UPLAND REMEDIAL INVESTIGATION REPORT

WEYERHAEUSER SAWMILL ABERDEEN/SEAPORT LANDING

FACILITY SITE ID 1126, CLEANUP SITE ID 4987
AGREED ORDER NO. DE 15953

Prepared for
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
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Prepared by
Maul Foster & Alongi, Inc.
330 East Mill Plain Blvd., Ste. 405, Vancouver, WA 98660

MAUL FOSTER ALONGI

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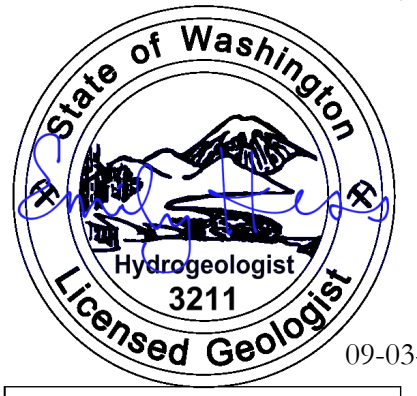
The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Phil Wiescher, Ph.D.
Principal Environmental Scientist



09-03-2026

EMILY NANCY HESS

Emily Hess, LHG
Senior Hydrogeologist

Justin Hansen
Project Environmental Scientist

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ACRONYMS AND ABBREVIATIONS

agreed order	Agreed Order DE 11224
AST	aboveground storage tank
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSM	conceptual site model
CUL	cleanup level
DNR	Department of Natural Resources (Washington)
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FS	feasibility study
ft bgs	feet below ground surface
GHHSA	Grays Harbor Historical Seaport Authority
GRO	gasoline-range organics
HxCDD	hexachlorodibenzo-p-dioxins
IHS	indicator hazardous substance
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
MTCA	Model Toxics Control Act
NAVD 88	North American Vertical Datum of 1988
ORO	oil-range organics
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
pg/g	picogram per gram
PID	photoionization detector
POC	point of compliance
RAU	remedial action unit
RI	remedial investigation
RIWP	remedial investigation work plan
Sanborn maps	Sanborn Fire Insurance maps
Site	Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
TCDD	tetrachlorodibenzo-p-dioxin
TEE	terrestrial ecological evaluation
TEF	toxic equivalent factor
TEQ	toxicity equivalent quotient
TPH	total petroleum hydrocarbon
ug/L	micrograms per liter
U.S.	United States
UST	underground storage tank
VI	vapor intrusion
WAC	Washington Administrative Code
Weyerhaeuser	Weyerhaeuser Company

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA), has prepared this remedial investigation (RI) report on behalf of the Grays Harbor Historical Seaport Authority (GHHSA) for the upland portions of the Weyerhaeuser Company (Weyerhaeuser) Sawmill Aberdeen/Seaport Landing Site (the Site). The Site includes both in-water areas and the uplands, each with a separate RI report. The Site is adjacent to the Chehalis River at 500 North Custer Street in Aberdeen, Washington (Figure 1-1). The Site is listed in the Washington State Department of Ecology (Ecology) database as Facility Site ID 1126 and Cleanup Site ID 4987. The Site includes approximately 23.6 acres of upland property, which is owned by GHHSA, and the adjacent approximately 16.9 acres of tidelands, which are leased from the Washington State Department of Natural Resources (DNR) under aquatic lands lease number 22-092275 (Figure 1-2). Historically, the Site was used as a lumber mill by Weyerhaeuser and other wood products companies. The Site is the home port for the *Lady Washington* tall ship as part of a new maritime heritage facility called Seaport Landing.

1.1 Regulatory Framework

On August 17, 2015, the GHHSA entered Agreed Order DE 11225 with Ecology. On March 28, 2019, the GHHSA entered into Agreed Order DE 15953 (agreed order) with Ecology that incorporates the remaining tasks from and supersedes the 2015 agreed order. The current agreed order requires GHHSA to conduct an RI and feasibility study (FS) and develop a draft cleanup action plan for the Site in a manner that complies with requirements of the Model Toxics Control Act (MTCA) cleanup regulations and Washington Administrative Code (WAC) 173-340.

This RI was conducted consistent with MTCA (WAC 173-340-350 through 370) and applicable guidance documents issued by Ecology. The RI sampling activities were conducted consistent with industry standard techniques in general compliance with the sampling protocols and approaches outlined in the RI work plan (RIWP) and RIWP addendum, which were approved by Ecology under the agreed order (MFA 2019, 2020). This RI report was prepared pursuant to the terms of the agreed order.

1.2 Purpose and Objectives

The objectives of the RI were to define the nature and extent of contamination in the media of concern, to evaluate the impact on human health and the environment, and to collect and evaluate sufficient information to enable selection of a cleanup action for the Site. This report describes the nature and extent of contamination at the Site, based on previous environmental investigations (i.e., in 2011, 2015, and 2017) and RI data-collection activities conducted in December 2019 and July 2020. The Site as defined in the agreed order includes both the uplands and in-water aquatic lands lease area adjacent to the uplands; however, for the purpose of this report, the Site refers to the upland portion only. The data collected during the RI informs evaluation of potential risks to human health and the environment. An assessment of potential cleanup alternatives will be discussed in the forthcoming FS.

This RI addresses characterization of the upland portion of the Site above the line of ordinary high water (+7.77 North American Vertical Datum of 1988 [NAVD 88]) (Figure 1-2). The purpose of this RI is to generate data to fulfill data objectives and characterize the nature and extent of contamination in upland environmental media to allow for risk screening and support an evaluation of potential cleanup actions in the subsequent FS.

1.3 Organization

This document is organized as follows:

- ***Section 2*** summarizes the background and physical setting of the Site, including the Site history and previous investigations.
- ***Section 3*** summarizes the environmental conditions of the Site.
- ***Section 4*** describes the field and analytical methods implemented during the RI.
- ***Section 5*** presents the applicable screening levels specific to the Site.
- ***Section 6*** presents the analytical results of sampling from previous investigations and the RI.
- ***Section 7*** presents the conceptual site model (CSM).
- ***Section 8*** defines the nature and extent of contamination at the Site.
- ***Section 9*** summarizes the findings of the RI.

2 BACKGROUND AND PHYSICAL SETTING

The background and physical setting descriptions below are summarized from previous investigations, interviews with the GHHSA, and a review of past environmental reports.

2.1 Location and Current Site Conditions

The Site is located at 500 North Custer Street in the City of Aberdeen, Washington, along the alluvial meander plain of the Chehalis River in the northwestern margins of the Willapa Hills physiographic region of southwest Washington (Figure 1-1). The Site is approximately two miles upriver from Grays Harbor. The City of Aberdeen is situated in southwestern Washington, approximately 15 miles from the Pacific Ocean and approximately 70 air miles west-southwest of Tacoma, Washington. U.S. Highways 101 and 105 are each located less than 0.25 mile south of the Site. The Site is situated in sections 9 and 10 of township 17 north, range 9 west, Willamette Base Meridian. It is bordered to the west by a former boatyard and marine service center, to the east by a former Weyerhaeuser log storage yard, to the north by the Chehalis River, and to the south by residential and commercial development. The property that makes up the upland portion of the Site consists of 20 tax parcels comprising 23.6

acres. Tax parcels and zoning designations for the upland portion of the Site and surrounding area are provided in Figures 1-2 and 2-1, respectively.

The in-water portion of the Site comprises 14.48 acres of tidelands. The aquatic lands lease area extends between the inner and outer harbor line, where use is permitted by DNR (Figure 1-2). The Grays Harbor Navigation Channel is federally maintained to 32 feet deep in the vicinity of the Site and extends to the Pacific Ocean (USACE n.d.).

2.2 Current and Future Site Use

The Site is currently used by the GHHSA as its headquarters and is the home port for the *Lady Washington* tall ship as part of a new maritime heritage facility called Seaport Landing. The future-use plan for the Site is to develop a maritime heritage center with education, public access, tourism, and commercial uses. The Site is currently zoned by the City of Aberdeen for industrial use (Figure 2-1), but a land use and zoning change to waterfront mixed use is in process. The DNR aquatic lands lease permitted uses include moorage of vessels, public access, and education activities.

2.3 Site History

The operational history of the Site is detailed in a Level I environmental site assessment (PES 2010). Historical and current site features are shown in Figure 2-2. Sawmills historically operated on both the upland and in-water portions of the Site, beginning before 1900. The south Aberdeen waterfront has been developed for and in use as commercial and industrial purposes since the early 1890s. The pilings (commonly referred to as a pile field) at the mouth of Shannon Slough mark the location of an early Aberdeen salmon cannery. In the late 1890s, the Aberdeen Lumber sawmill was constructed on the upland portion of the Site with logs rafted along the shoreline to feed the mill. Aberdeen Lumber was later sold, becoming Schafer Brothers Lumber and Door Company Mill #4. The business expanded, as did its footprint. Schafer Brothers later sold the property to Simpson Timber Company.

Weyerhaeuser acquired the Site and adjacent property to the northeast in 1955 and operated several sawmills and associated support facilities through January 2009, when the mill known as the Small Log Mill was permanently closed. The GHHSA purchased the upland portion of the Site from Weyerhaeuser on March 29, 2013, for one dollar. On April 14, 2017, the GHHSA entered into aquatic lands lease No. 22-092275 with DNR. The aquatic lands lease area borders the GHHSA-owned portions of the Site in the Chehalis River.

The portion of the Site that was conveyed to the GHHSA by Weyerhaeuser includes the DNR aquatic lands lease area, property upland of the aquatic lands lease area, and any other area where a hazardous substance from a release originating from the Site has come to be located. These areas are covered by the RI and are subject to investigation under the agreed order.

2.3.1 Shoreline Modifications and Historical Fill Events

Historical Sanborn Fire Insurance maps (Sanborn maps) of the Site from 1906, 1914, 1928, 1948, and 1989 are provided as part of the study area investigation in Appendix A. The Sanborn maps depict

the development of mill-related structures on pilings in the Chehalis River, shoreline modifications resulting from filling events, and other important details regarding the composition of fill materials. Subsurface investigations within the footprint of the filled areas identify material consisting of silty sand and sandy silt with or without gravel, as well as wood waste (see fill areas and shoreline modifications in Figure 2-3). Shoreline modifications since 1906 illustrated on the Sanborn maps provided in the study area investigation in Appendix A are summarized below.

1906: The 1906 Sanborn maps show a mill and related structures extending into the Chehalis River from Front Street between North Custer and Columbus streets. The structures are constructed on posts. These former mill structures were farther east and south than subsequent mill structures of the former Mill (also referred to as the Big Mill in some documents). The 1906 Mill and mill-related structures were in the approximate location of the present-day former Main Shipping Shed structure (Figure 2-2). Shorelines on either side of the 1906 Mill area are not fully depicted in the Sanborn maps. However, the maps do show that the shoreline along Front Street at the mouth of the Shannon Slough is undeveloped. There is another mill to the east of the Site, just east of Lawrence Street labeled as "lumber yard on saw dust fill." An overwater structure referred to as the ferry wharf is visible west of the Site. The Sanborn maps show mill-related development consisting primarily of irregular lumber piles on planked fill or planked on sawdust.

1914: The 1906 Mill is not visible in the 1914 Sanborn maps. However, the Sanborn maps show that the shoreline at the mouth of Shannon Slough has been modified to extend farther north into the Chehalis River, as it was filled in with irregular lumber piles.

1928: The 1928 Sanborn maps show further offshore development north into the Chehalis River. The 1906 Mill structures had been removed and the mill area shifted farther west between Custer and Clark streets. The structures shown are constructed on planks in the Chehalis River. The wharf that is currently present on the Site was constructed as of 1928—the wharf and mill site were built on pilings. The shoreline to the east of the current Site is relatively unchanged.

1948: As of 1948, the area between the planked overwater structures and Front Street between Clark and Custer have been filled in with refuse and planked. The overwater structures remain on planks. The shoreline to the east of the Site was relatively unchanged as of 1948.

1989: As of 1989, the entire former in-water area of the Chehalis River north of Custer Street and to the east to Shannon Slough has been filled. According to the Sanborn maps, fill material in this area consisted of earth and rock and lumber piles on filled ground. The area east of Shannon Slough is shown as fill consisting of sawdust piles.

2.3.2 Former Operations and Areas

Former facility operations with demonstrated or potential environmental impacts to the upland portion of the Site are discussed below. As shown in Figure 2-4, the Site is divided into remedial action

units (RAUs) to further delineate upland operational areas.[1] In-water facility operations are not included in this discussion but are detailed in the Level I environmental site assessment (PES 2010) and the *Draft In-Water Remedial Investigation Report–Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site (Draft In-Water RI Report)* (MFA 2022). The areas of the Site identified below are shown in Figure 2-2.

2.3.2.1 RAU1

FUEL AND CHEMICAL STORAGE BUILDING

The Fuel and Chemical Storage Building is located on the central portion of the Site. Features of this building included a fueling station; fuel aboveground storage tank (AST); and concrete-lined rooms for chemical waste storage, hydraulic oil and chemical storage, and drum storage (PES 2010).

MAINTENANCE SHOP

The Maintenance Shop is located southwest of the Fuel and Chemical Storage Building on the central portion of the Site. The Maintenance Shop was constructed in 1994 and included a parts storage room, a hydraulic tank supporting a metal press, offices, and the main maintenance area. As many as seven underground storage tanks (USTs) existed historically in and around the Maintenance Shop (PES 2010).

2.3.2.2 RAU2

FORMER PLANER BUILDING AND SPRAY ROOM

The former Planer Building and Spray Room were adjacent to the Maintenance Shop on the western portion of the Site. Facilities within the former Planer Building included a raw lumber infeed, a planer machine, a transformer that did not contain polychlorinated biphenyls (PCBs), a mixing area and spray room, sorting and grading machinery, a stacker, and hydraulic pumps and reservoirs. Anti-sapstain chemicals, including pentachlorophenol (PCP), were used in the former Planer Building until 1986. A PCP dip tank was also historically located south of the former Planer Building. A UST at the south end of the former Planer Building was removed in July 1989 (PES 2010).

2.3.2.3 RAU3

STORAGE SHED

The Storage Shed is south of the former Planer Building on the western portion of the Site. This area coincides with historical facilities, including a former Oil Tank and Chemical Storage Shed and kilns.

[1] Soil and groundwater samples were collected from RAU6 (on the southeastern portion of the Site) and RAU7 (encompassing an upland area around Shannon Slough) during RI field activities. These areas do not correlate with historical operational areas and are therefore not discussed in the context of former operations.

2.3.2.4 RAU4

SMALL LOG MILL AND PEE WEE MILL

As described above, Weyerhaeuser acquired the Site in 1955 and operated several sawmills and support facilities. From 1955 until the mid-1960s, raw logs were brought to the Site in log rafts on the Chehalis River and tied up to in-river pilings. After the mid-1960s, raw logs were brought to the Site by truck and staged on log decks at various locations in and adjacent to the Site. The precursor to the Small Log Mill, called the Pee Wee Mill, was added in 1972 to cut small logs. The Pee Wee Mill was upgraded between 1972 and 2003 and eventually became the Small Log Mill.

The Small Log Mill was part of a larger Weyerhaeuser operational area, which included log debarking; whole-log chipping; sawing dimensional lumber; log sorting; planing lumber; treating planed lumber with anti-sapstain; cutting lumber to length; grading, sorting, stacking and banding lumber; end-sealing and labeling finished product; storing finished product; and loading/shipping finished product. The Small Log Mill operated on the northeast portion of the uplands through January 2009, when it was permanently closed.

MAIN SHIPPING SHED

The Main Shipping Shed is southwest of the Small Log Mill on the eastern portion of the Site. The Main Shipping Shed is open to the yard on the south side and was used for lumber staging, loading, parking, maintenance, and other general activities. Rolling stock maintenance was performed in the northwest corner of the shed, a saw grinding room for sharpening saws was on the western side of the shed, and a cut-off saw room was in the southeast corner of the shed.

2.3.2.5 RAU5

ANCILLARY SUPPORT FACILITIES

Ancillary support facilities and equipment, including the Aberdeen Transformer Pad, a Generator Shed, diesel AST, water tank, office, Guard Shed, and guard shack UST, are on the southeast portion of the Site.

2.4 Previous Investigations

Environmental data collected at and in the vicinity of the Site, dating back to 1999, are summarized in the study area investigation report prepared by MFA (Appendix A) and Section 2 of the RIWP (MFA 2019). Further, a hazardous materials survey report was prepared by MFA in 2020 (Appendix B).

3 ENVIRONMENTAL CONDITIONS

This section describes the environmental conditions at and in the vicinity of the Site, including topography and bathymetry, geology and hydrogeology, surface water, beneficial water and land uses, and climate. Aquatic environment and bottom substrate and sedimentation and hydraulic assessment are discussed in Sections 3.4 and 3.5, respectively, of the *Draft In-Water RI Report* prepared by MFA (MFA 2022).

3.1 Topography and Bathymetry

The Site upland topography and in-water area bathymetry were surveyed to NAVD 88 (Appendix C). According to the U.S. Geological Survey Aberdeen, Washington, 7.5-minute series topographic map (2020), the Site is located at elevations near sea level along the shoreline up to approximately 20 feet NAVD 88. The topography northeast of Aberdeen gradually slopes upward toward the foothills and peaks of the Olympic Mountains. The topography to the east, southeast, and south consists of rolling hills. The topography of the Site is generally flat, with elevations ranging from approximately 10 to 15 feet NAVD 88 (Figure 3-1). Steep slopes are present around the upland portion of Shannon Slough, in the southeast corner of the Site, with the top of the slope at approximately 10 feet and base at approximately 4 feet NAVD 88.

Bathymetry data indicate that the riverbank slopes steeply, with the top of the riverbank at an elevation of approximately 13 feet NAVD 88, and the base at approximately -30 feet NAVD 88. Elevations in the pocket beach area range from approximately 9 feet NAVD 88 to 6 feet NAVD 88.

3.2 Geology and Hydrogeology

The Site is in the alluvial meander plain of the Chehalis River on the northwestern margins of the Willapa Hills physiographic region of southwestern Washington. Site geology and hydrogeology are further documented in a preliminary geotechnical report prepared by Zipper Geo (Appendix D).

The Chehalis River valley is filled with variable thicknesses of recent alluvium consisting of river-deposited gravels, sands, and silts. Near the ocean, the thicknesses of these alluvial deposits can be significant (more than 100 feet) because of valley filling as rising sea levels decrease the river's ability to transport sediments downstream (Eddy 1966). Well logs from resource protection wells in the vicinity of the Site indicate that alluvium in the area of the Site is at least 60 feet thick and consists of sands, silts, and clayey silts. Logs from borings located along State Highway 12 to the north indicate that the bedrock encountered below the alluvium at depths exceeding 100 feet consists of siltstone and sandstone.

Cross sections from a 1951 map of the Site provided by Weyerhaeuser indicate that much of the area of the main mill facilities was tideland prior to, and during, the early development of the Site in the

late 1800s and early 1900s. Most of the early site structures were constructed on wood-piling support platforms.

Upland soil borings advanced upgradient of the pocket beach during the investigations in 2015 and 2019 identified silts and silty sands at depths of 8 to 9 feet below ground surface (ft bgs) in upland areas. The silts and silty sands were overlain by wood waste (up to 80 percent by volume of primarily wood and bark chips) of varying thicknesses—occasionally wood waste layers were more than 5 feet thick. Wood waste typically occurred around 4.5 to 5 ft bgs surrounding the pocket beach area. This layer of wood waste was overlain primarily by gravelly sands, comprising the layer to the ground surface. Borings advanced along the shoreline of the Site identified dark brown, sandy sawdust at approximately 4 to 5 ft bgs, overlain by light brown sawdust and woodchips, with crushed gravel at the surface (SAIC 2011).

Depth to groundwater in the upland areas of the Site is approximately 4 to 5 ft bgs. Based on a groundwater-surface water interaction study conducted as part of this RI (Appendix E), groundwater at the Site discharges to surface water. Groundwater in the northern and northwestern portion of the Site discharges directly to the Chehalis River and is tidally influenced. Groundwater in the southern and southeastern portion of the Site discharges to Shannon Slough, which flows into the Chehalis River at the northeastern corner of the Site, though does not appear to be influenced by tides. Although available data suggests that groundwater discharges to surface water on portions of the Site, there is little evidence that surface water interacts with groundwater as physical advection of surface water into groundwater is limited spatially and seasonally. Further. the 2015 study area investigation (see Appendix A) and a 2010 investigation determined that water originating from seeps in the pocket beach area had a different chemical signature than the chemical signature for Chehalis River water, suggesting that the seeps are more consistent with site groundwater and do not represent bank storage of river water inundated during high tide (Appendix A; Floyd|Snider 2010).

3.3 Surface Water

Surface water bodies in the vicinity of the Site include the Chehalis River to the north and east; the Wishkah River to the northwest; one small, unnamed drainage channel that enters the Chehalis River beyond the east end of the Site; and Shannon Slough in the southeastern portion of the Site, which enters the Chehalis River at an embayment located near the upstream portion of the Site (Figures 2-1 and 2-2). All surface water drainages in the area ultimately discharge to the Chehalis River. The Chehalis River is tidally connected to Grays Harbor and the Pacific Ocean, resulting in a mixed semidiurnal tidal regime (i.e., two different high and two different low tides per lunar day). During site investigations, MFA staff observed that the pocket beach and other beach features are fully inundated at high tide and exposed at low tide.

3.4 Beneficial Water and Land Uses

Providing protection for the highest beneficial use (i.e., the use requiring the highest quality in the resource) of water will generally also provide protection for other existing and future beneficial uses of water. Based on hydrogeological conditions observed on the Site and regional topography, the following surface water and shallow groundwater conditions are present in the area:

- Surface water in the region discharges to the Pacific Ocean.
- Shallow groundwater in the area appears to flow toward the Chehalis River.

Currently, there are no potable water wells on the Site. Shallow groundwater under the western portion of the Site discharges to the Chehalis River and appears tidally influenced. Groundwater under the eastern portion of the Site discharges to the Shannon Slough, which ultimately discharges to the Chehalis River. The current and reasonably likely future uses of the river include recreation, fishing, and fish and wildlife habitat. Grays Harbor provides habitat for a number of shellfish species, including clams, mussels, and Dungeness crab. There is limited information on the potential presence of shellfish in the Chehalis River upstream of the U.S. Highway 101 bridge. A recent field investigation conducted as part of the environmental impact statement for Washington State Route 520 pontoon construction facility, located approximately one mile downstream of the Site boundary, found softshell clams (*Mya arenaria*) in the lower intertidal zone.

MFA prepared a simplified terrestrial ecological evaluation (TEE) for the upland portions of the Site (Appendix F). The simplified TEE concluded that the Site does not pose a substantial threat to terrestrial ecological receptors and may be removed from further ecological consideration during the RI and cleanup process.

3.5 Critical Areas Report

A critical areas report was prepared for the Site by Grette Associates LLC in October 2019 (Appendix G). The report documents wetlands, fish, and wildlife habitat conservation areas at the Site in accordance with the requirements defined in Chapter 14.50 of the *City of Aberdeen Shoreline Master Program* (City of Aberdeen 2017).[2] Further, the report delineated three wetlands at the Site:

- Wetland A: a freshwater tidal wetland in the pocket beach area that receives daily river inundation with each tidal cycle. Hydrophytic vegetation (predominantly soft rush, slough sedge, and Pacific silverweed, along with cattail in some areas) and hydric soils are present.
- Wetland B-1: a freshwater tidal wetland at the mouth of Shannon Slough that receives daily river inundation with each tidal cycle. Hydrophytic vegetation (predominantly soft rush, slough sedge, and Pacific silverweed) and hydric soils are present.
- Wetland B-2: a riverine wetland along the margins of Shannon Slough, south of the road crossing and associated tidal flap gate, in areas that are permanently and/or seasonally flooded by fluctuating water depths in the slough. Hydrophytic vegetation (largely soft rush and slough sedge) and presumed hydric soils are present.

Grette Associates LLC classified all three wetlands as Category III, which are defined as wetlands with low habitat value that have generally been disturbed and are less diverse or more isolated from other natural resources in the landscape (Ecology 2014b). A buffer of 75 feet to each wetland is defined through a Category III designation, and the Aberdeen Municipal Code states that buffers do not

[2] The Shoreline Master Program is part of the Aberdeen Municipal Code (https://aberdeen.municipal.codes/AMC, Accessed: October 27, 2022).

extend through existing developments (i.e., existing developments are grandfathered in and are not required to comply with buffer requirements).

3.6 Climate

The climate in Aberdeen, Washington, is characterized by mild winters and cool summers. Between 1991 and 2020, mean monthly temperatures varied from an average minimum of 41.7 degrees Fahrenheit in December to an average maximum of 61.8 degrees Fahrenheit in August. Average monthly wind velocities range from 4.7 miles per hour in September to 7 miles per hour in January. The prevailing wind direction is to the east. Mean annual precipitation for Aberdeen is 84.94 inches. Average monthly precipitation varies from a low of 0.91 inch in July to a high of 13.93 inches in January.

Possible climate change impacts to the Site include rising sea levels, flooding due to tidal influences, wildfires, and landslides due to extreme precipitation events (Bethel and Nguyen n.d.).

4 FIELD AND ANALYTICAL METHODS

In October 2019, a geophysical survey was completed at the Site, focusing on areas that had not previously been surveyed (RAU3, RAU4, and RAU6). During RI field activities, soil and groundwater sampling was conducted to refine the lateral and vertical extent of previously identified contamination and to facilitate remedial design for the upland area of the Site. Sampling was conducted between December 2 and 6, 2019; on December 11, 2019; and between July 21 and 22, 2020, as described in the RIWP and RIWP addendum (MFA 2019, 2020). Final sample locations were generally recorded with a global positioning device and are shown in Figure 4-1.

Samples were collected and handled under standard chain-of-custody procedures, consistent with the sampling and analysis plan provided as Appendix B of the RIWP (MFA 2019). Soil boring logs are provided in Appendix H of this report. Sample documentation, field measurements, and observations were recorded on water field sampling data sheets, provided in Appendix I. Investigation-derived waste consisted of soil cuttings, decontamination liquids, and purged groundwater. Solids and liquids were drummed separately and stored in labeled 55-gallon drums located in a secure location at the Site prior to offsite disposal.

4.1 Geophysical Survey

The geophysical survey was completed by Pacific Geophysics in October 2019 (Appendix J) and the findings are detailed in Section 5.3 of the RIWP (MFA 2019). In summary, no USTs were identified in RAU3, RAU4, or RAU6. Several magnetic anomalies were identified as non-three-dimensional or small three-dimensional objects, such as surface metal, pipes, concrete pads, or small objects.

4.2 Remedial Investigation Field Methods

This section describes the soil and groundwater sample collection at the Site, characterization, and field screening methods. Borings were advanced to a maximum depth of 15 ft bgs (and borings completed as monitoring wells were advanced to a maximum depth of 20 ft bgs) using a direct-push probe drilling rig, except where limited by site conditions. Where feasible, one unsaturated soil sample and one groundwater sample were collected from each boring. Sampling and field procedures are discussed in Section 5 and Appendix B of the RIWP (MFA 2019).

4.2.1 Soil Screening and Sample Collection

Continuous soil cores were collected from the ground surface to the maximum depth explored at each boring location for visual characterization of material along the entire core length. Lithology changes were noted in boring logs either by or under the supervision of a geologist licensed in the State of Washington (see Appendix H). Sample collection proceeded as outlined in Section 2.1 of Appendix B of the RIWP (MFA 2019).

Test pit excavation proceeded as described in the RIWP until field conditions prevented advancement. One sample was collected from within the excavation where conditions permitted safe entry (e.g., excavation walls were no higher than 4 feet).

Soil cores were generally field screened for volatile organic compounds, using a photoionization detector (PID). Soil samples were placed in a Ziploc bag (filled less than half full) and allowed to warm to ambient temperatures. PID measurements were made within 30 minutes of collection by inserting the 10.2 eV PID probe into the bag. Measurements were recorded on the geologic logs (Appendix H).

4.2.2 Groundwater Sample Collection

4.2.2.1 Monitoring Well Sampling

Monitoring wells were developed no sooner than 24 hours after installation and sampled no sooner than 48 hours after development. During sampling, each monitoring well was purged with a peristaltic pump using low-flow procedures to minimize solids. Field parameters (e.g., temperature, pH, specific conductance, turbidity) were allowed to stabilize for at least three consecutive readings before a sample was collected. Samples for analysis of dissolved constituents were field-filtered with a 0.45-micron in-line filter prior to collection in laboratory-provided containers. Additional details are provided in Section 2.5 and 2.7 of Appendix B of the RIWP (MFA 2019).

