclopentadiene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,4,6-Trichlorophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,3-Dichloroaniline	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,4,5-Trichlorophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2-Chloronaphthalene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2-Nitroaniline	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
1,4-Dinitrobenzene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Dimethylphthalate	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
1,3-Dinitrobenzene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,6-Dinitrotoluene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
1,2-Dinitrobenzene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Acenaphthylene	**0.026**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
3-Nitroaniline	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-1.5**					
Laboratory ID:	10-262-17					
2,4-Dinitrophenol	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
Acenaphthene	**0.017**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
4-Nitrophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,4-Dinitrotoluene	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Dibenzofuran	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Diethylphthalate	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
4-Chlorophenyl-phenylether	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
4-Nitroaniline	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Fluorene	**0.018**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
4,6-Dinitro-2-methylphenol	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
n-Nitrosodiphenylamine	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
1,2-Diphenylhydrazine	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
4-Bromophenyl-phenylether	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Hexachlorobenzene	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Pentachlorophenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Phenanthrene	**0.098**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Anthracene	**0.061**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Carbazole	**ND**	0.39	EPA 8270E	10-31-19	11-4-19	
Di-n-butylphthalate	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Fluoranthene	**0.83**	0.39	EPA 8270E	10-31-19	11-4-19	
Benzidine	**ND**	3.9	EPA 8270E	10-31-19	11-4-19	
Pyrene	**0.76**	0.39	EPA 8270E	10-31-19	11-4-19	
Butylbenzylphthalate	**0.22**	0.19	EPA 8270E	10-31-19	11-4-19	
bis-2-Ethylhexyladipate	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
3,3'-Dichlorobenzidine	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
Benzo[a]anthracene	**0.33**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Chrysene	**0.44**	0.39	EPA 8270E	10-31-19	11-4-19	
bis(2-Ethylhexyl)phthalate	**4.3**	0.19	EPA 8270E	10-31-19	11-4-19	
Di-n-octylphthalate	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Benzo[b]fluoranthene	**0.68**	0.39	EPA 8270E	10-31-19	11-4-19	
Benzo(j,k)fluoranthene	**0.17**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[a]pyrene	**0.40**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Indeno[1,2,3-cd]pyrene	**0.47**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Dibenz[a,h]anthracene	**0.055**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[g,h,i]perylene	**0.48**	0.015	EPA 8270E/SIM	10-31-19	11-1-19	
Benzoic Acid	**ND**	1.9	EPA 8270E	10-31-19	11-4-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***30***	***21 - 107***				
Phenol-d6	***44***	***30 - 106***				
Nitrobenzene-d5	***41***	***28 - 109***				
2-Fluorobiphenyl	***55***	***37 - 107***				
2,4,6-Tribromophenol	***60***	***39 - 116***				
Terphenyl-d14	***59***	***41 - 113***				

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Matrix: Sediment
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S21-SED-1.5**					
Laboratory ID:	10-262-19					
n-Nitrosodimethylamine	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Pyridine	**ND**	0.38	EPA 8270E	10-31-19	11-4-19	
Phenol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Aniline	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethyl)ether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Chlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,3-Dichlorobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,4-Dichlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Benzyl alcohol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
1,2-Dichlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
2-Methylphenol (o-Cresol)	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroisopropyl)ether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
(3+4)-Methylphenol (m,p-Cresol)	**0.023**	0.019	EPA 8270E	10-31-19	11-4-19	
n-Nitroso-di-n-propylamine	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Hexachloroethane	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Nitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Isophorone	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Nitrophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4-Dimethylphenol	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethoxy)methane	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4-Dichlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,2,4-Trichlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Naphthalene	**0.040**	0.038	EPA 8270E	10-31-19	11-4-19	
4-Chloroaniline	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Hexachlorobutadiene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
4-Chloro-3-methylphenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Methylnaphthalene	**0.014**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
1-Methylnaphthalene	**ND**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
Hexachlorocyclopentadiene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4,6-Trichlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,3-Dichloroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4,5-Trichlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Chloronaphthalene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2-Nitroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,4-Dinitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Dimethylphthalate	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,3-Dinitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,6-Dinitrotoluene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
1,2-Dinitrobenzene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Acenaphthylene	**0.020**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
3-Nitroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S21-SED-1.5**					
Laboratory ID:	10-262-19					
2,4-Dinitrophenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Acenaphthene	**0.013**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
4-Nitrophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,4-Dinitrotoluene	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Dibenzofuran	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Diethylphthalate	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
4-Chlorophenyl-phenylether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
4-Nitroaniline	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Fluorene	**0.015**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
4,6-Dinitro-2-methylphenol	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
n-Nitrosodiphenylamine	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
1,2-Diphenylhydrazine	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
4-Bromophenyl-phenylether	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Hexachlorobenzene	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Pentachlorophenol	**0.045**	0.019	EPA 8270E	10-31-19	11-4-19	
Phenanthrene	**0.086**	0.038	EPA 8270E	10-31-19	11-4-19	
Anthracene	**0.021**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
Carbazole	**ND**	0.038	EPA 8270E	10-31-19	11-4-19	
Di-n-butylphthalate	**0.058**	0.019	EPA 8270E	10-31-19	11-4-19	
Fluoranthene	**0.13**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzidine	**ND**	0.38	EPA 8270E	10-31-19	11-4-19	
Pyrene	**0.17**	0.038	EPA 8270E	10-31-19	11-4-19	
Butylbenzylphthalate	**0.077**	0.019	EPA 8270E	10-31-19	11-4-19	
bis-2-Ethylhexyladipate	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
3,3'-Dichlorobenzidine	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Benzo[a]anthracene	**0.048**	0.038	EPA 8270E	10-31-19	11-4-19	
Chrysene	**0.082**	0.038	EPA 8270E	10-31-19	11-4-19	
bis(2-Ethylhexyl)phthalate	**0.85**	0.019	EPA 8270E	10-31-19	11-4-19	
Di-n-octylphthalate	**ND**	0.019	EPA 8270E	10-31-19	11-4-19	
Benzo[b]fluoranthene	**0.080**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzo(j,k)fluoranthene	**0.027**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[a]pyrene	**0.051**	0.038	EPA 8270E	10-31-19	11-4-19	
Indeno[1,2,3-cd]pyrene	**0.048**	0.038	EPA 8270E	10-31-19	11-4-19	
Dibenz[a,h]anthracene	**0.0086**	0.0076	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[g,h,i]perylene	**0.073**	0.038	EPA 8270E	10-31-19	11-4-19	
Benzoic Acid	**ND**	0.19	EPA 8270E	10-31-19	11-4-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***50***	***21 - 107***				
Phenol-d6	***62***	***30 - 106***				
Nitrobenzene-d5	***62***	***28 - 109***				
2-Fluorobiphenyl	***69***	***37 - 107***				
2,4,6-Tribromophenol	***77***	***39 - 116***				
Terphenyl-d14	***72***	***41 - 113***				

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Matrix: Solid
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1031S1					
n-Nitrosodimethylamine	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Pyridine	**ND**	0.20	EPA 8270E	10-31-19	11-4-19	
Phenol	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Aniline	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethyl)ether	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2-Chlorophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
1,3-Dichlorobenzene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
1,4-Dichlorobenzene	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Benzyl alcohol	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
1,2-Dichlorobenzene	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
2-Methylphenol (o-Cresol)	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroisopropyl)ether	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
n-Nitroso-di-n-propylamine	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Hexachloroethane	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Nitrobenzene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Isophorone	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2-Nitrophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,4-Dimethylphenol	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
bis(2-Chloroethoxy)methane	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,4-Dichlorophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
1,2,4-Trichlorobenzene	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Naphthalene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
4-Chloroaniline	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
Hexachlorobutadiene	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
4-Chloro-3-methylphenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2-Methylnaphthalene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
1-Methylnaphthalene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Hexachlorocyclopentadiene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,4,6-Trichlorophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,3-Dichloroaniline	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,4,5-Trichlorophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2-Chloronaphthalene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2-Nitroaniline	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
1,4-Dinitrobenzene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Dimethylphthalate	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
1,3-Dinitrobenzene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,6-Dinitrotoluene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
1,2-Dinitrobenzene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Acenaphthylene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
3-Nitroaniline	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1031S1					
2,4-Dinitrophenol	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
Acenaphthene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
4-Nitrophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,4-Dinitrotoluene	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Dibenzofuran	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
2,3,5,6-Tetrachlorophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
2,3,4,6-Tetrachlorophenol	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Diethylphthalate	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
4-Chlorophenyl-phenylether	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
4-Nitroaniline	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Fluorene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
4,6-Dinitro-2-methylphenol	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
n-Nitrosodiphenylamine	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
1,2-Diphenylhydrazine	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
4-Bromophenyl-phenylether	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Hexachlorobenzene	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Pentachlorophenol	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Phenanthrene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Anthracene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Carbazole	**ND**	0.020	EPA 8270E	10-31-19	11-4-19	
Di-n-butylphthalate	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Fluoranthene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Benzidine	**ND**	0.20	EPA 8270E	10-31-19	11-4-19	
Pyrene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Butylbenzylphthalate	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
bis-2-Ethylhexyladipate	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
3,3'-Dichlorobenzidine	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
Benzo[a]anthracene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Chrysene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
bis(2-Ethylhexyl)phthalate	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Di-n-octylphthalate	**ND**	0.010	EPA 8270E	10-31-19	11-4-19	
Benzo[b]fluoranthene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[a]pyrene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Indeno[1,2,3-cd]pyrene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Dibenz[a,h]anthracene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Benzo[g,h,i]perylene	**ND**	0.0040	EPA 8270E/SIM	10-31-19	11-1-19	
Benzoic Acid	**ND**	0.10	EPA 8270E	10-31-19	11-4-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorophenol	***85***	***21 - 107***				
Phenol-d6	***88***	***30 - 106***				
Nitrobenzene-d5	***87***	***28 - 109***				
2-Fluorobiphenyl	***87***	***37 - 107***				
2,4,6-Tribromophenol	***100***	***39 - 116***				
Terphenyl-d14	***95***	***41 - 113***				

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL

Matrix: Solid
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1031S1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	**0.731**	**0.636**	0.800	0.800	91	80	44 - 106	14	26	
2-Chlorophenol	**0.725**	**0.610**	0.800	0.800	91	76	45 - 108	17	28	
1,4-Dichlorobenzene	**0.348**	**0.279**	0.400	0.400	87	70	40 - 109	22	31	
n-Nitroso-di-n-propylamine	**0.350**	**0.304**	0.400	0.400	88	76	47 - 108	14	24	
1,2,4-Trichlorobenzene	**0.361**	**0.296**	0.400	0.400	90	74	47 - 111	20	28	
4-Chloro-3-methylphenol	**0.728**	**0.680**	0.800	0.800	91	85	58 - 109	7	19	
Acenaphthene	**0.364**	**0.335**	0.400	0.400	91	84	54 - 105	8	19	
4-Nitrophenol	**0.830**	**0.776**	0.800	0.800	104	97	50 - 118	7	18	
2,4-Dinitrotoluene	**0.376**	**0.352**	0.400	0.400	94	88	49 - 109	7	20	
Pentachlorophenol	**0.819**	**0.769**	0.800	0.800	102	96	42 - 142	6	23	
Pyrene	**0.369**	**0.349**	0.400	0.400	92	87	57 - 110	6	16	
Surrogate:										
2-Fluorophenol					***92***	***76***	***21 - 107***			
Phenol-d6					***93***	***80***	***30 - 106***			
Nitrobenzene-d5					***92***	***78***	***28 - 109***			
2-Fluorobiphenyl					***90***	***81***	***37 - 107***			
2,4,6-Tribromophenol					***101***	***97***	***39 - 116***			
Terphenyl-d14					***96***	***91***	***41 - 113***			

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL METALS
EPA 6020B

Matrix: Sediment
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S15-SED-5.5**					
Laboratory ID:	10-262-13					
Arsenic	**2.7**	1.5	EPA 6020B	10-31-19	11-1-19	
Lead	**7.6**	6.2	EPA 6020B	10-31-19	11-1-19	
Nickel	**31**	6.2	EPA 6020B	10-31-19	11-1-19	
Client ID:	**S21-SED-5.5**					
Laboratory ID:	10-262-21					
Nickel	**52**	9.4	EPA 6020B	10-31-19	11-1-19	
Client ID:	**S22-SED-5.5**					
Laboratory ID:	10-262-32					
Arsenic	**16**	2.2	EPA 6020B	10-31-19	11-1-19	
Nickel	**63**	8.7	EPA 6020B	10-31-19	11-1-19	

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL METALS
EPA 6020B
QUALITY CONTROL

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1031SM2					
Arsenic	**ND**	1.3	EPA 6020B	10-31-19	11-1-19	
Lead	**ND**	5.0	EPA 6020B	10-31-19	11-1-19	
Nickel	**ND**	26	EPA 6020B	10-31-19	11-1-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-262-21										
	ORIG	DUP									
Arsenic	**8.38**	**7.55**	NA	NA		NA		NA	10	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Nickel	**27.8**	**29.3**	NA	NA		NA		NA	5	20	
MATRIX SPIKES											
Laboratory ID:	10-262-21										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**100**	**100**	100	100	8.38	**92**	**92**	75-125	0	20	
Lead	**224**	**234**	250	250	ND	**89**	**93**	75-125	4	20	
Nickel	**125**	**127**	100	100	27.8	**97**	**100**	75-125	2	20	
SPIKE BLANK											
Laboratory ID:	SB1031SM2										
Arsenic	**92.0**		100		N/A	**92**		80-120			
Lead	**243**		250		N/A	**97**		80-120			
Nickel	**98.3**		100		N/A	**98**		80-120			

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL METALS
EPA 6020B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV1101196X	0.0500	0.0495	1.1	+/- 10%
Lead	ICV1101196X	0.0500	0.0497	0.56	+/- 10%
Nickel	ICV1101196X	0.0500	0.0505	-1.0	+/- 10%
Arsenic	LLV110119X	0.000500	0.000481	3.8	+/- 20%
Lead	LLV110119X	0.00200	0.00200	0	+/- 20%
Nickel	LLV110119X	0.00200	0.00197	1.5	+/- 20%
Arsenic	CCV1110119X	0.0400	0.0374	6.5	+/- 10%
Lead	CCV1110119X	0.0400	0.0392	2.0	+/- 10%
Nickel	CCV1110119X	0.0400	0.0387	3.3	+/- 10%
Arsenic	CCV2110119X	0.0400	0.0367	8.2	+/- 10%
Lead	CCV2110119X	0.0400	0.0392	2.0	+/- 10%
Nickel	CCV2110119X	0.0400	0.0402	0	+/- 10%
Arsenic	CCV3110119X	0.0400	0.0376	6.0	+/- 10%
Lead	CCV3110119X	0.0400	0.0394	1.5	+/- 10%
Nickel	CCV3110119X	0.0400	0.0399	0	+/- 10%

Date of Report: November 12, 2019
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% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
GM11-S-3.0	10-262-01	**60**	10-24-19
GM12-S-2.0	10-262-02	**42**	10-24-19
GM13-S-7.5	10-262-03	**56**	10-24-19
GM14-S-12.0	10-262-04	**42**	10-24-19
GM15-S-1.5	10-262-05	**37**	10-24-19
GM16-S-2.5	10-262-06	**53**	10-24-19

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL SOLIDS
SM 2540G

Matrix: Sediment
Units: % Solids

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-3.5**					
Laboratory ID:	10-262-08					
Total Solids	**64**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S14-SED-3.0**					
Laboratory ID:	10-262-10					
Total Solids	**73**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
Total Solids	**54**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S22-SED-3.5**					
Laboratory ID:	10-262-15					
Total Solids	**49**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S16-SED-3.0**					
Laboratory ID:	10-262-18					
Total Solids	**27**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S21-SED-3.5**					
Laboratory ID:	10-262-20					
Total Solids	**55**	0.50	SM 2540G	10-24-19	10-25-19	

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL SOLIDS
SM 2540G

Matrix: Sediment
Units: % Solids

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S16-SED-0.33**					
Laboratory ID:	10-262-23					
Total Solids	**38**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
Total Solids	**41**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S18-SED-0.33**					
Laboratory ID:	10-262-25					
Total Solids	**38**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S19-SED-0.33**					
Laboratory ID:	10-262-26					
Total Solids	**39**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S20-SED-0.33**					
Laboratory ID:	10-262-27					
Total Solids	**42**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S22-SED-0.33**					
Laboratory ID:	10-262-28					
Total Solids	**35**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S23-SED-0.33**					
Laboratory ID:	10-262-29					
Total Solids	**41**	0.50	SM 2540G	10-24-19	10-25-19	

Date of Report: November 12, 2019
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TOTAL SOLIDS
SM 2540G

Matrix: Sediment
Units: % Solids

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SDUP-SED-0.33**					
Laboratory ID:	10-262-30					
Total Solids	**42**	0.50	SM 2540G	10-24-19	10-25-19	
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
Total Solids	**48**	0.50	SM 2540G	10-24-19	10-25-19	

Date of Report: November 12, 2019
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Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL SOLIDS
SM 2540G
QUALITY CONTROL

Matrix: Sediment
Units: % Solids

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	10-262-31								
	ORIG	DUP							
Total Solids	**48.2**	**47.1**	NA	NA	NA	NA	2	20	
Laboratory ID:	10-262-08								
	ORIG	DUP							
Total Solids	**63.7**	**65.1**	NA	NA	NA	NA	2	20	

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL SOLIDS
SM 2540G

Matrix: Sediment
Units: % Solids

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-1.5**					
Laboratory ID:	10-262-07					
Total Solids	**52**	0.50	SM 2540G	10-31-19	11-1-19	
Client ID:	**S15-SED-5.5**					
Laboratory ID:	10-262-13					
Total Solids	**81**	0.50	SM 2540G	10-31-19	11-1-19	
Client ID:	**S22-SED-1.5**					
Laboratory ID:	10-262-14					
Total Solids	**45**	0.50	SM 2540G	10-31-19	11-1-19	
Client ID:	**S16-SED-1.5**					
Laboratory ID:	10-262-17					
Total Solids	**39**	0.50	SM 2540G	10-31-19	11-1-19	
Client ID:	**S21-SED-1.5**					
Laboratory ID:	10-262-19					
Total Solids	**53**	0.50	SM 2540G	10-31-19	11-1-19	
Client ID:	**S21-SED-5.5**					
Laboratory ID:	10-262-21					
Total Solids	**53**	0.50	SM 2540G	10-31-19	11-1-19	
Client ID:	**S22-SED-5.5**					
Laboratory ID:	10-262-32					
Total Solids	**58**	0.50	SM 2540G	10-31-19	11-1-19	

Date of Report: November 12, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262
Project: 0689.01.05

TOTAL SOLIDS
SM 2540G
QUALITY CONTROL

Matrix: Sediment
Units: % Solids

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	10-262-13								
	ORIG	DUP							
Total Solids	**81.3**	**78.5**	NA	NA	NA	NA	4	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.

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.

Z -

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

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

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

November 12, 2019

Mr. David Baumeister
OnSite Environmental Incorporated
14648 NE 95th Street
Redmond, Washington 98052

Re: Greddes Marina DXN
Work Order: 15679
SDG: 10-262

Dear Mr. Baumeister:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 22, 2019. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

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

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Enclosures

CFA WO #15679

OnSite Environmental Inc.

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

Laboratory Reference #: 10-262

Laboratory: Cape Fear Analytical

Attention: Christopher K. Cornwell

Address: 3306 Kitty Hawk Rd., Suite 120, Wilmington, NC 28405

Phone Number: (910) 795-0421

Turnaround Request: 1 Day | 2 Day | 3 Day | Standard | Other:

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 0689.01.05

Project Name: Greddes Marina

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
	S24-SED-1.5	10/17/19	12:45	Sed	1	hold
	S24-SED-3.5	10/17/19	12:55	Sed	1	Dioxins/Furans
	S14-SED-1.5	10/17/19		Sed	1	hold — time from label: 13:30
	S14-SED-3.0	10/17/19		Sed	1	Dioxins/Furans — time from label: 13:20
	S15-SED-1.5	10/17/19	14:00	Sed	1	hold
	S15-SED-3.5	10/17/19	14:10	Sed	1	Dioxins/Furans
	S15-SED-5.5	10/17/19	14:20	Sed	1	hold
	S22-SED-1.5	10/17/19	14:50	Sed	1	hold
	S22-SED-3.5	10/17/19	15:00	Sed	1	Dioxins/Furans
	S22-SED-7.0	10/17/19	14:40	Sed	1	hold

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by: Kelly Ozell	OSE	10/21	1600	temp. @ CFA rec't = 5.0°C
Received by:	CFA	10/22/19	10:08	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

CFA WO #15679

OnSite Environmental Inc.

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

Laboratory Reference #: 10-262

Laboratory: Cape Fear Analytical

Attention: Christopher K. Cornwell

Address: 3306 Kitty Hawk Rd., Suite 120, Wilmington, NC 28405

Phone Number: (910) 795-0421

Turnaround Request

1 Day 2 Day 3 Day

Standard

Other:

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 0689.01.05

Project Name: Greddes Marina

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
	S16-SED-1.5	10/17/19	15:35	Sed	1	hold
	S16-SED-3.0	10/17/19	15:25	Sed	1	Dioxins/Furans
	S21-SED-1.5	10/17/19	16:45	Sed	1	hold
	S21-SED-3.5	10/17/19	16:55	Sed	1	Dioxins/Furans
	S21-SED-5.5	10/18/19	17:00	Sed	1	hold
	S21-SED-7.5	10/18/19	16:40	Sed	1	hold
	S16-SED-0.33	10/18/19	10:30	Sed	1	Dioxins/Furans
	S17-SED-0.33	10/18/19	7:50	Sed	1	Dioxins/Furans
	S18-SED-0.33	10/18/19	9:00	Sed	1	Dioxins/Furans
	S19-SED-0.33	10/18/19	10:20	Sed	1	Dioxins/Furans

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	10/21	1600	
Received by:	CFA	10/22/K	10:02	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

CFA WO #15679

OnSite Environmental Inc.