4.2.2.2 Reconnaissance Groundwater Sampling

Temporary borings were advanced to encounter and sample groundwater. At each boring designated for reconnaissance groundwater sample collection, the borehole was cleared of loose soil and a 0.75-inch polyvinyl chloride temporary well casing with a 5-foot polyvinyl chloride machine-slotted screen was installed. Groundwater samples were collected from the approximate midpoint of the well screen. During sampling, each reconnaissance well was purged with a peristaltic pump using low-flow

procedures to minimize solids. Once field parameters stabilized, groundwater samples were collected directly into laboratory-provided containers using a peristaltic pump. Groundwater submitted for analysis of dissolved constituents were field-filtered with a 0.45-micron in-line filter prior to collection. Additional details are provided in Section 2.6 and 2.7 of Appendix B of the RIWP (MFA 2019).

4.3 Work Plan Deviations

The following deviations from the RIWP (MFA 2019) or RIWP Addendum (MFA 2020) were noted.

- Proposed boring locations may have been adjusted up to 10 feet based on conditions encountered in field, such as drilling refusal or the presence of utilities.
- Due to ambient moisture on December 4, 2019, PID meters were not reading properly for much of the day. Therefore, PID readings were not collected for soil in most borings drilled that day.
- RAU3-01: a test pit was attempted with an excavator and jackhammer. Equipment reached a depth of 2 feet, but only solid concrete or asphalt was present. To complete the work within the project schedule, a 10-foot boring was advanced directly off the concrete patch in place of the test pit.
- RAU3-04, RAU3-07, RAU4-03, RAU5-02, RAU6-01, and RAU6-03: each location was sampled for soils only, due to lack of sufficient groundwater. An unsaturated and a saturated soil sample were collected and analyzed from each location.
- RAU4-03: this location was not completed as a monitoring well due to a lack of groundwater in the boring to a depth of approximately 15 feet bgs. Instead, RAU4-12 was completed as a monitoring well.
- RAU4-20 and RAU4-21: these borings were advanced in the vicinity of the former Pee Wee Mill to further evaluate the extent of petroleum impacts to soil and groundwater. Only eight borings in the vicinity of the former Pee Wee Mill were proposed. These two borings were advanced in addition to the proposed borings.

5 SCREENING LEVELS AND POINTS OF COMPLIANCE

According to MTCA, the cleanup standards for a site have two primary components: chemical-specific cleanup levels (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 POCs are the areas where the CUL must be met. The CULs for the Site will be informed by screening levels that consider human health and ecological receptor exposure pathways. Screening levels are further described in this section.

5.1 Soil

The soil screening levels for the Site are MTCA Method A values. The Method A values are protective of human health via the direct-contact pathways and are protective of groundwater via the soil-leaching-to-groundwater pathway. However, where MTCA Method A values are unavailable, the lowest available MTCA Method B cancer or non-cancer values were used.[3] When a summation is performed (e.g., total PCBs), MFA screened data against the MTCA Method A or MTCA Method B value for the summation rather than for the values for each individual analyte. MFA did not screen soil data against MTCA Method B groundwater protection levels because groundwater data exist at most sample locations. For potentially erodible riverbank soil, MFA relied on sediment screening levels developed for and presented in Table 5-3 of the *Draft In-Water RI Report* (MFA 2022).

As described in Section 3.4, the Site qualifies for a simplified TEE, which concluded that the Site does not pose a substantial potential threat to terrestrial ecological receptors and may be removed from further ecological consideration during the RI and cleanup process. Therefore, soil screening levels do not include TEE ecological indicator concentrations. The soil POC is the depth at which soil CULs shall be attained. The standard POC in soil is from the surface to 15 ft bgs.

5.2 Groundwater

In general, groundwater was screened against MTCA Method A criteria. However, where MTCA Method A values are unavailable, the lowest available MTCA Method B cancer or non-cancer values were used. When a summation is performed, MFA screened data against the MTCA Method A or MTCA Method B value for the summation rather than for the values for each individual analyte. Based on the groundwater-surface water interaction study conducted by MFA (Appendix E), contaminant concentrations measured in monitoring wells are representative of groundwater conditions, not surface water conditions. Therefore, groundwater is most appropriately compared to groundwater screening levels and not surface water screening levels.

Alternative screening levels were used for vapor intrusion from groundwater. Where applicable, the lowest of the MTCA Method B VI cancer or non-cancer screening values were used. These screening level values were applied within 30 feet from the edge of a building footprint for groundwater data with volatile subsurface petroleum contamination, or within 100 feet from the edge a building footprint for groundwater data with any volatile subsurface contamination (Ecology 2022). MFA evaluated the groundwater to soil gas pathway as it pertains to potential VI risk within enclosed structures on the Site (see Section 6.3.3).

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

[3] Prior to 2016, MTCA Method C CULs (for industrial sites) were selected for the Site, specifically for PCP in soil. However, Site operations have since changed, and MTCA Method A or Method B CULs (for unrestricted land use) are more appropriate.

time frame (WAC 173-340-720(8)(c)). A conditional POC for groundwater is not proposed at this time.

5.3 Soil Gas

In addition to historical and RI analytical soil data, historical soil gas data also exist for the Site. For soil gas, the lowest MTCA Method B vapor intrusion (VI) subslab soil gas cancer or non-cancer values were used. Though MTCA does not define a POC for soil gas, the remedy selected during the FS must address soil contamination in a manner that mitigates or eliminates soil gas sources to ensure protection of indoor air quality in present or future buildings at the Site. Section 6.4 presents the analytical results of historical soil gas sampling conducted at the Site.

5.4 Preliminary Cleanup Standards

Preliminary cleanup standards are generally developed based on screening levels for each media type present and by identifying potential POCs. For soil, the POC is the depth at which the soil CUL must be achieved. For groundwater, the POC is the point or points where the groundwater CUL must be attained. It is not anticipated that cleanup standards will be developed for all chemicals present at the Site. The final site-specific CULs and cleanup standards are defined on a site-by-site basis by Ecology.

Cleanup standards will ultimately be developed for relevant indicator hazardous substances (IHSs) identified in this report. IHSs are those compounds that are included for further consideration during the development of the cleanup approach because of their frequency, mobility, persistence in the environment, or toxicity. Compounds can be eliminated from further consideration on a site-specific basis, using the following evaluation factors outlined in WAC 173-340-703:

- The toxicological characteristics of the hazardous substance relative to the concentration of the hazardous substances at the Site
- The chemical and physical characteristics of the hazardous substance that govern its tendency to move into and through environmental media
- The natural background concentrations of the hazardous substance
- The thoroughness of testing for the hazardous substance at the Site
- The frequency at which the hazardous substance has been detected at the Site
- Degradation by-products of the hazardous substance

IHSs for the Site are discussed in Section 8.3.

6 ANALYTICAL RESULTS

This section summarizes the soil, groundwater, and soil gas data for samples collected during upland investigations at the Site. Laboratory reports are provided in Appendix K.

Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met project-specific data quality objectives. This review was performed consistent with accepted EPA procedures for evaluating laboratory analytical data (EPA 2017a,b) and appropriate laboratory and method-specific guidelines. Data validation memoranda summarizing data evaluation procedures, data usability, and deviations from specific field and/or laboratory methods as they relate to analytical data are provided in Appendix L. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

6.1 Data Usability

Analytical results collected during RI activities were reviewed for usability and are qualified consistent with EPA procedures and appropriate laboratory and method-specific guidelines (Appendix L). Data validation memoranda for historical data that have been previously submitted to Ecology are available in the study area investigation in Appendix A. All validated analytical data have been uploaded to Ecology's Environmental Information Management System database.[4]

Detected concentrations of some constituents were summed for comparison to applicable screening levels, as described in Section 5. Descriptions of how the constituents were summed are as follows:

- **Total PCBs.** Total PCBs are the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268, with non-detected values assigned a value of zero; where all results are non-detect, the highest reporting or detection limit is used.
- **Toxicity Equivalent Quotients (TEQs).** Consistent with WAC 173-340-708(8), mixtures of dioxins and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are considered as single hazardous substances in evaluating compliance with preliminary CULs such that the toxicity of a particular congener is expressed relative to the most toxic dioxins or cPAH congener (i.e., 2,3,7,8-tetrachlorodibenzo-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

[4] Available at Environmental Information Management database – Washington State Department of Ecology.

expression of all congener concentrations in terms of a total TCDD or cPAH TEQ (i.e., dioxin TEQ and cPAH TEQ, respectively):

$$\text{Dioxin TEQ} = \sum_{i=1}^{k} C_i \times TEF_i$$

$$\text{cPAH TEQ} = \sum_{i=1}^{k} C_i \times TEF_i$$

Where C_i = individual TCDD or dioxin-like compound concentration and TEF_i = TEF assigned for TCDD or dioxin-like compound.

Dioxin and cPAH TEQs were qualified and calculated as follows:

- Congeners qualified as non-detected 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 non-detect (i.e., "ND").

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 TEQ. TEFs for cPAHs were used consistent with WAC 173-340-708(8)(e) and Table 708-2 of WAC.

Consistent with *Implementation Memorandum No. 4* (Ecology 2004) and *Guidance for Remediation of Petroleum Contaminated Sites* (Ecology 2016), the diesel- and oil-range hydrocarbon results were summed for a total detection value and were calculated as follows:

- Diesel- and oil-range hydrocarbon results qualified as non-detect and flagged with a "U" are used in the total calculation at one-half the associated value. When both results are non-detect, the highest detection limit is used.

Diesel- and oil-range hydrocarbon results qualified as estimated and flagged with a "J" are used in the total calculation without modification.

6.2 Soil

A summary of analytical results for data collected between 2011 and 2020, including detection frequency, minimum and maximum detected values, and exceedance frequency, is provided in Table 6-1. Section 6.2.1 summarizes upland soil analytical results and Section 6.2.2 focuses on erodible riverbank soil sample results screened against applicable in-water sediment criteria.

6.2.1 Upland Soil

Upland soil analytical results were compared against the lowest regulatory value, selected from soil MTCA Method A unrestricted land use where available, or MTCA Method B (the lower of the available cancer or non-cancer value) where MTCA Method A is not available. Results for data obtained from the upland RI conducted in December 2019 and July 2020 are summarized in Table 6-2 and results from 2011, 2015, and 2017 are summarized in Table 6-3. Screening level exceedances for all soil samples collected between 2011 and 2017 are shown in Figure 6-2a and exceedances for soil samples collected during RI field activities between 2019 and 2020 are shown in Figure 6-2b.

6.2.1.1 Metals

Though metals were generally detected at each upland soil sample location between 2011 and 2020, only six (cadmium, cobalt, iron, lead, manganese, and thallium) of the 24 metals historically analyzed for exceeded the soil screening level in at least one sample. Each of these six metals is present on the analyte list developed for the *Seaport Landing Site Targeted Brownfields Assessment, Aberdeen, Washington (Targeted Brownfields Assessment report)* (Ecology and Environment, Inc. 2018). For this RI, after communications with Ecology, metals were selected for analysis based on the criteria exceedances from the *Targeted Brownfields Assessment report*: arsenic, cadmium, copper, lead, manganese, nickel, and zinc. Mercury, which was not included in the *Targeted Brownfields Assessment report*, was included for this RI because it is a contaminant of interest for the in-water RI. In addition, chromium and chromium (hexavalent) were included to ensure potential contaminants that could be present were not missed. Cobalt and iron were not carried forward as contaminants of interest in this RI because only three samples had minor exceedances of the cobalt screening level, and only three samples exceeded the screening level for iron. Cobalt and iron are therefore not discussed further.

Arsenic, cadmium, chromium, chromium (hexavalent), copper, lead, manganese, mercury, nickel, and zinc were analyzed for the RI field sampling and analytical results for those contaminants (and thallium[5]) are discussed below.

- **Arsenic**. Arsenic did not exceed the screening level in any samples.
- **Cadmium**. The soil screening level for cadmium is 2 milligrams per kilogram (mg/kg). Cadmium was detected above 2 mg/kg in four samples collected in 2017 from locations FC03 (between the Main Shipping Shed and the Fuel and Chemical Storage Building), MS01 (between the Fuel and Chemical Storage Building and Maintenance Shop), and PB07 and PB08 (riverward of the former Planer Building), with concentrations ranging from 2.5 mg/kg to 9.3 mg/kg. However, cadmium was analyzed for and generally non-detect in RI samples collected in 2019 and 2020 and, of the limited detections, none exceeded the soil screening level.
- **Chromium**. Chromium did not exceed the screening level in any samples.

[5] Though not analyzed for in RI samples, thallium exceeds the screening level in historical samples and is therefore included.

- **Chromium (hexavalent).** Hexavalent chromium did not exceed the screening level in any samples.
- **Copper.** Copper did not exceed the screening level in any samples.
- **Lead**. Lead exceeds its soil screening level (250 mg/kg) in one sample collected in 2017 from location FC03 (between the Main Shipping Shed and Fuel and Chemical Storage Building). The sample was collected between 6 and 8 ft bgs and contained lead at a concentration of 1,110 mg/kg. In RI samples collected in 2019 and 2020, lead was generally detected at concentrations lower than the screening level, and often detected below the natural background level of 10.9 mg/kg.
- **Manganese**. Manganese exceeds its soil screening level (3,700 mg/kg) in one sample collected in 2017 from location MS01 (between the Fuel and Chemical Storage Building and Maintenance Shop). The sample was collected between 8 and 12 ft bgs and contained manganese at a concentration of 13,100 mg/kg. In RI samples collected in 2019 and 2020, manganese was often detected at concentrations an order of magnitude lower than the screening level.
- **Mercury**. Mercury did not exceed the screening level in any samples.
- **Nickel**. Nickel did not exceed the screening level in any samples.
- **Thallium**. Thallium exceeds its soil screening level (0.8 mg/kg) in most samples collected in 2017. Detected thallium concentrations range from 1.8 mg/kg to 6.2 mg/kg. The screening level for thallium (0.8 mg/kg) is less than the analytical detection limit from the 2017 soil sampling activities (2.5 mg/kg). Thallium was not analyzed for in RI samples collected from 2019 and 2020.
- **Zinc**. Zinc did not exceed the screening level in any samples.

6.2.1.2 PCBs

Total PCBs were not detected or were detected below the screening level value of 1 mg/kg in soil samples collected between 2011 and 2020.

6.2.1.3 Dioxins/Furans

Seventeen specific dioxin/furan congeners, ranging from tetra- through octachlorodibenzo-p-dioxin and octachlorodibenzofuran, were historically analyzed at the Site. However, dioxin/furan sample density is generally low at the Site; six historical sample locations were analyzed for dioxins/furans and fewer than ten RI sample locations were analyzed for dioxins/furans. Soil screening levels exist for one dioxin congener (2,3,7,8-TCDD) and two dioxin summations (total hexachlorodibenzo-p-dioxins [HxCDDs][6] and dioxin/furan TEQ).

The soil screening level for dioxin/furan TEQ is 13 pg/g. In 2015, samples collected from locations CR-20 (riverward of the former Planer Building near the shoreline) and CR-22 (riverward of the

[6] Total HxCDD is defined as the sum of the individual HxCDD constituent congeners.

Maintenance Shed) exceeded this value at concentrations of 90 pg/g and 35.8 pg/g, respectively. In 2019, samples collected from RAU1-04 and RAU1-05 (both near the former Wood Waste Burner) exceeded this value at concentrations of 57.5 pg/g and 64.6 pg/g, respectively. Additionally, a sample collected from RAU2-GA2 (on the shoreline near the Powerhouse and former Boiler) at a depth interval of 2.5 to 4 ft bgs exceeded the screening level for dioxin/furan TEQ at a concentration of 61 pg/g. Dioxin/furan TEQ concentrations from the same location at depth intervals of 5 to 6.5 ft bgs and 7.5 to 9 ft bgs were below the screening level.

6.2.1.4 Pesticides

Pesticides were historically analyzed for in the 2011 soil samples but were non-detect in all samples. Because there are no known sources of pesticides on the Site and because historical data are non-detect for pesticides, pesticides were not further investigated during the 2019 and 2020 RI field activities.

6.2.1.5 Organic Compounds

Only two organic compounds, benzene and cPAH TEQ, exceed their respective screening levels in upland soil collected between 2011 and 2020 at the Site, as discussed below.

- **Benzene**. The screening level for benzene is 0.03 mg/kg. Benzene is non-detect in nearly all samples at method detection or method reporting limits below the screening level. One sample from 2019 (collected near the Maintenance Shop at location RAU1-09) exceeded the screening level at a concentration of 0.0474 mg/kg.
- **cPAH TEQ**.[7] The screening level for cPAH TEQ is 0.1 mg/kg. There were no cPAH TEQ exceedances in soil samples collected in 2011, however the method reporting limit for approximately half of the 2011 samples exceeded the screening level, ranging from 0.14 mg/kg to 0.45 mg/kg. In 2015, cPAH TEQ exceeded this value in samples collected from B02 (0.154 mg/kg) riverward of the Maintenance Shop, CR-20 (0.237 mg/kg) riverward of the former Planer Building near the shoreline, and CR-21 (0.247 mg/kg) riverward of the Maintenance Shop.

  In 2017, cPAH TEQ exceeded the screening level in samples from the following locations:

  - FC03 (0.225 mg/kg) between the Main Shipping Shed and Fuel and Chemical Storage Building
  - MS01 (0.182 mg/kg) between the Fuel and Chemical Storage Building and Maintenance Shop
  - MS03 (0.142 mg/kg) and MS05 (0.257 mg/kg) riverward of the Maintenance Shop

[7] At several locations, benzo(a)pyrene also exceeds its screening level. However, cPAH TEQ is reported instead of individual cPAH constituents because cPAH TEQ exceeds its screening level in some locations where no individual cPAH constituents exceed their respective screening levels.

- OC01 (0.154 mg/kg) and OC02 (0.154 mg/kg) west of the Storage Shed and former Oil Tank and Chemical Storage Shed
- PB07 (0.336 mg/kg) and PB08 (0.163 mg/kg) riverward of the former Planer Building
- PW02 (2.53 mg/kg) adjacent to the southeast corner of the former Planer Building

In sampling from 2019 and 2020, cPAH TEQ exceeded the screening level in samples from the following locations:

- RAU1-02 (0.109 mg/kg) riverward of the former Mill
- RAU1-04 (0.631 mg/kg) riverward of the Maintenance Building
- RAU1-08 (0.247 mg/kg) and RAU1-09 (1.23 mg/kg) adjacent to the Maintenance Building
- RAU1-10 (0.152 mg/kg) within the Fuel and Chemical Storage Building
- RAU2-09 (0.659 mg/kg) near the shoreline riverward of the former Planer Building
- RAU2-GA1 (0.511 mg/kg) riverward of the former Planer Building near the former Mill
- RAU2-GA2 (4.15 mg/kg) on the shoreline near the Powerhouse and former Boiler
- RAU3-02 (0.187 mg/kg) near the Storage Shed (and former Oil Tank and Chemical Storage Shed)
- RAU3-05 (0.128 mg/kg) adjacent to the former Mill
- RAU6-03 (0.139 mg/kg) on the southeastern portion of the Site

6.2.1.6 Total Petroleum Hydrocarbons

Gasoline-range organics (GRO), diesel-range organics (DRO), and oil-range organics (ORO) each exceed their soil screening levels (100 mg/kg, 2,000 mg/kg, and 2,000 mg/kg, respectively) in at least one sample collected from the Site, as described below.

- **GRO**. Except for one detection two orders of magnitude below the screening level, GRO was analyzed for and not detected in soil samples collected in 2011. GRO was not analyzed for soil samples collected in 2015 or 2017. During the RI field activities, GRO was analyzed for at one location (RAU1-12, near the Fuel and Chemical Storage Building) and detected at a concentration of 118 mg/kg, exceeding the screening level of 100 mg/kg.
- **DRO**. DRO was analyzed for and either not detected or detected below the screening level in soil samples collected in 2011. One sample (from location B02, riverward of the Maintenance Shop at a concentration of 5,800 mg/kg) exceeded the screening level in 2015. One sample (from location FC02, between the Fuel and Chemical Storage Building and Maintenance Shop) exceeded the screening level in 2017 (at a concentration of 3,300

mg/kg). DRO was analyzed for and either not detected or detected below the screening level in soil samples collected during RI field activities in 2019 and 2020.

- **ORO**. ORO was analyzed for and detected above its screening level in soil samples collected in 2011, 2015, 2017, and 2019 through 2020.
  - In 2011, ORO was detected above the screening level at location SB6, at depths of 1.5 to 3 ft bgs and 3 to 5 ft bgs, and at concentrations of 2,200 mg/kg and 2,300 mg/kg, respectively.
  - In 2015, ORO was detected above the screening level at locations B02 (riverward of the Maintenance Shop), CR-20 (riverward of the former Planer Building near the shoreline), and CR-21 (riverward of the Maintenance Shop) at concentrations of 19,000 mg/kg, 2,600 mg/kg, and 3,600 mg/kg respectively.
  - In 2017, ORO was detected above the screening level at seven locations (between the Fuel and Chemical Storage Building and Maintenance Shop at FC02; riverward of the Maintenance Shop at MS03; between the Maintenance Shop and former Planer Building at MS04; riverward of the Maintenance Shop at MS05; within the western portion of the former Planer Building at PB02; and riverward of the former Planer Building at PB07 and PB08) at concentrations between 2,200 mg/kg and 170,000 mg/kg.
  - During RI field activities in 2019 and 2020, ORO was detected above the screening level at 13 locations (adjacent to the Maintenance Shop at RAU1-05, RAU1-07, RAU1-08, and RAU1-09; riverward of the former Planer Building at RAU2-09; adjacent to the Storage Shed at RAU3-01; near the former Pee Wee Mill at RAU4-05 and RAU4-06; riverward of the Small Log Mill at RAU4-08; and landward of the Small Log Mill at RAU4-16, RAU4-17, RAU4-19, and RAU4-21) at concentrations up to 37,200 mg/kg.

A subset of soil samples collected during RI field activities were also analyzed for total petroleum hydrocarbons (TPH) with silica gel cleanup to better understand how weathered the petroleum product is. These results were largely consistent with the TPH analysis without silica gel cleanup and are therefore shown for informational purposes only. Further, Ecology applies cleanup standards to samples without silica gel cleanup.

6.2.2 Erodible Riverbank Soil

MFA also screened potentially erodible riverbank soil samples against available in-water sediment criteria[8] outlined in Section 5 of the *Draft In-Water RI Report* (MFA 2022). MFA identified riverbank samples for evaluation against in-water sediment CULs based on two criteria:

- The sample location is within 10 ft landward of the line of ordinary high water

[8] Some contaminants retained in this upland RI do not have sediment screening criteria because they were not retained as contaminants of interest in the in-water RI.

- Potentially erodible material is limited to the top 2 ft of soil, as deeper soils are unlikely to erode

Data from three sample locations (RAU1-02, RAU1-03, and RAU2-09) satisfy both criteria. These sample locations and associated screening results are shown in Table 6-4 and summarized below. Screening level exceedances for riverbank soil are shown in Figure 6-3.

6.2.2.1 Metals

Of the metals with screening levels defined in the In-Water RI Report, only mercury exceeds a screening level (0.2 mg/kg) in riverbank samples at the Site. Mercury was detected in samples from RAU2-09 (riverward of the former Planer Building near the pocket beach) at a concentration of 0.252 mg/kg.

6.2.2.2 PCBs

The sediment screening level for total PCBs is 0.0035 mg/kg. Total PCB concentrations exceed this value at RAU2-09 (riverward of the former Planer Building near the pocket beach) at a concentration of 0.0134 mg/kg.

6.2.2.3 Organic Compounds

In riverbank samples from two locations (RAU1-02 and RAU2-09), cPAH TEQ exceeds the sediment screening level of 0.021 mg/kg at concentrations up to 0.659 mg/kg.

6.3 Groundwater

A summary of analytical results for data collected between 2015 and 2020, including detection frequency, minimum and maximum detected values, and exceedance frequency, is provided in Table 6-5.

Section 6.3.1 summarizes upland groundwater analytical results. In Section 6.3.2, MFA investigated potential groundwater to surface water interaction at the Site. In Section 6.3.3., MFA screened sample locations near buildings on the Site against the MTCA Method B VI screening levels to evaluate the potential for VI from contaminated groundwater.

6.3.1 Upland Groundwater

Groundwater analytical results were compared against MTCA Method A, where available, or MTCA Method B (the lowest available cancer or non-cancer value). Results for data obtained from the upland RI conducted in 2019 and 2020 are summarized in Table 6-6 and results from 2015 and 2017 are summarized in Table 6-7. Screening level exceedances for groundwater samples collected between 2015 and 2017 are shown in Figure 6-4a, and exceedances for groundwater samples collected during RI field activities between 2019 and 2020 are shown in Figure 6-4b.

6.3.1.1 Dissolved Metals

Historically at the Site, investigators analyzed six metals (arsenic, cadmium, chromium, lead, manganese, and mercury) in the dissolved phase. Of these, dissolved arsenic and dissolved manganese exceed their respective groundwater screening levels in at least one sample, described below.

- **Dissolved arsenic**. The screening level for dissolved arsenic in groundwater is 5 micrograms per liter (ug/L). One sample (collected in 2020 landward of the Small Log Mill from RAU4-21) exceeds the screening level at a concentration of 6.17 ug/L.
- **Dissolved manganese**. The screening level for dissolved manganese in groundwater is 750 ug/L. Groundwater from 12 locations (east of the Small Log Mill at RAU4-12; near the Steam Cleaning Facility at RAU1-13 and RAU1-14; riverward of the Small Log Mill at RAU4-13 and RAU4-14; near the Small Log Mill and Main Shipping Shed at RAU4-15; within the footprint of the former Pee Wee Mill at RAU4-16, RAU4-17, and RAU4-19; within the Main Shipping Shed at RAU4-18; south of the former Pee Wee Mill at RAU4-20; and south of the Main Shipping Shed at RAU5-03) exceed this value with dissolved manganese concentrations ranging from 1,260 ug/L to 12,900 ug/L.

6.3.1.2 Total Metals

Total metals, including arsenic, cadmium, chromium, chromium (hexavalent), copper, lead, manganese, mercury, nickel, and zinc, were analyzed in groundwater during RI field activities. Additionally, historical samples collected included analysis for aluminum, cobalt, iron, and vanadium, each of which exceed their groundwater screening levels in at least one sample historically. Additional metals were analyzed historically (i.e., antimony, barium, beryllium, calcium, magnesium, potassium, selenium, silver, sodium, and thallium); however, concentrations were below groundwater screening levels and are therefore not discussed in this report. Groundwater screening level exceedances for individual total metals are discussed below.

- **Aluminum**. The groundwater screening level for total aluminum is 16,000 ug/L. One sample collected from location FC01 (near the Fuel and Chemical Storage Building and former Wood Waste Burner) in 2017 exceeds this value with a concentration of 17,800 ug/L. Total aluminum was not analyzed for in groundwater during RI field activities in 2019 and 2020.
- **Arsenic**. The groundwater screening level for total arsenic is 5 ug/L. Samples from 10 locations exceed this value (with concentrations up to 56.8 ug/L):
  - RAU1-01, riverward of the Maintenance Shop
  - RAU1-09, east of the Maintenance Shop
  - RAU2-03, adjacent to the western portion of the former Planer Building
  - RAU4-06, near the former Pee Wee Mill
  - RAU4-13 and RAU4-14, riverward of the Small Log Mill

- RAU4-16, within the footprint of the former Pee Wee Mill
- RAU4-20, south of the former Pee Wee Mill
- RAU4-21, east of the former Pee Wee Mill
- RAU5-01, near the guard shack UST

- **Cadmium**. The groundwater screening level for total cadmium is 5 ug/L. One groundwater sample collected adjacent to the eastern portion of the former Planer Building from RAU2-07 slightly exceeds this value, with a concentration of 5.02 ug/L.
- **Chromium**. The groundwater screening level for total chromium is 50 ug/L. Two samples collected in 2015 from locations B02 and CR-21 (both riverward of the Maintenance Shop) exceed this value, with concentrations of 116 ug/L and 66 ug/L, respectively. Total chromium was analyzed for during RI field activities and only exceeded the screening level in one sample (collected near the former Pee Wee Mill from location RAU4-06 at a concentration of 123 ug/L).
- **Chromium (hexavalent)**. The groundwater screening level for chromium (hexavalent) is 0.046 ug/L. Chromium (hexavalent) was analyzed for in one sample collected from RAU4-06 and detected above the screening level, but the result was rejected because recovery grossly exceeded lower acceptance limits (see Appendix L).
- **Cobalt**. The groundwater screening level for cobalt is 4.8 ug/L. Samples collected in 2017 from six locations exceed this value with concentrations up to 13.4 ug/L:
  - FC01, near the Fuel and Chemical Storage Building and former Wood Waste Burner
  - FC02, west of the Fuel and Chemical Storage Building
  - MS02, east of the Maintenance Shop
  - MS06, between the Fuel and Chemical Storage Building and Maintenance Shop
  - OC03, west of the Storage Shed and former Oil Tank and Chemical Storage Shed
  - PB02, within the western portion of the former Planer Building

  Total cobalt was not analyzed for in groundwater during RI field activities in 2019 and 2020.
- **Copper**. The groundwater screening level for copper is 640 ug/L. No samples, including samples collected during RI field activities in 2019 and 2020, exceed this value.
- **Iron**. The groundwater screening level for iron is 11,000 ug/L. Samples collected in 2017 from 16 locations exceed this value, with concentrations up to 56,200 ug/L:
  - FC01, near the Fuel and Chemical Storage Building and former Wood Waste Burner
  - FC02, west of the Fuel and Chemical Storage Building

- MS01, between the Fuel and Chemical Storage Building and Maintenance Shop
- MS02, east of the Maintenance Shop
- MS03, riverward of the Maintenance Shop
- MS04, between the Maintenance Shop and former Planer Building
- MS05, riverward of the Maintenance Shop
- MS06, between the Fuel and Chemical Storage Building and Maintenance Shop
- OC01, OC02, and OC03, west of the Storage Shed and former Oil Tank and Chemical Storage Shed
- PB01, PB02, PB09, and PB10 within the western portion of the former Planer Building
- VM01, north and adjacent to the Main Shipping Shed

Total iron was not analyzed for in groundwater during RI field activities in 2019 and 2020.

- **Lead**. The groundwater screening level for lead is 15 ug/L. One sample collected in 2015 from location B02 exceeds this value at a concentration of 80 ug/L. Samples from three locations (FC01, FC03, and PB02) in 2017 exceed this value with concentrations of 53 ug/L, 18.6 ug/L, and 23.8 ug/L, respectively. During RI field activities, samples collected from the following locations exceed the screening level (at concentrations up to a maximum of 91.2 ug/L):
  - RAU1-09, east of the Maintenance Shop
  - RAU2-02 and RAU2-03, adjacent to the western portion of the former Planer Building
  - RAU2-07, adjacent to the eastern portion of the former Planer Building
  - RAU4-05 and RAU4-06, near the former Pee Wee Mill
  - RAU4-13 and RAU4-14, riverward of the Small Log Mill
  - RAU4-21, east of the former Pee Wee Mill

- **Manganese**. The groundwater screening level for manganese is 750 ug/L. Except for MS04, all locations sampled in 2017 exceed this value with total manganese concentrations up to 18,400 ug/L. During RI field activities total manganese exceeded the groundwater screening level at all locations (except for RAU1-07, RAU1-08, RAU2-08, RAU2-09, and RAU7-02), with concentrations up to 23,000 ug/L. As noted in the RIWP (MFA 2019), manganese concentrations in soils were typically within expected background concentrations, so the presence of manganese in groundwater may suggest ongoing anaerobic biodegradation.

- **Mercury**. The groundwater screening level for mercury is 2 ug/L. Two locations adjacent to the western portion of the former Planer Building, RAU2-02 and RAU2-03, exceed this value with total mercury concentrations of 11.4 ug/L and 8.48 ug/L, respectively.
- **Nickel**. The groundwater screening level for nickel is 320 ug/L. No samples, including samples collected during RI field activities in 2019 and 2020, exceed this value.
- **Vanadium**. The groundwater screening level for vanadium is 80 ug/L. In 2017, one sample collected within the western portion of the former Planer Building from location PB02 exceeds this value at a concentration of 96.8 ug/L.
- **Zinc**. The groundwater screening level for zinc is 4,800 ug/L. No samples, including samples collected during RI field activities in 2019 and 2020, exceed this value.

6.3.1.3 PCBs

Total PCBs were analyzed for in groundwater samples collected from the Site in 2015 and 2017, and all results were non-detect. Total PCBs were analyzed for at select locations (RAU2-08, RAU2-09, RAU4-04, RAU4-05, RAU4-06, and RAU5-01) during RI field activities in 2019 and results were non-detect.

6.3.1.4 Organic Compounds

Seven semivolatile organic compounds exceed their respective groundwater screening level in at least one groundwater sample collected from the Site, as described below.

- **1-methylnaphthalene**. The groundwater screening level for 1-methylnaphthalene is 1.5 ug/L. In 2015, two groundwater samples collected riverward of the Maintenance Shop from CR-22 and CR-23 exceeded this screening level at concentrations of 1.7 ug/L and 2 ug/L, respectively. During the RI, 1-methylnaphthalene exceeded the screening level at RAU1-05, RAU1-10, RAU1-12, and RAU2-07, at concentrations between 2.12 ug/L and 46.3 ug/L.
- **2-methylnaphthalene**. The groundwater screening level for 2-methylnaphthalene is 32 ug/L. During the RI, 2-methylnaphthalene exceeded the screening level adjacent to the eastern portion of the former Planer Building from location RAU2-07 at a concentration of 61.9 ug/L.
- **Bis(2-chloroethyl)ether**. The groundwater screening level for bis(2-chloroethyl)ether is 0.04 ug/L. In 2017, one sample collected in the western portion of the former Planer Building from location PB02 exceeded the screening level at a concentration of 3 ug/L.
- **Dibenzofuran**. The groundwater screening level for dibenzofuran is 8 ug/L. During the RI, dibenzofuran exceeded the screening level riverward of the Maintenance Shop at location RAU1-01 at a concentration of 16.4 ug/L.

- **Naphthalene**. The groundwater screening level for naphthalene is 160 ug/L. During the RI, naphthalene exceeded the screening level within the Fuel and Chemical Storage Building at location RAU1-10 at a concentration of 200 ug/L.
- **PCP**. The groundwater screening level for PCP is 0.22 ug/L. In 2017, this screening level was exceeded at five locations:
  - FC01 (0.3 ug/L) near the Fuel and Chemical Storage Building and former Wood Waste Burner
  - MS01 (19 ug/L) between the Fuel and Chemical Storage Building and Maintenance Shop
  - MS02 (0.96 ug/L) east of the Maintenance Shop
  - MS03 (1.5 ug/L) riverward of the Maintenance Shop
  - PB04 (1,600 ug/L) in the western portion of the former Planer Building

  During the RI, PCP exceeded the screening level at RAU2-06 (immediately riverward of the former Planer Building) at a concentration of 0.254 ug/L.
- **cPAH TEQ**. The groundwater screening level for cPAH TEQ is 0.1 ug/L. In 2015, one sample collected in the western portion of the former Planer Building from location B02 exceeded the screening level at a concentration of 15 ug/L. In 2017, a sample riverward of the Maintenance Shop from location MS03 exceeded the screening level at a concentration of 0.308 ug/L. During the RI, samples from RAU1-01 and RAU1-04 (riverward of the Maintenance Shop) as well as RAU2-07 (eastern portion of the former Planer Building) exceeded the screening level at concentrations of 0.264 ug/L, 0.242 ug/L, and 0.454 ug/L, respectively.

6.3.1.5 Total Petroleum Hydrocarbons

The groundwater screening levels for DRO and ORO are both 500 ug/L. Detections of DRO and ORO exceed this screening level in samples collected from the Site, as described below.

- **DRO**. Samples collected in 2015 from locations B02 (in the western portion of the former Planer Building), CR-20 (riverward of the former Planer Building near the shoreline), CR-21 and CR-23 (both riverward of the Maintenance Shop) exceed the screening level for DRO at concentrations of 40,000 ug/L, 1,000 ug/L, 720 ug/L, and 3,400 ug/L, respectively. One sample collected in 2017 west of the Fuel and Chemical Storage Building from location FC02 exceeds the screening level at a concentration of 2,100 ug/L. Among the RI samples collected, DRO exceeds the screening level in samples from RAU1-11 (near the Fuel and Chemical Storage Building and former Wood Waste Burner), RAU1-12 (near the Fuel and Chemical Storage Building), and RAU2-07 (eastern portion of the former Planer Building) at concentrations of 781 ug/L, 683 ug/L, and 526 ug/L, respectively.
- **ORO**. Samples collected in 2015 from B02, B03, CR-20, CR-21, CR-22, and CR-23 exceed the screening level at concentrations up to 110,000 ug/L. From the samples collected in

2017 from FC02, FC03, MS03, MS05, and PB02, ORO exceeds the screening level at concentrations up to 79,000 ug/L.

Among the RI samples, ORO exceeds the screening level at the following locations:

- RAU1-05 (958 ug/L) riverward of the Maintenance Shop
- RAU1-11 (1,990 ug/L) near the Fuel and Chemical Storage Building and former Wood Waste Burner
- RAU1-12 (1,290 ug/L) near the Fuel and Chemical Storage Building
- RAU4-05 (6,540 ug/L) and RAU4-06 (481,000 ug/L) near the former Pee Wee Mill
- RAU4-16 (83,500 ug/L) and RAU4-17 (96,500 ug/L) within the footprint of the former Pee Wee Mill
- RAU4-21 (15,000 ug/L), east of the former Pee Wee Mill
- RAU5-01 (1,840 ug/L) near the guard shack UST

A subset of groundwater samples collected during RI field activities were also analyzed for TPH with silica gel cleanup to better understand how weathered the petroleum product is. These results were largely consistent with the TPH analysis without silica gel cleanup and are therefore shown in Tables 6-5 through 6-7 for informational purposes only. Further, Ecology applies cleanup standards to samples without silica gel cleanup.

6.3.2 Groundwater—Surface Water Interaction

MFA evaluated groundwater to surface water as a potential pathway for Site contaminants to reach and discharge to the Chehalis River or Shannon Slough, including interpretation of historical groundwater transducer data and collection of conductivity data during RI field activities in 2019. Data interpretation indicates that groundwater in the northern and northwestern portion of the Site discharges to the Chehalis River, while groundwater in the southern and southeastern portions of the Site discharge to Shannon Slough. Further, multiple lines of evidence indicate that groundwater-surface water interaction is limited to three monitoring wells (RAU2-08, RAU2-09, and RAU4-12) and the physical advection of surface water into groundwater is limited spatially and seasonally. MFA documented groundwater to surface water findings in Appendix E.

In accordance with the RIWP, non-vented pressure transducers were installed in ten monitoring wells (five newly installed and five existing wells) across the Site. The pressure transducers were installed on December 27, 2019, and operated until May 3, 2021. The transducers monitored water level elevations, conductivity, and temperature in 15-minute intervals. Interpretation of transducer data is further described in Appendix E.

6.3.3 Groundwater—Vapor Intrusion Pathway

MFA evaluated the groundwater VI pathway by screening groundwater data from applicable[9] sample locations against the MTCA Method B VI screening levels. Exceedances for MTCA Method B VI screening levels for groundwater samples are shown in Figure 6-5.

First, MFA investigated petroleum hydrocarbon exceedances in groundwater samples within 30 ft of at least one enclosed building on the Site (analytical results provided in Table 6-8). Of the constituents for which environmental data exist on the Site, only naphthalene exceeded applicable MTCA Method B VI screening levels in two samples, described below:

- In a groundwater sample collected from 8.5 ft bgs from RAU1-10 (within the Fuel and Chemical Storage Building), naphthalene exceeded the screening level (8.9 ug/L) at a concentration of 200 ug/L.
- In a groundwater sample collected from 7.5 ft bgs from RAU2-07 (adjacent to the former Planer Building), naphthalene exceeded the screening level at a concentration of 149 ug/L.

As shown in Table 6-8, MFA evaluated ten volatile petroleum hydrocarbons with groundwater data from 42 sample locations on the Site. Naphthalene is the only constituent petroleum hydrocarbon[10] exceeding MTCA Method B VI screening levels at only two locations within 30 ft of a building (i.e., the former Planer Building and the Fuel and Chemical Storage Building). The Planer Building was demolished earlier in 2022 and the Fuel and Chemical Storage Building is slated for future removal to be addressed during the FS.

Next, MFA investigated groundwater exceedances for any volatile compound for which groundwater data exists within 100 ft of at least one enclosed building on the Site (analytical results provided in Table 6-9). Petroleum hydrocarbons (including naphthalene, described in the previous paragraph) also satisfy these criteria. For brevity, the petroleum hydrocarbon exceedances described in the previous paragraph are not repeated here. Naphthalene aside, only total mercury exceeded applicable MTCA Method B VI screening levels. In two samples (collected from 6 ft bgs at RAU2-02 and 7.5 bgs at RAU2-03, both west of the former Planer Building), total mercury was detected at concentrations of 11.4 and 8.48 ug/L, both exceeding the screening level of 1.1 ug/L. As stated above, the Planer Building was removed earlier in 2022.

Of the 64 volatile compounds with groundwater data within 100 ft of at least one building, only naphthalene and total mercury exceeded applicable MTCA Method B VI screening levels from four locations near the former Planer Building and Fuel and Chemical Storage Building. Because exceedances are limited and near buildings that have already been removed or are slated for future removal, the risk of VI from groundwater contamination and adverse effects on indoor air quality at

[9] Sample selection criteria from Ecology's *Guidance for Evaluating Vapor Intrusion in Washington State* (2022) is provided in Section 5.2.

[10] There are presently no groundwater data for some of the petroleum fractions (e.g., short-chain aliphatics) required to calculate a site-specific total petroleum hydrocarbon (TPH) screening level as defined in Section E-8 of Ecology's VI guidance (Ecology 2022).

existing buildings is minimal. VI will be considered during the FS and cleanup action plan as it pertains to future development and construction of new buildings at the Site.

6.4 Soil Gas

A summary of analytical results for soil gas data collected beneath the slab of the Maintenance Shop in 2017 and analyzed for a suite of contaminants including volatile organic compounds, volatile petroleum hydrocarbons, and TPH is provided in Table 6-10. Soil gas analytical results are summarized in Table 6-11.

Though some compounds were detected in soil gas samples, none exceeded the applicable screening level values. Soil gas samples were therefore not collected during the RI field activities performed in 2019 and 2020.

7 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 at the exposure point.

The CSM describes potential exposure scenarios based on information collected during investigations of the Site. Elements of potentially complete exposure scenarios relevant to human health and ecological receptors are discussed below and presented in Figure 7-1. The CSM diagram focuses on site receptors and potential exposure pathways related to historical releases at the Site. The CSM and exposure scenarios for a site play a role in selection of cleanup standards.

7.1 Source Characterization

7.1.1 Sources of Contamination

Potential sources of contamination associated with historical operations at the Site were identified during previous environmental investigations, as described in the study area investigation report prepared by MFA (Appendix A) and Section 2 of the RIWP (MFA 2019). Suspected historical sources of soil and groundwater impacts at the Site include releases from the former Mill and operations related to wood processing, including the following:

- Spills from sawmill hydraulic equipment previously located on the Site.

- Releases from upland historical site operations to environmental media (soil, groundwater, and/or stormwater). Petroleum products, antifreeze, various oils and lubricants, boiler treatment chemicals, anti-sapstain mixtures (which contained PCP until approximately 1987),[11] inks, red end paint (until the early 1990s), and paints and solvents were used and/or stored on the Site during historical sawmill operations (PES 2010).
- Wood-fired boilers and two wood-refuse burners were identified at the Site. Operation of this equipment is associated with dioxin formation; historical disposition of boiler ash at the Site is unknown (PES 2010).
- Historically, PCB-containing equipment supporting operations at the Site was present. All PCB-containing transformers and light ballasts were removed from the Site between 1990 and 2001, and EPA identified no other PCB-containing equipment at the Site in 2006 (PES 2010).

7.1.2 Wood Waste

At the Site, significant quantities of wood waste from historical sawmill operations and wood waste used as fill material are present. The approximate lateral extent of wood waste used as fill at the Site is shown in Figure 2-3. Impacts from wood waste include the physical presence of wood waste and increased concentrations of wood waste decomposition products, such as sulfides, ammonia, and phenols, that can cause or contribute to toxicity. Figure 7-2 depicts the vertical extent of wood waste visually observed in soil cores logged during RI field activities, which is most extensive in soils and sediments near the pocket beach. Figure 7-3a shows three section lines for a presentation of the cross-sectional lithology of the upland portion of the Site, which are shown in Figures 7-3b, 7-3c, and 7-3d. In each cross-section figure, 25 percent or more wood waste by volume is identified as a lithological unit.

7.1.3 Background Sources

In addition to the former Mill-related sources described previously, potential offsite sources with complete transport pathways have the potential impact Site conditions. Shannon Slough, which discharges to the Chehalis River, receives stormwater input from highways and neighborhoods upgradient of the Site. MFA previously documented inconsistencies between the as-built drawings for stormwater features at the Site and field-verified locations (Appendix A; MFA 2016). In October and November 2015, MFA performed a stormwater system cleaning and evaluation (MFA 2016). Field staff observed the stormwater lines to be in poor condition, with potential leaks in the pipe network and accumulation of in-line stormwater solids. Offsite sources have the potential to impact environmental conditions at the Site via stormwater.

Further, persistent organic pollutants such as dioxins, PCBs, and polycyclic aromatic hydrocarbons are known to be widespread in the environment. Dioxins and polycyclic aromatic hydrocarbons can result from both natural and anthropogenic sources. The surrounding area is an urban environment where industrial activity has been conducted and a city has been established for over 100 years. In

[11] PCP use was prohibited indoors in 1984 and was restricted to certified applicators in 1987 (EPA 2010).

urban areas, vehicle emissions, trash burning, fires, stormwater runoff, and other common events and activities can generate these chemicals (EPA 2006). Low levels of these compounds are commonly present in environmental media owing to these natural or non-point anthropogenic activities.

PCBs are a class of persistent, bioaccumulative, and toxic compounds that historically had a wide range of uses, including electrical transformers, hydraulic systems, lubricants, surface coatings, adhesives, plasticizers, inks, insulating materials, pesticides, and consumer products (Ecology 2014a). In Puget Sound, a nearby watershed, surface runoff is the largest pathway to aquatic environments, followed by wastewater treatment plants and air deposition. PCBs are ubiquitous throughout the natural environment and are found in animal tissue throughout the food chain.

Metals, including mercury, are naturally occurring elements in the environment, and can be concentrated by human activities. The distribution of naturally occurring metals is controlled by geologic processes that occur across different physiographic regions.

7.2 Fate and Transport of Contaminants

The primary potential contaminant transport mechanisms to soil and groundwater at the Site include historical pathways, potentially complete historical and current pathways, and secondary transport mechanisms.

- **Historically complete or potentially complete pathways** include the following:
  - Spills and chemical releases directly to site soils
  - Airborne deposition (e.g., from waste burners, incinerators)
  - Leaching from wood waste to groundwater
  - Stormwater transport from offsite areas
- **Currently complete or potentially complete pathways** include the following:
  - Leaching from wood waste to groundwater
  - Stormwater transport from offsite areas

Transport pathways from the Site to Chehalis River sediments are addressed in the *Draft In-Water RI Report* (MFA 2022).

7.3 Potential Receptors and Exposure Scenarios

The primary purpose of the CSM is to identify potential receptor groups and to describe pathways by which those populations may be exposed to site-related chemicals in the environment (EPA 1989). This discussion focuses on populations that may be exposed to contaminants at a site and identifies pathways by which these populations may come into contact with contaminants.

The upland portion of the Site is part of a new maritime heritage facility called Seaport Landing. The GHHSA staff currently occupies the office building and uses other structures remaining on the Site. Public use and access to the upland portion of the Site are currently limited. The future-use plan for the Site is to develop a maritime heritage center with education, public access, tourism, and commercial uses.

The exposure pathways considered potentially complete are summarized below and presented in Figure 7-1.

Occupational Workers and Visitors—Current and future occupational workers may encounter soils at the Site through the course of daily responsibilities at the Site. Future visitors may encounter soils while touring the Site. Occupational workers and visitors may occasionally and incidentally be exposed to chemically impacted soil through the following pathway:

- Direct skin contact with, and incidental ingestion of, soil.

Construction Workers—Construction workers performing remediation activities at the Site, such as building demolition, excavating impacted material, or repairing or replacing damaged stormwater infrastructure, may be occasionally and incidentally exposed to chemically impacted environmental media through the following pathway:

- Direct skin contact with, and incidental ingestion of, soil or groundwater.

7.4 Terrestrial Ecology Evaluation

MFA prepared a simplified TEE for the upland portions of the Site, consistent with the procedures outlined in WAC 173-340-7490 through 173-340-7492 (Appendix F). The TEE process is required at all MTCA sites where releases or threatened releases of hazardous substances pose a threat to human health or the environment. The TEE procedure is structured with the intent of protecting terrestrial wildlife at industrial and commercial sites and protecting terrestrial plants, soil biota, and terrestrial wildlife at other sites, as provided under WAC 173-340-7490(3)(b).

The simplified TEE concluded that the Site does not pose a substantial threat to terrestrial ecological receptors and may be removed from further ecological consideration during the RI and cleanup process.

7.5 Beneficial Water Use

At the time of this report, a beneficial water use determination has not been made for the Site. Groundwater at the Site is not currently used and is not expected to be a potable water source in the future.

8 NATURE AND EXTENT OF CONTAMINATION

This section delineates areas of contamination based on the information presented in this RI, including RAUs with chemical screening level exceedances, the extent of wood waste used as fill, and IHSs for the Site.

8.1 Chemical Exceedances by RAU

8.1.1 RAU1

RAU1 is located on the central portion of the Site and includes the Fuel and Chemical Storage Building and the Maintenance Shop.

8.1.1.1 Upland Soil

Within RAU1, the most frequent historical chemical exceedances in upland soil include cPAH TEQ and TPH (DRO and ORO) to a maximum depth of 7 ft bgs. In isolated locations, dioxins/furans (from CR-22) and metals (cadmium and manganese from MS01) exceeded applicable screening levels historically. Based on the RI data from RAU1, the most frequent chemical exceedances in upland soil include cPAH TEQ and TPH (ORO) to a maximum depth of 7.5 ft bgs. Dioxins/furans also exceed applicable screening levels at select locations (RAU1-04 and RAU1-05). No metals exceed applicable screening levels in upland soil samples collected during RI activities within RAU1.

Taken together, cPAH and TPH contamination is widespread in upland soil within RAU1. Dioxins/furans exceed applicable screening levels at CR-22, RAU1-04, and RAU1-05. All three locations are located near the former Mill adjacent to the pocket beach and are also generally located riverward of the former Wood Waste Burner, which, along with the former Mill itself, are likely historical contaminant sources.

8.1.1.2 Riverbank Soil

Screening riverbank sample locations against in-water sediment criteria, only cPAH TEQ exceeds applicable screening levels at RAU1-02. No exceedances are observed at RAU1-03, the other RAU1 riverbank sample location.

8.1.1.3 Groundwater

Historically within RAU1, the most frequent chemical exceedances in groundwater include total metals (aluminum, chromium, cobalt, iron, lead, and manganese), organic compounds (primarily 1-methylnaphthalene, PCP, and cPAH TEQ), and TPH (DRO and ORO). Based on the RI data, the most frequent chemical exceedances in groundwater include dissolved manganese, total metals (arsenic and manganese), organic compounds (primarily 1-methylnaphthalene and cPAH TEQ), and

TPH (DRO and ORO). Within RAU1, naphthalene exceeds the groundwater vapor intrusion screening level at one location (RAU1-10) within the Fuel and Chemical Storage Building.

Select chemicals frequently appear in both the historical and RI groundwater data sets: manganese, 1-methylnaphthalene, cPAH TEQ, and TPH (DRO and ORO), confirming their widespread presence within RAU1. Further, PCP was detected above the groundwater screening level in four historical samples collected between and around the Maintenance Shop and Fuel and Chemical Storage Building. RI sampling (from locations RAU1-09, RAU1-10, RAU1-11, and RAU1-12) were non-detect for PCP, however detection limits exceed the groundwater screening level by an order of magnitude.

8.1.2 RAU2

RAU2 is located on the western portion of the Site and historically contained the former Planer Building, which contained the Spray Room and PCP dip tank.

8.1.2.1 Upland Soil

Compared to RAU1, chemical exceedances within RAU2 are less frequent overall, with no exceedances observed in several historical and RI sample locations. The most frequent chemical exceedances in upland soil at RAU2 historically include cPAH TEQ and ORO to a maximum depth of 9 ft bgs. Total PCBs and dioxin/furan TEQ exceed the soil screening levels at location CR-20, located along the riverbank near the pocket beach and near the former Mill. In the RI data set, cPAH TEQ exceeds the screening level at three of the 11 sampling locations analyzed to a maximum depth of 9 ft bgs. Dioxins/furans exceed the soil screening levels at RAU2-GA2, along the western portion of the pocket beach near the former Mill.

Taken together, chemical exceedances are generally less frequent in RAU2 compared to RAU1. cPAH TEQ is the most frequent chemical exceedance across both data sets, while isolated total PCB and dioxins/furan exceedances are observed along the riverbank near the former Mill, suggesting that operations at the former Mill may be a legacy source to site soils.

8.1.2.2 Riverbank Soil

Mercury, total PCBs, and cPAH TEQ in samples collected from RAU2-09 exceed the sediment criteria presented in the *Draft In-Water RI Report*. RAU2-09 is near the pocket beach and former Mill, suggesting that operations at the former Mill may be a legacy source to site soils.

8.1.2.3 Groundwater

In historical groundwater samples, the most frequent screening level exceedances are observed for total metals (including cobalt, iron, lead, manganese, and vanadium) and TPH (DRO and ORO), along with isolated exceedances near the former Planer Building of bis(2-chloroethyl)ether (from PB02) and PCP (from PB04). In RI samples, the most frequent screening level exceedances are observed for total metals (arsenic, cadmium, lead, manganese, and mercury). Further, multiple organic compounds exceeded screening levels at RAU2-06 (PCP) and RAU2-07 (1-methylnaphthalene, 2-methylnaphthalene, and cPAH TEQ).

Within RAU2, naphthalene exceeds the groundwater vapor intrusion screening level within 30 feet of the edge of a building footprint at one location (RAU2-07). Mercury exceeds the groundwater vapor intrusion screening level within 100 feet of the edge of a building footprint at two locations (RAU2-02 and RAU2-03). All three locations are adjacent to the former Planer Building, which was removed in 2022.

To summarize, groundwater within RAU2 is most frequently impacted by total metals, with isolated exceedances of select organic compounds (including PCP) adjacent to the former Planer Building. This is consistent with known historical operations within the former Planer Building, where PCP and other anti-sapstain chemicals were used in the Spray Room until 1986.

8.1.3 RAU3

RAU3 is located on the western portion of the Site, and includes the Storage Shed. Historical features in RAU3 also include the former Oil Tank and Chemical Storage Shed and kilns.

8.1.3.1 Upland Soil

Three locations (OC01, OC02, and OC03) were sampled historically in RAU3. From these locations, the only chemical exceedances are for thallium and cPAH TEQ to a maximum depth of 6 ft bgs. RI field activities added seven sampling locations to RAU3. Of these, cPAH TEQ from two locations and ORO from one location exceed applicable screening levels to a maximum depth of 3 ft bgs. No other exceedances were documented at the remaining four RI sample locations within RAU3.

Based on the isolated chemical exceedances, the RAU3 features (including the Storage Shed, Oil Tank and Chemical Storage Shed, and kilns) and legacy operations do not appear to be a significant source of contamination.

8.1.3.2 Groundwater

Based on historical groundwater data from RAU3, only total metals (iron and cobalt) exceed applicable groundwater screening levels. No chemicals exceed applicable screening levels in groundwater RI data from RAU3.

Based on the isolated chemical exceedances in soil and groundwater, the RAU3 features and legacy operations in this area do not appear to be a significant source of contamination.

8.1.4 RAU4

RAU4 encompasses a large eastern portion of the Site that includes the existing Main Shipping Shed and Small Log Mill, in addition to the former Pee Wee Mill and 1906 Mill.

8.1.4.1 Upland Soil

As with RAU3, three locations (SB1, SB2, and SB3) were sampled historically in RAU4 and no chemicals exceed applicable screening levels. RI field activities added 21 sampling locations to RAU4.

One chemical (ORO) exceeds applicable screening levels in samples from seven of the 21 sample locations to a maximum depth of 3.5 ft bgs. These samples are located in the vicinity of the former Pee Wee Mill. No other chemicals exceed the soil screening level in RAU4.