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

Laboratory Reference #: 10-262

Laboratory: Cape Fear Analytical

Attention: Christopher K. Cornwell

Address: 3306 Kitty Hawk Rd., Suite 120, Wilmington, NC 28405

Phone Number: (910) 795-0421

Turnaround Request: 1 Day | 2 Day | 3 Day | Standard | Other: _____

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 0689.01.05

Project Name: Greddes Marina

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
	S20-SED-0.33	10/18/19	8:20	Sed	1	Dioxins/Furans
	S22-SED-0.33	10/18/19	9:55	Sed	1	Dioxins/Furans
	S23-SED-0.33	10/18/19	10:45	Sed	1	Dioxins/Furans
	SDUP-SED-0.33	10/18/19	8:20	Sed	1	Dioxins/Furans
	S24-SED-0.33	10/18/19	9:35	Sed	1	Dioxins/Furans
	S22-SED-5.5	10/17/19	15:05	Sed	1	hold

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	10/21	1600	
Received by:	CFA	10/22/19	1002	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: Onsite Environmental	Work Order: 15679
Shipping Company: UPS	Date/Time Received: 10/22/15 10:08

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

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

* Notify RSO of any responses in this column immediately.

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

Air Witness: _____

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Custody seal/s present on cooler?			✓	Seal intact? Yes No
3	Chain of Custody documents included with shipment?	✓			
4	Samples requiring cold preservation within 0-6°C?	✓			Preservation method: ice bags (blue ice) dry ice none other (describe) Temperature Blank present: Yes (No) 5.1-0.1=5.0°
5	Aqueous samples found to have visible solids?		✓		Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?			✓	Sample IDs, containers affected: see below RHO 10/22/15
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: received 2 clear 8oz amber wrapped in foil RHO 10/22/15
12	COC form is properly signed in relinquished/received sections?	✓			

Comments: RHO 10/22/15

~~SE~~ S14-SED-1.5 No time on COC, time on sample label = 13:30
S14-SED-3.0 No time on COC, time on sample label = 13:20
S22-SED-7.0 No date on sample label

Checklist performed by: Initials: RHO Date: 10/22/15

CF-UD-F-7

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
OnSite Environmental Incorporated (OSEI)
SDG 10-262
Work Order 15679

Method/Analysis Information

Product:	**Dioxins/Furans by EPA 1613B-3546 in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3546
Analytical Batch Number:	42238, 42298
Clean Up Batch Number:	42236, 42297
Extraction Batch Number:	42235, 42296

Sample Analysis

Samples were received at 5.0°C (15679001, 15679002, 15679003, 15679004, 15679005, 15679006, 15679007, 15679008, 15679009, 15679010, 15679011, 15679012, 15679013, 15679014, 15679015, 15679016, 15679017, 15679018, 15679019, 15679020, 15679021, 15679022, 15679023, 15679024, 15679025, 15679026). The following samples were analyzed using the analytical protocol as established in Method 1613B:

Sample ID	Client ID
12025226	Method Blank (MB)
12025227	Laboratory Control Sample (LCS)
12025228	Laboratory Control Sample Duplicate (LCSD)
12025229	15679002(S24-SED-3.5) Matrix Spike (MS)
12025230	15679002(S24-SED-3.5) Matrix Spike Duplicate (MSD)
12025282	Method Blank (MB)
12025283	Laboratory Control Sample (LCS)
12025284	Laboratory Control Sample Duplicate (LCSD)
12025285	15679025(S24-SED-0.33) Matrix Spike (MS)
12025286	15679025(S24-SED-0.33) Matrix Spike Duplicate (MSD)
15679002	S24-SED-3.5
15679004	S14-SED-3.0
15679006	S15-SED-3.5
15679009	S22-SED-3.5
15679012	S16-SED-3.0
15679014	S21-SED-3.5
15679017	S16-SED-0.33
15679018	S17-SED-0.33
15679019	S18-SED-0.33

15679020	S19-SED-0.33
15679021	S20-SED-0.33
15679022	S22-SED-0.33
15679023	S23-SED-0.33
15679024	SDUP-SED-0.33
15679025	S24-SED-0.33

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 15.

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

Calibration Information

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

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

Quality Control (QC) Information

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

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

Surrogate Recoveries
Sample 15679025 (S24-SED-0.33)- Batch 42298 failed to meet acceptance criteria for surrogate recovery and was re-extracted. The re-extracted sample failed surrogate recovery in the same manner; therefore, the failure is attributed to matrix interference.

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

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

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
Sample 15679002 (S24-SED-3.5)- Batch 42238 and 15679025 (S24-SED-0.33)- Batch 42298 was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
One MS recovery for this SDG was not within the acceptance limits. The failure confirms in the matrix spike duplicate and is attributed to matrix interference. 12025285 (S24-SED-0.33) and 12025286 (S24-SED-0.33)- Batch 42298.

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

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

Technical Information

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

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

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Nonconformance (NCR) Documentation
The following NCR was generated for this SDG: 647644 15679025 (S24-SED-0.33)- Batch 42298.

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

Sample preparation
No difficulties were encountered during sample preparation.

Electronic Packaging Comment

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

Sample Data Summary

Cape Fear Analytical, LLC

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

Qualifier Definition Report
for

OSEI001 OnSite Environmental Incorporated

Client SDG: 10-262 CFA Work Order: 15679

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

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

J Value is estimated

K Estimated Maximum Possible Concentration

Q Quantitative Interference; value is estimated

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

DL Indicates that sample is diluted.

RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature:  **Name: Heather Patterson**

Date: 12 NOV 2019 **Title: Group Leader**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679002**	**Date Collected:**	**10/17/2019 12:55**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**36.8**
Client ID:	**S24-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 10:48**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-2**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**16.12 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.186	pg/g	0.186	0.981
40321-76-4	1,2,3,7,8-PeCDD	U	0.22	pg/g	0.220	4.91
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.489	pg/g	0.489	4.91
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.479	pg/g	0.479	4.91
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.491	pg/g	0.491	4.91
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	3.61	pg/g	0.310	4.91
3268-87-9	1,2,3,4,6,7,8,9-OCDD		41.1	pg/g	0.932	9.81
51207-31-9	2,3,7,8-TCDF	U	0.166	pg/g	0.166	0.981
57117-41-6	1,2,3,7,8-PeCDF	U	0.129	pg/g	0.129	4.91
57117-31-4	2,3,4,7,8-PeCDF	U	0.119	pg/g	0.119	4.91
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.202	pg/g	0.202	4.91
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.182	pg/g	0.182	4.91
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.265	pg/g	0.265	4.91
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.181	pg/g	0.181	4.91
67562-39-4	1,2,3,4,6,7,8-HpCDF	JK	0.548	pg/g	0.200	4.91
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.308	pg/g	0.308	4.91
39001-02-0	1,2,3,4,6,7,8,9-OCDF	JK	0.964	pg/g	0.430	9.81
41903-57-5	Total TeCDD	J	2.29	pg/g	0.186	0.981
36088-22-9	Total PeCDD	J	0.349	pg/g	0.220	4.91
34465-46-8	Total HxCDD	J	2.72	pg/g	0.479	4.91
37871-00-4	Total HpCDD	J	9.47	pg/g	0.310	4.91
30402-14-3	Total TeCDF	JK	0.860	pg/g	0.166	0.981
30402-15-4	Total PeCDF	J	0.324	pg/g	0.0844	4.91
55684-94-1	Total HxCDF	JK	0.324	pg/g	0.181	4.91
38998-75-3	Total HpCDF	JK	1.20	pg/g	0.200	4.91
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.0542	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.401	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		117	196	pg/g	59.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		129	196	pg/g	65.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		114	196	pg/g	57.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		117	196	pg/g	59.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		126	196	pg/g	64.3	(23%-140%)
13C-OCDD		198	393	pg/g	50.5	(17%-157%)
13C-2,3,7,8-TCDF		128	196	pg/g	65.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		141	196	pg/g	71.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		136	196	pg/g	69.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	196	pg/g	56.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	196	pg/g	57.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		119	196	pg/g	60.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		116	196	pg/g	59.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679002**	**Date Collected:**	**10/17/2019 12:55**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**36.8**
Client ID:	**S24-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 10:48**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-2**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**16.12 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		119	196	pg/g	60.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		121	196	pg/g	61.5	(26%-138%)
37Cl-2,3,7,8-TCDD		17.9	19.6	pg/g	91.2	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679004**	**Date Collected:**	**10/17/2019 13:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**29.4**
Client ID:	**S14-SED-3.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 13:13**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-5**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**14.46 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.3	pg/g	0.208	0.979
40321-76-4	1,2,3,7,8-PeCDD	J	1.41	pg/g	0.204	4.90
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.95	pg/g	0.394	4.90
57653-85-7	1,2,3,6,7,8-HxCDD		5.92	pg/g	0.400	4.90
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.90	pg/g	0.403	4.90
35822-46-9	1,2,3,4,6,7,8-HpCDD		173	pg/g	1.42	4.90
3268-87-9	1,2,3,4,6,7,8,9-OCDD		3010	pg/g	2.06	9.79
51207-31-9	2,3,7,8-TCDF		1.15	pg/g	0.349	0.979
57117-41-6	1,2,3,7,8-PeCDF	J	0.783	pg/g	0.176	4.90
57117-31-4	2,3,4,7,8-PeCDF		5.57	pg/g	0.170	4.90
70648-26-9	1,2,3,4,7,8-HxCDF	J	3.92	pg/g	0.345	4.90
57117-44-9	1,2,3,6,7,8-HxCDF	J	2.97	pg/g	0.384	4.90
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.31	pg/g	0.460	4.90
60851-34-5	2,3,4,6,7,8-HxCDF	J	4.44	pg/g	0.354	4.90
67562-39-4	1,2,3,4,6,7,8-HpCDF		39.5	pg/g	0.433	4.90
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	3.86	pg/g	0.601	4.90
39001-02-0	1,2,3,4,6,7,8,9-OCDF		94.6	pg/g	0.625	9.79
41903-57-5	Total TeCDD	JK	26.2	pg/g	0.208	0.979
36088-22-9	Total PeCDD	JK	13.9	pg/g	0.204	4.90
34465-46-8	Total HxCDD	J	56.3	pg/g	0.394	4.90
37871-00-4	Total HpCDD		366	pg/g	1.42	4.90
30402-14-3	Total TeCDF	JK	39.0	pg/g	0.349	0.979
30402-15-4	Total PeCDF	JK	82.0	pg/g	0.0658	4.90
55684-94-1	Total HxCDF	JK	80.6	pg/g	0.345	4.90
38998-75-3	Total HpCDF	JK	129	pg/g	0.433	4.90
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		27.1	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		27.1	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		124	196	pg/g	63.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		145	196	pg/g	74.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		124	196	pg/g	63.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		128	196	pg/g	65.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		135	196	pg/g	69.1	(23%-140%)
13C-OCDD		236	392	pg/g	60.2	(17%-157%)
13C-2,3,7,8-TCDF		135	196	pg/g	68.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		151	196	pg/g	77.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		154	196	pg/g	78.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		122	196	pg/g	62.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		115	196	pg/g	59.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		123	196	pg/g	62.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		125	196	pg/g	63.7	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679004**	**Date Collected:**	**10/17/2019 13:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**29.4**
Client ID:	**S14-SED-3.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 13:13**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-5**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**14.46 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		120	196	pg/g	61.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		123	196	pg/g	63.0	(26%-138%)
37Cl-2,3,7,8-TCDD		17.8	19.6	pg/g	90.8	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679004**	**Date Collected:**	**10/17/2019 13:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**29.4**
Client ID:	**S14-SED-3.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/06/2019 03:06**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b05nov19c_3-5**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**14.46 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.24	pg/g	0.311	0.979

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

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679006**	**Date Collected:**	**10/17/2019 14:10**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**46.7**
Client ID:	**S15-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 14:01**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-6**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**19.1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		17.3	pg/g	0.187	0.982
40321-76-4	1,2,3,7,8-PeCDD	J	4.14	pg/g	0.316	4.91
39227-28-6	1,2,3,4,7,8-HxCDD		6.96	pg/g	0.628	4.91
57653-85-7	1,2,3,6,7,8-HxCDD		22.8	pg/g	0.554	4.91
19408-74-3	1,2,3,7,8,9-HxCDD		15.7	pg/g	0.599	4.91
35822-46-9	1,2,3,4,6,7,8-HpCDD		493	pg/g	1.18	4.91
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4610	pg/g	1.45	9.82
51207-31-9	2,3,7,8-TCDF		3.67	pg/g	0.658	0.982
57117-41-6	1,2,3,7,8-PeCDF	J	2.09	pg/g	0.416	4.91
57117-31-4	2,3,4,7,8-PeCDF		10.5	pg/g	0.353	4.91
70648-26-9	1,2,3,4,7,8-HxCDF		8.18	pg/g	0.340	4.91
57117-44-9	1,2,3,6,7,8-HxCDF	Q	6.73	pg/g	0.395	4.91
72918-21-9	1,2,3,7,8,9-HxCDF	JQ	2.52	pg/g	0.691	4.91
60851-34-5	2,3,4,6,7,8-HxCDF		10.2	pg/g	0.367	4.91
67562-39-4	1,2,3,4,6,7,8-HpCDF		114	pg/g	0.446	4.91
55673-89-7	1,2,3,4,7,8,9-HpCDF		7.80	pg/g	0.591	4.91
39001-02-0	1,2,3,4,6,7,8,9-OCDF		267	pg/g	0.662	9.82
41903-57-5	Total TeCDD	JK	38.8	pg/g	0.187	0.982
36088-22-9	Total PeCDD	JQ	42.7	pg/g	0.316	4.91
34465-46-8	Total HxCDD	J	159	pg/g	0.554	4.91
37871-00-4	Total HpCDD		872	pg/g	1.18	4.91
30402-14-3	Total TeCDF	K	84.0	pg/g	0.658	0.982
30402-15-4	Total PeCDF	JQ	161	pg/g	0.0748	4.91
55684-94-1	Total HxCDF	JQ	234	pg/g	0.340	4.91
38998-75-3	Total HpCDF	JK	367	pg/g	0.446	4.91
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		40.0	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		40.0	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		128	196	pg/g	65.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		137	196	pg/g	69.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		132	196	pg/g	67.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		127	196	pg/g	64.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		148	196	pg/g	75.6	(23%-140%)
13C-OCDD		266	393	pg/g	67.7	(17%-157%)
13C-2,3,7,8-TCDF		134	196	pg/g	68.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		143	196	pg/g	73.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		136	196	pg/g	69.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		125	196	pg/g	63.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF	Q	90.1	196	pg/g	45.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		125	196	pg/g	63.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF	Q	64.4	196	pg/g	32.8	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679006**	**Date Collected:**	**10/17/2019 14:10**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**46.7**
Client ID:	**S15-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 14:01**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-6**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**19.1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		125	196	pg/g	63.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		132	196	pg/g	67.1	(26%-138%)
37Cl-2,3,7,8-TCDD		16.9	19.6	pg/g	85.9	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679006**	**Date Collected:**	**10/17/2019 14:10**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**46.7**
Client ID:	**S15-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/06/2019 03:28**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b05nov19c_3-6**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**19.1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		4.03	pg/g	0.275	0.982

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

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679009**	**Date Collected:**	**10/17/2019 15:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**48.6**
Client ID:	**S22-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 14:49**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-7**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**20.7 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.173	pg/g	0.173	0.940
40321-76-4	1,2,3,7,8-PeCDD	U	0.291	pg/g	0.291	4.70
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.483	pg/g	0.483	4.70
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.758	pg/g	0.476	4.70
19408-74-3	1,2,3,7,8,9-HxCDD	JK	0.679	pg/g	0.487	4.70
35822-46-9	1,2,3,4,6,7,8-HpCDD		13.5	pg/g	0.425	4.70
3268-87-9	1,2,3,4,6,7,8,9-OCDD		98.8	pg/g	0.771	9.40
51207-31-9	2,3,7,8-TCDF	U	0.436	pg/g	0.436	0.940
57117-41-6	1,2,3,7,8-PeCDF	U	0.214	pg/g	0.214	4.70
57117-31-4	2,3,4,7,8-PeCDF	JK	0.564	pg/g	0.197	4.70
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.182	pg/g	0.182	4.70
57117-44-9	1,2,3,6,7,8-HxCDF	JK	0.301	pg/g	0.196	4.70
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.254	pg/g	0.254	4.70
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.342	pg/g	0.190	4.70
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	3.09	pg/g	0.231	4.70
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.323	pg/g	0.323	4.70
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.76	pg/g	0.521	9.40
41903-57-5	Total TeCDD	JK	2.55	pg/g	0.173	0.940
36088-22-9	Total PeCDD	JK	2.13	pg/g	0.291	4.70
34465-46-8	Total HxCDD	JK	8.13	pg/g	0.476	4.70
37871-00-4	Total HpCDD		33.1	pg/g	0.425	4.70
30402-14-3	Total TeCDF	JK	3.34	pg/g	0.436	0.940
30402-15-4	Total PeCDF	JK	6.49	pg/g	0.0741	4.70
55684-94-1	Total HxCDF	JK	5.91	pg/g	0.182	4.70
38998-75-3	Total HpCDF	J	8.39	pg/g	0.231	4.70
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.575	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.880	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		115	188	pg/g	61.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		135	188	pg/g	71.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		112	188	pg/g	59.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	188	pg/g	58.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		123	188	pg/g	65.5	(23%-140%)
13C-OCDD		196	376	pg/g	52.2	(17%-157%)
13C-2,3,7,8-TCDF		123	188	pg/g	65.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		137	188	pg/g	72.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		139	188	pg/g	73.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		111	188	pg/g	58.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		100	188	pg/g	53.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		110	188	pg/g	58.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	188	pg/g	59.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679009**	**Date Collected:**	**10/17/2019 15:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**48.6**
Client ID:	**S22-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 14:49**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-7**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**20.7 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		114	188	pg/g	60.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		113	188	pg/g	60.1	(26%-138%)
37Cl-2,3,7,8-TCDD		17.1	18.8	pg/g	91.1	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679012**	**Date Collected:**	**10/17/2019 15:25**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**72.3**
Client ID:	**S16-SED-3.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 15:38**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-8**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.28 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.258	pg/g	0.258	1.43
40321-76-4	1,2,3,7,8-PeCDD	U	0.415	pg/g	0.415	7.15
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.575	pg/g	0.575	7.15
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.604	pg/g	0.604	7.15
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.601	pg/g	0.601	7.15
35822-46-9	1,2,3,4,6,7,8-HpCDD		11.7	pg/g	0.538	7.15
3268-87-9	1,2,3,4,6,7,8,9-OCDD		120	pg/g	1.12	14.3
51207-31-9	2,3,7,8-TCDF	U	0.352	pg/g	0.352	1.43
57117-41-6	1,2,3,7,8-PeCDF	U	0.28	pg/g	0.280	7.15
57117-31-4	2,3,4,7,8-PeCDF	J	0.386	pg/g	0.251	7.15
70648-26-9	1,2,3,4,7,8-HxCDF	JK	0.438	pg/g	0.231	7.15
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.252	pg/g	0.233	7.15
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.318	pg/g	0.318	7.15
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.326	pg/g	0.235	7.15
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.45	pg/g	0.481	7.15
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.69	pg/g	0.690	7.15
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.56	pg/g	0.830	14.3
41903-57-5	Total TeCDD	JK	1.40	pg/g	0.258	1.43
36088-22-9	Total PeCDD	JK	0.532	pg/g	0.415	7.15
34465-46-8	Total HxCDD	JK	4.85	pg/g	0.575	7.15
37871-00-4	Total HpCDD		25.1	pg/g	0.538	7.15
30402-14-3	Total TeCDF	JK	2.68	pg/g	0.352	1.43
30402-15-4	Total PeCDF	JK	4.63	pg/g	0.102	7.15
55684-94-1	Total HxCDF	JK	5.06	pg/g	0.231	7.15
38998-75-3	Total HpCDF	J	6.88	pg/g	0.481	7.15
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.396	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.863	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		136	286	pg/g	47.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		161	286	pg/g	56.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		137	286	pg/g	47.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		137	286	pg/g	47.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		156	286	pg/g	54.5	(23%-140%)
13C-OCDD		261	572	pg/g	45.7	(17%-157%)
13C-2,3,7,8-TCDF		156	286	pg/g	54.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		163	286	pg/g	56.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		169	286	pg/g	59.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		139	286	pg/g	48.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		135	286	pg/g	47.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		137	286	pg/g	47.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		143	286	pg/g	49.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679012**	**Date Collected:**	**10/17/2019 15:25**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**72.3**
Client ID:	**S16-SED-3.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 15:38**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-8**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.28 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		137	286	pg/g	47.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		138	286	pg/g	48.1	(26%-138%)
37Cl-2,3,7,8-TCDD		25.0	28.6	pg/g	87.4	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679014**	**Date Collected:**	**10/17/2019 16:55**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**45.7**
Client ID:	**S21-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 16:26**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-9**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**19.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.14	pg/g	0.140	0.963
40321-76-4	1,2,3,7,8-PeCDD	U	0.222	pg/g	0.222	4.82
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.277	pg/g	0.277	4.82
57653-85-7	1,2,3,6,7,8-HxCDD	JK	0.395	pg/g	0.285	4.82
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.285	pg/g	0.285	4.82
35822-46-9	1,2,3,4,6,7,8-HpCDD		6.86	pg/g	0.304	4.82
3268-87-9	1,2,3,4,6,7,8,9-OCDD		69.6	pg/g	0.697	9.63
51207-31-9	2,3,7,8-TCDF	U	0.191	pg/g	0.191	0.963
57117-41-6	1,2,3,7,8-PeCDF	U	0.169	pg/g	0.169	4.82
57117-31-4	2,3,4,7,8-PeCDF	J	0.252	pg/g	0.149	4.82
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.151	pg/g	0.151	4.82
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.155	pg/g	0.155	4.82
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.206	pg/g	0.206	4.82
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.158	pg/g	0.152	4.82
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.21	pg/g	0.297	4.82
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.389	pg/g	0.389	4.82
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.15	pg/g	0.426	9.63
41903-57-5	Total TeCDD	JK	2.57	pg/g	0.140	0.963
36088-22-9	Total PeCDD	JK	0.772	pg/g	0.222	4.82
34465-46-8	Total HxCDD	JK	4.09	pg/g	0.277	4.82
37871-00-4	Total HpCDD		16.6	pg/g	0.304	4.82
30402-14-3	Total TeCDF	JK	1.53	pg/g	0.191	0.963
30402-15-4	Total PeCDF	JK	3.44	pg/g	0.0412	4.82
55684-94-1	Total HxCDF	JK	2.80	pg/g	0.151	4.82
38998-75-3	Total HpCDF	J	4.03	pg/g	0.297	4.82
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.234	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.482	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		129	193	pg/g	67.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		154	193	pg/g	80.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		122	193	pg/g	63.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		124	193	pg/g	64.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		133	193	pg/g	69.2	(23%-140%)
13C-OCDD		223	385	pg/g	57.8	(17%-157%)
13C-2,3,7,8-TCDF		131	193	pg/g	67.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		161	193	pg/g	83.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		162	193	pg/g	84.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		121	193	pg/g	62.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		114	193	pg/g	59.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		125	193	pg/g	65.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		124	193	pg/g	64.4	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679014**	**Date Collected:**	**10/17/2019 16:55**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**45.7**
Client ID:	**S21-SED-3.5**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 16:26**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-9**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**19.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		119	193	pg/g	61.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		123	193	pg/g	63.6	(26%-138%)
37Cl-2,3,7,8-TCDD		17.5	19.3	pg/g	91.1	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679017**	**Date Collected:**	**10/18/2019 10:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S16-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 17:14**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-10**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.22 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.335	pg/g	0.157	1.05
40321-76-4	1,2,3,7,8-PeCDD	J	2.34	pg/g	0.186	5.26
39227-28-6	1,2,3,4,7,8-HxCDD	J	4.35	pg/g	0.482	5.26
57653-85-7	1,2,3,6,7,8-HxCDD		8.75	pg/g	0.488	5.26
19408-74-3	1,2,3,7,8,9-HxCDD		8.77	pg/g	0.492	5.26
35822-46-9	1,2,3,4,6,7,8-HpCDD		242	pg/g	1.06	5.26
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2330	pg/g	1.97	10.5
51207-31-9	2,3,7,8-TCDF	J	0.410	pg/g	0.217	1.05
57117-41-6	1,2,3,7,8-PeCDF	JK	0.501	pg/g	0.123	5.26
57117-31-4	2,3,4,7,8-PeCDF	J	0.783	pg/g	0.110	5.26
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.82	pg/g	0.217	5.26
57117-44-9	1,2,3,6,7,8-HxCDF	J	2.01	pg/g	0.225	5.26
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.585	pg/g	0.223	5.26
60851-34-5	2,3,4,6,7,8-HxCDF	J	3.00	pg/g	0.240	5.26
67562-39-4	1,2,3,4,6,7,8-HpCDF		50.3	pg/g	0.263	5.26
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	3.50	pg/g	0.377	5.26
39001-02-0	1,2,3,4,6,7,8,9-OCDF		141	pg/g	0.614	10.5
41903-57-5	Total TeCDD	JK	2.62	pg/g	0.157	1.05
36088-22-9	Total PeCDD	JK	9.91	pg/g	0.186	5.26
34465-46-8	Total HxCDD	JK	73.0	pg/g	0.482	5.26
37871-00-4	Total HpCDD		637	pg/g	1.06	5.26
30402-14-3	Total TeCDF	JK	5.67	pg/g	0.217	1.05
30402-15-4	Total PeCDF	JK	17.6	pg/g	0.0448	5.26
55684-94-1	Total HxCDF	J	54.0	pg/g	0.217	5.26
38998-75-3	Total HpCDF	JK	134	pg/g	0.263	5.26
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		9.59	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		9.59	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		137	210	pg/g	65.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		152	210	pg/g	72.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		137	210	pg/g	65.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		127	210	pg/g	60.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		147	210	pg/g	69.9	(23%-140%)
13C-OCDD		253	421	pg/g	60.2	(17%-157%)
13C-2,3,7,8-TCDF		145	210	pg/g	69.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		158	210	pg/g	75.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		159	210	pg/g	75.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		128	210	pg/g	60.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		125	210	pg/g	59.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		130	210	pg/g	61.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		138	210	pg/g	65.7	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679017**	**Date Collected:**	**10/18/2019 10:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S16-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 17:14**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-10**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.22 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		131	210	pg/g	62.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		136	210	pg/g	64.9	(26%-138%)
37Cl-2,3,7,8-TCDD		18.6	21.0	pg/g	88.5	(35%-197%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679018**	**Date Collected:**	**10/18/2019 07:50**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**58.5**
Client ID:	**S17-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 18:03**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-11**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**24.37 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.604	pg/g	0.295	0.989
40321-76-4	1,2,3,7,8-PeCDD		4.96	pg/g	0.374	4.95
39227-28-6	1,2,3,4,7,8-HxCDD		9.51	pg/g	0.675	4.95
57653-85-7	1,2,3,6,7,8-HxCDD		22.2	pg/g	0.635	4.95
19408-74-3	1,2,3,7,8,9-HxCDD		21.3	pg/g	0.665	4.95
35822-46-9	1,2,3,4,6,7,8-HpCDD		580	pg/g	1.84	4.95
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	6550	pg/g	2.91	9.89
51207-31-9	2,3,7,8-TCDF	J	0.926	pg/g	0.356	0.989
57117-41-6	1,2,3,7,8-PeCDF	J	0.859	pg/g	0.247	4.95
57117-31-4	2,3,4,7,8-PeCDF	J	2.10	pg/g	0.241	4.95
70648-26-9	1,2,3,4,7,8-HxCDF	J	4.22	pg/g	0.461	4.95
57117-44-9	1,2,3,6,7,8-HxCDF	J	4.42	pg/g	0.481	4.95
72918-21-9	1,2,3,7,8,9-HxCDF	JQ	1.01	pg/g	0.681	4.95
60851-34-5	2,3,4,6,7,8-HxCDF		6.84	pg/g	0.536	4.95
67562-39-4	1,2,3,4,6,7,8-HpCDF		123	pg/g	0.625	4.95
55673-89-7	1,2,3,4,7,8,9-HpCDF		8.08	pg/g	0.831	4.95
39001-02-0	1,2,3,4,6,7,8,9-OCDF		351	pg/g	0.984	9.89
41903-57-5	Total TeCDD	JK	4.94	pg/g	0.295	0.989
36088-22-9	Total PeCDD	JKQ	24.7	pg/g	0.374	4.95
34465-46-8	Total HxCDD	J	155	pg/g	0.635	4.95
37871-00-4	Total HpCDD		1090	pg/g	1.84	4.95
30402-14-3	Total TeCDF	JK	14.5	pg/g	0.356	0.989
30402-15-4	Total PeCDF	JKQ	45.1	pg/g	0.0669	4.95
55684-94-1	Total HxCDF	JKQ	149	pg/g	0.461	4.95
38998-75-3	Total HpCDF	J	344	pg/g	0.625	4.95
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		22.5	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		22.5	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		119	198	pg/g	60.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		137	198	pg/g	69.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		122	198	pg/g	61.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		119	198	pg/g	60.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		137	198	pg/g	69.2	(23%-140%)
13C-OCDD		234	396	pg/g	59.2	(17%-157%)
13C-2,3,7,8-TCDF		129	198	pg/g	65.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		141	198	pg/g	71.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		142	198	pg/g	71.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	198	pg/g	58.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		104	198	pg/g	52.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		113	198	pg/g	57.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF	Q	75.7	198	pg/g	38.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679018**	**Date Collected:**	**10/18/2019 07:50**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**58.5**
Client ID:	**S17-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 18:03**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-11**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**24.37 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		117	198	pg/g	59.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		121	198	pg/g	61.4	(26%-138%)
37Cl-2,3,7,8-TCDD		16.9	19.8	pg/g	85.3	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
Q **Quantitative Interference; value is estimated**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679019**	**Date Collected:**	**10/18/2019 09:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S18-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 18:51**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-12**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.26 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.700	pg/g	0.235	1.05
40321-76-4	1,2,3,7,8-PeCDD	J	4.20	pg/g	0.336	5.26
39227-28-6	1,2,3,4,7,8-HxCDD		8.59	pg/g	0.877	5.26
57653-85-7	1,2,3,6,7,8-HxCDD		19.5	pg/g	0.881	5.26
19408-74-3	1,2,3,7,8,9-HxCDD		18.1	pg/g	0.894	5.26
35822-46-9	1,2,3,4,6,7,8-HpCDD		601	pg/g	2.03	5.26
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5230	pg/g	3.26	10.5
51207-31-9	2,3,7,8-TCDF	K	1.30	pg/g	0.378	1.05
57117-41-6	1,2,3,7,8-PeCDF	J	0.744	pg/g	0.246	5.26
57117-31-4	2,3,4,7,8-PeCDF	J	1.74	pg/g	0.242	5.26
70648-26-9	1,2,3,4,7,8-HxCDF	J	3.52	pg/g	0.439	5.26
57117-44-9	1,2,3,6,7,8-HxCDF	J	3.57	pg/g	0.437	5.26
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.997	pg/g	0.479	5.26
60851-34-5	2,3,4,6,7,8-HxCDF		6.20	pg/g	0.475	5.26
67562-39-4	1,2,3,4,6,7,8-HpCDF		100	pg/g	0.614	5.26
55673-89-7	1,2,3,4,7,8,9-HpCDF		7.50	pg/g	0.833	5.26
39001-02-0	1,2,3,4,6,7,8,9-OCDF		286	pg/g	1.15	10.5
41903-57-5	Total TeCDD	JK	5.53	pg/g	0.235	1.05
36088-22-9	Total PeCDD	JK	21.0	pg/g	0.336	5.26
34465-46-8	Total HxCDD	J	240	pg/g	0.877	5.26
37871-00-4	Total HpCDD	E	2930	pg/g	2.03	5.26
30402-14-3	Total TeCDF	JK	10.6	pg/g	0.378	1.05
30402-15-4	Total PeCDF	JK	34.2	pg/g	0.0698	5.26
55684-94-1	Total HxCDF	JK	114	pg/g	0.437	5.26
38998-75-3	Total HpCDF	J	282	pg/g	0.614	5.26
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		20.4	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		20.4	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		121	210	pg/g	57.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		139	210	pg/g	66.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		127	210	pg/g	60.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		117	210	pg/g	55.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		141	210	pg/g	66.9	(23%-140%)
13C-OCDD		232	421	pg/g	55.1	(17%-157%)
13C-2,3,7,8-TCDF		128	210	pg/g	60.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		142	210	pg/g	67.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		140	210	pg/g	66.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		133	210	pg/g	63.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	210	pg/g	51.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		114	210	pg/g	54.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		108	210	pg/g	51.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679019**	**Date Collected:**	**10/18/2019 09:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S18-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 18:51**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-12**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.26 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		123	210	pg/g	58.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		127	210	pg/g	60.4	(26%-138%)
37Cl-2,3,7,8-TCDD		18.3	21.0	pg/g	87.0	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679019**	**Date Collected:**	**10/18/2019 09:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S18-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/06/2019 04:11**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b05nov19c_3-8**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.26 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	JK	1.01	pg/g	0.433	1.05

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

Comments:

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

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679020**	**Date Collected:**	**10/18/2019 10:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S19-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 19:39**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-13**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.33 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.526	pg/g	0.287	1.05
40321-76-4	1,2,3,7,8-PeCDD	J	3.71	pg/g	0.365	5.24
39227-28-6	1,2,3,4,7,8-HxCDD		6.93	pg/g	1.20	5.24
57653-85-7	1,2,3,6,7,8-HxCDD		17.7	pg/g	1.16	5.24
19408-74-3	1,2,3,7,8,9-HxCDD		16.0	pg/g	1.20	5.24
35822-46-9	1,2,3,4,6,7,8-HpCDD		561	pg/g	2.98	5.24
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	6280	pg/g	2.91	10.5
51207-31-9	2,3,7,8-TCDF	J	0.704	pg/g	0.503	1.05
57117-41-6	1,2,3,7,8-PeCDF	J	0.822	pg/g	0.470	5.24
57117-31-4	2,3,4,7,8-PeCDF	J	1.68	pg/g	0.423	5.24
70648-26-9	1,2,3,4,7,8-HxCDF	J	3.31	pg/g	0.572	5.24
57117-44-9	1,2,3,6,7,8-HxCDF	J	3.44	pg/g	0.621	5.24
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.07	pg/g	0.589	5.24
60851-34-5	2,3,4,6,7,8-HxCDF	J	5.05	pg/g	0.583	5.24
67562-39-4	1,2,3,4,6,7,8-HpCDF		85.1	pg/g	0.612	5.24
55673-89-7	1,2,3,4,7,8,9-HpCDF		5.29	pg/g	0.830	5.24
39001-02-0	1,2,3,4,6,7,8,9-OCDF		211	pg/g	1.20	10.5
41903-57-5	Total TeCDD	JK	4.53	pg/g	0.287	1.05
36088-22-9	Total PeCDD	JK	20.7	pg/g	0.365	5.24
34465-46-8	Total HxCDD	JK	156	pg/g	1.16	5.24
37871-00-4	Total HpCDD		1510	pg/g	2.98	5.24
30402-14-3	Total TeCDF	JK	8.74	pg/g	0.503	1.05
30402-15-4	Total PeCDF	J	32.4	pg/g	0.0824	5.24
55684-94-1	Total HxCDF	JK	103	pg/g	0.572	5.24
38998-75-3	Total HpCDF	J	231	pg/g	0.612	5.24
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		18.7	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		18.7	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	210	pg/g	50.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		121	210	pg/g	57.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		108	210	pg/g	51.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		89.9	210	pg/g	42.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		106	210	pg/g	50.8	(23%-140%)
13C-OCDD		181	419	pg/g	43.1	(17%-157%)
13C-2,3,7,8-TCDF		115	210	pg/g	55.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		126	210	pg/g	59.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		126	210	pg/g	60.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		97.9	210	pg/g	46.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		89.1	210	pg/g	42.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		98.1	210	pg/g	46.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		98.9	210	pg/g	47.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679020**	**Date Collected:**	**10/18/2019 10:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**62.3**
Client ID:	**S19-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 19:39**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-13**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.33 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		95.8	210	pg/g	45.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		95.3	210	pg/g	45.5	(26%-138%)
37Cl-2,3,7,8-TCDD		17.8	21.0	pg/g	85.1	(35%-197%)

Comments:

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

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679021**	**Date Collected:**	**10/18/2019 08:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**59.7**
Client ID:	**S20-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 22:12**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-2**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.3 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	JK	0.430	pg/g	0.163	0.981
40321-76-4	1,2,3,7,8-PeCDD	J	1.38	pg/g	0.176	4.91
39227-28-6	1,2,3,4,7,8-HxCDD	JK	2.67	pg/g	0.506	4.91
57653-85-7	1,2,3,6,7,8-HxCDD		5.89	pg/g	0.495	4.91
19408-74-3	1,2,3,7,8,9-HxCDD	K	5.73	pg/g	0.508	4.91
35822-46-9	1,2,3,4,6,7,8-HpCDD		152	pg/g	1.20	4.91
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1830	pg/g	2.71	9.81
51207-31-9	2,3,7,8-TCDF	J	0.424	pg/g	0.222	0.981
57117-41-6	1,2,3,7,8-PeCDF	JK	0.345	pg/g	0.230	4.91
57117-31-4	2,3,4,7,8-PeCDF	JK	0.652	pg/g	0.196	4.91
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.01	pg/g	0.196	4.91
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.41	pg/g	0.206	4.91
72918-21-9	1,2,3,7,8,9-HxCDF	JK	0.340	pg/g	0.234	4.91
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.93	pg/g	0.212	4.91
67562-39-4	1,2,3,4,6,7,8-HpCDF		32.1	pg/g	0.444	4.91
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	2.54	pg/g	0.628	4.91
39001-02-0	1,2,3,4,6,7,8,9-OCDF		94.8	pg/g	0.563	9.81
41903-57-5	Total TeCDD	JK	1.35	pg/g	0.163	0.981
36088-22-9	Total PeCDD	JK	6.45	pg/g	0.176	4.91
34465-46-8	Total HxCDD	JK	42.8	pg/g	0.495	4.91
37871-00-4	Total HpCDD		335	pg/g	1.20	4.91
30402-14-3	Total TeCDF	JK	3.56	pg/g	0.222	0.981
30402-15-4	Total PeCDF	JK	11.5	pg/g	0.0491	4.91
55684-94-1	Total HxCDF	JK	34.8	pg/g	0.196	4.91
38998-75-3	Total HpCDF	J	87.8	pg/g	0.444	4.91
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		6.40	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		6.40	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		110	196	pg/g	56.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		123	196	pg/g	62.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	196	pg/g	55.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	196	pg/g	52.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		118	196	pg/g	60.2	(23%-140%)
13C-OCDD		202	393	pg/g	51.5	(17%-157%)
13C-2,3,7,8-TCDF		117	196	pg/g	59.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		128	196	pg/g	65.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		127	196	pg/g	64.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		104	196	pg/g	52.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		99.7	196	pg/g	50.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		107	196	pg/g	54.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		110	196	pg/g	55.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679021**	**Date Collected:**	**10/18/2019 08:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**59.7**
Client ID:	**S20-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 22:12**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-2**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.3 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		105	196	pg/g	53.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		106	196	pg/g	54.0	(26%-138%)
37Cl-2,3,7,8-TCDD		17.5	19.6	pg/g	89.4	(35%-197%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679022**	**Date Collected:**	**10/18/2019 09:55**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**64.4**
Client ID:	**S22-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 23:00**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-3**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.15 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	JK	0.505	pg/g	0.246	1.12
40321-76-4	1,2,3,7,8-PeCDD	J	3.15	pg/g	0.388	5.58
39227-28-6	1,2,3,4,7,8-HxCDD		6.56	pg/g	0.779	5.58
57653-85-7	1,2,3,6,7,8-HxCDD		13.3	pg/g	0.750	5.58
19408-74-3	1,2,3,7,8,9-HxCDD		12.9	pg/g	0.777	5.58
35822-46-9	1,2,3,4,6,7,8-HpCDD		359	pg/g	1.40	5.58
3268-87-9	1,2,3,4,6,7,8,9-OCDD		3340	pg/g	3.04	11.2
51207-31-9	2,3,7,8-TCDF	J	0.779	pg/g	0.317	1.12
57117-41-6	1,2,3,7,8-PeCDF	J	0.484	pg/g	0.200	5.58
57117-31-4	2,3,4,7,8-PeCDF	J	1.38	pg/g	0.161	5.58
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.88	pg/g	0.391	5.58
57117-44-9	1,2,3,6,7,8-HxCDF	J	3.32	pg/g	0.426	5.58
72918-21-9	1,2,3,7,8,9-HxCDF	JK	0.929	pg/g	0.404	5.58
60851-34-5	2,3,4,6,7,8-HxCDF	J	4.58	pg/g	0.429	5.58
67562-39-4	1,2,3,4,6,7,8-HpCDF		82.0	pg/g	0.607	5.58
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	5.56	pg/g	0.875	5.58
39001-02-0	1,2,3,4,6,7,8,9-OCDF		205	pg/g	0.922	11.2
41903-57-5	Total TeCDD	JK	4.34	pg/g	0.246	1.12
36088-22-9	Total PeCDD	JK	15.4	pg/g	0.388	5.58
34465-46-8	Total HxCDD	J	103	pg/g	0.750	5.58
37871-00-4	Total HpCDD		826	pg/g	1.40	5.58
30402-14-3	Total TeCDF	JK	8.64	pg/g	0.317	1.12
30402-15-4	Total PeCDF	JK	30.1	pg/g	0.0547	5.58
55684-94-1	Total HxCDF	JK	85.1	pg/g	0.391	5.58
38998-75-3	Total HpCDF	JK	208	pg/g	0.607	5.58
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		14.1	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		14.1	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		142	223	pg/g	63.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		152	223	pg/g	68.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		149	223	pg/g	66.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		131	223	pg/g	58.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		155	223	pg/g	69.2	(23%-140%)
13C-OCDD		265	447	pg/g	59.4	(17%-157%)
13C-2,3,7,8-TCDF		151	223	pg/g	67.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		155	223	pg/g	69.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		159	223	pg/g	71.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		132	223	pg/g	59.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		124	223	pg/g	55.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		137	223	pg/g	61.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		142	223	pg/g	63.7	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679022**	**Date Collected:**	**10/18/2019 09:55**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**64.4**
Client ID:	**S22-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 23:00**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-3**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.15 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		135	223	pg/g	60.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		142	223	pg/g	63.4	(26%-138%)
37Cl-2,3,7,8-TCDD		19.7	22.3	pg/g	88.2	(35%-197%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679023**	**Date Collected:**	**10/18/2019 10:45**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**59.6**
Client ID:	**S23-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 23:48**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-4**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.4 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.341	pg/g	0.197	0.975
40321-76-4	1,2,3,7,8-PeCDD	J	1.95	pg/g	0.248	4.88
39227-28-6	1,2,3,4,7,8-HxCDD	JK	3.45	pg/g	0.667	4.88
57653-85-7	1,2,3,6,7,8-HxCDD		6.88	pg/g	0.634	4.88
19408-74-3	1,2,3,7,8,9-HxCDD		7.84	pg/g	0.661	4.88
35822-46-9	1,2,3,4,6,7,8-HpCDD		196	pg/g	1.19	4.88
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2190	pg/g	1.74	9.75
51207-31-9	2,3,7,8-TCDF	J	0.556	pg/g	0.269	0.975
57117-41-6	1,2,3,7,8-PeCDF	JK	0.343	pg/g	0.335	4.88
57117-31-4	2,3,4,7,8-PeCDF	JK	0.850	pg/g	0.326	4.88
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.72	pg/g	0.316	4.88
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.69	pg/g	0.326	4.88
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.423	pg/g	0.363	4.88
60851-34-5	2,3,4,6,7,8-HxCDF	JK	2.72	pg/g	0.361	4.88
67562-39-4	1,2,3,4,6,7,8-HpCDF		41.0	pg/g	0.318	4.88
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	2.89	pg/g	0.488	4.88
39001-02-0	1,2,3,4,6,7,8,9-OCDF		114	pg/g	0.870	9.75
41903-57-5	Total TeCDD	JK	3.16	pg/g	0.197	0.975
36088-22-9	Total PeCDD	JK	9.36	pg/g	0.248	4.88
34465-46-8	Total HxCDD	JK	59.6	pg/g	0.634	4.88
37871-00-4	Total HpCDD		487	pg/g	1.19	4.88
30402-14-3	Total TeCDF	JK	5.07	pg/g	0.269	0.975
30402-15-4	Total PeCDF	JK	15.9	pg/g	0.0445	4.88
55684-94-1	Total HxCDF	JK	46.7	pg/g	0.316	4.88
38998-75-3	Total HpCDF	J	112	pg/g	0.318	4.88
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		8.18	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		8.18	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		112	195	pg/g	57.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		124	195	pg/g	63.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		116	195	pg/g	59.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		103	195	pg/g	52.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		126	195	pg/g	64.5	(23%-140%)
13C-OCDD		217	390	pg/g	55.7	(17%-157%)
13C-2,3,7,8-TCDF		119	195	pg/g	61.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		127	195	pg/g	64.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		127	195	pg/g	65.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		107	195	pg/g	55.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		102	195	pg/g	52.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		107	195	pg/g	54.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	195	pg/g	57.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679023**	**Date Collected:**	**10/18/2019 10:45**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**59.6**
Client ID:	**S23-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 23:48**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-4**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.4 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		110	195	pg/g	56.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		114	195	pg/g	58.3	(26%-138%)
37Cl-2,3,7,8-TCDD		17.1	19.5	pg/g	87.7	(35%-197%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679024**	**Date Collected:**	**10/18/2019 08:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**59.3**
Client ID:	**SDUP-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/04/2019 00:36**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-5**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.31 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.16	pg/g	0.160	0.972
40321-76-4	1,2,3,7,8-PeCDD	JK	0.948	pg/g	0.295	4.86
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.09	pg/g	0.361	4.86
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.82	pg/g	0.346	4.86
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.62	pg/g	0.359	4.86
35822-46-9	1,2,3,4,6,7,8-HpCDD		111	pg/g	1.06	4.86
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1270	pg/g	2.49	9.72
51207-31-9	2,3,7,8-TCDF	U	0.266	pg/g	0.266	0.972
57117-41-6	1,2,3,7,8-PeCDF	J	0.206	pg/g	0.169	4.86
57117-31-4	2,3,4,7,8-PeCDF	U	0.166	pg/g	0.166	4.86
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.876	pg/g	0.218	4.86
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.964	pg/g	0.229	4.86
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.262	pg/g	0.262	4.86
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.16	pg/g	0.237	4.86
67562-39-4	1,2,3,4,6,7,8-HpCDF		20.1	pg/g	0.375	4.86
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.68	pg/g	0.519	4.86
39001-02-0	1,2,3,4,6,7,8,9-OCDF		54.3	pg/g	0.742	9.72
41903-57-5	Total TeCDD	JK	0.478	pg/g	0.160	0.972
36088-22-9	Total PeCDD	JK	3.23	pg/g	0.295	4.86
34465-46-8	Total HxCDD	J	31.5	pg/g	0.346	4.86
37871-00-4	Total HpCDD		256	pg/g	1.06	4.86
30402-14-3	Total TeCDF	JK	0.876	pg/g	0.266	0.972
30402-15-4	Total PeCDF	J	7.64	pg/g	0.0499	4.86
55684-94-1	Total HxCDF	J	22.7	pg/g	0.218	4.86
38998-75-3	Total HpCDF	J	53.7	pg/g	0.375	4.86
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		3.93	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		4.06	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		90.3	194	pg/g	46.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		102	194	pg/g	52.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		88.6	194	pg/g	45.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		89.4	194	pg/g	46.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		99.0	194	pg/g	50.9	(23%-140%)
13C-OCDD		174	389	pg/g	44.8	(17%-157%)
13C-2,3,7,8-TCDF		95.1	194	pg/g	49.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		105	194	pg/g	53.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		104	194	pg/g	53.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		86.2	194	pg/g	44.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		83.0	194	pg/g	42.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		88.7	194	pg/g	45.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		91.4	194	pg/g	47.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679024**	**Date Collected:**	**10/18/2019 08:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**59.3**
Client ID:	**SDUP-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/04/2019 00:36**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_6-5**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**25.31 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		87.9	194	pg/g	45.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		91.8	194	pg/g	47.2	(26%-138%)
37Cl-2,3,7,8-TCDD		16.4	19.4	pg/g	84.3	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679025**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 13:43**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-5**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**20.97 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.505	pg/g	0.505	0.979
40321-76-4	1,2,3,7,8-PeCDD	J	3.77	pg/g	0.969	4.89
39227-28-6	1,2,3,4,7,8-HxCDD		6.57	pg/g	1.43	4.89
57653-85-7	1,2,3,6,7,8-HxCDD		12.7	pg/g	1.33	4.89
19408-74-3	1,2,3,7,8,9-HxCDD	K	13.7	pg/g	1.40	4.89
35822-46-9	1,2,3,4,6,7,8-HpCDD		374	pg/g	4.66	4.89
3268-87-9	1,2,3,4,6,7,8,9-OCDD		3850	pg/g	11.7	9.79
51207-31-9	2,3,7,8-TCDF		1.35	pg/g	0.599	0.979
57117-41-6	1,2,3,7,8-PeCDF	JK	0.713	pg/g	0.474	4.89
57117-31-4	2,3,4,7,8-PeCDF	J	1.78	pg/g	0.417	4.89
70648-26-9	1,2,3,4,7,8-HxCDF	J	3.16	pg/g	0.673	4.89
57117-44-9	1,2,3,6,7,8-HxCDF	J	2.93	pg/g	0.689	4.89
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.992	pg/g	0.992	4.89
60851-34-5	2,3,4,6,7,8-HxCDF	JK	4.46	pg/g	0.691	4.89
67562-39-4	1,2,3,4,6,7,8-HpCDF		83.0	pg/g	1.77	4.89
55673-89-7	1,2,3,4,7,8,9-HpCDF		5.15	pg/g	2.66	4.89
39001-02-0	1,2,3,4,6,7,8,9-OCDF		227	pg/g	3.07	9.79
41903-57-5	Total TeCDD	JK	5.40	pg/g	0.505	0.979
36088-22-9	Total PeCDD	JK	16.7	pg/g	0.969	4.89
34465-46-8	Total HxCDD	JK	99.6	pg/g	1.33	4.89
37871-00-4	Total HpCDD		736	pg/g	4.66	4.89
30402-14-3	Total TeCDF	JK	9.68	pg/g	0.599	0.979
30402-15-4	Total PeCDF	JK	33.7	pg/g	0.204	4.89
55684-94-1	Total HxCDF	JK	86.9	pg/g	0.673	4.89
38998-75-3	Total HpCDF		229	pg/g	1.77	4.89
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		14.6	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		15.0	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%		Acceptable Limits
13C-2,3,7,8-TCDD		42.5	196	pg/g	21.7	*	(25%-164%)
13C-1,2,3,7,8-PeCDD		44.0	196	pg/g	22.5	*	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		37.2	196	pg/g	19.0	*	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		43.9	196	pg/g	22.4	*	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		40.2	196	pg/g	20.5	*	(23%-140%)
13C-OCDD		58.5	391	pg/g	14.9	*	(17%-157%)
13C-2,3,7,8-TCDF		45.1	196	pg/g	23.1	*	(24%-169%)
13C-1,2,3,7,8-PeCDF		46.0	196	pg/g	23.5	*	(24%-185%)
13C-2,3,4,7,8-PeCDF		47.0	196	pg/g	24.0		(21%-178%)
13C-1,2,3,4,7,8-HxCDF		35.1	196	pg/g	17.9	*	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		38.2	196	pg/g	19.5	*	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		39.2	196	pg/g	20.0	*	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		35.8	196	pg/g	18.3	*	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679025**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 13:43**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-5**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**20.97 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%		Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		33.2	196	pg/g	17.0	*	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		34.3	196	pg/g	17.5	*	(26%-138%)
37Cl-2,3,7,8-TCDD		17.7	19.6	pg/g	90.5		(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**15679025**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/10/2019 16:04**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b10nov19a-10**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**20.97 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.52	pg/g	0.613	0.979