8.1.4.2 Groundwater

As with historical upland soil sample locations, no chemicals exceed applicable screening levels in groundwater historically. During RI field activities groundwater was analyzed at 20 additional locations. Chemical exceedances were observed in 12 of the 20 locations. The most frequent chemicals exceeding applicable criteria were dissolved manganese, total metals (including arsenic, chromium, and lead), and ORO.

The sampling locations with no observed chemical exceedances (e.g., RAU4-01, -02, -07, -09, -10, and -11) are often located riverward of the historical or current site features. Further, locations with relatively fewer or more isolated chemical exceedances (e.g., ORO at RAU4-08; dissolved manganese at RAU4-12 and -15) are also located riverward of historical or current site features. In contrast, the locations with multiple observed exceedances (e.g., RAU4-05, -06, -16, -17, -19, -20, and -21) are generally located near or around site features, including the former Pee Wee Mill and current Small Log Mill and Main Shipping Shed.

Within RAU4, upland soil exceedances are limited to ORO, while groundwater exceedances include metals and ORO. Taken together, contamination observed in soil and groundwater within RAU4 is likely associated with legacy operations, such as those conducted at the former Pee Wee Mill. Contamination is often localized to areas near historical site features, while riverward sampling locations include limited or no chemical exceedances.

8.1.5 RAU5

RAU5 is located on the southern portion of the Site and features ancillary support facilities, including the Aberdeen Transformer Pad, a Generator Shed, diesel AST, water tank, office, Guard Shed, and guard shack UST.

8.1.5.1 Upland Soil

Upland soil within RAU5 was not analyzed during historical site investigations. During RI field activities, upland soil was investigated at three locations, but no chemicals exceeded screening levels.

8.1.5.2 Groundwater

Like soil, groundwater within RAU5 was not analyzed during historical site investigations. At RAU5-01, total arsenic and ORO exceed applicable screening levels in groundwater. At RAU5-03, dissolved manganese exceeds its screening level in groundwater. Petroleum hydrocarbons may be associated with the guard shack UST located near RAU5-01. However, sources of metals in this area are generally unknown and, given the proximity of RAU5 to the southern boundary of the Site, may include contributions from offsite sources.

8.1.6 RAU6

RAU6 encompasses the rest of the southern portion of the Site not covered by RAU3 or RAU5.

8.1.6.1 Upland Soil

Upland soil within RAU6 was not analyzed during historical site investigations. Of the three locations sampled during RI activities, only one constituent (cPAH TEQ) at one location (RAU6-03, near the southern border of the Site) exceeds the screening level at a depth of 3 ft bgs. Given the lack of potential onsite sources in this area, this exceedance may be the result of unknown offsite sources.

8.1.6.2 Groundwater

As with soil, groundwater within RAU6 was not analyzed during historical site investigations. Groundwater analyzed within RAU6 during RI activities had no chemicals that exceeded applicable groundwater screening levels.

8.1.7 RAU7

RAU7 encompasses the area around Shannon Slough on the far eastern portion of the Site. Soil and groundwater within RAU7 were not analyzed during historical site investigations. Soil and groundwater analyzed within RAU7 during RI activities had no chemicals exceed applicable screening levels.

8.2 Extent of Wood Waste

The lateral extent of wood waste includes significant portions of RAU1, RAU2, RAU3, and RAU4 (Figures 2-3, 2-4, and 7-2). Greater than 75 percent wood waste by volume was observed in the following areas:

- Surface and subsurface soils near the former Mill and pocket beach
- Subsurface soils near the former Pee Wee Mill
- Surface and subsurface soils riverward of the Main Shipping Shed and Small Log Mill

As documented in the *Draft In-Water RI Report* (MFA 2022), significant wood waste deposits down to 19 feet are documented in the pocket beach, where wood was historically used as fill. Lower percentages of wood waste by volume (between 20 and 50 percent) are generally found at several in-water locations adjacent to RAU1, RAU2, and RAU4. In contrast, the southern areas of the Site generally exhibit little (less than 1 percent) or no observed wood waste.

Wood waste may be associated with elevated concentrations of sulfides, ammonia, phenols, and metals, including manganese and iron, in groundwater. As discussed previously, exceedances of manganese are present in groundwater throughout the Site, with concentrations in colocated soil samples below applicable screening criteria. Given the concentrations in soil, it does not appear that manganese in soil is leaching and resulting in elevated concentrations in groundwater at the Site.

To determine whether the manganese results observed at the Site could be attributed to elevated regional levels, MFA reviewed groundwater data collected throughout Grays Harbor County available in Ecology's Environmental Information Management database. Only two sites in Grays Harbor County exhibited elevated concentrations of manganese in groundwater: the Site and the Stafford Creek Wood Waste Landfill. Based on the significant wood waste present at both sites, there is a potential link between wood waste and elevated concentrations of manganese in groundwater. This correlation is further discussed in the research paper *Ground-Water Pollution by Wood Waste Disposal* (Sweet and Fetrow 1975). The paper states the following:

> "an increase in total acidity and a decrease in pH occurred due to the leaching of volatile organic acids from the wood waste. This caused the dissociation of some iron and manganese from the alluvial substrata through which the contaminated groundwater was passing. The presence of a reducing environment resulted in higher concentrations of iron and manganese and aided in their movement by providing a medium in which they were more soluble."

This is consistent with data from the Site, where manganese rarely exceeds soil screening criteria but frequently exceeds groundwater criteria. Further, reducing conditions are likely present in areas where hydric soils coincide with wood waste filling areas (see Section 3.5). Collectively, the elevated concentrations of manganese in groundwater at the Site may be the result of significant wood waste deposits.

8.3 Indicator Hazardous Substances

The screening approach and analysis described above supports identification of IHSs in soil and groundwater at the Site. WAC 173-340-703 states that, when cleanup requirements are defined for a site that is contaminated with many hazardous substances, those hazardous substances that contribute a small percentage of the overall threat to human health and the environment may be eliminated from consideration, and the remaining hazardous substances shall serve as IHSs for purposes of defining site cleanup requirements. The number of screening level exceedances and the frequency of exceedances are provided in Tables 6-1, 6-5, and 6-10 for soil, groundwater, and soil gas, respectively.

Owing to their widespread presence and frequent exceedances at the Site, cPAH TEQ and TPH (ORO and DRO) are considered soil IHSs and groundwater IHSs. As described previously, the extent of wood waste used as fill at the Site is significant. Wood waste is associated with iron and manganese, which frequently exceed applicable screening criteria in groundwater at the Site. Therefore, iron and manganese are also considered groundwater IHSs.

Total metals are not considered IHSs because observed exceedances are often colocated with other IHSs, including cPAH TEQ and TPH. Similarly, total PCBs, dioxin/furan TEQ, and other semivolatile organic compounds are not carried forward as IHSs because exceedances are isolated and often colocated with other IHSs. For example, 1-methylnaphthalene is frequently non-detect in

groundwater with limited exceedances. The highest magnitude exceedances are observed at RAU1-10 and RAU2-07, which also feature total manganese[12] and cPAH TEQ exceedances.

In summary, the soil IHSs at the Site include cPAH TEQ and TPH (DRO and ORO) and the groundwater IHSs at the Site include cPAH TEQ, TPH (DRO and ORO), iron, and manganese.

9 SUMMARY

This RI was conducted as part of the work to be performed under the agreed order. Suspected historical sources of environmental impacts at the Site include releases from the former Mill, wood waste used as fill, upland operations related to wood processing, and spills. Potential receptors include occupational workers, construction workers, and visitors. The purpose of the RI was to evaluate the nature and extent of contamination in the upland portion of the Site. Seven RAUs are defined for the Site. Significant widespread screening level exceedances were observed in four of the seven RAUs, as discussed below.

- **RAU1.** Within RAU1, soil and groundwater chemical exceedances are documented. The most likely sources of contamination within RAU1 are former Mill operations and wood waste used as fill. Most IHSs are present in RAU1, with widespread cPAH and TPH contamination and metals associated with wood waste present near and along the shoreline.
- **RAU2.** All IHSs are observed in RAU2. Significant wood waste is present near the pocket beach and former Mill, often colocated with iron and manganese exceedances in groundwater. As in RAU1, cPAH TEQ and TPH exceedances are widespread in soil and groundwater within RAU2.
- **RAU3.** Isolated contamination in RAU3 was observed. Though exceedances of cPAH TEQ in soil are marginal, ORO exceedances in the surface depth interval at RAU3-01 adjacent to the Storage Shed are more significant.
- **RAU4.** RAU4 encompasses a large portion of the Site, though documented soil and groundwater exceedances are localized in the vicinity of the former Pee Wee Mill and current Small Log Mill and Main Shipping Shed. Sampling locations with limited or no exceedances are observed riverward of these features, providing one line of evidence that contamination within RAU4 is potentially attributable to legacy operations with minimal potential to migrate towards Chehalis River sediments and impact them.

[12] Though no wood waste was documented in the soil core collected from RAU1-10, 100 percent wood waste was documented in cores collected from nearby locations, including RAU1-11, RAU1-12, and RAU4-02. Wood waste at these locations may have contributed manganese to groundwater.

Screening level exceedances within RAU5, RAU6, and RAU7 are limited, localized, and do not appear to impact Chehalis River sediments. The results of this RI will be used to support an evaluation of potential cleanup actions in the FS.

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



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Table 6-1
Analytical Summary of 2011–2020 Soil Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

MAUL FOSTER ALONGI

	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[(a)]	Frequency of Detected Exceedances for All Samples
Total Metals (mg/kg)								
Aluminum	40	40	0	100%	6,050	33,900	0	0%
Antimony	54	40	14	74%	1	8	0	0%
Arsenic	116	64	52	55%	1	9	0	0%
Barium	40	40	0	100%	27	812	0	0%
Beryllium	40	40	0	100%	0	1	0	0%
Cadmium	116	52	64	45%	0	9	4	8%
Calcium	40	40	0	100%	1,200	110,000	0	0%
Chromium	116	111	5	96%	4	93	0	0%
Chromium, hexavalent	7	4	3	57%	1	1	0	0%
Cobalt	40	40	0	100%	4	34	2	5%
Copper	109	108	1	99%	5	800	0	0%
Iron	40	40	0	100%	8,460	163,000	3	8%
Lead	116	105	11	91%	1	1,110	1	1%
Magnesium	40	40	0	100%	1,460	23,900	0	0%
Manganese	95	95	0	100%	140	13,100	1	1%
Mercury	82	28	54	34%	0	0	0	0%
Nickel	95	95	0	100%	5	63	0	0%
Potassium	40	40	0	100%	116	11,300	0	0%
Selenium	54	0	54	0%	NA	NA	0	NC
Silver	54	40	14	74%	1	7	0	0%
Sodium	40	40	0	100%	145	3,650	0	0%
Thallium	40	37	3	93%	2	6	37	100%
Vanadium	40	40	0	100%	27	121	0	0%
Zinc	109	109	0	100%	10	889	0	0%
PCBs (mg/kg)								
Aroclor 1016	53	0	53	0%	NA	NA	0	NC
Aroclor 1221	53	0	53	0%	NA	NA	0	NC
Aroclor 1232	53	0	53	0%	NA	NA	0	NC
Aroclor 1242	53	0	53	0%	NA	NA	0	NC

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	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Aroclor 1248	53	2	51	4%	0.034	0.53	0	NC
Aroclor 1254	53	5	48	9%	0.00304	0.71	0	NC
Aroclor 1260	53	12	41	23%	0.0022	0.93	0	NC
Aroclor 1262	10	0	10	0%	NA	NA	0	NC
Aroclor 1268	14	0	14	0%	NA	NA	0	NC
Total PCBs[b]	53	13	40	25%	0.0022	2.17	1	8%
Dioxins/Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	16	14	2	88%	4.47	2,650	0	0%
1,2,3,4,6,7,8-HpCDF	16	13	3	81%	1.36	653	0	0%
1,2,3,4,7,8,9-HpCDF	16	6	10	38%	0.322	32	0	0%
1,2,3,4,7,8-HxCDD	16	5	11	31%	3.49	36.1	0	0%
1,2,3,4,7,8-HxCDF	16	10	6	63%	0.114	17	0	0%
1,2,3,6,7,8-HxCDD	16	14	2	88%	0.994	184	0	0%
1,2,3,6,7,8-HxCDF	16	3	13	19%	1.55	9.97	0	0%
1,2,3,7,8,9-HxCDD	16	10	6	63%	1.07	16.7	0	0%
1,2,3,7,8,9-HxCDF	16	3	13	19%	1.3	8.52	0	0%
1,2,3,7,8-PeCDD	16	7	9	44%	0.703	10.8	0	0%
1,2,3,7,8-PeCDF	16	3	13	19%	0.859	2.12	0	0%
2,3,4,6,7,8-HxCDF	16	7	9	44%	0.7	40	0	0%
2,3,4,7,8-PeCDF	16	6	10	38%	0.807	6.7	0	0%
2,3,7,8-TCDD	16	4	12	25%	0.24	6.42	0	0%
2,3,7,8-TCDF	16	7	9	44%	0.347	5.07	0	0%
OCDD	16	14	2	88%	20.8	30,800	0	0%
OCDF	16	14	2	88%	1.83	1,490	0	0%
Total HpCDDs	16	13	3	81%	8.74	4,760	0	0%
Total HpCDFs	16	9	7	56%	16	704	0	0%
Total HxCDDs	16	8	8	50%	6.72	435	0	NC
Total HxCDFs	16	3	13	19%	17	243	0	0%
Total PeCDDs	16	4	12	25%	3.41	140	0	0%
Total PeCDFs	16	3	13	19%	0.846	7.5	0	0%

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MAUL FOSTER ALONGI

	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Total TCDDs	16	0	16	0%	NA	NA	0	NC
Total TCDFs	16	0	16	0%	NA	NA	0	NC
Dioxin/Furan TEQ[(c)(2)]	15	15	0	100%	1.05	90	5	33%
Pesticides (mg/kg)								
Aldrin	14	0	14	0%	NA	NA	0	NC
Alpha-BHC	14	0	14	0%	NA	NA	0	NC
Beta-BHC	14	0	14	0%	NA	NA	0	NC
Delta-BHC	14	0	14	0%	NA	NA	0	NC
Lindane	14	0	14	0%	NA	NA	0	NC
cis-Chlordane	14	0	14	0%	NA	NA	0	NC
Gamma-Chlordane	14	0	14	0%	NA	NA	0	NC
Chlordane	14	0	14	0%	NA	NA	0	NC
4,4'-DDD	14	0	14	0%	NA	NA	0	NC
4,4'-DDE	14	0	14	0%	NA	NA	0	NC
4,4'-DDT	14	0	14	0%	NA	NA	0	NC
Total DDT	14	0	14	0%	NA	NA	0	NC
Dieldrin	14	0	14	0%	NA	NA	0	NC
Endosulfan I	14	0	14	0%	NA	NA	0	NC
Endosulfan II	14	0	14	0%	NA	NA	0	NC
Endosulfan Sulfate	14	0	14	0%	NA	NA	0	NC
Endrin	14	0	14	0%	NA	NA	0	NC
Endrin Aldehyde	14	0	14	0%	NA	NA	0	NC
Endrin Ketone	14	0	14	0%	NA	NA	0	NC
Heptachlor	14	0	14	0%	NA	NA	0	NC
Heptachlor Epoxide	14	0	14	0%	NA	NA	0	NC
Methoxychlor	14	0	14	0%	NA	NA	0	NC
Toxaphene	14	0	14	0%	NA	NA	0	NC
VOCs (mg/kg)								
1,1,1,2-Tetrachloroethane	29	0	29	0%	NA	NA	0	NC
1,1,1-Trichloroethane	67	0	67	0%	NA	NA	0	NC

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MAUL FOSTER ALONGI

	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[(a)]	Frequency of Detected Exceedances for All Samples
1,1,2,2-Tetrachloroethane	67	0	67	0%	NA	NA	0	NC
1,1,2-Trichloroethane	67	0	67	0%	NA	NA	0	NC
1,1-Dichloroethane	67	0	67	0%	NA	NA	0	NC
1,1-Dichloroethene	67	0	67	0%	NA	NA	0	NC
1,1-Dichloropropene	29	0	29	0%	NA	NA	0	NC
1,2,3-Trichlorobenzene	67	0	67	0%	NA	NA	0	0%
1,2,3-Trichloropropane	29	0	29	0%	NA	NA	0	NC
1,2,4-Trichlorobenzene	53	0	53	0%	NA	NA	0	0%
1,2,4-Trimethylbenzene	29	4	25	14%	0.0032	0.855	0	0%
1,2-Dibromo-3-chloropropane	67	0	67	0%	NA	NA	0	0%
1,2-Dibromoethane	67	0	67	0%	NA	NA	0	NC
1,2-Dichlorobenzene	53	0	53	0%	NA	NA	0	0%
1,2-Dichloroethane	67	0	67	0%	NA	NA	0	NC
1,2-Dichloropropane	67	0	67	0%	NA	NA	0	NC
1,3,5-Trimethylbenzene	29	2	27	7%	0.145	0.21	0	0%
1,3-Dichlorobenzene	53	0	53	0%	NA	NA	0	0%
1,3-Dichloropropane	29	0	29	0%	NA	NA	0	NC
1,4-Dichlorobenzene	53	0	53	0%	NA	NA	0	0%
2,2-Dichloropropane	29	0	29	0%	NA	NA	0	NC
2-Butanone	53	30	23	57%	0.0029	0.1	0	0%
2-Chloroethylvinyl ether	3	0	3	0%	NA	NA	0	NC
2-Chlorotoluene	29	0	29	0%	NA	NA	0	NC
2-Hexanone	53	1	52	2%	0.0072	0.0072	0	0%
4-Chlorotoluene	29	0	29	0%	NA	NA	0	NC
4-Isopropyltoluene	29	9	20	31%	0.02	0.12	0	0%
4-Methyl-2-pentanone	53	0	53	0%	NA	NA	0	NC
Acetone	53	36	17	68%	0.0057	1.5	0	0%
Acrolein	3	0	3	0%	NA	NA	0	NC
Acrylonitrile	15	0	15	0%	NA	NA	0	NC
Benzene	75	3	72	4%	0.0082	0.0474	1	33%

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MAUL FOSTER ALONGI

	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[(a)]	Frequency of Detected Exceedances for All Samples
Bromobenzene	29	0	29	0%	NA	NA	0	NC
Bromodichloromethane	67	0	67	0%	NA	NA	0	NC
Bromoethane	3	0	3	0%	NA	NA	0	NC
Bromoform	67	0	67	0%	NA	NA	0	0%
Bromomethane	67	0	67	0%	NA	NA	0	NC
Carbon disulfide	53	4	49	8%	0.0013	0.018	0	0%
Carbon tetrachloride	67	0	67	0%	NA	NA	0	NC
Chlorobenzene	67	0	67	0%	NA	NA	0	NC
Chlorobromomethane	67	0	67	0%	NA	NA	0	NC
Chloroethane	67	0	67	0%	NA	NA	0	NC
Chloroform	67	1	66	1%	6.70E-04	6.70E-04	0	0%
Chloromethane	67	0	67	0%	NA	NA	0	NC
cis-1,2-Dichloroethene	67	0	67	0%	NA	NA	0	NC
cis-1,3-Dichloropropene	67	0	67	0%	NA	NA	0	NC
Cyclohexane	38	1	37	3%	0.24	0.24	0	0%
Dibromochloromethane	67	0	67	0%	NA	NA	0	NC
Dibromomethane	29	0	29	0%	NA	NA	0	NC
Dichlorodifluoromethane (Freon 12)	64	0	64	0%	NA	NA	0	NC
Ethylbenzene	75	4	71	5%	0.0076	0.37	0	0%
Freon 113	41	0	41	0%	NA	NA	0	NC
Hexachlorobutadiene	15	0	15	0%	NA	NA	0	NC
Isopropylbenzene	67	5	62	7%	0.0083	0.18	0	0%
m,p-Xylene	67	6	61	9%	0.014	0.79	0	0%
Methyl acetate	38	0	38	0%	NA	NA	0	0%
Methyl iodide	3	0	3	0%	NA	NA	0	NC
Methyl tert-butyl ether	64	0	64	0%	NA	NA	0	NC
Methylcyclohexane	38	1	37	3%	1.7	1.7	0	0%
Methylene chloride	67	0	67	0%	NA	NA	0	NA
Naphthalene	15	3	12	20%	0.005	0.204	0	0%
n-Butylbenzene	29	1	28	3%	0.113	0.113	0	0%

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	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
n-Propylbenzene	29	2	27	7%	0.015	0.0586	0	0%
o-Xylene	67	5	62	7%	0.005	0.72	0	0%
sec-Butylbenzene	29	2	27	7%	0.017	0.0507	0	0%
Styrene	67	0	67	0%	NA	NA	0	NA
tert-Butylbenzene	29	1	28	3%	0.0042	0.0042	0	0%
Tetrachloroethene	67	0	67	0%	NA	NA	0	NA
Toluene	75	12	63	16%	7.00E-04	0.154	0	0%
trans-1,2-Dichloroethene	67	0	67	0%	NA	NA	0	NA
trans-1,3-Dichloropropene	67	0	67	0%	NA	NA	0	NA
trans-1,4-Dichloro-2-butene	3	0	3	0%	NA	NA	0	NA
Trichloroethene	67	0	67	0%	NA	NA	0	NA
Trichlorofluoromethane (Freon 11)	67	0	67	0%	NA	NA	0	NA
Vinyl acetate	3	0	3	0%	NA	NA	0	NA
Vinyl chloride	67	0	67	0%	NA	NA	0	NA
Xylenes, total[d]	75	8	67	11%	0.0176	1.51	0	0%
SVOCs (mg/kg)								
1,1'-Biphenyl	50	0	50	0%	NA	NA	0	NA
1,2,4,5-Tetrachlorobenzene	50	0	50	0%	NA	NA	0	NA
1,2,4-Trichlorobenzene	49	0	49	0%	NA	NA	0	NA
1,2-Dichlorobenzene	49	0	49	0%	NA	NA	0	NA
1,2-Dinitrobenzene	29	0	29	0%	NA	NA	0	NA
1,3-Dichlorobenzene	49	0	49	0%	NA	NA	0	NA
1,3-Dinitrobenzene	29	0	29	0%	NA	NA	0	NA
1,4-Dichlorobenzene	49	0	49	0%	NA	NA	0	NA
1,4-Dinitrobenzene	29	0	29	0%	NA	NA	0	NA
1,4-Dioxane	50	0	50	0%	NA	NA	0	NA
1-Methylnaphthalene	68	11	57	16%	0.00415	0.626	0	0%
2,3,4,6-Tetrachlorophenol	79	2	77	3%	0.036	0.2	0	0%
2,3,5,6-Tetrachlorophenol	30	0	30	0%	NA	NA	0	NA
2,4,5-Trichlorophenol	101	0	101	0%	NA	NA	0	NA

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	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[(a)]	Frequency of Detected Exceedances for All Samples
2,4,6-Trichlorophenol	101	0	101	0%	NA	NA	0	NA
2,4-Dichlorophenol	101	0	101	0%	NA	NA	0	NA
2,4-Dimethylphenol	101	0	101	0%	NA	NA	0	NA
2,4-Dinitrophenol	101	0	101	0%	NA	NA	0	NA
2,4-Dinitrotoluene	100	0	100	0%	NA	NA	0	NA
2,6-Dinitrotoluene	100	0	100	0%	NA	NA	0	NA
2-Chloronaphthalene	100	0	100	0%	NA	NA	0	NA
2-Chlorophenol	101	0	101	0%	NA	NA	0	NA
2-Methylnaphthalene	118	51	67	43%	5.40E-04	2	0	0%
2-Methylphenol	101	0	101	0%	NA	NA	0	NA
2-Nitroaniline	100	0	100	0%	NA	NA	0	NA
2-Nitrophenol	99	0	99	0%	NA	NA	0	NA
3- & 4-Methylphenol (m,p-Cresol)	44	6	38	14%	0.14	1.29	0	0%
3,3-Dichlorobenzidine	100	0	100	0%	NA	NA	0	NA
3-Nitroaniline	100	0	100	0%	NA	NA	0	NA
4,6-Dinitro-2-methylphenol	100	0	100	0%	NA	NA	0	NA
4-Bromophenylphenyl ether	100	0	100	0%	NA	NA	0	NA
4-Chloro-3-methylphenol	101	0	101	0%	NA	NA	0	NA
4-Chloroaniline	99	0	99	0%	NA	NA	0	NA
4-Chlorophenylphenyl ether	100	0	100	0%	NA	NA	0	NA
4-Methylphenol	57	1	56	2%	0.092	0.092	0	0%
4-Nitroaniline	100	0	100	0%	NA	NA	0	NA
4-Nitrophenol	101	0	101	0%	NA	NA	0	NA
Acenaphthene	118	39	79	33%	3.40E-04	1.5	0	0%
Acenaphthylene	117	29	88	25%	3.70E-04	0.191	0	0%
Acetophenone	50	0	50	0%	NA	NA	0	NA
Aniline	29	0	29	0%	NA	NA	0	NA
Anthracene	118	29	89	25%	0.0017	3	0	0%
Atrazine	50	0	50	0%	NA	NA	0	NA
Azobenzene	29	0	29	0%	NA	NA	0	NA

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	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[(a)]	Frequency of Detected Exceedances for All Samples
Benzaldehyde	50	0	50	0%	NA	NA	0	NA
Benzo(a)anthracene	118	41	77	35%	6.90E-04	2.6	0	0%
Benzo(a)pyrene	118	56	62	47%	8.20E-04	3.23	0	NC
Benzo(b)fluoranthene	111	49	62	44%	5.00E-04	3.33	0	0%
Benzo(ghi)perylene	118	36	82	31%	5.80E-04	1.6	0	0%
Benzo(k)fluoranthene	111	23	88	21%	8.50E-04	1.34	0	0%
Benzoic acid	50	0	50	0%	NA	NA	0	NA
Benzyl alcohol	50	0	50	0%	NA	NA	0	NA
Bis(2-chloro-1-methylethyl)ether	100	0	100	0%	NA	NA	0	NA
Bis(2-chloroethoxy)methane	100	0	100	0%	NA	NA	0	NA
Bis(2-chloroethyl)ether	100	0	100	0%	NA	NA	0	NA
Bis(2-ethylhexyl)phthalate	101	8	93	8%	0.037	19	0	0%
Butylbenzylphthalate	101	0	101	0%	NA	NA	0	NA
Caprolactam	50	0	50	0%	NA	NA	0	NA
Carbazole	118	3	115	3%	0.028	0.475	0	0%
Chrysene	118	60	58	51%	6.80E-04	3.8	0	0%
Di(2-ethylhexyl)adipate	29	0	29	0%	NA	NA	0	NA
Dibenzo(a,h)anthracene	118	12	106	10%	8.00E-04	0.466	0	0%
Dibenzofuran	117	11	106	9%	0.012	0.6	0	0%
Diethyl phthalate	101	1	100	1%	0.018	0.018	0	0%
Dimethyl phthalate	101	0	101	0%	NA	NA	0	NA
Di-n-butyl phthalate	101	0	101	0%	NA	NA	0	NA
Di-n-octyl phthalate	101	0	101	0%	NA	NA	0	NA
Fluoranthene	118	65	53	55%	8.20E-04	7.4	0	0%
Fluorene	118	33	85	28%	0.0012	1.5	0	0%
Hexachlorobenzene	100	0	100	0%	NA	NA	0	NC
Hexachlorobutadiene	99	0	99	0%	NA	NA	0	NC
Hexachlorocyclopentadiene	100	0	100	0%	NA	NA	0	NC
Hexachloroethane	100	0	100	0%	NA	NA	0	NC
Indeno(1,2,3-cd)pyrene	118	27	91	23%	5.80E-04	1.73	0	0%

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	Number of Samples	Number of Detects	Number of Non-Detects	Freqency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Isophorone	99	0	99	0%	NA	NA	0	NC
Naphthalene	118	33	85	28%	0.0042	0.72	0	0%
Nitrobenzene	100	0	100	0%	NA	NA	0	NC
N-Nitrosodimethylamine	29	0	29	0%	NA	NA	0	NC
N-Nitrosodiphenylamine	100	0	100	0%	NA	NA	0	NC
N-Nitrosodipropylamine	100	0	100	0%	NA	NA	0	NC
Pentachlorophenol	101	8	93	8%	0.0035	1.2	0	0%
Phenanthrene	118	67	51	57%	6.30E-04	4.9	0	0%
Phenol	101	2	99	2%	0.095	0.0967	0	0%
Pyrene	118	68	50	58%	0.0012	7.4	0	0%
Pyridine	29	0	29	0%	NA	NA	0	NC
Total Benzofluoranthenes	7	5	2	71%	0.037	0.32	0	0%
cPAH TEQ[e][l]	118	75	43	64%	0.00169	4.15	26	36%
TPH (mg/kg)								
Gasoline-Range Hydrocarbons	15	2	13	13%	8.1	118	1	50%
Diesel-Range Hydrocarbons	125	21	104	17%	11.9	5,800	2	10%
Lube Oil-Range Hydrocarbons	125	80	45	64%	24.4	170,000	22	28%
Diesel+Oil[f]	111	72	39	65%	21.8	170,000	34	41%
TPH with Silica-Gel Treatment (mg/kg)								
Diesel-Range Hydrocarbons	14	1	13	7%	173	173	0	0%
Lube Oil-Range Hydrocarbons	14	7	7	50%	57.6	16,200	4	57%
Diesel+Oil[f]	14	7	7	50%	70.1	16,500	4	57%

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Notes

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

NA = not applicable.