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

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12025227	LCS for batch 42235	13C-2,3,7,8-TCDD		77.9	(20%-175%)
		13C-1,2,3,7,8-PeCDD		74.2	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		74.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		73.0	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		77.4	(22%-166%)
		13C-OCDD		62.7	(13%-199%)
		13C-2,3,7,8-TCDF		75.4	(22%-152%)
		13C-1,2,3,7,8-PeCDF		75.4	(21%-192%)
		13C-2,3,4,7,8-PeCDF		70.5	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		69.9	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		66.0	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		67.5	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		72.3	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		66.5	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		65.8	(20%-186%)
		37Cl-2,3,7,8-TCDD		92.3	(31%-191%)
12025228	LCSD for batch 42235	13C-2,3,7,8-TCDD		83.7	(20%-175%)
		13C-1,2,3,7,8-PeCDD		74.0	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		74.4	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		78.9	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		75.4	(22%-166%)
		13C-OCDD		64.3	(13%-199%)
		13C-2,3,7,8-TCDF		77.0	(22%-152%)
		13C-1,2,3,7,8-PeCDF		76.6	(21%-192%)
		13C-2,3,4,7,8-PeCDF		74.1	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		72.4	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		69.2	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		69.8	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		72.3	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		66.2	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		64.0	(20%-186%)
		37Cl-2,3,7,8-TCDD		104	(31%-191%)
12025226	MB for batch 42235	13C-2,3,7,8-TCDD		73.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		65.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.6	(23%-140%)
		13C-OCDD		57.8	(17%-157%)
		13C-2,3,7,8-TCDF		67.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		64.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		64.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		61.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		64.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		64.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		60.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		58.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		92.4	(35%-197%)
15679002	S24-SED-3.5	13C-2,3,7,8-TCDD		59.4	(25%-164%)

Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15679002	S24-SED-3.5	13C-1,2,3,7,8-PeCDD		65.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		57.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		59.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		64.3	(23%-140%)
		13C-OCDD		50.5	(17%-157%)
		13C-2,3,7,8-TCDF		65.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		71.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		69.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		56.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		57.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		60.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		59.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		60.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		61.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		91.2	(35%-197%)
12025229	S24-SED-3.5(15679002MS)	13C-2,3,7,8-TCDD		61.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		66.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		58.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		58.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		63.1	(23%-140%)
		13C-OCDD		47.4	(17%-157%)
		13C-2,3,7,8-TCDF		67.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		73.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		71.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		59.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		54.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		61.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		56.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		55.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		56.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		93.9	(35%-197%)
12025230	S24-SED-3.5(15679002MSD)	13C-2,3,7,8-TCDD		66.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		72.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		60.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		62.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		66.9	(23%-140%)
		13C-OCDD		53.0	(17%-157%)
		13C-2,3,7,8-TCDF		66.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		77.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		76.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		59.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		58.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		62.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		59.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		60.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		60.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		100	(35%-197%)
15679004	S14-SED-3.0	13C-2,3,7,8-TCDD		63.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.1	(25%-181%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15679004	S14-SED-3.0	13C-1,2,3,4,7,8-HxCDD		63.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		65.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.1	(23%-140%)
		13C-OCDD		60.2	(17%-157%)
		13C-2,3,7,8-TCDF		68.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		77.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		78.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		62.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		59.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		62.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		63.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		61.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		63.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		90.8	(35%-197%)
15679006	S15-SED-3.5	13C-2,3,7,8-TCDD		65.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		69.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		67.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		64.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		75.6	(23%-140%)
		13C-OCDD		67.7	(17%-157%)
		13C-2,3,7,8-TCDF		68.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		73.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		69.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		63.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF	Q	45.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		63.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF	Q	32.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		63.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		67.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.9	(35%-197%)
15679009	S22-SED-3.5	13C-2,3,7,8-TCDD		61.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		71.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		59.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		58.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		65.5	(23%-140%)
		13C-OCDD		52.2	(17%-157%)
		13C-2,3,7,8-TCDF		65.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		72.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		73.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		58.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		53.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		58.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		59.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		60.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		60.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		91.1	(35%-197%)
15679012	S16-SED-3.0	13C-2,3,7,8-TCDD		47.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		56.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		47.8	(32%-141%)

Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15679012	S16-SED-3.0	13C-1,2,3,6,7,8-HxCDD		47.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		54.5	(23%-140%)
		13C-OCDD		45.7	(17%-157%)
		13C-2,3,7,8-TCDF		54.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		56.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		59.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		48.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		47.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		47.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		49.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		47.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		48.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		87.4	(35%-197%)
15679014	S21-SED-3.5	13C-2,3,7,8-TCDD		67.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		63.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		64.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.2	(23%-140%)
		13C-OCDD		57.8	(17%-157%)
		13C-2,3,7,8-TCDF		67.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		62.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		59.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		65.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		64.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		61.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		63.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		91.1	(35%-197%)
15679017	S16-SED-0.33	13C-2,3,7,8-TCDD		65.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		72.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		65.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		60.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.9	(23%-140%)
		13C-OCDD		60.2	(17%-157%)
		13C-2,3,7,8-TCDF		69.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		75.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		60.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		59.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		61.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		65.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		62.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		64.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		88.5	(35%-197%)
15679018	S17-SED-0.33	13C-2,3,7,8-TCDD		60.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		69.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		61.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		60.3	(28%-130%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15679018	S17-SED-0.33	13C-1,2,3,4,6,7,8-HpCDD		69.2	(23%-140%)
		13C-OCDD		59.2	(17%-157%)
		13C-2,3,7,8-TCDF		65.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		71.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		71.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		58.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		52.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		57.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF	Q	38.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		59.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		61.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.3	(35%-197%)
15679019	S18-SED-0.33	13C-2,3,7,8-TCDD		57.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		66.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		60.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		55.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		66.9	(23%-140%)
		13C-OCDD		55.1	(17%-157%)
		13C-2,3,7,8-TCDF		60.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		67.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		66.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		63.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		51.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		54.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		51.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		58.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		60.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		87.0	(35%-197%)
15679020	S19-SED-0.33	13C-2,3,7,8-TCDD		50.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		57.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		51.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		42.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		50.8	(23%-140%)
		13C-OCDD		43.1	(17%-157%)
		13C-2,3,7,8-TCDF		55.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		59.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		60.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		46.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		42.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		46.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		47.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		45.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		45.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.1	(35%-197%)
15679021	S20-SED-0.33	13C-2,3,7,8-TCDD		56.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		62.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		55.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		52.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		60.2	(23%-140%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15679021	S20-SED-0.33	13C-OCDD		51.5	(17%-157%)
		13C-2,3,7,8-TCDF		59.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		65.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		64.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		52.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		50.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		54.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		55.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		53.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		54.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		89.4	(35%-197%)
15679022	S22-SED-0.33	13C-2,3,7,8-TCDD		63.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		68.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		66.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		58.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.2	(23%-140%)
		13C-OCDD		59.4	(17%-157%)
		13C-2,3,7,8-TCDF		67.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		71.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		59.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		55.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		61.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		63.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		60.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		63.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		88.2	(35%-197%)
15679023	S23-SED-0.33	13C-2,3,7,8-TCDD		57.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		63.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		59.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		52.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		64.5	(23%-140%)
		13C-OCDD		55.7	(17%-157%)
		13C-2,3,7,8-TCDF		61.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		64.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		65.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		55.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		52.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		54.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		57.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		56.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		58.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		87.7	(35%-197%)
15679024	SDUP-SED-0.33	13C-2,3,7,8-TCDD		46.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		52.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		45.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		46.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		50.9	(23%-140%)
		13C-OCDD		44.8	(17%-157%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15679024	SDUP-SED-0.33	13C-2,3,7,8-TCDF		49.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		53.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		53.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		44.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		42.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		45.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		47.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		45.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		47.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.3	(35%-197%)
12025283	LCS for batch 42296	13C-2,3,7,8-TCDD		75.2	(20%-175%)
		13C-1,2,3,7,8-PeCDD		84.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		69.2	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		79.5	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		81.9	(22%-166%)
		13C-OCDD		66.3	(13%-199%)
		13C-2,3,7,8-TCDF		75.8	(22%-152%)
		13C-1,2,3,7,8-PeCDF		88.1	(21%-192%)
		13C-2,3,4,7,8-PeCDF		85.5	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		66.2	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		70.3	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		68.6	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		68.8	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.2	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		70.7	(20%-186%)
		37Cl-2,3,7,8-TCDD		90.2	(31%-191%)
12025284	LCSD for batch 42296	13C-2,3,7,8-TCDD		75.3	(20%-175%)
		13C-1,2,3,7,8-PeCDD		81.8	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		64.5	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		72.9	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		77.0	(22%-166%)
		13C-OCDD		60.1	(13%-199%)
		13C-2,3,7,8-TCDF		73.2	(22%-152%)
		13C-1,2,3,7,8-PeCDF		84.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		82.9	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		60.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		65.1	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		66.3	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		66.3	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		64.0	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		65.1	(20%-186%)
		37Cl-2,3,7,8-TCDD		97.2	(31%-191%)
12025282	MB for batch 42296	13C-2,3,7,8-TCDD		72.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		62.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		75.1	(23%-140%)
		13C-OCDD		59.0	(17%-157%)
		13C-2,3,7,8-TCDF		70.2	(24%-169%)

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12025282	MB for batch 42296	13C-1,2,3,7,8-PeCDF		82.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		83.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		60.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		65.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		64.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		64.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		64.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		93.8	(35%-197%)
15679025	S24-SED-0.33	13C-2,3,7,8-TCDD		21.7 *	(25%-164%)
		13C-1,2,3,7,8-PeCDD		22.5 *	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		19.0 *	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		22.4 *	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		20.5 *	(23%-140%)
		13C-OCDD		14.9 *	(17%-157%)
		13C-2,3,7,8-TCDF		23.1 *	(24%-169%)
		13C-1,2,3,7,8-PeCDF		23.5 *	(24%-185%)
		13C-2,3,4,7,8-PeCDF		24.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		17.9 *	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		19.5 *	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		20.0 *	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		18.3 *	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		17.0 *	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		17.5 *	(26%-138%)
		37Cl-2,3,7,8-TCDD		90.5	(35%-197%)
12025285	S24-SED-0.33(15679025MS)	13C-2,3,7,8-TCDD		50.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		53.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		51.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		54.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		56.9	(23%-140%)
		13C-OCDD		46.9	(17%-157%)
		13C-2,3,7,8-TCDF		55.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		53.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		54.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		46.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		50.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		48.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		46.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		47.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		48.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.8	(35%-197%)
12025286	S24-SED-0.33(15679025MSD)	13C-2,3,7,8-TCDD		34.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		35.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		33.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		36.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		36.1	(23%-140%)
		13C-OCDD		28.9	(17%-157%)
		13C-2,3,7,8-TCDF		35.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		35.3	(24%-185%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 10-262

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12025286	S24-SED-0.33(15679025MSD)	13C-2,3,4,7,8-PeCDF		36.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		30.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		30.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		31.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		30.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		29.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		30.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		91.0	(35%-197%)

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

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 42235 **Matrix:** SOIL

Lab Sample ID: 12025227

Instrument: HRP750 **Analysis Date:** 10/31/2019 18:09 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42235

Batch ID: 42238

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	20.0	21.3	106	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	107	107	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	103	103	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	103	103	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	106	106	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	94.9	94.9	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	204	102	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	18.2	91	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	98.9	98.9	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	101	101	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	103	103	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	107	107	84-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	99.7	99.7	78-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	106	106	70-156
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	105	105	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	105	105	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	189	94.5	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 42235 **Matrix:** SOIL

Lab Sample ID: 12025228

Instrument: HRP750 **Analysis Date:** 10/31/2019 18:57 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42235

Batch ID: 42238

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	21.7	109	67-158	2.20	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	106	106	70-142	0.532	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	104	104	70-164	1.14	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	98.3	98.3	76-134	4.54	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	106	106	64-162	0.357	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	95.7	95.7	70-140	0.843	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	198	99.2	78-144	2.75	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	18.0	90	75-158	1.06	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	93.4	93.4	80-134	5.71	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	93.5	93.5	68-160	7.85	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	99.4	99.4	72-134	3.30	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	101	101	84-130	5.51	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	99.4	99.4	78-130	0.281	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	99.9	99.9	70-156	6.04	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	105	105	82-122	0.717	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	102	102	78-138	3.06	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	176	88.2	63-170	6.92	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262
Client ID: S24-SED-3.5(15679002MS)
Lab Sample ID: 12025229
Instrument: HRP750
Analyst: MJC

Sample Type: Matrix Spike
Matrix: SOIL
%Moisture: 36.8
Analysis Date: 11/03/2019 11:36
Dilution: 1
Prep Batch ID: 42235
Batch ID: 42238

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	MS	2,3,7,8-TCDD	19.7	U	20.4	104	70-130
40321-76-4	MS	1,2,3,7,8-PeCDD	98.3	U	104	106	70-130
39227-28-6	MS	1,2,3,4,7,8-HxCDD	98.3	U	103	104	70-130
57653-85-7	MS	1,2,3,6,7,8-HxCDD	98.3	U	104	106	70-130
19408-74-3	MS	1,2,3,7,8,9-HxCDD	98.3	U	109	110	70-130
35822-46-9	MS	1,2,3,4,6,7,8-HpCDD	98.3	J	95.7	93.7	70-130
3268-87-9	MS	1,2,3,4,6,7,8,9-OCDD	197		244	103	70-130
51207-31-9	MS	2,3,7,8-TCDF	19.7	U	17.9	90.8	70-130
57117-41-6	MS	1,2,3,7,8-PeCDF	98.3	U	95.2	96.8	70-130
57117-31-4	MS	2,3,4,7,8-PeCDF	98.3	U	99.2	101	70-130
70648-26-9	MS	1,2,3,4,7,8-HxCDF	98.3	U	100	102	70-130
57117-44-9	MS	1,2,3,6,7,8-HxCDF	98.3	U	104	106	70-130
72918-21-9	MS	1,2,3,7,8,9-HxCDF	98.3	U	102	104	70-130
60851-34-5	MS	2,3,4,6,7,8-HxCDF	98.3	U	103	105	70-130
67562-39-4	MS	1,2,3,4,6,7,8-HpCDF	98.3	JK	104	105	70-130
55673-89-7	MS	1,2,3,4,7,8,9-HpCDF	98.3	U	103	104	70-130
39001-02-0	MS	1,2,3,4,6,7,8,9-OCDF	197	JK	200	101	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262
Client ID: S24-SED-3.5(15679002MSD)
Lab Sample ID: 12025230
Instrument: HRP750
Analyst: MJC

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 36.8
Analysis Date: 11/03/2019 12:25
Dilution: 1
Prep Batch ID: 42235
Batch ID: 42238

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	MSD	2,3,7,8-TCDD	19.5	U	20.1	103	70-130	1.34	0-20
40321-76-4	MSD	1,2,3,7,8-PeCDD	97.4	U	99.9	103	70-130	4.46	0-20
39227-28-6	MSD	1,2,3,4,7,8-HxCDD	97.4	U	98.8	101	70-130	3.68	0-20
57653-85-7	MSD	1,2,3,6,7,8-HxCDD	97.4	U	98.7	101	70-130	4.98	0-20
19408-74-3	MSD	1,2,3,7,8,9-HxCDD	97.4	U	98.9	102	70-130	9.33	0-20
35822-46-9	MSD	1,2,3,4,6,7,8-HpCDD	97.4	J	96.0	94.9	70-130	0.347	0-20
3268-87-9	MSD	1,2,3,4,6,7,8,9-OCDD	195		241	102	70-130	1.61	0-20
51207-31-9	MSD	2,3,7,8-TCDF	19.5	U	18.1	92.9	70-130	1.33	0-20
57117-41-6	MSD	1,2,3,7,8-PeCDF	97.4	U	93.7	96.2	70-130	1.58	0-20
57117-31-4	MSD	2,3,4,7,8-PeCDF	97.4	U	98.2	101	70-130	0.970	0-20
70648-26-9	MSD	1,2,3,4,7,8-HxCDF	97.4	U	99.1	102	70-130	0.826	0-20
57117-44-9	MSD	1,2,3,6,7,8-HxCDF	97.4	U	101	104	70-130	3.06	0-20
72918-21-9	MSD	1,2,3,7,8,9-HxCDF	97.4	U	97.6	100	70-130	4.37	0-20
60851-34-5	MSD	2,3,4,6,7,8-HxCDF	97.4	U	99.6	102	70-130	3.25	0-20
67562-39-4	MSD	1,2,3,4,6,7,8-HpCDF	97.4	JK	103	105	70-130	0.921	0-20
55673-89-7	MSD	1,2,3,4,7,8,9-HpCDF	97.4	U	100	103	70-130	2.10	0-20
39001-02-0	MSD	1,2,3,4,6,7,8,9-OCDF	195	JK	190	97.3	70-130	5.16	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 42296 **Matrix:** SOIL

Lab Sample ID: 12025283

Instrument: HRP750 **Analysis Date:** 11/09/2019 10:30 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42296

Batch ID: 42298

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	20.0	20.6	103	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	101	101	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	98.3	98.3	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	98.4	98.4	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	98.8	98.8	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	89.4	89.4	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	185	92.3	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	17.1	85.4	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	88.6	88.6	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	91.6	91.6	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	97.1	97.1	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	101	101	84-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	97.7	97.7	78-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	98.8	98.8	70-156
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	102	102	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	95.1	95.1	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	180	90.1	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 42296 **Matrix:** SOIL

Lab Sample ID: 12025284

Instrument: HRP750 **Analysis Date:** 11/09/2019 11:18 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42296

Batch ID: 42298

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	19.7	98.6	67-158	4.54	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	99.5	99.5	70-142	1.92	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	98.1	98.1	70-164	0.252	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	98.5	98.5	76-134	0.104	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	102	102	64-162	3.36	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	87.5	87.5	70-140	2.10	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	196	97.9	78-144	5.86	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	16.9	84.4	75-158	1.18	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	89.4	89.4	80-134	0.883	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	91.9	91.9	68-160	0.331	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	99.3	99.3	72-134	2.25	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	97.7	97.7	84-130	2.88	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	94.9	94.9	78-130	2.94	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	94.9	94.9	70-156	4.00	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	99.2	99.2	82-122	2.70	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	99.9	99.9	78-138	4.90	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	185	92.6	63-170	2.82	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262
Client ID: S24-SED-0.33(15679025MS)
Lab Sample ID: 12025285
Instrument: HRP750
Analyst: MJC

Sample Type: Matrix Spike
Matrix: SOIL
%Moisture: 51.3
Analysis Date: 11/09/2019 14:31
Dilution: 1
Prep Batch ID: 42296
Batch ID: 42298

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	MS	2,3,7,8-TCDD	19.6	U	19.2	97.7	70-130
40321-76-4	MS	1,2,3,7,8-PeCDD	98.1	J	105	104	70-130
39227-28-6	MS	1,2,3,4,7,8-HxCDD	98.1		103	98.4	70-130
57653-85-7	MS	1,2,3,6,7,8-HxCDD	98.1		112	101	70-130
19408-74-3	MS	1,2,3,7,8,9-HxCDD	98.1	K	110	98.2	70-130
35822-46-9	MS	1,2,3,4,6,7,8-HpCDD	98.1		462	90	70-130
3268-87-9	MS	1,2,3,4,6,7,8,9-OCDD	196		4270	212 *	70-130
51207-31-9	MS	2,3,7,8-TCDF	19.6		18.4	86.7	70-130
57117-41-6	MS	1,2,3,7,8-PeCDF	98.1	JK	89.5	90.5	70-130
57117-31-4	MS	2,3,4,7,8-PeCDF	98.1	J	93.0	93	70-130
70648-26-9	MS	1,2,3,4,7,8-HxCDF	98.1	J	99.1	97.8	70-130
57117-44-9	MS	1,2,3,6,7,8-HxCDF	98.1	J	97.5	96.4	70-130
72918-21-9	MS	1,2,3,7,8,9-HxCDF	98.1	U	95.9	97.8	70-130
60851-34-5	MS	2,3,4,6,7,8-HxCDF	98.1	JK	103	100	70-130
67562-39-4	MS	1,2,3,4,6,7,8-HpCDF	98.1		183	102	70-130
55673-89-7	MS	1,2,3,4,7,8,9-HpCDF	98.1		107	104	70-130
39001-02-0	MS	1,2,3,4,6,7,8,9-OCDF	196		425	101	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 10-262
Client ID: S24-SED-0.33(15679025MSD)
Lab Sample ID: 12025286
Instrument: HRP750
Analyst: MJC

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 51.3
Analysis Date: 11/09/2019 15:19
Dilution: 1
Prep Batch ID: 42296
Batch ID: 42298

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	MSD	2,3,7,8-TCDD	19.5	U	18.5	95.1	70-130	3.40	0-20
40321-76-4	MSD	1,2,3,7,8-PeCDD	97.4	J	102	101	70-130	3.32	0-20
39227-28-6	MSD	1,2,3,4,7,8-HxCDD	97.4		98.5	94.4	70-130	4.63	0-20
57653-85-7	MSD	1,2,3,6,7,8-HxCDD	97.4		105	94.9	70-130	5.99	0-20
19408-74-3	MSD	1,2,3,7,8,9-HxCDD	97.4	K	103	91.5	70-130	6.82	0-20
35822-46-9	MSD	1,2,3,4,6,7,8-HpCDD	97.4		482	111	70-130	4.24	0-20
3268-87-9	MSD	1,2,3,4,6,7,8,9-OCDD	195		4330	244 *	70-130	1.40	0-20
51207-31-9	MSD	2,3,7,8-TCDF	19.5		17.9	84.9	70-130	2.66	0-20
57117-41-6	MSD	1,2,3,7,8-PeCDF	97.4	JK	85.6	87.2	70-130	4.42	0-20
57117-31-4	MSD	2,3,4,7,8-PeCDF	97.4	J	88.2	88.8	70-130	5.30	0-20
70648-26-9	MSD	1,2,3,4,7,8-HxCDF	97.4	J	98.7	98.1	70-130	0.380	0-20
57117-44-9	MSD	1,2,3,6,7,8-HxCDF	97.4	J	97.7	97.4	70-130	0.219	0-20
72918-21-9	MSD	1,2,3,7,8,9-HxCDF	97.4	U	91.9	94.4	70-130	4.28	0-20
60851-34-5	MSD	2,3,4,6,7,8-HxCDF	97.4	JK	97.8	95.8	70-130	4.93	0-20
67562-39-4	MSD	1,2,3,4,6,7,8-HpCDF	97.4		195	115	70-130	6.22	0-20
55673-89-7	MSD	1,2,3,4,7,8,9-HpCDF	97.4		99.1	96.5	70-130	7.83	0-20
39001-02-0	MSD	1,2,3,4,6,7,8,9-OCDF	195		430	104	70-130	1.18	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number:	**10-262**	**Sample Type:**	**Matrix Spike**	
Client ID:	**S24-SED-0.33(15679025MS)**	**Matrix:**	**SOIL**	
Lab Sample ID:	**12025285**	**%Moisture:**	**51.3**	
Instrument:	**HRP763**	**Analysis Date:**	**11/10/2019 16:26**	**Dilution: 1**
Analyst:	**MLL**	**Prep Batch ID:**	**42296**	
		Batch ID:	**42298**	

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
51207-31-9	MS	2,3,7,8-TCDF	19.6	22.2	105	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number:	**10-262**	**Sample Type:**	**Matrix Spike Duplicate**
Client ID:	**S24-SED-0.33(15679025MSD)**	**Matrix:**	**SOIL**
Lab Sample ID:	**12025286**	**%Moisture:**	**51.3**
Instrument:	**HRP763**	**Analysis Date:**	**11/10/2019 16:47**
Analyst:	**MLL**	**Prep Batch ID:**	**42296**
		Batch ID:	**42298**

Dilution: 1

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
51207-31-9	MSD	2,3,7,8-TCDF	19.5	21.9	105	70-130	1.11	0-20

Method Blank Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 42235**	**Instrument ID:**	**HRP750**	**Data File:**	**A31OCT19A_2-3**
Lab Sample ID:	**12025226**	**Prep Date:**	**30-OCT-19**	**Analyzed:**	**10/31/19 19:45**
Column:					

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

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 42235	12025227	A31OCT19A_2-1	10/31/19	1809
02	LCSD for batch 42235	12025228	A31OCT19A_2-2	10/31/19	1857
03	S24-SED-3.5	15679002	A01NOV19A_5-2	11/03/19	1048
04	S24-SED-3.5(15679002MS)	12025229	A01NOV19A_5-3	11/03/19	1136
05	S24-SED-3.5(15679002MSD)	12025230	A01NOV19A_5-4	11/03/19	1225
06	S14-SED-3.0	15679004	A01NOV19A_5-5	11/03/19	1313
07	S15-SED-3.5	15679006	A01NOV19A_5-6	11/03/19	1401
08	S22-SED-3.5	15679009	A01NOV19A_5-7	11/03/19	1449
09	S16-SED-3.0	15679012	A01NOV19A_5-8	11/03/19	1538
10	S21-SED-3.5	15679014	A01NOV19A_5-9	11/03/19	1626
11	S16-SED-0.33	15679017	A01NOV19A_5-10	11/03/19	1714
12	S17-SED-0.33	15679018	A01NOV19A_5-11	11/03/19	1803
13	S18-SED-0.33	15679019	A01NOV19A_5-12	11/03/19	1851
14	S19-SED-0.33	15679020	A01NOV19A_5-13	11/03/19	1939
15	S20-SED-0.33	15679021	A01NOV19A_6-2	11/03/19	2212
16	S22-SED-0.33	15679022	A01NOV19A_6-3	11/03/19	2300
17	S23-SED-0.33	15679023	A01NOV19A_6-4	11/03/19	2348
18	SDUP-SED-0.33	15679024	A01NOV19A_6-5	11/04/19	0036
19	S14-SED-3.0	15679004	b05nov19c_3-5	11/06/19	0306
20	S15-SED-3.5	15679006	b05nov19c_3-6	11/06/19	0328
21	S18-SED-0.33	15679019	b05nov19c_3-8	11/06/19	0411

Method Blank Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 42296**	**Instrument ID:**	**HRP750**	**Data File:**	**A04NOV19A_13-3**
Lab Sample ID:	**12025282**	**Prep Date:**	**07-NOV-19**	**Analyzed:**	**11/09/19 12:06**
Column:					

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

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 42296	12025283	A04NOV19A_13-1	11/09/19	1030
02	LCSD for batch 42296	12025284	A04NOV19A_13-2	11/09/19	1118
03	S24-SED-0.33	15679025	A04NOV19A_13-5	11/09/19	1343
04	S24-SED-0.33(15679025MS)	12025285	A04NOV19A_13-6	11/09/19	1431
05	S24-SED-0.33(15679025MSD)	12025286	A04NOV19A_13-7	11/09/19	1519
06	S24-SED-0.33	15679025	b10nov19a-10	11/10/19	1604
07	S24-SED-0.33(15679025MS)	12025285	b10nov19a-11	11/10/19	1626
08	S24-SED-0.33(15679025MSD)	12025286	b10nov19a-12	11/10/19	1647

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025226**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42235**				
Client ID:	**MB for batch 42235**			**Prep Basis:**	**As Received**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/31/2019 19:45**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A31OCT19A_2-3**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.298	pg/g	0.298	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.202	pg/g	0.202	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.32	pg/g	0.320	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.316	pg/g	0.316	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.322	pg/g	0.322	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	0.5	pg/g	0.500	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	0.582	pg/g	0.582	10.0
51207-31-9	2,3,7,8-TCDF	U	0.23	pg/g	0.230	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	0.141	pg/g	0.141	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	0.146	pg/g	0.146	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.244	pg/g	0.244	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.246	pg/g	0.246	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.344	pg/g	0.344	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.262	pg/g	0.262	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	0.396	pg/g	0.396	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.636	pg/g	0.636	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	0.796	pg/g	0.796	10.0
41903-57-5	Total TeCDD	U	0.298	pg/g	0.298	1.00
36088-22-9	Total PeCDD	U	0.202	pg/g	0.202	5.00
34465-46-8	Total HxCDD	U	0.316	pg/g	0.316	5.00
37871-00-4	Total HpCDD	U	0.5	pg/g	0.500	5.00
30402-14-3	Total TeCDF	U	0.23	pg/g	0.230	1.00
30402-15-4	Total PeCDF	U	0.141	pg/g	0.141	5.00
55684-94-1	Total HxCDF	U	0.244	pg/g	0.244	5.00
38998-75-3	Total HpCDF	U	0.396	pg/g	0.396	5.00
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.00	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.396	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		147	200	pg/g	73.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		132	200	pg/g	65.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		138	200	pg/g	69.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		143	200	pg/g	71.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		139	200	pg/g	69.6	(23%-140%)
13C-OCDD		231	400	pg/g	57.8	(17%-157%)
13C-2,3,7,8-TCDF		135	200	pg/g	67.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		137	200	pg/g	68.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		129	200	pg/g	64.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		129	200	pg/g	64.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		123	200	pg/g	61.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		130	200	pg/g	64.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		129	200	pg/g	64.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025226**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42235**				
Client ID:	**MB for batch 42235**			**Prep Basis:**	**As Received**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/31/2019 19:45**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A31OCT19A_2-3**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		122	200	pg/g	60.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		117	200	pg/g	58.5	(26%-138%)
37Cl-2,3,7,8-TCDD		18.5	20.0	pg/g	92.4	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025227**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42235**				
Client ID:	**LCS for batch 42235**			**Prep Basis:**	**As Received**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/31/2019 18:09**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A31OCT19A_2-1**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.3	pg/g	0.276	1.00
40321-76-4	1,2,3,7,8-PeCDD		107	pg/g	0.364	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		103	pg/g	0.558	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		103	pg/g	0.538	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		106	pg/g	0.556	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		94.9	pg/g	1.30	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		204	pg/g	1.05	10.0
51207-31-9	2,3,7,8-TCDF		18.2	pg/g	0.280	1.00
57117-41-6	1,2,3,7,8-PeCDF		98.9	pg/g	0.358	5.00
57117-31-4	2,3,4,7,8-PeCDF		101	pg/g	0.344	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		103	pg/g	0.806	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		107	pg/g	0.834	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		99.7	pg/g	1.06	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		106	pg/g	0.864	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		105	pg/g	0.846	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		105	pg/g	1.13	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		189	pg/g	1.31	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		156	200	pg/g	77.9	(20%-175%)
13C-1,2,3,7,8-PeCDD		148	200	pg/g	74.2	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		149	200	pg/g	74.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		146	200	pg/g	73.0	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		155	200	pg/g	77.4	(22%-166%)
13C-OCDD		251	400	pg/g	62.7	(13%-199%)
13C-2,3,7,8-TCDF		151	200	pg/g	75.4	(22%-152%)
13C-1,2,3,7,8-PeCDF		151	200	pg/g	75.4	(21%-192%)
13C-2,3,4,7,8-PeCDF		141	200	pg/g	70.5	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		140	200	pg/g	69.9	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		132	200	pg/g	66.0	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		135	200	pg/g	67.5	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		145	200	pg/g	72.3	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		133	200	pg/g	66.5	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		132	200	pg/g	65.8	(20%-186%)
37Cl-2,3,7,8-TCDD		18.5	20.0	pg/g	92.3	(31%-191%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025228**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42235**				
Client ID:	**LCSD for batch 42235**			**Prep Basis:**	**As Received**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/31/2019 18:57**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A31OCT19A_2-2**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.7	pg/g	0.256	1.00
40321-76-4	1,2,3,7,8-PeCDD		106	pg/g	0.330	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		104	pg/g	0.760	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		98.3	pg/g	0.716	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		106	pg/g	0.748	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		95.7	pg/g	0.850	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		198	pg/g	1.05	10.0
51207-31-9	2,3,7,8-TCDF		18.0	pg/g	0.191	1.00
57117-41-6	1,2,3,7,8-PeCDF		93.4	pg/g	0.336	5.00
57117-31-4	2,3,4,7,8-PeCDF		93.5	pg/g	0.310	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		99.4	pg/g	0.594	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		101	pg/g	0.622	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		99.4	pg/g	0.784	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		99.9	pg/g	0.634	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		105	pg/g	0.712	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		102	pg/g	1.08	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		176	pg/g	1.21	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		167	200	pg/g	83.7	(20%-175%)
13C-1,2,3,7,8-PeCDD		148	200	pg/g	74.0	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		149	200	pg/g	74.4	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		158	200	pg/g	78.9	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		151	200	pg/g	75.4	(22%-166%)
13C-OCDD		257	400	pg/g	64.3	(13%-199%)
13C-2,3,7,8-TCDF		154	200	pg/g	77.0	(22%-152%)
13C-1,2,3,7,8-PeCDF		153	200	pg/g	76.6	(21%-192%)
13C-2,3,4,7,8-PeCDF		148	200	pg/g	74.1	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		145	200	pg/g	72.4	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		138	200	pg/g	69.2	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		140	200	pg/g	69.8	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		145	200	pg/g	72.3	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		132	200	pg/g	66.2	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		128	200	pg/g	64.0	(20%-186%)
37Cl-2,3,7,8-TCDD		20.9	20.0	pg/g	104	(31%-191%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025229**	**Date Collected:**	**10/17/2019 12:55**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42235**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**36.8**
Client ID:	**S24-SED-3.5(15679002MS)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 11:36**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-3**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**16.09 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.4	pg/g	0.191	0.983
40321-76-4	1,2,3,7,8-PeCDD		104	pg/g	0.372	4.92
39227-28-6	1,2,3,4,7,8-HxCDD		103	pg/g	0.698	4.92
57653-85-7	1,2,3,6,7,8-HxCDD		104	pg/g	0.653	4.92
19408-74-3	1,2,3,7,8,9-HxCDD		109	pg/g	0.684	4.92
35822-46-9	1,2,3,4,6,7,8-HpCDD		95.7	pg/g	0.629	4.92
3268-87-9	1,2,3,4,6,7,8,9-OCDD		244	pg/g	0.989	9.83
51207-31-9	2,3,7,8-TCDF		17.9	pg/g	0.206	0.983
57117-41-6	1,2,3,7,8-PeCDF		95.2	pg/g	0.328	4.92
57117-31-4	2,3,4,7,8-PeCDF		99.2	pg/g	0.319	4.92
70648-26-9	1,2,3,4,7,8-HxCDF		100	pg/g	0.722	4.92
57117-44-9	1,2,3,6,7,8-HxCDF		104	pg/g	0.747	4.92
72918-21-9	1,2,3,7,8,9-HxCDF		102	pg/g	1.09	4.92
60851-34-5	2,3,4,6,7,8-HxCDF		103	pg/g	0.716	4.92
67562-39-4	1,2,3,4,6,7,8-HpCDF		104	pg/g	0.584	4.92
55673-89-7	1,2,3,4,7,8,9-HpCDF		103	pg/g	0.903	4.92
39001-02-0	1,2,3,4,6,7,8,9-OCDF		200	pg/g	1.80	9.83

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		121	197	pg/g	61.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		131	197	pg/g	66.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		115	197	pg/g	58.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		116	197	pg/g	58.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		124	197	pg/g	63.1	(23%-140%)
13C-OCDD		187	393	pg/g	47.4	(17%-157%)
13C-2,3,7,8-TCDF		132	197	pg/g	67.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		144	197	pg/g	73.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		140	197	pg/g	71.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	197	pg/g	59.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	197	pg/g	54.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		120	197	pg/g	61.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	197	pg/g	56.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		109	197	pg/g	55.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	197	pg/g	56.6	(26%-138%)
37Cl-2,3,7,8-TCDD		18.5	19.7	pg/g	93.9	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025230**	**Date Collected:**	**10/17/2019 12:55**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42235**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**36.8**
Client ID:	**S24-SED-3.5(15679002MSD)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42238**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/03/2019 12:25**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A01NOV19A_5-4**			**Dilution:**	**1**
Prep Batch:	**42235**	**Prep Method:**	**SW846 3546**		
Prep Date:	**30-OCT-19**	**Prep Aliquot:**	**16.25 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.1	pg/g	0.188	0.974
40321-76-4	1,2,3,7,8-PeCDD		99.9	pg/g	0.345	4.87
39227-28-6	1,2,3,4,7,8-HxCDD		98.8	pg/g	0.705	4.87
57653-85-7	1,2,3,6,7,8-HxCDD		98.7	pg/g	0.707	4.87
19408-74-3	1,2,3,7,8,9-HxCDD		98.9	pg/g	0.717	4.87
35822-46-9	1,2,3,4,6,7,8-HpCDD		96.0	pg/g	0.740	4.87
3268-87-9	1,2,3,4,6,7,8,9-OCDD		241	pg/g	1.08	9.74
51207-31-9	2,3,7,8-TCDF		18.1	pg/g	0.189	0.974
57117-41-6	1,2,3,7,8-PeCDF		93.7	pg/g	0.302	4.87
57117-31-4	2,3,4,7,8-PeCDF		98.2	pg/g	0.278	4.87
70648-26-9	1,2,3,4,7,8-HxCDF		99.1	pg/g	0.697	4.87
57117-44-9	1,2,3,6,7,8-HxCDF		101	pg/g	0.736	4.87
72918-21-9	1,2,3,7,8,9-HxCDF		97.6	pg/g	1.01	4.87
60851-34-5	2,3,4,6,7,8-HxCDF		99.6	pg/g	0.705	4.87
67562-39-4	1,2,3,4,6,7,8-HpCDF		103	pg/g	0.500	4.87
55673-89-7	1,2,3,4,7,8,9-HpCDF		100	pg/g	0.765	4.87
39001-02-0	1,2,3,4,6,7,8,9-OCDF		190	pg/g	1.43	9.74