NC = not calculated.

PAH = polycyclic aromatic hydrocarbons.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbons.

VOC = volatile organic compound.

[a]Screening levels are the lowest regulatory criteria value for the given matrix, selected from soil MTCA Method A unrestricted land use where available, or MTCA Method B (the lowest of cancer and noncancer values) where MTCA Method A is not available. Where a summation is performed (except Diesel+Oil and total xylenes), data are not screened to MTCA values for individual analytes; data are only screened to the MTCA value for the summation.

[b]Total PCBs are the sum of all PCB Aroclors. Non-detect results are not included in the sum. When all results are non-detect, the highest reporting limit or detection limit is used.

[c]Dioxin/furan TEQ is calculated with 2005 World Health Organization mammal toxicity equivalence factors (Van den Berg et al. 2006). Non-detect results are included at one-half the detection limit. When all dioxin and furan results are non-detect, the TEQ is shown as "ND."

[d]Total xylenes are reported from the laboratory or are the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the reporting limit or detection limit. When all results are non-detect, the highest reporting limit or detection limit is used.

[e]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors (Ecology 2015). Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[f]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbon results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

References

[1]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs)*. Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

[2]Van den Berg, M., L. S. Birnbaum, M. Denison, M. De Vito, W. Farland, and M. Feeley. 2006. "The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds." *Toxicological Sciences* 93(2): 223–41.

Table 6-2
Upland RI Soil Analytical Data
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Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-01	RAU1-02	RAU1-03	RAU1-04		RAU1-05		RAU1-06		RAU1-07	RAU1-08	
Sample Name:			RAU1-01-SO-2.4	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU1-04-SO-0.25	RAU1-04-SO-1.3	RAU1-05-SO-0.25	RAU1-05-SO-1.5	RAU1-06-SO-1.75	RAU1-06-SO-3.5	RAU1-07-SO-1.8	RAU1-08-SO-2.0	RAU1-08-SO-7.0
Collection Date:			12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/4/2019	12/4/2019
Collection Depth (ft bgs):			1.8-3	0.5-1.5	1.9-2.5	0-0.5	1-1.5	0-0.5	1-2	1.5-2	3-4	1-2.5	1.5-2.5	6.5-7.5
Total Metals (mg/kg)														
Arsenic	20	8.47	2.78	1.05 J	0.998 J	--	5.79	--	1.48	--	1.07 J	2.48	3.55	--
Cadmium	2	0.1	0.119 U	0.116 U	0.121 U	--	0.169 J	--	0.109 U	--	0.13 U	0.118 U	0.161 J	--
Chromium	2,000[b]	78.5	38.1	8.45	5.5	--	11.2	--	15.5	--	11.8	25.1	51.7	--
Chromium, hexavalent	19	NV	--	--	--	--	--	--	--	--	--	--	0.667	--
Copper	3,200	52.9	20.8	30.9	12.4	--	35.1	--	60.3	--	11.4	43.3	57	--
Lead	250	10.9	2.75	2.76	2.3	--	16.8	--	4.68	--	3.65	6.87	14.1	--
Manganese	3,700	691.8	217	290	219	--	140	--	421	--	291	351	291	--
Mercury	2	NV	0.0477 U	0.0466 U	0.0483 U	--	0.0855 J	--	0.0435 U	--	0.0518 U	0.261 J	0.0784 J	--
Nickel	1,600	54.2	22.5	11.8	4.51	--	11.6	--	23.7	--	6.12	27.6	35	--
Zinc	24,000	85.6	49.5	36.3	39.1	--	185	--	74.4	--	52.1	52.9	89.7	--
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	0.00226 U	0.00233 UJ	--	--	0.00313 U	--	0.00207 U	--	--	--	--	--
Aroclor 1221	NV	NA	0.00226 U	0.00233 UJ	--	--	0.00313 U	--	0.00207 U	--	--	--	--	--
Aroclor 1232	NV	NA	0.00226 U	0.00233 UJ	--	--	0.00313 U	--	0.00207 U	--	--	--	--	--
Aroclor 1242	NV	NA	0.00226 U	0.00233 UJ	--	--	0.00313 U	--	0.00207 U	--	--	--	--	--
Aroclor 1248	NV	NA	0.00226 U	0.00233 UJ	--	--	0.00313 U	--	0.00207 U	--	--	--	--	--
Aroclor 1254	NA	NA	0.00226 U	0.00233 U	--	--	0.00313 U	--	0.00207 U	--	--	--	--	--
Aroclor 1260	NA	NA	0.00226 U	0.00233 U	--	--	0.00833	--	0.00207 U	--	--	--	--	--
Total PCBs[c]	1	NA	0.00226 U	0.00233 UJ	--	--	0.00833	--	0.00207 U	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	764	--	62 J	--	62 U	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	73.2	--	7.53 J	--	62.2 U	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	4.43 J	--	64.7 U	--	62.2 U	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	5.45 UJK	--	64.7 U	--	62.2 U	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	7.3 J	--	1.16 UJK	--	62.2 U	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	27.4 J	--	2.25 J	--	62.2 U	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	3.6 UJK	--	64.7 U	--	62.2 U	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	9.85 J	--	64.7 U	--	62.2 U	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	60.8 U	--	64.7 U	--	62.2 U	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	60.8 U	--	64.7 U	--	62.2 U	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	2.12 J	--	64.7 U	--	62.2 U	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	4.55 J	--	0.957 UJK	--	62.2 U	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	4.11 J	--	64.7 U	--	62.2 U	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	12.2 U	--	12.9 U	--	12.4 U	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	2.31 UJK	--	12.9 U	--	12.4 U	--	--	--	--
OCDD	NV	NA	--	--	--	9,120	--	695	--	20.3 UJK	--	--	--	--

Table 6-2
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Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-01	RAU1-02	RAU1-03	RAU1-04		RAU1-05		RAU1-06		RAU1-07	RAU1-08	
Sample Name:			RAU1-01-SO-2.4	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU1-04-SO-0.25	RAU1-04-SO-1.3	RAU1-05-SO-0.25	RAU1-05-SO-1.5	RAU1-06-SO-1.75	RAU1-06-SO-3.5	RAU1-07-SO-1.8	RAU1-08-SO-2.0	RAU1-08-SO-7.0
Collection Date:			12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/4/2019	12/4/2019
Collection Depth (ft bgs):			1.8-3	0.5-1.5	1.9-2.5	0-0.5	1-1.5	0-0.5	1-2	1.5-2	3-4	1-2.5	1.5-2.5	6.5-7.5
OCDF	NV	NA	--	--	--	196	--	11.7 J	--	124 U	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	1,790	--	150 J	--	62.2 U	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	273 J	--	22.1 J	--	62.2 U	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	159 UJK	--	22.8 J	--	62.2 U	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	126 UJK	--	12.1 UJK	--	62.2 U	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	6.83 UJK	--	1.89 UJK	--	62.2 U	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	54.8 UJK	--	7.11 UJK	--	1.47 UJK	--	--	--	--
Total TCDDs	NV	NA	--	--	--	3.67 UJK	--	12.9 U	--	12.4 U	--	--	--	--
Total TCDFs	NV	NA	--	--	--	6.27 UJK	--	4.71 UJK	--	12.4 U	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	57.5 J	--	64.6 J	--	ND	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,1,1-Trichloroethane	2	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,1,2,2-Tetrachloroethane	5	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,1,2-Trichloroethane	18	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,1-Dichloroethane	180	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,1-Dichloroethene	4,000	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,1-Dichloropropene	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,2,3-Trichlorobenzene	64	NA	0.137 U	0.147 U	--	--	0.313 U	--	0.155 U	--	0.232 U	0.185 U	--	--
1,2,3-Trichloropropane	0.0063	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,2,4-Trichlorobenzene	34	NA	0.137 U	0.147 U	--	--	0.313 U	--	0.155 U	--	0.232 U	0.185 U	--	--
1,2,4-Trimethylbenzene	800	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.137 U	0.147 U	--	--	0.313 U	--	0.155 U	--	0.232 U	0.185 U	--	--
1,2-Dibromoethane	0.005	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,2-Dichlorobenzene	7,200	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,2-Dichloroethane	11	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,2-Dichloropropane	27	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,3,5-Trimethylbenzene	800	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,3-Dichlorobenzene	NV	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
1,3-Dichloropropane	1,600	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
1,4-Dichlorobenzene	190	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
2,2-Dichloropropane	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
2-Butanone	48,000	NA	0.275 U	0.294 U	--	--	0.625 U	--	0.31 U	--	0.464 U	0.37 U	--	--
2-Chlorotoluene	1,600	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
2-Hexanone	400	NA	0.275 U	0.294 U	--	--	0.625 U	--	0.31 U	--	0.464 U	0.37 U	--	--
4-Chlorotoluene	1,600	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
4-Isopropyltoluene	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
4-Methyl-2-pentanone	6,400	NA	0.275 U	0.294 U	--	--	0.625 U	--	0.31 U	--	0.464 U	0.37 U	--	--
Acetone	72,000	NA	0.549 U	0.588 U	--	--	1.25 U	--	0.62 U	--	0.929 U	0.74 U	--	--
Acrylonitrile	1.9	NA	0.0549 U	0.0588 U	--	--	0.125 U	--	0.062 U	--	0.0929 U	0.074 U	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-01	RAU1-02	RAU1-03	RAU1-04		RAU1-05		RAU1-06		RAU1-07	RAU1-08	
Sample Name:			RAU1-01-SO-2.4	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU1-04-SO-0.25	RAU1-04-SO-1.3	RAU1-05-SO-0.25	RAU1-05-SO-1.5	RAU1-06-SO-1.75	RAU1-06-SO-3.5	RAU1-07-SO-1.8	RAU1-08-SO-2.0	RAU1-08-SO-7.0
Collection Date:			12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/4/2019	12/4/2019
Collection Depth (ft bgs):			1.8-3	0.5-1.5	1.9-2.5	0-0.5	1-1.5	0-0.5	1-2	1.5-2	3-4	1-2.5	1.5-2.5	6.5-7.5
Benzene	0.03	NA	0.00549 U	0.00588 U	--	--	0.0125 U	--	0.0062 U	--	0.00929 U	0.0074 U	--	--
Bromobenzene	640	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
Bromodichloromethane	16	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Bromoform	130	NA	0.0549 U	0.0588 U	--	--	0.125 U	--	0.062 U	--	0.0929 U	0.074 U	--	--
Bromomethane	110	NA	0.549 U	0.588 U	--	--	1.25 U	--	0.62 U	--	0.929 U	0.74 U	--	--
Carbon disulfide	8,000	NA	0.275 U	0.294 U	--	--	0.625 U	--	0.31 U	--	0.464 U	0.37 U	--	--
Carbon tetrachloride	14	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Chlorobenzene	1,600	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
Chlorobromomethane	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Chloroethane	NV	NA	0.549 UJ	0.588 UJ	--	--	0.625 U	--	0.62 UJ	--	0.929 UJ	0.74 UJ	--	--
Chloroform	32	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Chloromethane	NV	NA	0.275 UJ	0.294 UJ	--	--	0.625 UJ	--	0.31 UJ	--	0.464 UJ	0.37 UJ	--	--
cis-1,2-Dichloroethene	160	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
cis-1,3-Dichloropropene	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Dibromochloromethane	12	NA	0.0549 U	0.0588 U	--	--	0.125 U	--	0.062 U	--	0.0929 U	0.074 U	--	--
Dibromomethane	800	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0549 UJ	0.0588 UJ	--	--	0.25 UJ	--	0.062 UJ	--	0.0929 UJ	0.074 UJ	--	--
Ethylbenzene	6	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
Hexachlorobutadiene	13	NA	0.0549 U	0.0588 U	--	--	0.125 U	--	0.062 U	--	0.0929 U	0.074 U	--	--
Isopropylbenzene	8,000	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
m,p-Xylene	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Methyl tert-butyl ether	0.1	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Methylene chloride	0.02	NA	0.137 U	0.147 U	--	--	0.313 U	--	0.155 U	--	0.232 U	0.37 U	--	--
Naphthalene	5	NA	0.0549 U	0.0588 U	--	--	0.125 U	--	0.062 U	--	0.0929 U	0.074 U	--	--
n-Butylbenzene	4,000	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
n-Propylbenzene	8,000	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
o-Xylene	16,000	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
sec-Butylbenzene	8,000	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Styrene	16,000	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
tert-Butylbenzene	8,000	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Tetrachloroethene	0.05	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
Toluene	7	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
trans-1,2-Dichloroethene	1,600	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
trans-1,3-Dichloropropene	NV	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--
Trichloroethene	0.03	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
Trichlorofluoromethane (Freon 11)	24,000	NA	0.11 U	0.118 U	--	--	0.125 U	--	0.124 U	--	0.186 U	0.148 U	--	--
Vinyl chloride	0.67	NA	0.0137 U	0.0147 U	--	--	0.0313 U	--	0.0155 U	--	0.0232 U	0.0185 U	--	--
Xylenes, total[e]	9	NA	0.0275 U	0.0294 U	--	--	0.0625 U	--	0.031 U	--	0.0464 U	0.037 U	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-01	RAU1-02	RAU1-03	RAU1-04		RAU1-05		RAU1-06		RAU1-07	RAU1-08	
Sample Name:			RAU1-01-SO-2.4	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU1-04-SO-0.25	RAU1-04-SO-1.3	RAU1-05-SO-0.25	RAU1-05-SO-1.5	RAU1-06-SO-1.75	RAU1-06-SO-3.5	RAU1-07-SO-1.8	RAU1-08-SO-2.0	RAU1-08-SO-7.0
Collection Date:			12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/4/2019	12/4/2019
Collection Depth (ft bgs):			1.8-3	0.5-1.5	1.9-2.5	0-0.5	1-1.5	0-0.5	1-2	1.5-2	3-4	1-2.5	1.5-2.5	6.5-7.5
SVOCs (mg/kg)														
1,2,4-Trichlorobenzene	34	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
1,2-Dichlorobenzene	7,200	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
1,2-Dinitrobenzene	8	NA	0.0397 U	1.5 U	0.0373 U	--	5.43 U	--	7.34 U	--	0.859 U	3.88 U	7.62 U	1.9 U
1,3-Dichlorobenzene	NV	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
1,3-Dinitrobenzene	8	NA	0.0397 U	1.5 U	0.0373 U	--	5.43 U	--	7.34 U	--	0.859 U	3.88 U	7.62 U	1.9 U
1,4-Dichlorobenzene	190	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
1,4-Dinitrobenzene	8	NA	0.0397 U	1.5 U	0.0373 U	--	5.43 U	--	7.34 U	--	0.859 U	3.88 U	7.62 U	1.9 U
1-Methylnaphthalene	34	NA	0.00318 U	0.12 U	0.00299 U	--	0.501 J	--	0.589 U	--	0.0689 U	0.311 U	0.611 U	0.152 U
2,3,4,6-Tetrachlorophenol	2,400	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2,3,5,6-Tetrachlorophenol	NV	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2,4,5-Trichlorophenol	8,000	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2,4,6-Trichlorophenol	80	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2,4-Dichlorophenol	240	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2,4-Dimethylphenol	1,600	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2,4-Dinitrophenol	160	NA	0.0397 U	1.5 U	0.0373 U	--	5.43 U	--	7.34 U	--	0.859 U	3.88 U	7.62 U	1.9 U
2,4-Dinitrotoluene	3.2	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
2,6-Dinitrotoluene	0.67	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
2-Chloronaphthalene	6,400	NA	0.00159 U	0.0598 U	0.00149 U	--	0.217 U	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.076 U
2-Chlorophenol	400	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
2-Methylnaphthalene	320	NA	0.00318 U	0.12 U	0.00299 U	--	0.87	--	0.589 U	--	0.0689 U	0.311 U	0.611 U	0.173 J
2-Methylphenol	4,000	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
2-Nitroaniline	800	NA	0.0318 U	1.2 U	0.0299 U	--	4.35 U	--	5.89 U	--	0.689 U	3.11 U	6.11 U	1.52 U
2-Nitrophenol	NV	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
3,3-Dichlorobenzidine	2.2	NA	0.0318 UJ	1.2 UJ	0.0299 UJ	--	4.35 UJ	--	5.89 UJ	--	0.689 UJ	3.11 U	6.11 U	1.52 U
3-Nitroaniline	NV	NA	0.0318 U	1.2 U	0.0299 U	--	4.35 U	--	5.89 U	--	0.689 U	3.11 U	6.11 U	1.52 U
4,6-Dinitro-2-methylphenol	6.4	NA	0.0397 U	1.5 U	0.0373 U	--	5.43 U	--	7.34 U	--	0.859 U	3.88 U	7.62 U	1.9 U
4-Bromophenylphenyl ether	NV	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
4-Chloro-3-methylphenol	8,000	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
4-Chloroaniline	5	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
4-Chlorophenylphenyl ether	NV	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
4-Nitroaniline	50	NA	0.0318 U	1.2 U	0.0299 U	--	4.35 U	--	5.89 U	--	0.689 U	3.11 U	6.11 U	1.52 U
4-Nitrophenol	NV	NA	0.0318 U	0.598 U	0.0299 U	--	4.35 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
Acenaphthene	4,800	NA	0.00187 J	0.0598 U	0.00149 U	--	1.14	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.152 U
Acenaphthylene	NV	NA	0.00159 U	0.0598 U	0.00149 U	--	0.217 U	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.076 U
Aniline	180	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
Anthracene	24,000	NA	0.00159 U	0.0598 U	0.00299 U	--	0.258 J	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.076 U
Azobenzene	9.1	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
Benzo(a)anthracene	NV	NA	0.00159 U	0.0598 U	0.00149 U	--	0.366 J	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.162 J

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-01	RAU1-02	RAU1-03	RAU1-04		RAU1-05		RAU1-06		RAU1-07	RAU1-08	
Sample Name:			RAU1-01-SO-2.4	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU1-04-SO-0.25	RAU1-04-SO-1.3	RAU1-05-SO-0.25	RAU1-05-SO-1.5	RAU1-06-SO-1.75	RAU1-06-SO-3.5	RAU1-07-SO-1.8	RAU1-08-SO-2.0	RAU1-08-SO-7.0
Collection Date:			12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/4/2019	12/4/2019
Collection Depth (ft bgs):			1.8-3	0.5-1.5	1.9-2.5	0-0.5	1-1.5	0-0.5	1-2	1.5-2	3-4	1-2.5	1.5-2.5	6.5-7.5
Benzo(a)pyrene	NA	NA	0.00238 U	0.18 U	0.00224 U	--	0.451 J	--	0.441 U	--	0.0516 U	0.233 U	0.458 U	0.24 U
Benzo(b)fluoranthene	NV	NA	0.00249 J	0.0899 U	0.00224 U	--	0.729	--	0.441 U	--	0.0516 U	0.233 U	0.458 U	0.36 U
Benzo(ghi)perylene	NV	NA	0.00159 U	0.0598 U	0.00149 U	--	0.217 U	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.76 U
Benzo(k)fluoranthene	NV	NA	0.00238 U	0.0899 U	0.00224 U	--	0.424 J	--	0.441 U	--	0.0516 U	0.233 U	0.458 U	0.228 U
Benzoic acid	320,000	NA	0.199 U	7.5 U	0.187 U	--	27.2 U	--	36.8 U	--	4.31 U	19.5 U	38.2 U	9.54 U
Benzyl alcohol	8,000	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
Bis(2-chloro-1-methylethyl)ether	14	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
Bis(2-chloroethoxy)methane	240	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
Bis(2-chloroethyl)ether	0.91	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
Bis(2-ethylhexyl)phthalate	71	NA	0.0238 U	0.899 U	0.0224 U	--	3.26 U	--	4.41 U	--	0.516 U	2.33 U	4.58 U	1.14 U
Butylbenzylphthalate	530	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
Carbazole	NV	NA	0.00238 U	0.0899 U	0.00224 U	--	0.326 U	--	0.441 U	--	0.0516 U	0.233 U	0.458 U	0.114 U
Chrysene	NV	NA	0.00159 U	0.0623 J	0.00149 U	--	0.634	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.551
Di(2-ethylhexyl)adipate	830	NA	0.0397 U	1.5 U	0.0373 U	--	5.43 U	--	7.34 U	--	0.859 U	3.88 U	7.62 U	1.9 U
Dibenzo(a,h)anthracene	NV	NA	0.00159 U	0.0598 U	0.00149 U	--	0.217 U	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.76 U
Dibenzofuran	80	NA	0.00159 U	0.0598 U	0.00149 U	--	0.575	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.076 U
Diethyl phthalate	64,000	NA	0.0318 U	0.598 U	0.0299 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
Dimethyl phthalate	NV	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
Di-n-butyl phthalate	8,000	NA	0.0318 U	0.598 U	0.0299 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
Di-n-octyl phthalate	800	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	1.52 U
Fluoranthene	3,200	NA	0.00187 J	0.0598 U	0.00149 U	--	0.787	--	0.293 U	--	0.0349 J	0.155 U	0.304 U	0.317
Fluorene	3,200	NA	0.00175 J	0.0598 U	0.00149 U	--	0.85	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.152 U
Hexachlorobenzene	0.63	NA	0.00159 U	0.0598 U	0.00149 U	--	0.217 U	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.076 U
Hexachlorobutadiene	13	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
Hexachlorocyclopentadiene	480	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
Hexachloroethane	25	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.00159 U	0.0598 U	0.00149 U	--	0.217 U	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.76 U
Isophorone	1,100	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.417 U
Naphthalene	5	NA	0.00651	0.12 U	0.00299 U	--	0.72 J	--	0.589 U	--	0.0689 U	0.311 U	0.611 U	0.25 J
Nitrobenzene	160	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	0.76 U
N-Nitrosodimethylamine	0.0037	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
N-Nitrosodiphenylamine	200	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.19 U
N-Nitrosodipropylamine	0.14	NA	0.00397 U	0.15 U	0.00373 U	--	0.543 U	--	0.734 U	--	0.0859 U	0.388 U	0.762 U	0.381 U
Pentachlorophenol	2.5	NA	0.0159 U	0.598 U	0.0149 U	--	2.17 U	--	2.93 U	--	0.343 U	1.55 U	3.04 U	1.52 U
Phenanthrene	NV	NA	0.00356	0.0598 U	0.00149 U	--	0.716	--	0.293 U	--	0.0536 J	0.155 U	0.304 U	0.447
Phenol	24,000	NA	0.00318 U	0.12 U	0.00596 U	--	0.435 U	--	0.589 U	--	0.0689 U	0.311 U	0.611 U	0.152 U
Pyrene	2,400	NA	0.00162 J	0.0598 U	0.00149 U	--	0.633	--	0.293 U	--	0.0343 U	0.155 U	0.304 U	0.446
Pyridine	80	NA	0.00795 U	0.3 U	0.00746 U	--	1.09 U	--	1.47 U	--	0.172 U	0.777 U	1.53 U	0.381 U
cPAH TEQ[f][5]	0.1	NA	0.0018 J	0.109 J	0.00224 U	--	0.631 J	--	0.441 U	--	0.0516 U	0.233 U	0.458 U	0.247 J

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-01	RAU1-02	RAU1-03	RAU1-04		RAU1-05		RAU1-06		RAU1-07	RAU1-08	
Sample Name:			RAU1-01-SO-2.4	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU1-04-SO-0.25	RAU1-04-SO-1.3	RAU1-05-SO-0.25	RAU1-05-SO-1.5	RAU1-06-SO-1.75	RAU1-06-SO-3.5	RAU1-07-SO-1.8	RAU1-08-SO-2.0	RAU1-08-SO-7.0
Collection Date:			12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/4/2019	12/4/2019
Collection Depth (ft bgs):			1.8-3	0.5-1.5	1.9-2.5	0-0.5	1-1.5	0-0.5	1-2	1.5-2	3-4	1-2.5	1.5-2.5	6.5-7.5
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	11.6 U	57.7 U	13.2 J		16.6 U		1,110 U		12.9 U	56.5 U	107 U	277 U
Lube Oil-Range Hydrocarbons	2,000	NA	30.9 J	1,280	22.5 U		1,380		8,260		483	3,270	8,890	9,950
Diesel+Oil[g]	2,000	NA	36.7 J	1,310	24.5 J	--	1,390	--	8,820	--	489	3,300	8,940	10,100
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[g]	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (mg/kg)														
Total Organic Carbon	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13	RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	
Sample Name:			RAU1-09-SO-1.5	RAU1-10-SO-2.0	RAU1-11-SO-3.5	RAU1-12-SO-2.7	RAU1-13-SO-3.5	RAU1-14-SO-3.5	RAU2-01-SO-3.5	RAU2-02-SO-2.5	RAU2-03-SO-3	RAU2-04-SO-4.5	RAU2-05-SO-2.5	RAU2-05-SO-2.5 DUP
Collection Date:			12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):			1-2	1.5-2.5	2.5-4.5	2-3.5	3-4	3-4	3-4	2-3	3-4	4-5	1.5-3.5	1.5-3.5
Total Metals (mg/kg)														
Arsenic	20	8.47	2.29	0.975 J	6.21	0.998 J	--	--	1.11 J	1.05 J	1.51	1.77	1.43	1.47
Cadmium	2	0.1	0.167 J	0.106 U	0.123 U	0.111 U	--	--	0.133 J	0.118 U	0.123 U	0.112 U	0.12 U	0.129 U
Chromium	2,000[b]	78.5	24.1	22	23.8	14.7	--	--	44.8	21.7	29.6	36.8	30.5	33.2
Chromium, hexavalent	19	NV	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,200	52.9	51.2	57.2	42.9 J	30.4	--	--	60	32.1	80.2	61.1	51.9	52.7
Lead	250	10.9	26.5	2.99	12.4	3.29	--	--	2.99	10.7	4.02	3.32	3.44 J	16 J
Manganese	3,700	691.8	358	272	258	323	--	--	707	275	772	545	690	764
Mercury	2	NV	0.299	0.0426 U	0.0493 U	0.0446 U	--	--	0.0527 U	0.0472 U	0.445	0.0447 U	0.048 U	0.0604 J
Nickel	1,600	54.2	29.1	24.8	24.9	13.5	--	--	31.5	19.6	31.8	31	29.3	28.8
Zinc	24,000	85.6	166	35.6	61.1	42.2	--	--	51.2	45.1	49.7	47.4	46.4	47.9
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs[c]	1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	21	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	4.31 J	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	0.409 UJK	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	4.8 U	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NA	--	0.238 UJ	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	1.26 J	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	0.169 UJ	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	0.563 UJ	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	4.8 U	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	4.8 U	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	4.8 U	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	0.227 UJK	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	4.8 U	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	0.177 UJK	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	0.961 U	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	189	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13	RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	
Sample Name:			RAU1-09-SO-1.5	RAU1-10-SO-2.0	RAU1-11-SO-3.5	RAU1-12-SO-2.7	RAU1-13-SO-3.5	RAU1-14-SO-3.5	RAU2-01-SO-3.5	RAU2-02-SO-2.5	RAU2-03-SO-3	RAU2-04-SO-4.5	RAU2-05-SO-2.5	RAU2-05-SO-2.5 DUP
Collection Date:			12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):			1-2	1.5-2.5	2.5-4.5	2-3.5	3-4	3-4	3-4	2-3	3-4	4-5	1.5-3.5	1.5-3.5
OCDF	NV	NA	--	13.9	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	38	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	22.9 UJK	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	6.72 J	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	6.22 UJK	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	0.519 UJ	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	1.69 J	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	1.25 UJK	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	1.25 UJK	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	4.31 J	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	5	NA	0.0261 U	--	0.0323 U	0.058 U	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	18	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,1-Dichloroethane	180	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,1-Dichloroethene	4,000	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	0.13 U	--	0.161 U	0.145 U	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0063	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	0.13 U	--	0.161 U	0.145 U	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	800	NA	0.0512 J	--	0.0323 U	0.855	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.13 U	--	0.161 U	0.145 U	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,2-Dichloropropane	27	NA	0.013 U	--	0.0161 U	0.058 U	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	800	NA	0.0261 U	--	0.0323 U	0.145	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
1,3-Dichloropropane	1,600	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	0.261 U	--	0.323 U	0.29 U	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	0.261 U	--	0.323 U	0.29 U	--	--	--	--	--	--	--	--
4-Chlorotoluene	1,600	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	0.0261 U	--	0.0323 U	0.0734	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	0.261 U	--	0.323 U	0.29 U	--	--	--	--	--	--	--	--
Acetone	72,000	NA	0.522 U	--	0.645 U	0.58 U	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	0.0522 U	--	0.0645 U	0.058 U	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13	RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	
Sample Name:			RAU1-09-SO-1.5	RAU1-10-SO-2.0	RAU1-11-SO-3.5	RAU1-12-SO-2.7	RAU1-13-SO-3.5	RAU1-14-SO-3.5	RAU2-01-SO-3.5	RAU2-02-SO-2.5	RAU2-03-SO-3	RAU2-04-SO-4.5	RAU2-05-SO-2.5	RAU2-05-SO-2.5 DUP
Collection Date:			12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):			1-2	1.5-2.5	2.5-4.5	2-3.5	3-4	3-4	3-4	2-3	3-4	4-5	1.5-3.5	1.5-3.5
Benzene	0.03	NA	0.0474	--	0.00645 U	0.0111 J	--	--	--	--	--	--	--	--
Bromobenzene	640	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
Bromodichloromethane	16	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Bromoform	130	NA	0.0522 U	--	0.0645 U	0.058 U	--	--	--	--	--	--	--	--
Bromomethane	110	NA	0.522 U	--	0.645 U	0.58 U	--	--	--	--	--	--	--	--
Carbon disulfide	8,000	NA	0.261 U	--	0.323 U	0.29 U	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Chlorobenzene	1,600	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Chloroethane	NV	NA	0.261 UJ	--	0.645 UJ	0.29 U	--	--	--	--	--	--	--	--
Chloroform	32	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Chloromethane	NV	NA	0.13 UJ	--	0.323 UJ	0.145 U	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	160	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Dibromochloromethane	12	NA	0.0522 U	--	0.0645 U	0.058 U	--	--	--	--	--	--	--	--
Dibromomethane	800	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0522 UJ	--	0.0645 UJ	0.058 U	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	0.0522 U	--	0.0645 U	0.058 U	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA	0.244	--	0.0323 U	0.0531 J	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	0.13 U	--	0.161 U	0.145 U	--	--	--	--	--	--	--	--
Naphthalene	5	NA	0.0522 U	--	0.103 J	0.204 J	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	0.0261 U	--	0.0323 U	0.113 J	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	0.013 U	--	0.0161 U	0.0586	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	0.0667	--	0.0161 U	0.058	--	--	--	--	--	--	--	--
sec-Butylbenzene	8,000	NA	0.0261 U	--	0.0323 U	0.0507 J	--	--	--	--	--	--	--	--
Styrene	16,000	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
tert-Butylbenzene	8,000	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
Toluene	7	NA	0.154	--	0.0323 U	0.0496 J	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	1,600	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA	0.0261 U	--	0.0323 U	0.029 U	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0522 U	--	0.129 U	0.058 U	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	0.013 U	--	0.0161 U	0.0145 U	--	--	--	--	--	--	--	--
Xylenes, total[e]	9	NA	0.311	--	0.0323 U	0.111 J	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13	RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	
Sample Name:			RAU1-09-SO-1.5	RAU1-10-SO-2.0	RAU1-11-SO-3.5	RAU1-12-SO-2.7	RAU1-13-SO-3.5	RAU1-14-SO-3.5	RAU2-01-SO-3.5	RAU2-02-SO-2.5	RAU2-03-SO-3	RAU2-04-SO-4.5	RAU2-05-SO-2.5	RAU2-05-SO-2.5 DUP
Collection Date:			12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):			1-2	1.5-2.5	2.5-4.5	2-3.5	3-4	3-4	3-4	2-3	3-4	4-5	1.5-3.5	1.5-3.5
SVOCs (mg/kg)														
1,2,4-Trichlorobenzene	34	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
1,2-Dichlorobenzene	7,200	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
1,2-Dinitrobenzene	8	NA	3.52 U	1.39 U	1.45 U	0.721 U	--	--	0.0394 U	0.77 U	0.036 U	0.0377 U	0.0386 U	0.0387 U
1,3-Dichlorobenzene	NV	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
1,3-Dinitrobenzene	8	NA	3.52 U	1.39 U	1.45 U	0.721 U	--	--	0.0394 U	0.77 U	0.036 U	0.0377 U	0.0386 U	0.0387 U
1,4-Dichlorobenzene	190	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
1,4-Dinitrobenzene	8	NA	3.52 U	1.39 U	1.45 U	0.721 U	--	--	0.0394 U	0.77 U	0.036 U	0.0377 U	0.0386 U	0.0387 U
1-Methylnaphthalene	34	NA	0.282 U	0.626	0.116 U	0.0578 U	--	--	0.00415 J	0.0617 U	0.00289 U	0.00449 J	0.00309 U	0.0031 U
2,3,4,6-Tetrachlorophenol	2,400	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2,3,5,6-Tetrachlorophenol	NV	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2,4,5-Trichlorophenol	8,000	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2,4,6-Trichlorophenol	80	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2,4-Dichlorophenol	240	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2,4-Dimethylphenol	1,600	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2,4-Dinitrophenol	160	NA	3.52 U	1.39 U	1.45 U	0.721 U	--	--	0.0394 U	0.77 U	0.036 U	0.0377 U	0.0386 U	0.0387 U
2,4-Dinitrotoluene	3.2	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
2,6-Dinitrotoluene	0.67	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
2-Chloronaphthalene	6,400	NA	0.141 U	0.0553 U	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
2-Chlorophenol	400	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
2-Methylnaphthalene	320	NA	0.282 U	0.535	0.116 U	0.0662 J	--	--	0.00802	0.0617 U	0.00289 U	0.0054 J	0.00309 U	0.0031 U
2-Methylphenol	4,000	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
2-Nitroaniline	800	NA	2.82 U	1.11 U	1.16 U	0.578 U	--	--	0.0316 U	0.617 U	0.0289 U	0.0302 U	0.0309 U	0.031 U
2-Nitrophenol	NV	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
3,3-Dichlorobenzidine	2.2	NA	2.82 UJ	1.11 U	1.16 UJ	0.578 UJ	--	--	0.0316 U	0.617 U	0.0289 U	0.0302 U	0.0309 U	0.031 UJ
3-Nitroaniline	NV	NA	2.82 U	1.11 U	1.16 U	0.578 U	--	--	0.0316 U	0.617 U	0.0289 U	0.0302 U	0.0309 U	0.031 U
4,6-Dinitro-2-methylphenol	6.4	NA	3.52 U	1.39 U	1.45 U	0.721 U	--	--	0.0394 U	0.77 U	0.036 U	0.0377 U	0.0386 U	0.0387 U
4-Bromophenylphenyl ether	NV	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
4-Chloro-3-methylphenol	8,000	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
4-Chloroaniline	5	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
4-Chlorophenylphenyl ether	NV	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
4-Nitroaniline	50	NA	2.82 U	1.11 U	1.16 U	0.578 U	--	--	0.0316 U	0.617 U	0.0289 U	0.0302 U	0.0309 U	0.031 U
4-Nitrophenol	NV	NA	1.41 U	0.553 U	0.578 U	0.578 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0302 U	0.0154 U	0.031 U
Acenaphthene	4,800	NA	0.141 U	0.988	0.108 J	0.0288 U	--	--	0.00471	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Acenaphthylene	NV	NA	0.141 U	0.0553 U	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Aniline	180	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
Anthracene	24,000	NA	0.141 U	0.308	0.0578 U	0.0288 U	--	--	0.00177 J	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Azobenzene	9.1	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Benzo(a)anthracene	NV	NA	0.587	0.157	0.0677 J	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13	RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	
Sample Name:			RAU1-09-SO-1.5	RAU1-10-SO-2.0	RAU1-11-SO-3.5	RAU1-12-SO-2.7	RAU1-13-SO-3.5	RAU1-14-SO-3.5	RAU2-01-SO-3.5	RAU2-02-SO-2.5	RAU2-03-SO-3	RAU2-04-SO-4.5	RAU2-05-SO-2.5	RAU2-05-SO-2.5 DUP
Collection Date:			12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):			1-2	1.5-2.5	2.5-4.5	2-3.5	3-4	3-4	3-4	2-3	3-4	4-5	1.5-3.5	1.5-3.5
Benzo(a)pyrene	NA	NA	0.94	0.115 J	0.087 U	0.0433 U	--	--	0.00265 J	0.0462 U	0.00235 J	0.00226 U	0.00232 U	0.00262 J
Benzo(b)fluoranthene	NV	NA	1.09	0.107 J	0.174 U	0.0433 U	--	--	0.00236 U	0.0462 U	0.00225 J	0.00226 U	0.00232 U	0.00232 U
Benzo(ghi)perylene	NV	NA	0.549	0.0553 U	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Benzo(k)fluoranthene	NV	NA	0.457 J	0.0832 U	0.087 U	0.0433 U	--	--	0.00236 U	0.0462 U	0.00216 U	0.00226 U	0.00232 U	0.00232 U
Benzoic acid	320,000	NA	17.7 U	6.95 U	7.26 U	3.61 U	--	--	0.197 U	3.86 U	0.181 U	0.189 U	0.194 U	0.194 U
Benzyl alcohol	8,000	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
Bis(2-chloro-1-methylethyl)ether	14	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Bis(2-chloroethoxy)methane	240	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Bis(2-chloroethyl)ether	0.91	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Bis(2-ethylhexyl)phthalate	71	NA	2.12 U	0.832 U	0.87 U	0.433 U	--	--	0.0236 U	0.462 U	0.0216 U	0.0226 U	0.0232 U	0.0232 U
Butylbenzylphthalate	530	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
Carbazole	NV	NA	0.212 U	0.107 J	0.087 U	0.0433 U	--	--	0.00236 U	0.0462 U	0.00216 U	0.00226 U	0.00232 U	0.00232 U
Chrysene	NV	NA	0.681	0.107 J	0.169	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Di(2-ethylhexyl)adipate	830	NA	3.52 U	1.39 U	1.45 U	0.721 U	--	--	0.0394 U	0.77 U	0.036 U	0.0377 U	0.0386 U	0.0387 U
Dibenzo(a,h)anthracene	NV	NA	0.155 J	0.0553 U	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Dibenzofuran	80	NA	0.141 U	0.323	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Diethyl phthalate	64,000	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
Dimethyl phthalate	NV	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
Di-n-butyl phthalate	8,000	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.031 U
Di-n-octyl phthalate	800	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
Fluoranthene	3,200	NA	0.434	0.591	0.0962 J	0.0288 U	--	--	0.00346	0.0308 U	0.00237 J	0.00151 U	0.00154 U	0.00155 U
Fluorene	3,200	NA	0.141 U	0.719	0.0822 J	0.0317 J	--	--	0.00221 J	0.0308 U	0.00144 U	0.0016 J	0.00154 U	0.00155 U
Hexachlorobenzene	0.63	NA	0.141 U	0.0553 U	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Hexachlorobutadiene	13	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Hexachlorocyclopentadiene	480	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
Hexachloroethane	25	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.514	0.0553 U	0.0578 U	0.0288 U	--	--	0.00157 U	0.0308 U	0.00144 U	0.00151 U	0.00154 U	0.00155 U
Isophorone	1,100	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Naphthalene	5	NA	0.282 U	0.124 J	0.116 U	0.0578 U	--	--	0.0335	0.0617 U	0.00663	0.00302 U	0.00309 U	0.0031 U
Nitrobenzene	160	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
N-Nitrosodimethylamine	0.0037	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
N-Nitrosodiphenylamine	200	NA	0.352 U	0.139 U	0.145 U	0.144 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
N-Nitrosodipropylamine	0.14	NA	0.352 U	0.139 U	0.145 U	0.0721 U	--	--	0.00394 U	0.077 U	0.0036 U	0.00377 U	0.00386 U	0.00387 U
Pentachlorophenol	2.5	NA	1.41 U	0.553 U	0.578 U	0.288 U	--	--	0.0157 U	0.308 U	0.0144 U	0.0151 U	0.0154 U	0.0155 U
Phenanthrene	NV	NA	0.31	1.65	0.261	0.0397 J	--	--	0.00994	0.0308 U	0.00335	0.00439	0.00154 U	0.00155 U
Phenol	24,000	NA	0.282 U	0.111 U	0.116 U	0.0578 U	--	--	0.00316 U	0.0617 U	0.00289 U	0.00302 U	0.00309 U	0.0031 U
Pyrene	2,400	NA	0.51	0.638	0.114 J	0.0288 U	--	--	0.00444	0.0308 U	0.00217 J	0.00151 U	0.00154 U	0.00155 U
Pyridine	80	NA	0.705 U	0.278 U	0.29 U	0.144 U	--	--	0.00789 U	0.154 U	0.00721 U	0.00755 U	0.00773 U	0.00775 U
cPAH TEQ[f][5]	0.1	NA	1.23 J	0.152 J	0.0708 J	0.0433 U	--	--	0.00313 J	0.0462 U	0.00291 J	0.00226 U	0.00232 U	0.00309 J

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13	RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	
Sample Name:			RAU1-09-SO-1.5	RAU1-10-SO-2.0	RAU1-11-SO-3.5	RAU1-12-SO-2.7	RAU1-13-SO-3.5	RAU1-14-SO-3.5	RAU2-01-SO-3.5	RAU2-02-SO-2.5	RAU2-03-SO-3	RAU2-04-SO-4.5	RAU2-05-SO-2.5	RAU2-05-SO-2.5 DUP
Collection Date:			12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):			1-2	1.5-2.5	2.5-4.5	2-3.5	3-4	3-4	3-4	2-3	3-4	4-5	1.5-3.5	1.5-3.5
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	118 J	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	210 U	180 J	11 U	10.5 U	25 U	25 U	11.6 U	111 U	10.3 U	10.8 U	11.9 U	11.4 U
Lube Oil-Range Hydrocarbons	2,000	NA	4,100	489 J	1,060	108	50 U	50 U	23.3 U	459	20.7 U	21.6 U	23.9 U	22.9 U
Diesel+Oil[g]	2,000	NA	4,210	669 J	1,070	113	50 U	50 U	23.3 U	515	20.7 U	21.6 U	23.9 U	22.9 U
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	2,000	NA	--	--	--	--	25 U	25 U	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	--	--	--	50 U	50 U	--	--	--	--	--	--
Diesel+Oil[g]	2,000	NA	--	--	--	--	50 U	50 U	--	--	--	--	--	--
Total Organic Carbon (mg/kg)														
Total Organic Carbon	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU2-06	RAU2-07	RAU2-08	RAU2-09		RAU2-GA1			RAU2-GA2			RAU3-01
Sample Name:			RAU2-06-SO-1.3	RAU2-07-SO-1.5	RAU2-08-SO-2.0	RAU2-09-SO-1.5	RAU2-09-SO-8.0	RAU2-GA1-SO-3.25	RAU2-GA1-SO-5.75	RAU2-GA1-SO-8.25	RAU2-GA2-SO-3.25	RAU2-GA2-SO-5.75	RAU2-GA2-SO-8.25	RAU3-01-SO-2.0
Collection Date:			12/2/2019	12/5/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):			1-2.5	1-2	1.5-2.5	1-2	7.5-8.5	2.5-4	5-6.5	7.5-9	2.5-4	5-6.5	7.5-9	1.5-2.5
Total Metals (mg/kg)														
Arsenic	20	8.47	2.15	1.23	2.7	3.05	--	--	--	--	--	--	--	0.872 J
Cadmium	2	0.1	0.118 J	0.11 U	0.141 U	0.138 J	--	--	--	--	--	--	--	0.118 U
Chromium	2,000[b]	78.5	25.6	25	31.5	21	--	--	--	--	--	--	--	9.49
Chromium, hexavalent	19	NV	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,200	52.9	63.5	38.4	55.3	49.2	--	--	--	--	--	--	--	35.6
Lead	250	10.9	4.01	2.48	10	11.1 J	--	--	--	--	--	--	--	3.9
Manganese	3,700	691.8	826	258	887	316	--	--	--	--	--	--	--	206
Mercury	2	NV	0.0435 U	0.044 U	0.074 J	0.252 J	--	0.15	0.206	0.0898	0.259	0.182 J	0.0984 J	0.0474 U
Nickel	1,600	54.2	30.4	18.2	28.5	20.7	--	--	--	--	--	--	--	16.2
Zinc	24,000	85.6	50.6	30.6	53	86.9 J	--	--	--	--	--	--	--	48.2
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	0.025 U	0.025 U	0.025 U	0.025 U	--	--	--
Mercury	NV	NV	--	--	--	--	--	0.0035 U	0.0035 U	0.0035 U	0.0035 U	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	0.00252 U	0.00539 U	--	0.00451 U	0.00498 U	0.00372 U	0.0106 U	0.0112 U	0.00898 UJ	--
Aroclor 1221	NV	NA	--	--	0.00252 U	0.00539 U	--	0.00451 U	0.00498 U	0.00372 U	0.0106 U	0.0112 U	0.00898 U	--
Aroclor 1232	NV	NA	--	--	0.00252 U	0.00539 U	--	0.00451 U	0.00498 U	0.00372 U	0.0106 U	0.0112 U	0.00898 U	--
Aroclor 1242	NV	NA	--	--	0.00252 U	0.00539 U	--	0.00451 U	0.00498 U	0.00372 U	0.0106 U	0.0112 U	0.00898 U	--
Aroclor 1248	NV	NA	--	--	0.00252 U	0.00539 U	--	0.00451 U	0.00498 U	0.00372 U	0.0106 U	0.0112 U	0.00898 U	--
Aroclor 1254	NA	NA	--	--	0.00304	0.00539 U	--	0.00451 U	0.00498 U	0.00372 U	0.0106 U	0.0112 U	0.00898 U	--
Aroclor 1260	NA	NA	--	--	0.00252 U	0.0134	--	0.00903 U	0.00995 U	0.00372 U	0.0601	0.0154	0.00898 U	--
Total PCBs[c]	1	NA	--	--	0.00304	0.0134	--	0.00903 U	0.00995 U	0.00372 U	0.0601	0.0154	0.00898 UJ	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	18.5	7.57	4.47 J	1,940	148	33.1	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	14.6	5.95	1.36 J	165	34.4	10.2	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	0.415 UJK	0.322 J	0.103 UJK	8.3 J	1.69 J	9.76 U	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	4.98 U	0.162 UJ	0.111 UJ	9.26 J	15.8 U	9.76 U	--
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	0.61 J	0.772 J	0.115 UJ	10.7 J	2.14 J	0.503 UJ	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	1.61 J	1.13 J	0.994 J	60.4 J	7.08 J	2.21 J	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	0.457 UJ	0.583 UJ	0.127 UJ	72.3 U	1.18 UJK	9.76 U	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	0.869 UJK	0.604 UJ	1.07 J	12.9 J	3.16 J	2.06 J	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	0.223 UJ	0.259 UJ	4.87 U	72.3 U	15.8 U	9.76 U	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	0.566 UJ	0.703 J	0.505 UJ	6.96 J	1.21 J	9.76 U	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	4.98 U	0.183 UJ	0.119 UJ	2.86 UJK	1.16 UJK	9.76 U	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	0.7 J	0.887 J	0.191 UJK	7.24 UJK	1.85 J	0.57 UJK	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	1.28 J	1.78 J	0.323 UJ	6.7 J	1.59 UJK	9.76 U	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	0.261 J	0.24 J	0.333 UJK	14.5 U	3.16 U	0.55 UJK	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	0.347 J	0.388 J	0.37 J	3.78 J	1.34 J	0.804 UJK	--
OCDD	NV	NA	--	--	--	--	--	120	46.4	20.8	20,400	1,340	258	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU2-06	RAU2-07	RAU2-08	RAU2-09		RAU2-GA1			RAU2-GA2			RAU3-01
Sample Name:			RAU2-06-SO-1.3	RAU2-07-SO-1.5	RAU2-08-SO-2.0	RAU2-09-SO-1.5	RAU2-09-SO-8.0	RAU2-GA1-SO-3.25	RAU2-GA1-SO-5.75	RAU2-GA1-SO-8.25	RAU2-GA2-SO-3.25	RAU2-GA2-SO-5.75	RAU2-GA2-SO-8.25	RAU3-01-SO-2.0
Collection Date:			12/2/2019	12/5/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):			1-2.5	1-2	1.5-2.5	1-2	7.5-8.5	2.5-4	5-6.5	7.5-9	2.5-4	5-6.5	7.5-9	1.5-2.5
OCDF	NV	NA	--	--	--	--	--	14.3	6 J	1.83 J	621	68.6	15.5 J	--
Total HpCDDs	NV	NA	--	--	--	--	--	34.5	13.6	8.74 J	4,730 J	284 J	62.3 UJK	--
Total HpCDFs	NV	NA	--	--	--	--	--	36.3 UJK	17.9 J	4.3 UJK	704 J	131 J	34.2	--
Total HxCDDs	NA	NA	--	--	--	--	--	12.1 UJK	10.1 UJK	7.88 UJK	435 J	37.7 J	16.2 J	--
Total HxCDFs	NV	NA	--	--	--	--	--	17 J	15.5 UJK	2.5 UJK	260 UJK	44.6 UJK	12 UJK	--
Total PeCDDs	NV	NA	--	--	--	--	--	5.48 UJK	7.36 UJK	3.52 UJK	33.9 UJK	10.6 UJK	3.41 J	--
Total PeCDFs	NV	NA	--	--	--	--	--	19.7 UJK	26.1 UJK	3.44 UJK	150 UJK	23.7 UJK	8.46 UJK	--
Total TCDDs	NV	NA	--	--	--	--	--	3.8 UJK	3.56 UJK	3.05 UJK	3.07 UJK	3.63 UJK	3.8 UJK	--
Total TCDFs	NV	NA	--	--	--	--	--	21.7 UJK	24.3 UJK	2.72 UJK	7 UJK	18.3 UJK	7.13 UJK	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	2.03 J	2.03 J	1.05 J	61.0 J	8.51 J	9.31 J	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	5	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	18	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	180	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	4,000	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	--	0.145 U	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0063	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	0.145 U	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	800	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	--	0.145 U	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	27	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	800	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	1,600	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	--	0.291 U	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	--	0.291 U	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	1,600	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	--	0.291 U	--	--	--	--	--	--	--	--	--	--
Acetone	72,000	NA	--	0.582 U	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	0.0582 U	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU2-06	RAU2-07	RAU2-08	RAU2-09		RAU2-GA1			RAU2-GA2			RAU3-01
Sample Name:			RAU2-06-SO-1.3	RAU2-07-SO-1.5	RAU2-08-SO-2.0	RAU2-09-SO-1.5	RAU2-09-SO-8.0	RAU2-GA1-SO-3.25	RAU2-GA1-SO-5.75	RAU2-GA1-SO-8.25	RAU2-GA2-SO-3.25	RAU2-GA2-SO-5.75	RAU2-GA2-SO-8.25	RAU3-01-SO-2.0
Collection Date:			12/2/2019	12/5/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):			1-2.5	1-2	1.5-2.5	1-2	7.5-8.5	2.5-4	5-6.5	7.5-9	2.5-4	5-6.5	7.5-9	1.5-2.5
Benzene	0.03	NA	--	0.00582 U	--	--	--	--	--	--	--	--	--	--
Bromobenzene	640	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	16	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	--	0.0582 U	--	--	--	--	--	--	--	--	--	--
Bromomethane	110	NA	--	0.582 U	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	8,000	NA	--	0.291 U	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	1,600	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Chloroethane	NV	NA	--	0.291 UJ	--	--	--	--	--	--	--	--	--	--
Chloroform	32	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Chloromethane	NV	NA	--	0.145 U	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	160	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	12	NA	--	0.0582 U	--	--	--	--	--	--	--	--	--	--
Dibromomethane	800	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	--	0.0582 U	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	--	0.0582 U	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	--	0.145 U	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	0.0582 U	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	8,000	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	8,000	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
Toluene	7	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	1,600	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	24,000	NA	--	0.0582 UJ	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	--	0.0145 U	--	--	--	--	--	--	--	--	--	--
Xylenes, total[e]	9	NA	--	0.0291 U	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU2-06	RAU2-07	RAU2-08	RAU2-09		RAU2-GA1			RAU2-GA2			RAU3-01
Sample Name:			RAU2-06-SO-1.3	RAU2-07-SO-1.5	RAU2-08-SO-2.0	RAU2-09-SO-1.5	RAU2-09-SO-8.0	RAU2-GA1-SO-3.25	RAU2-GA1-SO-5.75	RAU2-GA1-SO-8.25	RAU2-GA2-SO-3.25	RAU2-GA2-SO-5.75	RAU2-GA2-SO-8.25	RAU3-01-SO-2.0
Collection Date:			12/2/2019	12/5/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):			1-2.5	1-2	1.5-2.5	1-2	7.5-8.5	2.5-4	5-6.5	7.5-9	2.5-4	5-6.5	7.5-9	1.5-2.5
SVOCs (mg/kg)														
1,2,4-Trichlorobenzene	34	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
1,2-Dichlorobenzene	7,200	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
1,2-Dinitrobenzene	8	NA	0.0354 U	--	0.206 U	7.22 U	3.63 U	3.15 U	0.828 U	0.659 U	7.05 U	0.757 U	1.51 UJ	--
1,3-Dichlorobenzene	NV	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
1,3-Dinitrobenzene	8	NA	0.0354 U	--	0.206 U	7.22 U	3.63 U	3.15 U	0.828 U	0.659 U	7.05 U	0.757 U	1.51 UJ	--
1,4-Dichlorobenzene	190	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
1,4-Dinitrobenzene	8	NA	0.0354 U	--	0.206 U	7.22 U	3.63 U	3.15 U	0.828 U	0.659 U	7.05 U	0.757 U	1.51 UJ	--
1-Methylnaphthalene	34	NA	0.00284 U	0.00293 U	0.0165 U	0.579 U	0.291 U	0.253 U	0.0716 J	0.0529 U	0.566 U	0.0607 U	0.121 UJ	0.695 U
2,3,4,6-Tetrachlorophenol	2,400	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2,3,5,6-Tetrachlorophenol	NV	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2,4,5-Trichlorophenol	8,000	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2,4,6-Trichlorophenol	80	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2,4-Dichlorophenol	240	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2,4-Dimethylphenol	1,600	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2,4-Dinitrophenol	160	NA	0.0354 U	--	0.206 U	7.22 U	3.63 U	3.15 U	0.828 U	0.659 U	7.05 U	0.757 U	1.51 U	--
2,4-Dinitrotoluene	3.2	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
2,6-Dinitrotoluene	0.67	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
2-Chloronaphthalene	6,400	NA	0.00142 U	--	0.00821 U	0.289 U	0.145 U	0.126 U	0.0331 U	0.0263 U	0.282 U	0.0302 U	0.0603 UJ	--
2-Chlorophenol	400	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
2-Methylnaphthalene	320	NA	0.00284 U	0.00293 U	0.0165 U	0.579 U	0.291 U	0.253 U	0.109 J	0.0529 U	0.566 U	0.0607 U	0.121 UJ	0.695 U
2-Methylphenol	4,000	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 U	--
2-Nitroaniline	800	NA	0.0284 U	--	0.165 U	5.79 U	2.91 U	2.53 U	0.664 U	0.529 U	5.66 U	0.607 U	1.21 UJ	--
2-Nitrophenol	NV	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 U	--
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.377 J	1.29	0.841	0.705 U	0.14 J	0.229 J	--
3,3-Dichlorobenzidine	2.2	NA	0.0284 U	--	0.165 U	5.79 U	2.91 U	2.53 U	0.664 U	0.529 U	5.66 U	0.607 U	1.21 UJ	--
3-Nitroaniline	NV	NA	0.0284 U	--	0.165 U	5.79 U	2.91 U	2.53 U	0.664 U	0.529 U	5.66 U	0.607 U	1.21 UJ	--
4,6-Dinitro-2-methylphenol	6.4	NA	0.0354 U	--	0.206 U	7.22 U	3.63 U	3.15 U	0.828 U	0.659 U	7.05 U	0.757 U	1.51 U	--
4-Bromophenylphenyl ether	NV	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
4-Chloro-3-methylphenol	8,000	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 U	--
4-Chloroaniline	5	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
4-Chlorophenylphenyl ether	NV	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
4-Nitroaniline	50	NA	0.0284 U	--	0.165 U	5.79 U	2.91 U	2.53 U	0.664 U	0.529 U	5.66 U	0.607 U	1.21 UJ	--
4-Nitrophenol	NV	NA	0.0142 U	--	0.0821 U	2.89 U	2.91 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 U	--
Acenaphthene	4,800	NA	0.00142 U	0.00146 U	0.00821 U	0.289 U	0.701	0.126 U	0.0572 J	0.0263 U	0.464 J	0.0302 U	0.0603 UJ	0.346 U
Acenaphthylene	NV	NA	0.00142 U	0.00146 U	0.00821 U	0.289 U	0.145 U	0.126 U	0.191	0.0597	0.282 U	0.0302 U	0.0603 UJ	0.346 U
Aniline	180	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 UJ	--
Anthracene	24,000	NA	0.00142 U	0.00146 U	0.00821 U	0.289 U	0.479 U	0.126 U	0.0813	0.0263 U	0.718	0.0302 U	0.0603 UJ	0.346 U
Azobenzene	9.1	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Benzo(a)anthracene	NV	NA	0.00142 U	0.00146 U	0.018	0.579 U	0.291 U	0.192 J	0.0672	0.0263 U	2.05	0.0419 J	0.0603 UJ	0.346 U