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		129	195	pg/g	66.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		142	195	pg/g	72.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		117	195	pg/g	60.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		121	195	pg/g	62.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		130	195	pg/g	66.9	(23%-140%)
13C-OCDD		206	389	pg/g	53.0	(17%-157%)
13C-2,3,7,8-TCDF		129	195	pg/g	66.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		151	195	pg/g	77.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		149	195	pg/g	76.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	195	pg/g	59.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		114	195	pg/g	58.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		122	195	pg/g	62.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		117	195	pg/g	59.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		118	195	pg/g	60.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		117	195	pg/g	60.3	(26%-138%)
37Cl-2,3,7,8-TCDD		19.6	19.5	pg/g	100	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025282**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**				
Client ID:	**MB for batch 42296**			**Prep Basis:**	**As Received**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 12:06**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-3**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.12	pg/g	0.120	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.111	pg/g	0.111	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.109	pg/g	0.109	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.107	pg/g	0.107	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.11	pg/g	0.110	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	0.171	pg/g	0.171	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	0.476	pg/g	0.476	10.0
51207-31-9	2,3,7,8-TCDF	U	0.106	pg/g	0.106	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	0.0742	pg/g	0.0742	5.00
57117-31-4	2,3,4,7,8-PeCDF	JK	0.128	pg/g	0.0694	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	JK	0.104	pg/g	0.090	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.0906	pg/g	0.0906	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.158	pg/g	0.145	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.164	pg/g	0.0946	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	0.0844	pg/g	0.0844	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.125	pg/g	0.125	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	0.298	pg/g	0.298	10.0
41903-57-5	Total TeCDD	U	0.12	pg/g	0.120	1.00
36088-22-9	Total PeCDD	U	0.111	pg/g	0.111	5.00
34465-46-8	Total HxCDD	U	0.107	pg/g	0.107	5.00
37871-00-4	Total HpCDD	U	0.171	pg/g	0.171	5.00
30402-14-3	Total TeCDF	U	0.106	pg/g	0.106	1.00
30402-15-4	Total PeCDF	JK	0.128	pg/g	0.0634	5.00
55684-94-1	Total HxCDF	JK	0.426	pg/g	0.090	5.00
38998-75-3	Total HpCDF	U	0.0844	pg/g	0.0844	5.00
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.081	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.225	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		146	200	pg/g	72.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		162	200	pg/g	81.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		125	200	pg/g	62.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		150	200	pg/g	74.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		150	200	pg/g	75.1	(23%-140%)
13C-OCDD		236	400	pg/g	59.0	(17%-157%)
13C-2,3,7,8-TCDF		140	200	pg/g	70.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		166	200	pg/g	82.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		167	200	pg/g	83.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		122	200	pg/g	60.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		131	200	pg/g	65.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		129	200	pg/g	64.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		129	200	pg/g	64.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025282**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**				
Client ID:	**MB for batch 42296**			**Prep Basis:**	**As Received**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 12:06**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-3**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		129	200	pg/g	64.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		134	200	pg/g	66.9	(26%-138%)
37Cl-2,3,7,8-TCDD		18.8	20.0	pg/g	93.8	(35%-197%)

Comments:

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025283**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**				
Client ID:	**LCS for batch 42296**			**Prep Basis:**	**As Received**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 10:30**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-1**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.6	pg/g	0.150	1.00
40321-76-4	1,2,3,7,8-PeCDD		101	pg/g	0.258	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		98.3	pg/g	0.542	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		98.4	pg/g	0.514	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		98.8	pg/g	0.534	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		89.4	pg/g	0.728	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		185	pg/g	1.43	10.0
51207-31-9	2,3,7,8-TCDF		17.1	pg/g	0.151	1.00
57117-41-6	1,2,3,7,8-PeCDF		88.6	pg/g	0.342	5.00
57117-31-4	2,3,4,7,8-PeCDF		91.6	pg/g	0.334	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		97.1	pg/g	0.592	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		101	pg/g	0.600	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		97.7	pg/g	0.876	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		98.8	pg/g	0.594	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		102	pg/g	0.790	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		95.1	pg/g	1.16	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		180	pg/g	1.60	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		150	200	pg/g	75.2	(20%-175%)
13C-1,2,3,7,8-PeCDD		170	200	pg/g	84.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		138	200	pg/g	69.2	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		159	200	pg/g	79.5	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		164	200	pg/g	81.9	(22%-166%)
13C-OCDD		265	400	pg/g	66.3	(13%-199%)
13C-2,3,7,8-TCDF		152	200	pg/g	75.8	(22%-152%)
13C-1,2,3,7,8-PeCDF		176	200	pg/g	88.1	(21%-192%)
13C-2,3,4,7,8-PeCDF		171	200	pg/g	85.5	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		132	200	pg/g	66.2	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		141	200	pg/g	70.3	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		137	200	pg/g	68.6	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		138	200	pg/g	68.8	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		138	200	pg/g	69.2	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		141	200	pg/g	70.7	(20%-186%)
37Cl-2,3,7,8-TCDD		18.0	20.0	pg/g	90.2	(31%-191%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025284**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**				
Client ID:	**LCSD for batch 42296**			**Prep Basis:**	**As Received**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 11:18**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-2**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.7	pg/g	0.158	1.00
40321-76-4	1,2,3,7,8-PeCDD		99.5	pg/g	0.214	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		98.1	pg/g	0.444	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		98.5	pg/g	0.396	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		102	pg/g	0.424	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		87.5	pg/g	0.774	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		196	pg/g	1.74	10.0
51207-31-9	2,3,7,8-TCDF		16.9	pg/g	0.141	1.00
57117-41-6	1,2,3,7,8-PeCDF		89.4	pg/g	0.530	5.00
57117-31-4	2,3,4,7,8-PeCDF		91.9	pg/g	0.468	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		99.3	pg/g	0.632	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		97.7	pg/g	0.634	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		94.9	pg/g	0.956	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		94.9	pg/g	0.662	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		99.2	pg/g	0.774	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		99.9	pg/g	1.07	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		185	pg/g	1.36	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		151	200	pg/g	75.3	(20%-175%)
13C-1,2,3,7,8-PeCDD		164	200	pg/g	81.8	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		129	200	pg/g	64.5	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		146	200	pg/g	72.9	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		154	200	pg/g	77.0	(22%-166%)
13C-OCDD		240	400	pg/g	60.1	(13%-199%)
13C-2,3,7,8-TCDF		146	200	pg/g	73.2	(22%-152%)
13C-1,2,3,7,8-PeCDF		169	200	pg/g	84.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		166	200	pg/g	82.9	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		121	200	pg/g	60.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		130	200	pg/g	65.1	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		133	200	pg/g	66.3	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		133	200	pg/g	66.3	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		128	200	pg/g	64.0	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		130	200	pg/g	65.1	(20%-186%)
37Cl-2,3,7,8-TCDD		19.4	20.0	pg/g	97.2	(31%-191%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025285**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33(15679025MS)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 14:31**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-6**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**20.92 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.2	pg/g	0.300	0.981
40321-76-4	1,2,3,7,8-PeCDD		105	pg/g	0.704	4.91
39227-28-6	1,2,3,4,7,8-HxCDD		103	pg/g	1.54	4.91
57653-85-7	1,2,3,6,7,8-HxCDD		112	pg/g	1.48	4.91
19408-74-3	1,2,3,7,8,9-HxCDD		110	pg/g	1.53	4.91
35822-46-9	1,2,3,4,6,7,8-HpCDD		462	pg/g	3.22	4.91
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4270	pg/g	6.79	9.81
51207-31-9	2,3,7,8-TCDF		18.4	pg/g	0.363	0.981
57117-41-6	1,2,3,7,8-PeCDF		89.5	pg/g	0.471	4.91
57117-31-4	2,3,4,7,8-PeCDF		93.0	pg/g	0.408	4.91
70648-26-9	1,2,3,4,7,8-HxCDF		99.1	pg/g	0.938	4.91
57117-44-9	1,2,3,6,7,8-HxCDF		97.5	pg/g	0.920	4.91
72918-21-9	1,2,3,7,8,9-HxCDF		95.9	pg/g	1.28	4.91
60851-34-5	2,3,4,6,7,8-HxCDF		103	pg/g	1.00	4.91
67562-39-4	1,2,3,4,6,7,8-HpCDF		183	pg/g	1.17	4.91
55673-89-7	1,2,3,4,7,8,9-HpCDF		107	pg/g	1.66	4.91
39001-02-0	1,2,3,4,6,7,8,9-OCDF		425	pg/g	2.59	9.81

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		99.2	196	pg/g	50.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		104	196	pg/g	53.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	196	pg/g	51.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		106	196	pg/g	54.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		112	196	pg/g	56.9	(23%-140%)
13C-OCDD		184	392	pg/g	46.9	(17%-157%)
13C-2,3,7,8-TCDF		109	196	pg/g	55.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		104	196	pg/g	53.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		106	196	pg/g	54.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		91.1	196	pg/g	46.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		98.6	196	pg/g	50.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		95.7	196	pg/g	48.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		91.3	196	pg/g	46.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		93.6	196	pg/g	47.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		94.8	196	pg/g	48.3	(26%-138%)
37Cl-2,3,7,8-TCDD		16.2	19.6	pg/g	82.8	(35%-197%)

Comments:

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

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025285**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33(15679025MS)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/10/2019 16:26**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b10nov19a-11**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**20.92 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		22.2	pg/g	0.286	0.981

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

Comments:

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

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025286**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33(15679025MSD)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/09/2019 15:19**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A04NOV19A_13-7**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**21.08 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.5	pg/g	0.520	0.974
40321-76-4	1,2,3,7,8-PeCDD		102	pg/g	1.01	4.87
39227-28-6	1,2,3,4,7,8-HxCDD		98.5	pg/g	2.41	4.87
57653-85-7	1,2,3,6,7,8-HxCDD		105	pg/g	2.30	4.87
19408-74-3	1,2,3,7,8,9-HxCDD		103	pg/g	2.40	4.87
35822-46-9	1,2,3,4,6,7,8-HpCDD		482	pg/g	4.36	4.87
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4330	pg/g	8.61	9.74
51207-31-9	2,3,7,8-TCDF		17.9	pg/g	0.781	0.974
57117-41-6	1,2,3,7,8-PeCDF		85.6	pg/g	0.843	4.87
57117-31-4	2,3,4,7,8-PeCDF		88.2	pg/g	0.691	4.87
70648-26-9	1,2,3,4,7,8-HxCDF		98.7	pg/g	1.53	4.87
57117-44-9	1,2,3,6,7,8-HxCDF		97.7	pg/g	1.49	4.87
72918-21-9	1,2,3,7,8,9-HxCDF		91.9	pg/g	2.08	4.87
60851-34-5	2,3,4,6,7,8-HxCDF		97.8	pg/g	1.50	4.87
67562-39-4	1,2,3,4,6,7,8-HpCDF		195	pg/g	1.71	4.87
55673-89-7	1,2,3,4,7,8,9-HpCDF		99.1	pg/g	2.67	4.87
39001-02-0	1,2,3,4,6,7,8,9-OCDF		430	pg/g	4.15	9.74

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		66.2	195	pg/g	34.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		68.7	195	pg/g	35.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		64.4	195	pg/g	33.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		71.5	195	pg/g	36.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		70.2	195	pg/g	36.1	(23%-140%)
13C-OCDD		113	389	pg/g	28.9	(17%-157%)
13C-2,3,7,8-TCDF		69.5	195	pg/g	35.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		68.7	195	pg/g	35.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		71.4	195	pg/g	36.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		59.8	195	pg/g	30.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		60.0	195	pg/g	30.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		62.1	195	pg/g	31.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		59.0	195	pg/g	30.3	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		58.0	195	pg/g	29.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		59.3	195	pg/g	30.5	(26%-138%)
37Cl-2,3,7,8-TCDD		17.7	19.5	pg/g	91.0	(35%-197%)

Comments:

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

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**10-262**	**Client:**	**OSEI001**	**Project:**	**OSEI00119**
Lab Sample ID:	**12025286**	**Date Collected:**	**10/18/2019 09:35**	**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42296**	**Date Received:**	**10/22/2019 10:08**	**%Moisture:**	**51.3**
Client ID:	**S24-SED-0.33(15679025MSD)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42298**	**Method:**	**EPA Method 1613B**		
Run Date:	**11/10/2019 16:47**	**Analyst:**	**MLL**	**Instrument:**	**HRP763**
Data File:	**b10nov19a-12**			**Dilution:**	**1**
Prep Batch:	**42296**	**Prep Method:**	**SW846 3546**		
Prep Date:	**07-NOV-19**	**Prep Aliquot:**	**21.08 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		21.9	pg/g	0.553	0.974

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

Comments:

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

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

Chain of Custody

Page 1 of 4

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

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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

Laboratory Number: 10-262

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up) *	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Metals by USEPA 6020 or 200.8 **	Dioxins/furans by USEPA 1613B			% Moisture 25405
1	GM11-S-3.0	10/15/19	0950	S	1																		X				b
2	GM12-S-2.0	↓	1110	↓	1																		X				↓
3	GM13-S-7.5		1300		1																		X				
4	GM14-S-12.0*		1210		1				X														X				
5	GM15-S-1.5		1415		1																		X				
6	GM16-S-2.5*		1410		1				X														X				
7	S24-SED-1.5	10/17/19	1245	SED	2				O				●	●	O								O	O			●
8	S24-SED-3.5		1255		2				X				X		X								X	X			b
9	S14-SED-1.5				2				O				O		O								O	O			
10	S14-SED-3.0	↓		↓	2				X				X		X								X	X			b

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	10/18/19	1400
Received	Celia Forrester	SPEEDY	10/18/19	1400
Relinquished				
Received		ONE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

* silica gel cleanup on select soil samples.
** Metals include As, Cd, Cr, Pb, Hg, Ni, Zn
X = analyze.
O = follow-up, place on hold.
No silica gel cleanup on sed samples.

Data Package: Standard ☐ (Level III) ☒ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

● Added 10/31/19 - DB (STA)

Chain of Custody

Page 2 of 4

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

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 10-262

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals Nickel	Total ~~MTCA~~ Metals ARSENIC	~~TCLP Metals~~ TOTAL LEAD	HEM (oil and grease) 1664A	Metals (As, Cd, Cr, Pb, Hg, Ni, Zn) by EPA 6020 or 200.8	Dioxins/Furans by EPA 1613B			% Moisture
11	S15-SED-1.5	10/17/19	1400	SED	2				O				O		O								O	O			
12	S15-SED-3.5	↓	1410	↓	2				X				X		X								X	X			b
13	S15-SED-5.5		1420		2				●				●		O				●	●	●		O	O			●
14	S22-SED-1.5		1450		2				O				●		O								O	O			●
15	S22-SED-3.5		1500		2				X				X		X								X	X			b
16	S22-SED-7.0		~~1505~~ 1440		2				O				O		O								O	O			
17	S16-SED-1.5		1535		2				O				●		O								O	O			●
18	S16-SED-3.0		1525		2				X				X		X								X	X			b
19	S21-SED-1.5		1645		2				O				●		O								O	O			
20	S21-SED-3.5	↓	1655	↓	2				X				X		X								X	X			b

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	10/18/19	1400
Received	Celia Sanderson	SPEEDY	10/18/19	1700
Relinquished				
Received		OSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
X = analyze.
O = on hold.

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

Laboratory Number: 10-262

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals Nichrome	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Metals (As, Cd, Cr, Pb, Hg, Ni, Zn) by EPA 6020or 200.8	Dioxins/Furans by EPA 1613B			% Moisture
21	S21-SED-5.5	10/18/19	1700	SED	2				O				O		O				●				O	O			●
22	S21-SED-7.5	↓	1640	↓	2				O				O		O								O	O			

	Signature	Company	Date	Time
Relinquished	[signature]	MFA	10/18/19	1400
Received	[signature]	SPEEDY	10/18/19	14:00
Relinquished				
Received	[signature]	OSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
O = follow up.

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

Laboratory Number: 10-262

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) — NO D3	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals — Nickel	Total MTCA Metals — Arsenic	TCLP Metals	HEM (oil and grease) 1664A	Metals (As, Cd, Cr, Pb, Hg, Ni, Zn) by USEPA 6020 or 200.8	Dioxins/Furans by USEPA 1613B			% Moisture — 25406
23	S16-SED-0.33	10/18/19	1030	SED	2				X				X	X	X								X	X			O
24	S17-SED-0.33		0750	SED	2				X				X	X	X								X	X			
25	S18-SED-0.33		0900	SED	2				X				X	X	X								X	X			
26	S19-SED-0.33		1020	SED	2				X				X	X	X								X	X			
27	S20-SED-0.33		0820	SED	2				X				X	X	X								X	X			
28	S22-SED-0.33		0955	SED	2				X				X	X	X								X	X			
29	S23-SED-0.33		1045	SED	2				X				X	X	X								X	X			
30	SDUP-SED-0.33		0820	SED	2				X				X	X	X								X	X			
31	S24-SED-0.33	10/18/19	0935	SED	2				X				X		X								X	X			X
32	S22-SED-5.5	10/17/19	1505	SED	2				O				O		O				●	●			O	O			●

	Signature	Company	Date	Time
Relinquished		MFA	10/18/19	1400
Received		SPEEDY	10/18/19	1400
Relinquished				
Received		OSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
No silica gel cleanup on sed. samples.
O – HOLD

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

Sample/Cooler Receipt and Acceptance Checklist

Client: MFA

Client Project Name/Number: 0689.01.05

OnSite Project Number: 10-262

Initiated by: MV

Date Initiated: 10/18/19

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	(Yes)	No	N/A	1 2 3 4
1.2 Were the custody seals intact?	(Yes)	No	N/A	1 2 3 4
1.3 Were the custody seals signed and dated by last custodian?	(Yes)	No	N/A	1 2 3 4
1.4 Were the samples delivered on ice or blue ice?	(Yes)	No		1 2 3 4
1.5 Were samples received between 0-6 degrees Celsius?	(Yes)	No	Temperature: 4.3	
1.6 Have shipping bills (if any) been attached to the back of this form?	Yes	(N/A)		
1.7 How were the samples delivered?	Client	(Courier)	UPS/FedEx	OSE Pickup Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	(Yes)	No		1 2 3 4
2.2 Was the COC legible and written in permanent ink?	(Yes)	No		1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	Yes	(No)		1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	Yes	(No)		1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	(Yes)	No		1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	(Yes)	No		1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	(No)		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	(No)		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	(Yes)	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	(N/A)	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	(N/A)	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	(Yes)	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	(No)		1 2 3 4
3.8 Was method 5035A used?	Yes	No	(N/A)	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		(N/A)	1 2 3 4

Explain any discrepancies:

2.3) Courier didn't relq.

2.4) #16) 1505 on COC, 1440 on label

2.6) Sample S24-SED-0.33 10/18/19 0935 not on COC (2) Analyze

Sample S22-SED-5.5 10/17/19 1505 not on COC (2) HOLD

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

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

January 2, 2020

Carolyn Wise
Maul Foster & Alongi, Inc.
Bay Vista Tower
2815 2nd Avenue, Suite 540
Seattle, WA 98121

Re: Analytical Data for Project 0689.01.05
Laboratory Reference No. 1910-262B

Dear Carolyn:

Enclosed are the analytical results and associated quality control data for samples submitted on October 18, 2019.

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: January 2, 2020
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262B
Project: 0689.01.05

Case Narrative

Samples were collected on October 15, 17 and 18, 2019 and received by the laboratory on October 18, 2019. 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.

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.

TOC EPA 9060A Analysis

Samples were analyzed out of holding time.

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: January 2, 2020
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262B
Project: 0689.01.05

TOTAL ORGANIC CARBON
EPA 9060A

Matrix: Soil
Units: % Carbon

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S24-SED-1.5**					
Laboratory ID:	10-262-07					
Total Organic Carbon	**4.4**	0.42	EPA 9060A	12-24-19	12-24-19	
Client ID:	**S15-SED-3.5**					
Laboratory ID:	10-262-12					
Total Organic Carbon	**6.8**	0.45	EPA 9060A	12-24-19	12-24-19	
Client ID:	**S17-SED-0.33**					
Laboratory ID:	10-262-24					
Total Organic Carbon	**7.6**	0.34	EPA 9060A	12-24-19	12-24-19	
Client ID:	**S24-SED-0.33**					
Laboratory ID:	10-262-31					
Total Organic Carbon	**4.7**	0.47	EPA 9060A	12-24-19	12-24-19	

Date of Report: January 2, 2020
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262B
Project: 0689.01.05

TOTAL ORGANIC CARBON
EPA 9060A
QUALITY CONTROL

Matrix: Soil
Units: % Carbon

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1224S1					
Total Organic Carbon	**ND**	0.042	EPA 9060A	12-24-19	12-24-19	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	10-262-12								
	ORIG	DUP							
Total Organic Carbon	**6.82**	**7.11**	NA	NA	NA	NA	4	20	
SPIKE BLANK									
Laboratory ID:	SB1224S1								
	SB		SB		SB				
Total Organic Carbon	**45.4**		42.1	NA	108	90-121	NA	NA	

Date of Report: January 2, 2020
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-262B
Project: 0689.01.05

TOTAL ORGANIC CARBON
EPA 9060A
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (% Carbon)	Calc. Value	Percent Difference	Control Limits
Total Organic Carbon	CCV1122419N	42.1	43.0	-2.1	+/- 10%
Total Organic Carbon	CCV2122419N	42.1	41.4	1.7	+/- 10%

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.

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.

Z -

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

Chain of Custody

Page 1 of 4

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

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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

Laboratory Number: 10-262

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up) *	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Metals by USEPA 6020 or 200.8 **	Dioxins/Furans by USEPA 1613B	TOC		% Moisture 254105
1	GM11-S-3.0	10/15/19	0950	S	1																		X				b
2	GM12-S-2.0	↓	1110	↓	1																		X				↓
3	GM13-S-7.5		1300		1																		X				
4	GM14-S-12.0*		1210		1				X														X				
5	GM15-S-1.5		1415		1																		X				
6	GM16-S-2.5*		1410		1				X														X				
7	S24-SED-1.5	10/17/19	1245	SED	2				O				●	▓	O								O	O	⊖		●
8	S24-SED-3.5		1255		2				X				X	▓	X								X	X			b
9	S14-SED-1.5				2				O				O	▓	O								O	O			
10	S14-SED-3.0	↓		↓	2				X				X	▓	X								X	X			b

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	10/18/19	1400
Received	Celia Forrester	SPEEDY	10/18/19	1400
Relinquished				
Received		QSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

*silica gel cleanup on select soil samples.
** Metals include As, Cd, Cr, Pb, Hg, Ni, Zn
X = analyze.
O = follow-up, place on hold.
No silica gel cleanup on sed samples.

Data Package: Standard ☐ Level III ☒ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

⊖ Added 12/19/19. DB (STA)

● Added 10/31/19. DB (STA)

Chain of Custody

Page 2 of 4

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

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 10-262

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers
11	S15-SED-1.5	10/17/19	1400	SED	2
12	S15-SED-3.5		1410		2
13	S15-SED-5.5		1420		2
14	S22-SED-1.5		1450		2
15	S22-SED-3.5		1500		2
16	S22-SED-7.0		~~1505~~ 1440 pb		2
17	S16-SED-1.5		1535		2
18	S16-SED-3.0		1525		2
19	S21-SED-1.5		1645		2
20	S21-SED-3.5	↓	1655	↓	2

Lab ID	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals Nickel	Total ~~MTCA~~ Metals ARSENIC	~~TCLP Metals~~ TOTAL LEAD	HEM (oil and grease) 1664A	Metals (As, Cd, Cr, Pb, Hg, Ni, Zn) by EPA 6020 or 200.8	Dioxins/Furans by EPA 1613B	TOC		% Moisture 25405
11				O				O		O								O	O			
12				X				X		X								X	X	⊖		b
13				●				●		O				●	●	●		O	O			●
14				O				●		O								O	O			●
15				X				X		X								X	X			b
16				O				O		O								O	O			
17				O				●		O								O	O			●
18				X				X		X								X	X			b
19				O				●		O								O	O			
20				X				X		X								X	X			b

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	10/18/19	1400
Received	Celia Sanderson	SPEEDY	10/18/19	1700
Relinquished				
Received		OSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
X = analyze.
O = on hold.

Data Package: Standard ☐ (Level III) ☒ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

Page 3 of 4

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

Company: Maul Foster & Along
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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

Laboratory Number: 10-262

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals Nickel	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Metals (As, Cd, Cr, Pb, Hg, Ni, Zn) by EPA 6020 or 200.8	Dioxins/Furans by EPA 1613B			% Moisture
21	S21-SED-5.5	10/18/19	1700	SED	2				O				O		O				●				O	O			●
22	S21-SED-7.5	↓	1640	↓	2				O				O		O								O	O			

	Signature	Company	Date	Time
Relinquished	[signature]	MFA	10/18/19	1400
Received	[signature]	SPEEDY	10/18/19	14:00
Relinquished				
Received	[signature]	OSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
O = follow up.

Data Package: Standard ☐ Level III ☒ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

Page 4 of 4

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

Company: Maul Foster & Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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

Laboratory Number: 10-262

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) — NO D7	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals Nickel	Total ~~MTCA~~ Metals Arsenic	TCLP Metals	HEM (oil and grease) 1664A	Metals (As, Cd, Cr, Pb, Hg, Ni, Zn) by USEPA 6020 or 200.8	Dioxins/Furans by USEPA 1613B	TOC		% Moisture
23	S16-SED-0.33	10/18/19	1030	SED	2				X				X	X	X								X	X			5
24	S17-SED-0.33		0750	SED	2				X				X	X	X								X	X	Θ			
25	S18-SED-0.33		0900	SED	2				X				X	X	X								X	X				
26	S19-SED-0.33		1020	SED	2				X				X	X	X								X	X				
27	S20-SED-0.33		0820	SED	2				X				X	X	X								X	X				
28	S22-SED-0.33		0955	SED	2				X				X	X	X								X	X				
29	S23-SED-0.33		1045	SED	2				X				X	X	X								X	X				
30	SDUP-SED-0.33	↓	0820	SED	2				X				X	X	X								X	X				
31	S24-SED-0.33	10/18/19	0935	SED	2				X				X		X								X	X	Θ		X	
32	S22-SED-5.5	10/17/19	1505	SED	2				O				O		O				●	●			O	O			●	

	Signature	Company	Date	Time
Relinquished		MFA	10/18/19	1400
Received	Celia Torres	SPEED4	10/18/19	14:00
Relinquished				
Received		OSE	10/18/19	1500
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
No silica gel cleanup on sed. samples.
O – HOLD

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

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

October 30, 2019

Carolyn Wise
Maul Foster & Alongi, Inc.
Bay Vista Tower
2815 2nd Avenue, Suite 540
Seattle, WA 98121

Re: Analytical Data for Project 0689.01.05
Laboratory Reference No. 1910-289

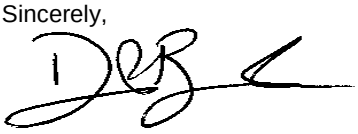
Dear Carolyn:

Enclosed are the analytical results and associated quality control data for samples submitted on October 22, 2019.

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: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

Case Narrative

Samples were collected on October 21, 2019 and received by the laboratory on October 22, 2019. 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.

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: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GM3-GW-10.9**					
Laboratory ID:	10-289-01					
Diesel Range Organics	**0.40**	0.28	NWTPH-Dx	10-24-19	10-25-19	
Lube Oil Range Organics	**0.68**	0.45	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***103***	***50-150***				
Client ID:	**GMDUP-GW-10.9**					
Laboratory ID:	10-289-02					
Diesel Range Organics	**0.35**	0.27	NWTPH-Dx	10-24-19	10-25-19	
Lube Oil Range Organics	**0.60**	0.43	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***95***	***50-150***				
Client ID:	**GM9-GW-7.7**					
Laboratory ID:	10-289-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	10-24-19	10-25-19	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***102***	***50-150***				
Client ID:	**GM2-GW-8.2**					
Laboratory ID:	10-289-04					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	10-24-19	10-25-19	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***96***	***50-150***				

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1024W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	10-24-19	10-25-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	10-24-19	10-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***84***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	SB1024W1									
	ORIG	DUP								
Diesel Fuel #2	**0.930**	**0.883**	NA	NA		NA	NA	5	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						***104***	***100*** ***50-150***			
SPIKE BLANK										
Laboratory ID:	SB1024W1									
Diesel Fuel #2	**0.930**		1.00		NA	**93**	64-123	NA	NA	
Surrogate:										
o-Terphenyl						***104***	***50-150***			

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
CCV1025F-V2	100	98.0	2.0	+/-15%
CCV1025F-V3	100	99.0	1.0	+/-15%
CCV1025R-V2	100	88.7	11.3	+/-15%
CCV1025R-V3	100	91.4	8.6	+/-15%

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GM3-GW-10.9**					
Laboratory ID:	10-289-01					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-24-19	
Copper	**ND**	11	EPA 200.8	10-23-19	10-24-19	
Manganese	**1200**	56	EPA 200.8	10-23-19	10-24-19	
Client ID:	**GMDUP-GW-10.9**					
Laboratory ID:	10-289-02					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-24-19	
Copper	**ND**	11	EPA 200.8	10-23-19	10-24-19	
Manganese	**1200**	56	EPA 200.8	10-23-19	10-24-19	
Client ID:	**GM9-GW-7.7**					
Laboratory ID:	10-289-03					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-24-19	
Copper	**ND**	11	EPA 200.8	10-23-19	10-24-19	
Manganese	**610**	22	EPA 200.8	10-23-19	10-24-19	
Client ID:	**GM2-GW-8.2**					
Laboratory ID:	10-289-04					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-24-19	
Copper	**11**	11	EPA 200.8	10-23-19	10-24-19	
Manganese	**210**	22	EPA 200.8	10-23-19	10-24-19	

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

TOTAL METALS
EPA 200.8
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1023WM1					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-23-19	
Copper	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Manganese	**ND**	11	EPA 200.8	10-23-19	10-23-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-217-10										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Copper	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Manganese	**29.6**	**30.0**	NA	NA		NA		NA	1	20	
MATRIX SPIKES											
Laboratory ID:	10-217-10										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**115**	**122**	111	111	ND	**103**	**110**	75-125	6	20	
Copper	**99.3**	**105**	111	111	ND	**90**	**94**	75-125	5	20	
Manganese	**117**	**122**	111	111	29.6	**79**	**84**	75-125	5	20	
SPIKE BLANK											
Laboratory ID:	SB1023WM1										
Arsenic	**116**		111		N/A	**105**		85-115			
Copper	**104**		111		N/A	**94**		85-115			
Manganese	**106**		111		N/A	**96**		85-115			

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

TOTAL METALS
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV102419X	50.0	48.1	3.8	+/- 10%
Copper	ICV102419X	50.0	49.9	0.20	+/- 10%
Manganese	ICV102419X	50.0	49.6	0.80	+/- 10%
Arsenic	CCV1102419X	40.0	39.5	1.3	+/- 10%
Copper	CCV1102419X	40.0	39.9	0.25	+/- 10%
Manganese	CCV1102419X	40.0	39.7	0.75	+/- 10%
Arsenic	CCV1102419X	20.0	19.9	0.50	+/- 10%
Copper	CCV1102419X	20.0	19.8	1.0	+/- 10%
Manganese	CCV1102419X	20.0	20.3	-1.5	+/- 10%
Arsenic	CCV2102419X	40.0	40.3	-0.75	+/- 10%
Copper	CCV2102419X	40.0	40.0	0	+/- 10%
Manganese	CCV2102419X	40.0	39.8	0.50	+/- 10%
Arsenic	CCV2102419X	20.0	20.1	-0.50	+/- 10%
Copper	CCV2102419X	20.0	19.9	0.50	+/- 10%
Manganese	CCV2102419X	20.0	20.1	-0.50	+/- 10%
Arsenic	CCV3102419X	40.0	39.8	0.50	+/- 10%
Copper	CCV3102419X	40.0	39.8	0.50	+/- 10%
Manganese	CCV3102419X	40.0	39.3	1.8	+/- 10%
Arsenic	CCV3102419X	20.0	20.0	0	+/- 10%
Copper	CCV3102419X	20.0	19.9	0.50	+/- 10%
Manganese	CCV3102419X	20.0	19.6	2.0	+/- 10%

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

TOTAL METALS
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV102319X	50.0	53.3	-6.6	+/- 10%
Copper	ICV102319X	50.0	50.6	-1.2	+/- 10%
Manganese	ICV102319X	50.0	50.2	-0.40	+/- 10%
Arsenic	CCV1102319X	40.0	40.1	-0.25	+/- 10%
Copper	CCV1102319X	40.0	40.1	-0.25	+/- 10%
Manganese	CCV1102319X	40.0	39.8	0.50	+/- 10%
Arsenic	CCV1102319X	20.0	20.8	-4.0	+/- 10%
Copper	CCV1102319X	20.0	20.2	-1.0	+/- 10%
Manganese	CCV1102319X	20.0	19.7	1.5	+/- 10%
Arsenic	CCV2102319X	40.0	41.8	-4.5	+/- 10%
Copper	CCV2102319X	40.0	39.5	1.3	+/- 10%
Manganese	CCV2102319X	40.0	40.4	-1.0	+/- 10%
Arsenic	CCV2102319X	20.0	20.9	-4.5	+/- 10%
Copper	CCV2102319X	20.0	19.7	1.5	+/- 10%
Manganese	CCV2102319X	20.0	20.4	-2.0	+/- 10%

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**GM3-GW-10.9**					
Laboratory ID:	10-289-01					
Arsenic	**ND**	3.0	EPA 200.8		10-23-19	
Copper	**ND**	10	EPA 200.8		10-23-19	
Manganese	**1200**	130	EPA 200.8		10-24-19	
Client ID:	**GMDUP-GW-10.9**					
Laboratory ID:	10-289-02					
Arsenic	**ND**	3.0	EPA 200.8		10-23-19	
Copper	**ND**	10	EPA 200.8		10-23-19	
Manganese	**1200**	130	EPA 200.8		10-24-19	
Client ID:	**GM9-GW-7.7**					
Laboratory ID:	10-289-03					
Arsenic	**ND**	3.0	EPA 200.8		10-23-19	
Copper	**ND**	10	EPA 200.8		10-23-19	
Manganese	**630**	50	EPA 200.8		10-24-19	
Client ID:	**GM2-GW-8.2**					
Laboratory ID:	10-289-04					
Arsenic	**ND**	3.0	EPA 200.8		10-23-19	
Copper	**ND**	10	EPA 200.8		10-23-19	
Manganese	**210**	25	EPA 200.8		10-24-19	

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DISSOLVED METALS
EPA 200.8
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1018F1					
Arsenic	**ND**	3.0	EPA 200.8	10-18-19	10-23-19	
Copper	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Manganese	**ND**	10	EPA 200.8	10-18-19	10-23-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-289-04										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Copper	**ND**	**10.2**	NA	NA		NA		NA	NA	20	
Manganese	**209**	**206**	NA	NA		NA		NA	2	20	
MATRIX SPIKES											
Laboratory ID:	10-289-04										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**85.4**	**85.0**	80.0	80.0	ND	**107**	**106**	75-125	0	20	
Copper	**87.2**	**87.8**	80.0	80.0	ND	**109**	**110**	75-125	1	20	
Manganese	**371**	**367**	200	200	209	**81**	**79**	75-125	1	20	
SPIKE BLANK											
Laboratory ID:	SB1018F1										
Arsenic	**78.0**		80.0		N/A	**98**		85-115			
Copper	**75.2**		80.0		N/A	**94**		85-115			
Manganese	**74.0**		80.0		N/A	**93**		85-115			

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DISSOLVED METALS
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV102419X	50.0	48.1	3.8	+/- 10%
Copper	ICV102419X	50.0	49.9	0.20	+/- 10%
Manganese	ICV102419X	50.0	49.6	0.80	+/- 10%
Arsenic	CCV1102419X	40.0	39.5	1.3	+/- 10%
Copper	CCV1102419X	40.0	39.9	0.25	+/- 10%
Manganese	CCV1102419X	40.0	39.7	0.75	+/- 10%
Arsenic	CCV1102419X	20.0	19.9	0.50	+/- 10%
Copper	CCV1102419X	20.0	19.8	1.0	+/- 10%
Manganese	CCV1102419X	20.0	20.3	-1.5	+/- 10%
Arsenic	CCV2102419X	40.0	40.3	-0.75	+/- 10%
Copper	CCV2102419X	40.0	40.0	0	+/- 10%
Manganese	CCV2102419X	40.0	39.8	0.50	+/- 10%
Arsenic	CCV2102419X	20.0	20.1	-0.50	+/- 10%
Copper	CCV2102419X	20.0	19.9	0.50	+/- 10%
Manganese	CCV2102419X	20.0	20.1	-0.50	+/- 10%
Arsenic	CCV3102419X	40.0	39.8	0.50	+/- 10%
Copper	CCV3102419X	40.0	39.8	0.50	+/- 10%
Manganese	CCV3102419X	40.0	39.3	1.8	+/- 10%
Arsenic	CCV3102419X	20.0	20.0	0	+/- 10%
Copper	CCV3102419X	20.0	19.9	0.50	+/- 10%
Manganese	CCV3102419X	20.0	19.6	2.0	+/- 10%

Date of Report: October 30, 2019
Samples Submitted: October 22, 2019
Laboratory Reference: 1910-289
Project: 0689.01.05

DISSOLVED METALS
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV102319X	50.0	51.3	-2.6	+/- 10%
Copper	ICV102319X	50.0	49.8	0.40	+/- 10%
Manganese	ICV102319X	50.0	49.9	0.20	+/- 10%
Arsenic	CCV1102319X	40.0	37.6	6.0	+/- 10%
Copper	CCV1102319X	40.0	38.3	4.3	+/- 10%
Manganese	CCV1102319X	40.0	38.2	4.5	+/- 10%
Arsenic	CCV1102319X	20.0	19.5	2.5	+/- 10%
Copper	CCV1102319X	20.0	18.9	5.5	+/- 10%
Manganese	CCV1102319X	20.0	19.2	4.0	+/- 10%
Arsenic	CCV2102319X	40.0	39.6	1.0	+/- 10%
Copper	CCV2102319X	40.0	41.1	-2.8	+/- 10%
Manganese	CCV2102319X	40.0	38.8	3.0	+/- 10%
Arsenic	CCV2102319X	20.0	20.7	-3.5	+/- 10%
Copper	CCV2102319X	20.0	19.9	0.50	+/- 10%
Manganese	CCV2102319X	20.0	18.6	7.0	+/- 10%
Arsenic	CCV3102319X	40.0	40.6	-1.5	+/- 10%
Copper	CCV3102319X	40.0	41.6	-4.0	+/- 10%
Arsenic	CCV3102319X	20.0	19.2	4.0	+/- 10%

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.

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.

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

Company: Maul Foster Alongi
Project Number: 0689.01.05
Project Name: Geddes Marina
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby

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

Laboratory Number: 10-289

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Total metals (As, Cu, Mn)	Dissolved metals (As, Cu, Mn)*			% Moisture
1	GM3-GW-10.9	10/21/19	1010	W	4				X														X	X			
2	GMDUP-GW-10.9	↓	1010	W	4				X														X	X			
3	GM9-GW-7.7		1210	W	4				X														X	X			
4	~~GM1~~ GM2 -GW-8.2	↓	1330	W	4				X														X	X			
	03																										

	Signature	Company	Date	Time
Relinquished	[signature]	MFA	10/21/19	1600
Received	[signature]	OSE	10/22/19	1430
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* dissolved metals are field-filtered and marked with "FF" on the sample bottle.

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

Sample/Cooler Receipt and Acceptance Checklist

Client: MFA

Client Project Name/Number: 0689.01.05

OnSite Project Number: 10-289

Initiated by: KL

Date Initiated: 10/22/19

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	No	N/A	1 2 3 4
1.2 Were the custody seals intact?	Yes	No	N/A	1 2 3 4
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	N/A	1 2 3 4
1.4 Were the samples delivered on ice or blue ice?	Yes	No		1 2 3 4
1.5 Were samples received between 0-6 degrees Celsius?	Yes	No	Temperature: 2	
1.6 Have shipping bills (if any) been attached to the back of this form?	Yes	N/A		
1.7 How were the samples delivered?	Client	Courier	UPS/FedEx	OSE Pickup Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	Yes	No		1 2 3 4
2.2 Was the COC legible and written in permanent ink?	Yes	No		1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	Yes	No		1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	~~Yes~~	No		1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	Yes	No		1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	No		1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	No		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	No		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	Yes	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	N/A	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	N/A	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	Yes	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	No		1 2 3 4
3.8 Was method 5035A used?	Yes	No	N/A	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		N/A	1 2 3 4

Explain any discrepancies:

2.4 Sample ~~GM~~ #4 COC reads GM1-GW-8.2 all cons read GM2-GW-8.2 ✱

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

APPENDIX E

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0689.01.05 | JANUARY 15, 2020 | CITY OF MARYSVILLE

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for soil, sediment, and groundwater samples collected at the former Geddes Marina property. All samples were collected in October 2019.

OnSite Environmental, Inc. (Onsite) and Cape Fear Analytical, LLC (CFA) performed the analyses. Some samples submitted to Onsite were subcontracted to CFA for dioxin/furan analysis, and the results were appended to the Onsite report. Onsite report numbers 1910-262, 1910-262B, and 1910-289 were reviewed. The analyses performed and samples analyzed are listed below. Some samples submitted to Onsite for report 1910-262 were logged to 1910-262B for total organic carbon (TOC) analysis at the MFA project manager's request. Samples submitted to Onsite on hold are also indicated.

Analysis	Reference
Diesel- and Lube Oil-Range Hydrocarbons Diesel- and Lube Oil-Range Hydrocarbons with Sulfuric-Acid/Silica-Gel Cleanup	NWTPH-Dx[(a)]
Dioxins/Furans	USEPA 1613B
Dissolved Metals	USEPA 200.8
Polychlorinated Biphenyls as Aroclors	USEPA 8082A
Semivolatile Organic Compounds	USEPA 8270E/8270E-SIM
Total Mercury	USEPA 7471B
Total Metals	USEPA 6020B/200.8
Total Organic Carbon	USEPA 9060A
Total Solids	SM 2540G

NOTES:
NWTPH = Northwest Total Petroleum Hydrocarbons.
SIM = selected ion monitoring.
SM = Standard Methods for the Examination of Water and Wastewater.
USEPA = U.S. Environmental Protection Agency.
[(a)]Silica gel-treated results are reported by Onsite as NWTPH-Dx with "X" qualifiers.