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU2-06	RAU2-07	RAU2-08	RAU2-09		RAU2-GA1			RAU2-GA2			RAU3-01
Sample Name:			RAU2-06-SO-1.3	RAU2-07-SO-1.5	RAU2-08-SO-2.0	RAU2-09-SO-1.5	RAU2-09-SO-8.0	RAU2-GA1-SO-3.25	RAU2-GA1-SO-5.75	RAU2-GA1-SO-8.25	RAU2-GA2-SO-3.25	RAU2-GA2-SO-5.75	RAU2-GA2-SO-8.25	RAU3-01-SO-2.0
Collection Date:			12/2/2019	12/5/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):			1-2.5	1-2	1.5-2.5	1-2	7.5-8.5	2.5-4	5-6.5	7.5-9	2.5-4	5-6.5	7.5-9	1.5-2.5
Benzo(a)pyrene	NA	NA	0.00213 U	0.00233 J	0.0353	0.528 J	0.566 U	0.398	0.0949 J	0.0422 J	3.23	0.069 J	0.0916 J	1.04 U
Benzo(b)fluoranthene	NV	NA	0.00213 U	0.00219 U	0.0351	0.485 J	0.653 U	0.391	0.107	0.0396 U	3.33	0.075 J	0.0907 UJ	0.521 U
Benzo(ghi)perylene	NV	NA	0.00142 U	0.00146 U	0.0152 J	0.289 U	0.348 U	0.26	0.0639 J	0.0263 U	1.6	0.0302 U	0.0603 UJ	0.346 U
Benzo(k)fluoranthene	NV	NA	0.00213 U	0.00219 U	0.0208 J	0.434 U	0.436 U	0.242 J	0.0537 J	0.0396 U	1.34 J	0.0455 U	0.0907 UJ	0.521 U
Benzoic acid	320,000	NA	0.178 U	--	1.03 U	36.2 U	18.2 U	15.8 U	4.15 U	3.31 U	35.4 U	3.8 U	7.57 U	--
Benzyl alcohol	8,000	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 U	--
Bis(2-chloro-1-methylethyl)ether	14	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Bis(2-chloroethoxy)methane	240	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Bis(2-chloroethyl)ether	0.91	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.218 U	0.705 U	0.0757 U	0.151 UJ	--
Bis(2-ethylhexyl)phthalate	71	NA	0.0213 U	--	0.123 U	4.34 U	2.18 U	1.89 U	0.498 U	0.396 U	4.24 U	0.455 U	0.907 UJ	--
Butylbenzylphthalate	530	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
Carbazole	NV	NA	0.00213 U	0.00219 U	0.0123 U	0.434 U	0.436 U	0.189 U	0.0498 U	0.0396 U	0.475 J	0.0455 U	0.0907 UJ	0.521 U
Chrysene	NV	NA	0.00142 U	0.00146 U	0.0215	0.579 U	1.34 U	0.23 J	0.0669	0.0263 U	2.46	0.048 J	0.0603 UJ	0.346 U
Di(2-ethylhexyl)adipate	830	NA	0.0354 U	--	0.206 U	7.22 U	3.63 U	3.15 U	0.828 U	0.659 U	7.05 U	0.757 U	1.51 UJ	--
Dibenzo(a,h)anthracene	NV	NA	0.00142 U	0.00146 U	0.00821 U	0.289 U	0.291 U	0.126 U	0.0331 U	0.0263 U	0.466 J	0.0302 U	0.0603 UJ	0.346 U
Dibenzofuran	80	NA	0.00142 U	0.00146 U	0.00821 U	0.289 U	0.329	0.126 U	0.0715	0.0263 U	0.282 U	0.0302 U	0.0603 UJ	0.346 U
Diethyl phthalate	64,000	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
Dimethyl phthalate	NV	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
Di-n-butyl phthalate	8,000	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
Di-n-octyl phthalate	800	NA	0.0142 U	--	0.0821 U	2.89 U	2.91 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
Fluoranthene	3,200	NA	0.00142 U	0.00146 U	0.0219	0.289 U	0.145 U	0.614	0.241	0.0556	3.45	0.0391 J	0.0603 UJ	0.346 U
Fluorene	3,200	NA	0.00142 U	0.00146 U	0.00821 U	0.289 U	0.574	0.126 U	0.0868	0.0263 U	0.344 J	0.0302 U	0.0603 UJ	0.346 U
Hexachlorobenzene	0.63	NA	0.00142 U	--	0.00821 U	0.289 U	0.145 U	0.126 U	0.0331 U	0.0263 U	0.282 U	0.0302 U	0.0603 UJ	--
Hexachlorobutadiene	13	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Hexachlorocyclopentadiene	480	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 UJ	--
Hexachloroethane	25	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Indeno(1,2,3-cd)pyrene	NV	NA	0.00142 U	0.00146 U	0.0177	0.289 U	0.291 U	0.217 J	0.0574 J	0.0263 U	1.73	0.0302 U	0.0603 UJ	0.346 U
Isophorone	1,100	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Naphthalene	5	NA	0.00876	0.00293 U	0.0209 J	0.579 U	0.291 U	0.366 J	0.598	0.174	0.673 J	0.0769 J	0.121 UJ	0.695 U
Nitrobenzene	160	NA	0.0142 U	--	0.0821 U	2.89 U	1.45 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 UJ	--
N-Nitrosodimethylamine	0.0037	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
N-Nitrosodiphenylamine	200	NA	0.00354 U	--	0.0206 U	0.722 U	1.96 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
N-Nitrosodipropylamine	0.14	NA	0.00354 U	--	0.0206 U	0.722 U	0.363 U	0.315 U	0.0828 U	0.0659 U	0.705 U	0.0757 U	0.151 UJ	--
Pentachlorophenol	2.5	NA	0.0142 U	--	0.0821 U	2.89 U	2.91 U	1.26 U	0.331 U	0.263 U	2.82 U	0.302 U	0.603 U	--
Phenanthrene	NV	NA	0.00211 J	0.00273 J	0.00999 J	0.289 U	0.754	0.489	0.363	0.0784	2.51	0.0511 J	0.0603 UJ	0.346 U
Phenol	24,000	NA	0.00284 U	--	0.0165 U	0.579 U	0.291 U	0.253 U	0.0967 J	0.0529 U	0.566 U	0.095 J	0.121 U	--
Pyrene	2,400	NA	0.00142 U	0.00154 J	0.0291	0.289 U	1.08	0.71	0.243	0.0555	3.62	0.0463 J	0.0603 UJ	0.346 U
Pyridine	80	NA	0.0071 U	--	0.0412 U	1.45 U	0.726 U	0.631 U	0.166 U	0.132 U	1.41 U	0.152 U	0.302 UJ	--
cPAH TEQ[f][5]	0.1	NA	0.00213 U	0.00278 J	0.0451 J	0.659 J	1.34 U	0.511 J	0.126 J	0.0502 J	4.15 J	0.0865 J	0.110 J	1.04 U

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU2-06	RAU2-07	RAU2-08	RAU2-09		RAU2-GA1			RAU2-GA2			RAU3-01
Sample Name:			RAU2-06-SO-1.3	RAU2-07-SO-1.5	RAU2-08-SO-2.0	RAU2-09-SO-1.5	RAU2-09-SO-8.0	RAU2-GA1-SO-3.25	RAU2-GA1-SO-5.75	RAU2-GA1-SO-8.25	RAU2-GA2-SO-3.25	RAU2-GA2-SO-5.75	RAU2-GA2-SO-8.25	RAU3-01-SO-2.0
Collection Date:			12/2/2019	12/5/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):			1-2.5	1-2	1.5-2.5	1-2	7.5-8.5	2.5-4	5-6.5	7.5-9	2.5-4	5-6.5	7.5-9	1.5-2.5
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	11.1 U	10.9 U	12.5 U	443 U	664 U	--	--	--	--	--	--	1,060 U
Lube Oil-Range Hydrocarbons	2,000	NA	22.1 U	21.8 U	60.6	3,190	37,200	--	--	--	--	--	--	8,070
Diesel+Oil[g]	2,000	NA	22.1	21.8	66.9	3,410	37,500	--	--	--	--	--	--	8,600
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[g]	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (mg/kg)														
Total Organic Carbon	NV	NV	--	--	--	--	--	86,000	110,000	72,000	400,000	500,000	270,000	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU3-02	RAU3-03	RAU3-04		RAU3-05		RAU3-06	RAU3-07		RAU4-01	RAU4-02	RAU4-03
Sample Name:			RAU3-02-SO-2.5	RAU3-03-SO-2.5	RAU3-04-SO-2.5	RAU3-04-SO-6.5	RAU3-05-SO-1.6	RAU3-05-SO-3	RAU3-06-SO-3	RAU3-07-SO-2.0	RAU3-07-SO-6.0	RAU4-01-SO-2	RAU4-02-SO-2.5	RAU4-03-SO-1.2
Collection Date:			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019	12/3/2019	12/4/2019
Collection Depth (ft bgs):			2-3	2-3	2-3	6-7	1.2-2	2-4	2-4	1.5-2.5	5.5-6.5	1.5-2.5	2-3	1-1.5
Total Metals (mg/kg)														
Arsenic	20	8.47	3.29	0.998 J	5.87	6.6	2.01	--	1.57	1.96	2.46	1.78	1.24	2.47
Cadmium	2	0.1	0.206 J	0.113 U	0.119 U	0.217 U	0.135 J	--	0.109 U	0.149 U	0.138 U	0.112 U	0.123 U	0.125 U
Chromium	2,000[b]	78.5	21.3	31.8	18	36.2	35.5	--	32.5	36	63.1	32.1	10.7	35
Chromium, hexavalent	19	NV	--	--	--	--	--	--	--	0.622 J	1.11 U	--	--	0.222 U
Copper	3,200	52.9	55.8	58.5	41.3	44.5	86.1	--	37.9	46.9	51	67.1	18.2	61.4
Lead	250	10.9	5.37	3.31	36	7.37	14.1	--	3.74	5.03	3.71	4.57	3.7	6.12
Manganese	3,700	691.8	534	370	394	273	566	--	255	450	506	715	326	454
Mercury	2	NV	0.0442 U	0.0453 U	0.0475 U	0.087 U	0.0956	--	0.0436 U	0.0596 U	0.0553 U	0.0447 U	0.0492 U	0.0502 U
Nickel	1,600	54.2	32.8	24.6	21.6	22.7	40.9	--	24.3	29.2	34.1	34.8	7.28	29
Zinc	24,000	85.6	86	37.6	34	70	65.9	--	37	45	45.4	52.4	45.9	60.2
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	--	--	0.00208 U	--	0.002 UJ	--	--	--	--	--
Aroclor 1221	NV	NA	--	--	--	--	0.00208 U	--	0.002 UJ	--	--	--	--	--
Aroclor 1232	NV	NA	--	--	--	--	0.00208 U	--	0.002 UJ	--	--	--	--	--
Aroclor 1242	NV	NA	--	--	--	--	0.00208 U	--	0.002 UJ	--	--	--	--	--
Aroclor 1248	NV	NA	--	--	--	--	0.00208 U	--	0.002 UJ	--	--	--	--	--
Aroclor 1254	NA	NA	--	--	--	--	0.0327 J	--	0.002 U	--	--	--	--	--
Aroclor 1260	NA	NA	--	--	--	--	0.00887 J	--	0.002 U	--	--	--	--	--
Total PCBs[c]	1	NA	--	--	--	--	0.042 J	--	0.002 UJ	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU3-02	RAU3-03	RAU3-04		RAU3-05		RAU3-06	RAU3-07		RAU4-01	RAU4-02	RAU4-03
Sample Name:			RAU3-02-SO-2.5	RAU3-03-SO-2.5	RAU3-04-SO-2.5	RAU3-04-SO-6.5	RAU3-05-SO-1.6	RAU3-05-SO-3	RAU3-06-SO-3	RAU3-07-SO-2.0	RAU3-07-SO-6.0	RAU4-01-SO-2	RAU4-02-SO-2.5	RAU4-03-SO-1.2
Collection Date:			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019	12/3/2019	12/4/2019
Collection Depth (ft bgs):			2-3	2-3	2-3	6-7	1.2-2	2-4	2-4	1.5-2.5	5.5-6.5	1.5-2.5	2-3	1-1.5
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,1,1-Trichloroethane	2	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,1,2,2-Tetrachloroethane	5	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,1,2-Trichloroethane	18	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,1-Dichloroethane	180	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,1-Dichloroethene	4,000	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,2,3-Trichlorobenzene	64	NA	--	--	--	--	--	--	--	--	--	0.142 U	0.144 U	--
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	0.142 U	0.144 U	--
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,2-Dibromo-3-chloropropane	0.23	NA	--	--	--	--	--	--	--	--	--	0.142 U	0.144 U	--
1,2-Dibromoethane	0.005	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,2-Dichloroethane	11	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,2-Dichloropropane	27	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
2-Butanone	48,000	NA	--	--	--	--	--	--	--	--	--	0.283 U	0.289 U	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
2-Hexanone	400	NA	--	--	--	--	--	--	--	--	--	0.283 U	0.289 U	--
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
4-Methyl-2-pentanone	6,400	NA	--	--	--	--	--	--	--	--	--	0.283 U	0.289 U	--
Acetone	72,000	NA	--	--	--	--	--	--	--	--	--	0.567 U	0.577 U	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	0.0567 U	0.0577 U	--

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Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU3-02	RAU3-03	RAU3-04		RAU3-05		RAU3-06	RAU3-07		RAU4-01	RAU4-02	RAU4-03
Sample Name:			RAU3-02-SO-2.5	RAU3-03-SO-2.5	RAU3-04-SO-2.5	RAU3-04-SO-6.5	RAU3-05-SO-1.6	RAU3-05-SO-3	RAU3-06-SO-3	RAU3-07-SO-2.0	RAU3-07-SO-6.0	RAU4-01-SO-2	RAU4-02-SO-2.5	RAU4-03-SO-1.2
Collection Date:			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019	12/3/2019	12/4/2019
Collection Depth (ft bgs):			2-3	2-3	2-3	6-7	1.2-2	2-4	2-4	1.5-2.5	5.5-6.5	1.5-2.5	2-3	1-1.5
Benzene	0.03	NA	--	--	--	--	0.0082 J	--	0.00541 U	--	--	0.00567 U	0.00577 U	--
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
Bromodichloromethane	16	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Bromoform	130	NA	--	--	--	--	--	--	--	--	--	0.0567 U	0.0577 U	--
Bromomethane	110	NA	--	--	--	--	--	--	--	--	--	0.567 U	0.577 U	--
Carbon disulfide	8,000	NA	--	--	--	--	--	--	--	--	--	0.283 U	0.289 U	--
Carbon tetrachloride	14	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Chlorobenzene	1,600	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
Chlorobromomethane	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Chloroethane	NV	NA	--	--	--	--	--	--	--	--	--	0.283 UJ	0.289 UJ	--
Chloroform	32	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Chloromethane	NV	NA	--	--	--	--	--	--	--	--	--	0.142 UJ	0.144 UJ	--
cis-1,2-Dichloroethene	160	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
cis-1,3-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Dibromochloromethane	12	NA	--	--	--	--	--	--	--	--	--	0.0567 U	0.0577 U	--
Dibromomethane	800	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	--	--	--	--	--	--	--	--	--	0.0567 UJ	0.0577 UJ	--
Ethylbenzene	6	NA	--	--	--	--	0.0961		0.0135 U			0.0142 U	0.0144 U	
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	0.0567 U	0.0577 U	--
Isopropylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
m,p-Xylene	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Methyl tert-butyl ether	0.1	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Methylene chloride	0.02	NA	--	--	--	--	--	--	--	--	--	0.142 U	0.144 U	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	0.0567 U	0.0577 U	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
o-Xylene	16,000	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Styrene	16,000	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Tetrachloroethene	0.05	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
Toluene	7	NA	--	--	--	--	0.118		0.027 U			0.0283 U	0.0368 J	
trans-1,2-Dichloroethene	1,600	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
trans-1,3-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	0.0283 U	0.0289 U	--
Trichloroethene	0.03	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
Trichlorofluoromethane (Freon 11)	24,000	NA	--	--	--	--	--	--	--	--	--	0.0567 U	0.0577 U	--
Vinyl chloride	0.67	NA	--	--	--	--	--	--	--	--	--	0.0142 U	0.0144 U	--
Xylenes, total[e]	9	NA	--	--	--	--	0.794	--	0.0405 U	--	--	0.0283 U	0.0289 U	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU3-02	RAU3-03	RAU3-04		RAU3-05		RAU3-06	RAU3-07		RAU4-01	RAU4-02	RAU4-03
Sample Name:			RAU3-02-SO-2.5	RAU3-03-SO-2.5	RAU3-04-SO-2.5	RAU3-04-SO-6.5	RAU3-05-SO-1.6	RAU3-05-SO-3	RAU3-06-SO-3	RAU3-07-SO-2.0	RAU3-07-SO-6.0	RAU4-01-SO-2	RAU4-02-SO-2.5	RAU4-03-SO-1.2
Collection Date:			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019	12/3/2019	12/4/2019
Collection Depth (ft bgs):			2-3	2-3	2-3	6-7	1.2-2	2-4	2-4	1.5-2.5	5.5-6.5	1.5-2.5	2-3	1-1.5
SVOCs (mg/kg)														
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	34	NA	0.0563 U	--	--	--	0.195 J	--	0.272 U	--	--	0.00468 J	0.0147 U	--
2,3,4,6-Tetrachlorophenol	2,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	80	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	240	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	160	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	3.2	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.67	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	6,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	320	NA	0.0563 U	--	--	--	0.445	--	0.272 U	--	--	0.0083	0.0147 U	--
2-Methylphenol	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	6.4	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	50	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	4,800	NA	0.028 U	--	--	--	0.0543 U	--	0.136 U	--	--	0.00272 J	0.00731 U	--
Acenaphthylene	NV	NA	0.028 U	--	--	--	0.0543 U	--	0.136 U	--	--	0.0102	0.00731 U	--
Aniline	180	NA	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	24,000	NA	0.028 U	--	--	--	0.0543 U	--	0.136 U	--	--	0.00303	0.00731 U	--
Azobenzene	9.1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NA	0.0984	--	--	--	0.0543 U	--	0.136 U	--	--	0.00357	0.00807 J	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU3-02	RAU3-03	RAU3-04		RAU3-05		RAU3-06	RAU3-07		RAU4-01	RAU4-02	RAU4-03
Sample Name:			RAU3-02-SO-2.5	RAU3-03-SO-2.5	RAU3-04-SO-2.5	RAU3-04-SO-6.5	RAU3-05-SO-1.6	RAU3-05-SO-3	RAU3-06-SO-3	RAU3-07-SO-2.0	RAU3-07-SO-6.0	RAU4-01-SO-2	RAU4-02-SO-2.5	RAU4-03-SO-1.2
Collection Date:			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019	12/3/2019	12/4/2019
Collection Depth (ft bgs):			2-3	2-3	2-3	6-7	1.2-2	2-4	2-4	1.5-2.5	5.5-6.5	1.5-2.5	2-3	1-1.5
Benzo(a)pyrene	NA	NA	0.128	--	--	--	0.106 J	--	0.408 U	--	--	0.00707	0.0142 J	--
Benzo(b)fluoranthene	NV	NA	0.218	--	--	--	0.0898 J	--	0.204 U	--	--	0.00716	0.0158 J	--
Benzo(ghi)perylene	NV	NA	0.124	--	--	--	0.0543 U	--	0.136 U	--	--	0.00414	0.0146 U	--
Benzo(k)fluoranthene	NV	NA	0.114 J	--	--	--	0.0817 U	--	0.204 U	--	--	0.00313 J	0.011 U	--
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	240	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	0.91	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	71	NA	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	530	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NV	NA	0.0422 U	--	--	--	0.0817 U	--	0.204 U	--	--	0.00217 U	0.011 U	--
Chrysene	NV	NA	0.121	--	--	--	0.0555 J	--	0.136 U	--	--	0.00453	0.0104 J	--
Di(2-ethylhexyl)adipate	830	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NA	0.0337 J	--	--	--	0.0543 U	--	0.136 U	--	--	0.00145 U	0.0146 U	--
Dibenzofuran	80	NA	0.028 U	--	--	--	0.0543 U	--	0.136 U	--	--		0.00731 U	--
Diethyl phthalate	64,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	3,200	NA	0.126	--	--	--	0.0574 J	--	0.136 U	--	--	0.015	0.0167	--
Fluorene	3,200	NA	0.028 U	--	--	--	0.0543 U	--	0.136 U	--	--	0.00344	0.00731 U	--
Hexachlorobenzene	0.63	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	480	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	25	NA	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NA	0.118	--	--	--	0.0543 U	--	0.136 U	--	--	0.00372	0.0146 U	--
Isophorone	1,100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	0.0563 U	--	--	--	0.272	--	0.272 U	--	--	0.043	0.0154 J	--
Nitrobenzene	160	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	0.0037	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	200	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	0.14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	2.5	NA	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	NA	0.048 J	--	--	--	0.0881 J	--	0.136 U	--	--	0.0231	0.0153	--
Phenol	24,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	2,400	NA	0.111	--	--	--	0.0797 J	--	0.136 U	--	--	0.0145	0.0204	--
Pyridine	80	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	0.187 J	--	--	--	0.128 J	--	0.408 U	--	--	0.00895 J	0.0187 J	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU3-02	RAU3-03	RAU3-04		RAU3-05		RAU3-06	RAU3-07		RAU4-01	RAU4-02	RAU4-03
Sample Name:			RAU3-02-SO-2.5	RAU3-03-SO-2.5	RAU3-04-SO-2.5	RAU3-04-SO-6.5	RAU3-05-SO-1.6	RAU3-05-SO-3	RAU3-06-SO-3	RAU3-07-SO-2.0	RAU3-07-SO-6.0	RAU4-01-SO-2	RAU4-02-SO-2.5	RAU4-03-SO-1.2
Collection Date:			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019	12/3/2019	12/4/2019
Collection Depth (ft bgs):			2-3	2-3	2-3	6-7	1.2-2	2-4	2-4	1.5-2.5	5.5-6.5	1.5-2.5	2-3	1-1.5
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND
Diesel	NA	NA	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND
Lube Oil	NA	NA	--	ND	ND	ND	DETECT	ND	DETECT	ND	ND	--	--	ND
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	10.6 U	--	--	--	10.1 U	--	104 U	--	--	13.3 J	10.6 U	--
Lube Oil-Range Hydrocarbons	2,000	NA	357	--	--	--	949	--	1,780	--	--	22 U	160	--
Diesel+Oil[g]	2,000	NA	362	--	--	--	954	--	1,830	--	--	24.3	165	--
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[g]	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (mg/kg)														
Total Organic Carbon	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-03	RAU4-04	RAU4-05		RAU4-06	RAU4-07	RAU4-08		RAU4-09	RAU4-10	RAU4-11	RAU4-12
Sample Name:			RAU4-03-SO-14.5	RAU4-04-SO-3.45	RAU4-05-SO-1.75	RAU4-05-SO-1.75-DUP	RAU4-06-SO-1.5	RAU4-07-SO-3.5	RAU4-08-SO-1.75	RAU4-08-SO-1.75-DUP	RAU4-09-SO-2.5	RAU4-10-SO-3.0	RAU4-11-SO-2.5	RAU4-12-SO-2.4
Collection Date:			12/4/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019
Collection Depth (ft bgs):			14-15	2.7-4.2	1-2.5	1-2.5	1-2	3-4	1-2.5	1-2.5	2-3	2.5-3.5	2-3	2-2.8
Total Metals (mg/kg)														
Arsenic	20	8.47	7.66	1.49	1.02 J	0.923 J	1.09 J	1.94	1.02 J	0.801 J	1.83	1.58	1.63	1.1 J
Cadmium	2	0.1	0.187 U	0.116 U	0.124 U	0.118 U	0.127 U	0.228 J	0.108 U	0.103 U	0.118 U	0.132 U	0.119 U	0.119 U
Chromium	2,000[b]	78.5	37.9	20.4	33.4	27.6	35.2	93.2	17.8	15.1	8.89	31.2	15.9	16.8
Chromium, hexavalent	19	NV	1.26 J	--	--	--	--	--	--	--	--	--	--	--
Copper	3,200	52.9	57.9	29.8	60.2	53.4	72.4	78.3	66.1	61.3	17.1	37.1	38.5	26.5
Lead	250	10.9	6.95	3.5	3.01	3.25	3.84	2.42	1.17	0.958	2.89	2.63	2.13	3.61
Manganese	3,700	691.8	299	278	347	375	349	1210	392	291	668	286	525	147
Mercury	2	NV	0.0748 U	0.0465 U	0.0506 J	0.0473 U	0.0508 U	0.055 U	0.0433 U	0.0411 U	0.0473 U	0.0527 U	0.0475 U	0.0477 U
Nickel	1,600	54.2	28.4	17.8	26.4	24.4	37.9	51.2	27.1	22.9	7.82	23.2	18.3	14.5
Zinc	24,000	85.6	73.2	112	41.8	40	57.6	82.1	36.9	28.9	56.3	56.2	47	30.8
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Aroclor 1221	NV	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Aroclor 1232	NV	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Aroclor 1242	NV	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Aroclor 1248	NV	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Aroclor 1254	NA	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Aroclor 1260	NA	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Total PCBs[c]	1	NA	--	0.00217 U	0.00209 U	0.00214 U	0.00232 U	--	0.00481 U	0.0049 U	--	--	0.00204 U	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-03	RAU4-04	RAU4-05		RAU4-06	RAU4-07	RAU4-08		RAU4-09	RAU4-10	RAU4-11	RAU4-12
Sample Name:			RAU4-03-SO-14.5	RAU4-04-SO-3.45	RAU4-05-SO-1.75	RAU4-05-SO-1.75-DUP	RAU4-06-SO-1.5	RAU4-07-SO-3.5	RAU4-08-SO-1.75	RAU4-08-SO-1.75-DUP	RAU4-09-SO-2.5	RAU4-10-SO-3.0	RAU4-11-SO-2.5	RAU4-12-SO-2.4
Collection Date:			12/4/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019
Collection Depth (ft bgs):			14-15	2.7-4.2	1-2.5	1-2.5	1-2	3-4	1-2.5	1-2.5	2-3	2.5-3.5	2-3	2-2.8
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
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	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	27	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	72,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-03	RAU4-04	RAU4-05		RAU4-06	RAU4-07	RAU4-08		RAU4-09	RAU4-10	RAU4-11	RAU4-12
Sample Name:			RAU4-03-SO-14.5	RAU4-04-SO-3.45	RAU4-05-SO-1.75	RAU4-05-SO-1.75-DUP	RAU4-06-SO-1.5	RAU4-07-SO-3.5	RAU4-08-SO-1.75	RAU4-08-SO-1.75-DUP	RAU4-09-SO-2.5	RAU4-10-SO-3.0	RAU4-11-SO-2.5	RAU4-12-SO-2.4
Collection Date:			12/4/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019
Collection Depth (ft bgs):			14-15	2.7-4.2	1-2.5	1-2.5	1-2	3-4	1-2.5	1-2.5	2-3	2.5-3.5	2-3	2-2.8
Benzene	0.03	NA	--	--	--	--	0.0053 U	--	0.00644 U	0.00639 U	--	--	0.00518 U	--
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	16	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	110	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	1,600	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 (Freon 12)	16,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA					0.0133 U		0.0161 U	0.016 U			0.013 U	
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	7	NA					0.0265 U		0.0322 U	0.0319 U			0.0259 U	
trans-1,2-Dichloroethene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	24,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes, total[e]	9	NA	--	--	--	--	0.0398 U	--	0.0483 U	0.0479 U	--	--	0.0389 U	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-03	RAU4-04	RAU4-05		RAU4-06	RAU4-07	RAU4-08		RAU4-09	RAU4-10	RAU4-11	RAU4-12
Sample Name:			RAU4-03-SO-14.5	RAU4-04-SO-3.45	RAU4-05-SO-1.75	RAU4-05-SO-1.75-DUP	RAU4-06-SO-1.5	RAU4-07-SO-3.5	RAU4-08-SO-1.75	RAU4-08-SO-1.75-DUP	RAU4-09-SO-2.5	RAU4-10-SO-3.0	RAU4-11-SO-2.5	RAU4-12-SO-2.4
Collection Date:			12/4/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019
Collection Depth (ft bgs):			14-15	2.7-4.2	1-2.5	1-2.5	1-2	3-4	1-2.5	1-2.5	2-3	2.5-3.5	2-3	2-2.8
SVOCs (mg/kg)														
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	34	NA	--	0.0606 U	0.113 U	0.121 U	0.119 U	--	0.523 U	0.548 U	--	--	0.108 U	--
2,3,4,6-Tetrachlorophenol	2,400	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2,3,5,6-Tetrachlorophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2,4,5-Trichlorophenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2,4,6-Trichlorophenol	80	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2,4-Dichlorophenol	240	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2,4-Dimethylphenol	1,600	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2,4-Dinitrophenol	160	NA	--	--	--	--	--	--	--	--	--	--	1.35 U	--
2,4-Dinitrotoluene	3.2	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.67	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	6,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	400	NA	--	--	--	--	--	--	--	--	--	--	0.269 U	--
2-Methylnaphthalene	320	NA	--	0.0606 U	0.113 U	0.121 U	0.119 U	--	0.523 U	0.548 U	--	--	0.108 U	--
2-Methylphenol	4,000	NA	--	--	--	--	--	--	--	--	--	--	0.135 U	--
2-Nitroaniline	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	0.135 U	--
3,3-Dichlorobenzidine	2.2	NA	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	6.4	NA	--	--	--	--	--	--	--	--	--	--	1.35 U	--
4-Bromophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
4-Chloroaniline	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	50	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Acenaphthene	4,800	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Acenaphthylene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Aniline	180	NA	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	24,000	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Azobenzene	9.1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0729 J	--	0.261 U	0.548 U	--	--	0.0537 U	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-03	RAU4-04	RAU4-05		RAU4-06	RAU4-07	RAU4-08		RAU4-09	RAU4-10	RAU4-11	RAU4-12
Sample Name:			RAU4-03-SO-14.5	RAU4-04-SO-3.45	RAU4-05-SO-1.75	RAU4-05-SO-1.75-DUP	RAU4-06-SO-1.5	RAU4-07-SO-3.5	RAU4-08-SO-1.75	RAU4-08-SO-1.75-DUP	RAU4-09-SO-2.5	RAU4-10-SO-3.0	RAU4-11-SO-2.5	RAU4-12-SO-2.4
Collection Date:			12/4/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019
Collection Depth (ft bgs):			14-15	2.7-4.2	1-2.5	1-2.5	1-2	3-4	1-2.5	1-2.5	2-3	2.5-3.5	2-3	2-2.8
Benzo(a)pyrene	NA	NA	--	0.0454 U	0.0847 U	0.0904 U	0.0891 U	--	0.392 U	0.41 U	--	--	0.0808 U	--
Benzo(b)fluoranthene	NV	NA	--	0.0454 U	0.0847 U	0.0904 U	0.0891 U	--	0.392 U	0.41 U	--	--	0.0808 U	--
Benzo(ghi)perylene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Benzo(k)fluoranthene	NV	NA	--	0.0454 U	0.0847 U	0.0904 U	0.0891 U	--	0.392 U	0.41 U	--	--	0.0808 U	--
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	240	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	0.91	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	71	NA	--	--	--	--	--	--	--	--	--	--	0.808 U	--
Butylbenzylphthalate	530	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Carbazole	NV	NA	--	0.0454 U	0.0847 U	0.0904 U	0.0891 U	--	0.392 U	0.41 U	--	--	0.0808 U	--
Chrysene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0675 J	--	0.261 U	0.273 U	--	--	0.0537 U	--
Di(2-ethylhexyl)adipate	830	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Dibenzofuran	80	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Diethyl phthalate	64,000	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Dimethyl phthalate	NV	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Di-n-butyl phthalate	8,000	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Di-n-octyl phthalate	800	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Fluoranthene	3,200	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0645 J	--	0.261 U	0.273 U	--	--	0.0537 U	--
Fluorene	3,200	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0595 J	--	0.261 U	0.273 U	--	--	0.0537 U	--
Hexachlorobenzene	0.63	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	480	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	25	NA	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.0593 U	--	0.261 U	0.273 U	--	--	0.0537 U	--
Isophorone	1,100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	0.0606 U	0.113 U	0.121 U	0.119 U	--	0.523 U	0.548 U	--	--	0.108 U	--
Nitrobenzene	160	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	0.0037	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	200	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	0.14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	2.5	NA	--	--	--	--	--	--	--	--	--	--	0.537 U	--
Phenanthrene	NV	NA	--	0.0302 U	0.0564 U	0.0601 U	0.255	--	0.261 U	0.364 J	--	--	0.0582 J	--
Phenol	24,000	NA	--	--	--	--	--	--	--	--	--	--	0.108 U	--
Pyrene	2,400	NA	--	0.0302 U	0.0564 U	0.0601 U	0.109 J	--	0.261 U	0.273 U	--	--	0.0537 U	--
Pyridine	80	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	--	0.0454 U	0.0847 U	0.0904 U	0.0674 J	--	0.392 U	0.548 U	--	--	0.0808 U	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-03	RAU4-04	RAU4-05		RAU4-06	RAU4-07	RAU4-08		RAU4-09	RAU4-10	RAU4-11	RAU4-12
Sample Name:			RAU4-03-SO-14.5	RAU4-04-SO-3.45	RAU4-05-SO-1.75	RAU4-05-SO-1.75-DUP	RAU4-06-SO-1.5	RAU4-07-SO-3.5	RAU4-08-SO-1.75	RAU4-08-SO-1.75-DUP	RAU4-09-SO-2.5	RAU4-10-SO-3.0	RAU4-11-SO-2.5	RAU4-12-SO-2.4
Collection Date:			12/4/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019
Collection Depth (ft bgs):			14-15	2.7-4.2	1-2.5	1-2.5	1-2	3-4	1-2.5	1-2.5	2-3	2.5-3.5	2-3	2-2.8
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Diesel	NA	NA	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Lube Oil	NA	NA	ND	--	--	--	DETECT	ND	DETECT	DETECT	ND	ND	DETECT	ND
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	--	11.5 U	206 U	10.9 U	113 U	--	508 U	488 U	--	--	9.99 U	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	427	3,130	2,590	4,640	--	4,400	4,850	--	--	377	--
Diesel+Oil[g]	2,000	NA	--	433	3,230	2,600	4,700	--	4,650	5,090	--	--	382	--
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[g]	2,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (mg/kg)														
Total Organic Carbon	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU4-21	RAU5-01	RAU5-02
Sample Name:			RAU4-13-SO-4.5	RAU4-14-SO-3.5	RAU4-15-SO-3	RAU4-16-SO-3	RAU4-17-SO-2.5	RAU4-18-SO-3	RAU4-19-SO-2.5	RAU4-20-SO-2.5	RAU4-21-SO-3.5	RAU4-21-SO-11	RAU5-01-SO-4.5	RAU5-02-SO-2
Collection Date:			7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	12/3/2019
Collection Depth (ft bgs):			4-5	3-4	2.5-3.5	2.5-3.5	2-3	2.5-3.5	2-3	2-3	3-4	10.5-11.5	4-5	1.5-2.5
Total Metals (mg/kg)														
Arsenic	20	8.47	--	--	--	--	--	--	--	--	--	--	4.3	1.98
Cadmium	2	0.1	--	--	--	--	--	--	--	--	--	--	0.127 J	0.12 U
Chromium	2,000[b]	78.5	--	--	--	--	--	--	--	--	--	--	28.6	30.9
Chromium, hexavalent	19	NV	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,200	52.9	--	--	--	--	--	--	--	--	--	--	37.8	29.1
Lead	250	10.9	--	--	--	--	--	--	--	--	--	--	12.4	4.63
Manganese	3,700	691.8	--	--	--	--	--	--	--	--	--	--	267	226
Mercury	2	NV	--	--	--	--	--	--	--	--	--	--	0.049 U	0.0481 U
Nickel	1,600	54.2	--	--	--	--	--	--	--	--	--	--	18.9	24.5
Zinc	24,000	85.6	--	--	--	--	--	--	--	--	--	--	58.4	39.3
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0109 U
Aroclor 1221	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0109 U
Aroclor 1232	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0109 U
Aroclor 1242	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0109 U
Aroclor 1248	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0109 U
Aroclor 1254	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0109 U
Aroclor 1260	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.667
Total PCBs[c]	1	NA	--	--	--	--	--	--	--	--	--	--	--	0.667
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU4-21	RAU5-01	RAU5-02
Sample Name:			RAU4-13-SO-4.5	RAU4-14-SO-3.5	RAU4-15-SO-3	RAU4-16-SO-3	RAU4-17-SO-2.5	RAU4-18-SO-3	RAU4-19-SO-2.5	RAU4-20-SO-2.5	RAU4-21-SO-3.5	RAU4-21-SO-11	RAU5-01-SO-4.5	RAU5-02-SO-2
Collection Date:			7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	12/3/2019
Collection Depth (ft bgs):			4-5	3-4	2.5-3.5	2.5-3.5	2-3	2.5-3.5	2-3	2-3	3-4	10.5-11.5	4-5	1.5-2.5
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
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	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	27	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	72,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU4-21	RAU5-01	RAU5-02
Sample Name:			RAU4-13-SO-4.5	RAU4-14-SO-3.5	RAU4-15-SO-3	RAU4-16-SO-3	RAU4-17-SO-2.5	RAU4-18-SO-3	RAU4-19-SO-2.5	RAU4-20-SO-2.5	RAU4-21-SO-3.5	RAU4-21-SO-11	RAU5-01-SO-4.5	RAU5-02-SO-2
Collection Date:			7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	12/3/2019
Collection Depth (ft bgs):			4-5	3-4	2.5-3.5	2.5-3.5	2-3	2.5-3.5	2-3	2-3	3-4	10.5-11.5	4-5	1.5-2.5
Benzene	0.03	NA	--	--	--	--	--	--	--	--	--	--	--	0.0054 U
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	16	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	110	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	1,600	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 (Freon 12)	16,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA												0.027 U
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	7	NA												0.0326 J
trans-1,2-Dichloroethene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	24,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes, total[e]	9	NA	--	--	--	--	--	--	--	--	--	--	--	0.0757 J