Samples Analyzed		
Report 1910-262		**Report 1910-262B**
GM11-S-3.0	S16-SED-1.5	S24-SED-1.5
GM12-S-2.0	S16-SED-3.0	S15-SED-3.5
GM13-S-7.5	S21-SED-1.5	S17-SED-0.33
GM14-S-12.0	S21-SED-3.5	S24-SED-0.33
GM15-S-1.5	S21-SED-5.5	**Report 1910-289**

Samples Analyzed		
Report 1910-262		**Report 1910-262B**
GM16-S-2.5	S21-SED-7.5	GM3-GW-10.9
S24-SED-1.5	S16-SED-0.33	GMDUP-GW-10.9
S24-SED-3.5	S17-SED-0.33	GP9-GW-7.7
S14-SED-1.5	S18-SED-0.33	GM2-GW-8.2
S14-SED-3.0	S19-SED-0.33	--
S15-SED-1.5	S20-SED-0.33	--
S15-SED-3.5	S22-SED-0.33	--
S15-SED-5.5	S23-SED-0.33	--
S22-SED-1.5	SDUP-SED-0.33	--
S22-SED-3.5	S24-SED-0.33	--
S22-SED-7.0	S22-SED-5.5	--

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (USEPA) procedures (USEPA, 2014, 2016, 2017a,b) and appropriate laboratory and method-specific guidelines (CFA, 2018; Onsite, 2018; USEPA, 1986).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the USEPA procedures (e.g., NWTPH-Dx).

In report 1910-262, some NWTPH-Dx diesel-range organics results were flagged by Onsite due to overlap from the lube oil hydrocarbon range. The results have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
1910-262	GM14-S-12.0	Diesel-Range Organics	61	61 J
	S14-SED-3.0		160	160 J
	S15-SED-3.5		1500	1500 J
	S16-SED-3.0		120	120 J
	S16-SED-0.33		190	190 J
	S17-SED-0.33		620	620 J
	S18-SED-0.33		440	440 J
	S19-SED-0.33		250	250 J
	S20-SED-0.33		140	140 J
	S22-SED-0.33		220	220 J
	S23-SED-0.33		150	150 J
	SDUP-SED-0.33		130	130 J
	S24-SED-0.33		150	150 J

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)

NOTES:
J = result is estimated.
mg/kg = milligrams per kilogram.

In report 1910-262, the USEPA Method 8082A results for samples S16-SED-0.33, S17-SED-0.33, S18-SED-0.33, S19-SED-0.33, S20-SED-0.33, S22-SED-0.33, S23-SED-0.33, SDUP-SED-0.33, and S24-SED-0.33 were flagged by Onsite due to mercury cleanup, which was performed to remove sulfur from the sample extracts. The reviewer confirmed that USEPA Method 3660 was applied by Onsite and that the cleanup method is recommended for sulfur removal by USEPA Method 8082A. Qualification was not required.

USEPA Method 1613B laboratory-flagged estimated maximum potential concentration (EMPC) results were qualified by the reviewer as estimated, not detected, at the reported concentration, in accordance with USEPA Region 10 guidance for data validation of polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzo-furans (PCDFs) (USEPA, 2014) and USEPA national functional guidelines for high-resolution Superfund methods data review (USEPA, 2016).

USEPA Method 1613B results reported by CFA as EMPCs that were also associated with method blank detections requiring qualification are discussed in the method blank section of this validation report and are not discussed in the EMPC qualification tables below.

USEPA Method 1613B total homolog results flagged as EMPCs by the laboratory were qualified by the reviewer with "UJ" as estimated, not detected, at the reported concentration when all associated congeners were reported by the laboratory as either EMPCs or were non-detect. However, when one or more associated congener was reported as a detection without an EMPC qualifier, the total homolog result was qualified by the reviewer with "J" as estimated. Total homolog results already flagged with "J" by CFA due to detections below the reporting limit did not require additional qualification. Results flagged by CFA with "Q" due to quantitative interference did not require additional qualification, as results were already flagged with "J" due to detection below the quantitation limit. USEPA Method 1613B EMPC results were qualified by the reviewer as follows:

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
1910-262	S24-SED-3.5	1,2,3,4,6,7,8-HpCDF	0.548 JK	0.548 UJK
		OCDF	0.964 JK	0.964 UJK
		Total TCDF	0.860 JK	0.860 UJK
		Total HxCDF	0.324 JK	0.324 UJK
		Total HpCDF	1.20 JK	1.20 UJK
	S15-SED-3.5	Total TCDF	84.0 K	84.0 JK
	S22-SED-3.5	1,2,3,7,8,9-HxCDD	0.679 JK	0.679 UJK
		2,3,4,7,8-PeCDF	0.564 JK	0.564 UJK
		1,2,3,6,7,8-HxCDF	0.301 JK	0.301 UJK

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
		2,3,4,6,7,8-HxCDF	0.342 JK	0.342 UJK
		Total TCDD	2.55 JK	2.55 UJK
		Total PeCDD	2.13 JK	2.13 UJK
		Total TCDF	3.34 JK	3.34 UJK
		Total PeCDF	6.49 JK	6.49 UJK
		Total HxCDF	5.91 JK	5.91 UJK
	S16-SED-3.0	1,2,3,4,7,8-HxCDF	0.438 JK	0.438 UJK
		2,3,4,6,7,8-HxCDF	0.326 JK	0.326 UJK
		Total TCDD	1.40 JK	1.40 UJK
		Total PeCDD	0.532 JK	0.532 UJK
		Total HxCDD	4.85 JK	4.85 UJK
		Total TCDF	2.68 JK	2.68 UJK
	S21-SED-3.5	1,2,3,6,7,8-HxCDD	0.395 JK	0.395 UJK
		2,3,4,6,7,8-HxCDF	0.158 JK	0.158 UJK
		Total TCDD	2.57 JK	2.57 UJK
		Total PeCDD	0.772 JK	0.772 UJK
		Total HxCDD	4.09 JK	4.09 UJK
		Total TCDF	1.53 JK	1.53 UJK
		Total HxCDF	2.80 JK	2.80 UJK
	S16-SED-0.33	1,2,3,7,8-PeCDF	0.501 JK	0.501 UJK
	S17-SED-0.33	Total PeCDD	24.7 JKQ	24.7 JK
		Total PeCDF	45.1 JKQ	45.1 JK
		Total HxCDF	149 JKQ	149 JK
	S18-SED-0.33	2,3,7,8-TCDF	1.30 K	1.30 UK
		Total TCDF	10.6 JK	10.6 UJK
		2,3,7,8-TCDF	1.01 JK	1.01 UJK
	S20-SED-0.33	2,3,7,8-TCDD	0.430 JK	0.430 UJK
		1,2,3,4,7,8-HxCDD	2.67 JK	2.67 UJK
		1,2,3,7,8,9-HxCDD	5.73 K	5.73 UK
		1,2,3,7,8-PeCDF	0.345 JK	0.345 UJK
		2,3,4,7,8-PeCDF	0.652 JK	0.652 UJK
		1,2,3,7,8,9-HxCDF	0.340 JK	0.340 UJK
		Total TCDD	1.35 JK	1.35 UJK
		Total PeCDF	11.5 JK	11.5 UJK
	S22-SED-0.33	2,3,7,8-TCDD	0.505 JK	0.505 UJK
		1,2,3,7,8,9-HxCDF	0.929 JK	0.929 UJK
		Total TCDD	4.34 JK	4.34 UJK
	S23-SED-0.33	1,2,3,4,7,8-HxCDD	3.45 JK	3.45 UJK
		1,2,3,7,8-PeCDF	0.343 JK	0.343 UJK
		2,3,4,7,8-PeCDF	0.850 JK	0.850 UJK
		2,3,4,6,7,8-HxCDF	2.72 JK	2.72 UJK
		Total PeCDF	15.9 JK	15.9 UJK

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
	SDUP-SED-0.33	1,2,3,7,8-PeCDD	0.948 JK	0.948 UJK
		Total TCDD	0.478 JK	0.478 UJK
		Total PeCDD	3.23 JK	3.23 UJK
		Total TCDF	0.876 JK	0.876 UJK
	S24-SED-0.33	1,2,3,7,8,9-HxCDD	13.7 K	13.7 UK
		1,2,3,7,8-PeCDF	0.713 JK	0.713 UJK
		2,3,4,6,7,8-HxCDF	4.46 JK	4.46 UJK
		Total TCDD	5.40 JK	5.40 UJK

NOTES:
J = result is estimated.
K = result is an EMPC.
pg/g = picograms per gram.
U = result is non-detect.

According to report 1910-262, USEPA Method 1613B 2,3,7,8-TCDF results detected above the reporting limit were confirmed by analysis on a secondary analytical column. Confirmation analysis results are the final results of record.

Report	Sample	Component	Primary Result (pg/g)	Confirmation Result (pg/g)
1910-262	S14-SED-3.0	2,3,7,8-TCDF	1.15	1.24
	S15-SED-3.5		3.67	4.03
	S18-SED-0.33		1.30 K	1.01 JK
	S24-SED-0.33		1.35	1.52

NOTES:
J = result is estimated.
K = result is an EMPC.
pg/g = picograms per gram.

According to report 1910-262, the USEPA Method 1613B OCDD result for samples S15-SED-3.5 and S17-SED-0.33 exceeded the upper instrument calibration range. Additionally, some results were flagged by CFA due to quantitative interference. The results have been qualified by the reviewer with "J" as estimated. Results already flagged with "J" by CFA due to detections below the method reporting limit (MRL) did not require additional qualification.

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
1910-262	S15-SED-3.5	OCDD	4610 E	4610 J
		1,2,3,6,7,8-HxCDF	6.73 Q	6.73 J
		1,2,3,7,8,9-HxCDF	2.52 JQ	2.52 J
		Total PeCDD	42.7 JQ	42.7 J
		Total PeCDF	161 JQ	161 J
		Total HxCDF	234 JQ	234 J
	S17-SED-0.33	OCDD	6550 E	6550 J
		1,2,3,7,8,9-HxCDF	1.01 JQ	1.01 J
	S18-SED-0.33	OCDD	5230 E	5230 J

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
		Total HpCDD	2930 E	2930 J
	S19-SED-0.33	OCDD	6280 E	6280 J

NOTES:
E = result exceeded the upper instrument calibration range.
J = result is estimated.
pg/g = picograms per gram.
Q = result is estimated due to quantitative interference.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

In report 1910-262B, the USEPA Method 9060A TOC analyses were performed 39 and 40 days after the 28-day recommended holding time. The reviewer confirmed that the analysis was requested on December 19, 2019, which was 34 and 35 days after the holding time. The results have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Original Result (%)	Qualified Result (%)
1910-262B	S24-SED-1.5	TOC	4.4	4.4 J
	S15-SED-3.5		6.8	6.8 J
	S17-SED-0.33		7.6	7.6 J
	S24-SED-0.33		4.7	4.7 J

NOTES:
% = percent.
J = result is estimated.

The remaining extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

In report 191-262, the sample courier did not relinquish the chain-of-custody (COC) when samples were received by the laboratory. The reviewer confirmed with the laboratory that a correction action was implemented.

The reviewer confirmed that the samples were preserved and stored appropriately.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch. Where an analyte was detected in a sample and in the associated method blank, the sample result was qualified if the concentration was less than five times the method blank concentration. USEPA Method 1613B sample results were also qualified by the reviewer with "U" as not detected at the sample result value when the result was less than five times an associated method blank EMPC concentration. For methods other than USEPA 1613B, if an analyte was detected above the MRL in both the sample and the associated method blank, the sample result was qualified "U" as not detected at the reported sample value.

According to report 1910-262, the USEPA Method 1613B batch 42296 laboratory method blank had detections for some furan compounds. All associated sample results were either greater than five times the method blank concentrations or were non-detect; thus, qualification was not required.

Trip Blanks

Trip blanks were not required and were not submitted for this sampling event.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required and were not submitted for this sampling event.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance/quality control for samples with surrogate outliers was within acceptance limits.

In report 1910-262, USEPA Method 8082A surrogate decachlorobiphenyl results were not reported for samples S14-SED-3.0 and S15-SED-3.5, due to dilutions required for the analysis. Qualification was not required.

In report 1910-262, USEPA Method 8270E/8270E-SIM surrogates 2-fluorophenol and phenol-d6 results for sample S24-SED-1.5 were below lower percent recovery acceptance limits at 18 percent and 29 percent, respectively. Onsite noted in the case narrative that the low surrogate recoveries were likely caused by matrix interference. The remaining four surrogates, including one phenolic surrogate, had acceptable percent recoveries; thus, qualification was not required.

In report 1910-262, the USEPA Method 1613B CFA case narrative noted that sample S24-SED-0.33 did not meet surrogate acceptance criteria and was re-extracted with consistent

results. The surrogate percent recovery exceedances are likely caused by matrix interference. Results have been qualified by the reviewer with "J" as estimated. Results already flagged by Onsite as estimated due to detections below the MRL and results qualified by the reviewer due to EMPC detections were not additionally qualified.

Report	Sample	Component	Primary Result (pg/g)	Confirmation Result (pg/g)
1910-262	S24-SED-0.33	2,3,7,8-TCDD	0.505 U	0.505 UJ
		1,2,3,4,7,8-HxCDD	6.57	6.57 J
		1,2,3,6,7,8-HxCDD	12.7	12.7 J
		1,2,3,4,6,7,8-HpCDD	374	374 J
		1,2,3,4,6,7,8,9-OCDD	3850	3850 J
		2,3,7,8-TCDF	1.35	1.35 J
		1,2,3,7,8,9-HxCDF	0.992 U	0.992 UJ
		1,2,3,4,6,7,8-HpCDF	83.0	83.0 J
		1,2,3,4,7,8,9-HpCDF	5.15	5.15 J
		1,2,3,4,6,7,8,9-OCDF	227	227 J
		Total HpCDD	736	736 J
		Total HpCDF	229	229 J
		2,3,7,8-TCDF (confirmation)	1.52	1.52 J

NOTES:
J = result is estimated.
pg/g = picograms per gram.
U = result is non-detect.

All remaining surrogate recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency. When MS/MSD percent recoveries and relative percent differences (RPDs) were outside acceptance limits because of high concentrations of analyte in the sample, no qualifications were made by the reviewer. All remaining MS/MSD results were within acceptance limits for percent recovery and RPDs.

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. Duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results within five times the MRL were not evaluated for precision.

In report 1910-262, the NWTPH-Dx laboratory duplicate (10-262-15) RPD for lube oil-range organics was 55 percent. NWTPH-Dx RPD limits were not provided by Onsite. The reviewer

confirmed that the lube oil-range organics results were less than five times the MRL; therefore, qualification was not required.

In report 1910-262, the USEPA Method 6020B laboratory duplicate (10-262-05) analyzed on October 25, 2019, exceeded RPD control limits of 20 percent for lead, at 89 percent, and for zinc, at 58 percent. Onsite noted that the sample was re-extracted and re-analyzed with similar results. The sample used to prepare the laboratory duplicate was qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
1910-262	GM15-S-1.5	Total Lead	1800	1800 J
		Total Zinc	1400	1400 J

NOTES:
J = result is estimated.
mg/kg = milligrams per kilogram.

All remaining laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) was spiked with target analytes to provide information on laboratory precision and accuracy.

In report 1910-262, an NWTPH-Dx LCS for the sulfuric-acid/silica-gel cleanup analytical batch was not reported. Batch accuracy could not be evaluated for NWTPH-Dx sulfuric-acid/silica-gel cleanup results for samples GM14-S-12.0 and GM16-S-2.5.

In report 1910-262, USEPA Method 8270E/8270E-SIM LCSs (identification SB1025S1 and SB1031S1) did not include all target analytes, which is recommended by the analytical method. The reviewer confirmed that USEPA Method 8270E allows a limited set of representative analytes in some applications. Qualification was not required.

In report 1910-262, a USEPA Method 8082A LCS associated with sample extracts that were treated with mercury was not reported. Batch accuracy could not be evaluated for USEPA Method 8082A mercury cleanup results for samples S16-SED-0.33, S17-SED-0.33, S18-SED-0.33, S19-SED-0.33, S20-SED-0.33, S22-SED-0.33, S23-SED-0.33, SDUP-SED-0.33, and S24-SED-0.33.

The remaining LCS/LCSD samples were extracted and analyzed at the required frequency. All LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. One field duplicate was submitted for analysis in report 1910-262 (S20-SED-0.33/SDUP-SED-0.33) and in report 1910-289 (GM3-GW-10.9/GMDUP-GW-10.9). MFA uses acceptance criteria of 100 percent

RPD for results that are less than five times the MRL, or 50 percent RPD for results that are greater than five times the MRL. Non-detect data and results qualified by the reviewer as non-detect are not used in the evaluation of field duplicate results.

In report 1910-262, the field duplicate exceeded the RPD acceptance limit for USEPA Method 1613B OCDF. The results have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	RPD	Original Result (pg/g)	Qualified Result (pg/g)
1910-262	S20-SED-0.33	OCDF	54	94.8	94.8 J
	SDUP-SED-0.33			54.3	54.3 J

NOTES:
J = result is estimated.
pg/g = picograms per gram.

All remaining field duplicate results were within the acceptance criteria.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification results are used to demonstrate instrument precision and accuracy through the end of the sample batch. All continuing calibration verification results were within acceptance limits for percent recovery.

REPORTING LIMITS

Onsite used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences. Some individual reporting limits were raised due to matrix interference.

CFA reported results to estimated detection limits. Results between the estimated detection limit and the reporting limit were qualified by CFA with "J" as estimated.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

In report 1910-262, the COC was not signed for relinquishment by the sampler courier when the samples were received by Onsite. Sample custody could not be confirmed for 14:00 to 15:00 on October 18, 2019.

In report 1910-262, Onsite noted on the cooler receipt form that samples S24-SED-0.33 and S22-SED-5.5 were submitted to Onsite but were not recorded on the COC by the MFA sampler. Onsite recorded the sample names, collection date, collection time, matrix, container number, and analyses on the COC.

In report 1910-262, the sample collection time for S22-SED-7.0 was recorded as 15:05 on the COC, but according to the Onsite cooler receipt form, the sample collection time was 14:40

on the sample containers. The sample collection time of 14:40 was used in the report, and the reviewer confirmed that this was the correct sample collection time.

The reviewer confirmed that in report 1910-262, Onsite recorded analytical requests made by the MFA project manager on the COC after initial results were reported.

In report 1910-262, the sample collection time was not recorded on the COC for samples S14-SED-1.5 and S14-SED-3.0. In the USEPA Method 1613B dioxin/furan subcontract section of report 1910-262, CFA noted in the sample receipt checklist that the sample collection time recorded on the container label was used.

In report 1910-289, Onsite noted on the cooler receipt form that all containers submitted for sample GM1-GW-8.2 were labeled as GM2-GW-8.2. Results were reported with sample name GM2-GW-8.2. The reviewer confirmed that the correct same name was reported.

No additional issues were found.

REFERENCES

CFA. 2018. Quality assurance plan. Revision 15. Cape Fear Analytical, LLC, Wilmington, North Carolina. December 1.

Onsite. 2018. Quality assurance manual. Revision 9.6. OnSite Environmental, Inc., Redmond, Oregon. April 17.

USEPA. 1986. Test methods for evaluating solid waste, physical/chemical methods. EPA publication SW-846. 3d ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), and VI phase III (2019).

USEPA. 2014. R10 data validation and review guidelines for polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran data (PCDD/PCDF) using Method 1613B and SW846 Method 8290A. EPA-910-R-14-003. U.S. Environmental Protection Agency, Office of Environmental Assessment. May.

USEPA. 2016. USEPA contract laboratory program, national functional guidelines for high resolution Superfund methods data review. EPA 542-B-16-001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. April.

USEPA. 2017a. USEPA contract laboratory program, national functional guidelines for inorganic Superfund methods data review. EPA 540-R-2017-001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

USEPA. 2017b. USEPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540-R-2017-002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

APPENDIX F

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Table 749-1

Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre).	
1) From the table below, find the number of points corresponding to the area and enter this number in the field to the right.	
Area (acres) / Points 0.25 or less / 4 0.5 / 5 1.0 / 6 1.5 / 7 2.0 / 8 2.5 / 9 3.0 / 10 3.5 / 11 4.0 or more / 12	6
2) Is this an industrial or commercial property? If yes, enter a score of 3. If no, enter a score of 1	3
3)[a] Enter a score in the box to the right for the habitat quality of the site, using the following rating system[b]. High=1, Intermediate=2, Low=3	3
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2.[c]	2
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	1
6) Add the numbers in the boxes on lines 2-5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.	9

Notes for Table 749-1

[a] It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score of (1) for questions 3 and 4.

[b] **Habitat rating system.** Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:

> **Low:** Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.

High: Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington Department of fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.

Intermediate: Area does not rate as either high or low.

[c] Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use b mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

[Area Calculation Aid] [Aerial Photo with Area Designations] [TEE Table 749-1] [Index of Tables]

[Exclusions Main] [TEE Definitions] [Simplified or Site-Specific?] [Simplified Ecological Evaluation] [Site-Specific Ecological Evaluation] [WAC 173-340-7493]

[TEE Home]

DRAFT

Appendix F Table
Simplified TEE Scoresheet
Former Geddes Marina Property
City of Marysville
Marysville, Washington

Line	Scoring Parameters	Score	Rationale
1	Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre). From the table below, find the number of points corresponding to the area and enter this number in the field to the right. Area (acres) — Points 0.25 or less — 4 0.5 — 5 1.0 — 6 1.5 — 7 2.0 — 8 2.5 — 9 3.0 — 10 3.5 — 11 4.0 or more — 12	6	The 5.2-acre Property contains a 1.8-acre lagoon. The upland portion of the Property is partially developed. Gravel roads run roughly north/south along either side of the lagoon. The 0.5-acre area of undeveloped land on the Property contains grasses and ruderal vegetation, and is unlikely to attract wildlife. A 0.5-acre strip of landscaped grass is present at the adjacent Ebey Waterfront Park. The total area of contiguous/nearby undeveloped land was conservatively chosen as 1 acre or less.
2	Is this an industrial or commercial property? If yes, enter a score of 3. If no, enter a score of 1.	3	The Property is currently zoned as "Downtown Commercial."
3	Enter a score in the box to the right for the habitat quality of the site, using the following rating system: High=1, Intermediate=2, Low=3.	3	Plants on the undeveloped areas of the Property are ruderal vegetation, nonnative species, and grasses. Mature trees/shrubs that would provide some habitat structure are absent.
4	Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2.	2	Habitat quality at the Property is low. The Property is surrounded by commercial/residential development. There is some potential for attracting urban wildlife.
5	Are any of the following soil contaminants present: chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	1	A variety of the listed soil contaminants is present at the Property.
Add the numbers in the boxes on lines 2–5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.		9	Simplified evaluation ended. Total score exceeds 6.

NOTES:
Table adapted from Model Toxics Control Act Table 749-1.
PCB = polychlorinated biphenyl.
TEE = terrestrial ecological evaluation.