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU4-21	RAU5-01	RAU5-02
Sample Name:			RAU4-13-SO-4.5	RAU4-14-SO-3.5	RAU4-15-SO-3	RAU4-16-SO-3	RAU4-17-SO-2.5	RAU4-18-SO-3	RAU4-19-SO-2.5	RAU4-20-SO-2.5	RAU4-21-SO-3.5	RAU4-21-SO-11	RAU5-01-SO-4.5	RAU5-02-SO-2
Collection Date:			7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	12/3/2019
Collection Depth (ft bgs):			4-5	3-4	2.5-3.5	2.5-3.5	2-3	2.5-3.5	2-3	2-3	3-4	10.5-11.5	4-5	1.5-2.5
SVOCs (mg/kg)														
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	34	NA	--	--	--	--	--	--	--	--	--	--	--	0.0776
2,3,4,6-Tetrachlorophenol	2,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	80	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	240	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	160	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	3.2	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.67	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	6,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	320	NA	--	--	--	--	--	--	--	--	--	--	--	0.118
2-Methylphenol	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	6.4	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	50	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	4,800	NA	--	--	--	--	--	--	--	--	--	--	--	0.0285 U
Acenaphthylene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0582
Aniline	180	NA	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	24,000	NA	--	--	--	--	--	--	--	--	--	--	--	0.064
Azobenzene	9.1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0642

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU4-21	RAU5-01	RAU5-02
Sample Name:			RAU4-13-SO-4.5	RAU4-14-SO-3.5	RAU4-15-SO-3	RAU4-16-SO-3	RAU4-17-SO-2.5	RAU4-18-SO-3	RAU4-19-SO-2.5	RAU4-20-SO-2.5	RAU4-21-SO-3.5	RAU4-21-SO-11	RAU5-01-SO-4.5	RAU5-02-SO-2
Collection Date:			7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	12/3/2019
Collection Depth (ft bgs):			4-5	3-4	2.5-3.5	2.5-3.5	2-3	2.5-3.5	2-3	2-3	3-4	10.5-11.5	4-5	1.5-2.5
Benzo(a)pyrene	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0662
Benzo(b)fluoranthene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.117
Benzo(ghi)perylene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0515
Benzo(k)fluoranthene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0459 J
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	240	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	0.91	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	71	NA	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	530	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.028 J
Chrysene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0795
Di(2-ethylhexyl)adipate	830	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0142 U
Dibenzofuran	80	NA	--	--	--	--	--	--	--	--	--	--	--	0.0449
Diethyl phthalate	64,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	3,200	NA	--	--	--	--	--	--	--	--	--	--	--	0.157
Fluorene	3,200	NA	--	--	--	--	--	--	--	--	--	--	--	0.0142 J
Hexachlorobenzene	0.63	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	480	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	25	NA	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0548
Isophorone	1,100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	0.111
Nitrobenzene	160	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	0.0037	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	200	NA	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	0.14	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	2.5	NA	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.107
Phenol	24,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	2,400	NA	--	--	--	--	--	--	--	--	--	--	--	0.136
Pyridine	80	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	--	--	--	--	--	--	--	--	--	--	--	0.0959 J

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU4-21	RAU5-01	RAU5-02
Sample Name:			RAU4-13-SO-4.5	RAU4-14-SO-3.5	RAU4-15-SO-3	RAU4-16-SO-3	RAU4-17-SO-2.5	RAU4-18-SO-3	RAU4-19-SO-2.5	RAU4-20-SO-2.5	RAU4-21-SO-3.5	RAU4-21-SO-11	RAU5-01-SO-4.5	RAU5-02-SO-2
Collection Date:			7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	12/3/2019
Collection Depth (ft bgs):			4-5	3-4	2.5-3.5	2.5-3.5	2-3	2.5-3.5	2-3	2-3	3-4	10.5-11.5	4-5	1.5-2.5
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	ND	ND
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	ND	ND
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	ND	DETECT
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	25 U	206 J	25 U	587 U	25 U	25 U	221 U	25 U	25.6 U	437 U	--	11 U
Lube Oil-Range Hydrocarbons	2,000	NA	50 U	769 J	50 U	15,600	2,700	88.8	4,630	50 U	652	11,000	--	129
Diesel+Oil[g]	2,000	NA	50 U	975 J	50 U	15,900	2,710	101	4,740	50 U	665	11,200	--	135
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	2,000	NA	25 U	173 J	25 U	587 U	109 U	25 U	221 U	25 U	25.6 U	437 U	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	50 U	630 J	50 U	16,200	2,930	57.6	4,790	50 U	574	11,100	--	--
Diesel+Oil[g]	2,000	NA	50 U	803 J	50 U	16,500	2,980	70.1	4,900	50 U	587	11,300	--	--
Total Organic Carbon (mg/kg)														
Total Organic Carbon	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU5-02	RAU5-03	RAU5-03	RAU6-01	RAU6-02	RAU6-03		RAU7-01	RAU7-02
Sample Name:			RAU5-02-SO-7.5	RAU5-03-SO-2.5	RAU5-03-SO-2.5 DUP	RAU6-01-SO-2.3	RAU6-02-SO-1.5	RAU6-03-SO-2.5	RAU6-03-SO-9.5	RAU7-01-SO-1.5	RAU7-02-SO-2.5
Collection Date:			12/3/2019	7/22/2020	7/22/2020	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
Collection Depth (ft bgs):			7-8	2-3	2-3	1.8-2.8	1-2	2-3	9-10	1-2	2-3
Total Metals (mg/kg)											
Arsenic	20	8.47	8.71	--	--	1.72	1.42	4.58	6.58	1.81	1.27
Cadmium	2	0.1	0.185 U	--	--	0.121 U	0.12 U	1.44	0.221 J	0.11 U	0.107 U
Chromium	2,000[b]	78.5	38.5	--	--	26	18.1	29.8	39.5	17.6	22.5
Chromium, hexavalent	19	NV	--	--	--	--	--	--	1.14 J	--	0.223 U
Copper	3,200	52.9	52.2	--	--	32.8	28.9	114	55.7	58.7	69.4
Lead	250	10.9	7.05	--	--	11.2	4.31	225	7.29	2.95	2.63
Manganese	3,700	691.8	293	--	--	252	161	422	334	346	472
Mercury	2	NV	0.0742 U	--	--	0.0632 J	0.0479 U	0.0573 J	0.0757 U	0.0438 U	0.0429 U
Nickel	1,600	54.2	28.6	--	--	21.3	19.1	31.3	28	28.9	30.2
Zinc	24,000	85.6	77.9	--	--	50	31.6	275	77.1	45.8	46.1
TCLP Metals (mg/L)											
Lead	NV	NV	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--
PCBs (mg/kg)											
Aroclor 1016	NA	NA	--	--	--	--	--	0.00226 U	--	0.00195 U	0.002 U
Aroclor 1221	NV	NA	--	--	--	--	--	0.00226 U	--	0.00195 U	0.002 U
Aroclor 1232	NV	NA	--	--	--	--	--	0.00226 U	--	0.00195 U	0.002 U
Aroclor 1242	NV	NA	--	--	--	--	--	0.00226 U	--	0.00195 U	0.002 U
Aroclor 1248	NV	NA	--	--	--	--	--	0.00226 U	--	0.00195 U	0.002 U
Aroclor 1254	NA	NA	--	--	--	--	--	0.158 J	--	0.00195 U	0.002 U
Aroclor 1260	NA	NA	--	--	--	--	--	0.0468 J	--	0.00195 U	0.002 U
Total PCBs[c]	1	NA	--	--	--	--	--	0.205 J	--	0.00195 U	0.002 U
Dioxins/Furans (pg/g)											
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU5-02	RAU5-03	RAU5-03	RAU6-01	RAU6-02	RAU6-03		RAU7-01	RAU7-02
Sample Name:			RAU5-02-SO-7.5	RAU5-03-SO-2.5	RAU5-03-SO-2.5-DUP	RAU6-01-SO-2.3	RAU6-02-SO-1.5	RAU6-03-SO-2.5	RAU6-03-SO-9.5	RAU7-01-SO-1.5	RAU7-02-SO-2.5
Collection Date:			12/3/2019	7/22/2020	7/22/2020	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
Collection Depth (ft bgs):			7-8	2-3	2-3	1.8-2.8	1-2	2-3	9-10	1-2	2-3
OCDF	NV	NA	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)											
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	4,000	NA	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	27	NA	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	--	--	--	--	--	--	--	--	--
Acetone	72,000	NA	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU5-02	RAU5-03	RAU5-03	RAU6-01	RAU6-02	RAU6-03		RAU7-01	RAU7-02
Sample Name:			RAU5-02-SO-7.5	RAU5-03-SO-2.5	RAU5-03-SO-2.5 DUP	RAU6-01-SO-2.3	RAU6-02-SO-1.5	RAU6-03-SO-2.5	RAU6-03-SO-9.5	RAU7-01-SO-1.5	RAU7-02-SO-2.5
Collection Date:			12/3/2019	7/22/2020	7/22/2020	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
Collection Depth (ft bgs):			7-8	2-3	2-3	1.8-2.8	1-2	2-3	9-10	1-2	2-3
Benzene	0.03	NA	--	--	--	--	--	0.00558 U	--	--	--
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--
Bromodichloromethane	16	NA	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	--	--	--	--	--	--	--	--	--
Bromomethane	110	NA	--	--	--	--	--	--	--	--	--
Carbon disulfide	8,000	NA	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA	--	--	--	--	--	--	--	--	--
Chlorobenzene	1,600	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 (Freon 12)	16,000	NA	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA						0.0139 U			
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NA	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	--	--	--	--	--	--	--	--	--
Toluene	7	NA						0.0279 U			
trans-1,2-Dichloroethene	1,600	NA	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	24,000	NA	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	--	--	--	--	--	--	--	--	--
Xylenes, total[e]	9	NA	--	--	--	--	--	0.0558 U	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU5-02	RAU5-03	RAU5-03	RAU6-01	RAU6-02	RAU6-03		RAU7-01	RAU7-02
Sample Name:			RAU5-02-SO-7.5	RAU5-03-SO-2.5	RAU5-03-SO-2.5-DUP	RAU6-01-SO-2.3	RAU6-02-SO-1.5	RAU6-03-SO-2.5	RAU6-03-SO-9.5	RAU7-01-SO-1.5	RAU7-02-SO-2.5
Collection Date:			12/3/2019	7/22/2020	7/22/2020	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
Collection Depth (ft bgs):			7-8	2-3	2-3	1.8-2.8	1-2	2-3	9-10	1-2	2-3
SVOCs (mg/kg)											
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--
1,2-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--
1,4-Dinitrobenzene	8	NA	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	34	NA	--	--	--	--	--	0.151 J	--	0.00268 U	0.0109 U
2,3,4,6-Tetrachlorophenol	2,400	NA	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	NV	NA	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	8,000	NA	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	80	NA	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	240	NA	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1,600	NA	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	160	NA	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	3.2	NA	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.67	NA	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	6,400	NA	--	--	--	--	--	--	--	--	--
2-Chlorophenol	400	NA	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	320	NA	--	--	--	--	--	0.26	--	0.00268 U	0.0109 U
2-Methylphenol	4,000	NA	--	--	--	--	--	--	--	--	--
2-Nitroaniline	800	NA	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	--	--	--	--	--	--	--	--	--
3-Nitroaniline	NV	NA	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	6.4	NA	--	--	--	--	--	--	--	--	--
4-Bromophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	8,000	NA	--	--	--	--	--	--	--	--	--
4-Chloroaniline	5	NA	--	--	--	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	NA	--	--	--	--	--	--	--	--	--
4-Nitroaniline	50	NA	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NV	NA	--	--	--	--	--	--	--	--	--
Acenaphthene	4,800	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Acenaphthylene	NV	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Aniline	180	NA	--	--	--	--	--	--	--	--	--
Anthracene	24,000	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Azobenzene	9.1	NA	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU5-02	RAU5-03	RAU5-03	RAU6-01	RAU6-02	RAU6-03		RAU7-01	RAU7-02
Sample Name:			RAU5-02-SO-7.5	RAU5-03-SO-2.5	RAU5-03-SO-2.5-DUP	RAU6-01-SO-2.3	RAU6-02-SO-1.5	RAU6-03-SO-2.5	RAU6-03-SO-9.5	RAU7-01-SO-1.5	RAU7-02-SO-2.5
Collection Date:			12/3/2019	7/22/2020	7/22/2020	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
Collection Depth (ft bgs):			7-8	2-3	2-3	1.8-2.8	1-2	2-3	9-10	1-2	2-3
Benzo(a)pyrene	NA	NA	--	--	--	--	--	0.114 J	--	0.00211 J	0.00815 U
Benzo(b)fluoranthene	NV	NA	--	--	--	--	--	0.113 J	--	0.002 U	0.00815 U
Benzo(ghi)perylene	NV	NA	--	--	--	--	--	0.0732 J	--	0.00133 U	0.00542 U
Benzo(k)fluoranthene	NV	NA	--	--	--	--	--	0.0905 U	--	0.002 U	0.00815 U
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	240	NA	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	0.91	NA	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	71	NA	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	530	NA	--	--	--	--	--	--	--	--	--
Carbazole	NV	NA	--	--	--	--	--	0.0905 U	--	0.002 U	0.00815 U
Chrysene	NV	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Di(2-ethylhexyl)adipate	830	NA	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Dibenzofuran	80	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Diethyl phthalate	64,000	NA	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	NV	NA	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	8,000	NA	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	800	NA	--	--	--	--	--	--	--	--	--
Fluoranthene	3,200	NA	--	--	--	--	--	0.102 J	--	0.00133 U	0.00542 U
Fluorene	3,200	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Hexachlorobenzene	0.63	NA	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	480	NA	--	--	--	--	--	--	--	--	--
Hexachloroethane	25	NA	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NA	--	--	--	--	--	0.0602 U	--	0.00133 U	0.00542 U
Isophorone	1,100	NA	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	--	--	--	--	--	0.266	--	0.00268 U	0.0109 U
Nitrobenzene	160	NA	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	0.0037	NA	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	200	NA	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	0.14	NA	--	--	--	--	--	--	--	--	--
Pentachlorophenol	2.5	NA	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	NA	--	--	--	--	--	0.115 J	--	0.00133 U	0.00542 U
Phenol	24,000	NA	--	--	--	--	--	--	--	--	--
Pyrene	2,400	NA	--	--	--	--	--	0.129	--	0.00133 U	0.00542 U
Pyridine	80	NA	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	--	--	--	--	--	0.139 J	--	0.00252 J	0.00815 U

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	RAU5-02	RAU5-03	RAU5-03	RAU6-01	RAU6-02	RAU6-03		RAU7-01	RAU7-02
Sample Name:			RAU5-02-SO-7.5	RAU5-03-SO-2.5	RAU5-03-SO-2.5-DUP	RAU6-01-SO-2.3	RAU6-02-SO-1.5	RAU6-03-SO-2.5	RAU6-03-SO-9.5	RAU7-01-SO-1.5	RAU7-02-SO-2.5
Collection Date:			12/3/2019	7/22/2020	7/22/2020	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
Collection Depth (ft bgs):			7-8	2-3	2-3	1.8-2.8	1-2	2-3	9-10	1-2	2-3
Hydrocarbon Identification (Detect/Non-Detect)											
Gasoline	NA	NA	ND	--	--	ND	ND	ND	ND	--	--
Diesel	NA	NA	ND	--	--	ND	ND	ND	ND	--	--
Lube Oil	NA	NA	ND	--	--	ND	ND	DETECT	ND	--	--
TPH (mg/kg)											
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	--	25 U	25 U	--	--	10.6 U	--	10.5 U	11.9 J
Lube Oil-Range Hydrocarbons	2,000	NA	--	50 U	50 U	--	--	1,140	--	24.7 J	24.4 J
Diesel+Oil[g]	2,000	NA	--	50 U	50 U	--	--	1,150	--	30.0 J	36.3 J
TPH with Silica-Gel Treatment (mg/kg)											
Diesel-Range Hydrocarbons	2,000	NA	--	25 U	25 U	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	2,000	NA	--	50 U	50 U	--	--	--	--	--	--
Diesel+Oil[g]	2,000	NA	--	50 U	50 U	--	--	--	--	--	--
Total Organic Carbon (mg/kg)											
Total Organic Carbon	NV	NV	--	--	--	--	--	--	--	--	--

Table 6-2
Upland RI Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

Shading indicates values that exceed soil screening levels; non-detect results (U, UJ, UJK) were not compared with screening criteria.

-- = not analyzed.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

ft bgs = feet below ground surface.

J = result is estimated.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

MTCA = Model Toxics Control Act.

NA = not applicable.

ND = not detected.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram.

SVOC = semivolatile organic compound.

TCLP = toxicity characteristic leaching procedure.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbon.

U = result is non-detect at the reporting limit or detection limit.

UJ = result is non-detect with an estimated reporting limit or detection limit.

UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.

VOC = volatile organic compound.

[a]Screening levels are the lowest regulatory criteria value for the given matrix, selected from soil MTCA Method A unrestricted land use where available, or MTCA Method B (the lowest of cancer and noncancer values) where MTCA Method A is not available . Where a summation is performed (except Diesel+Oil and total xylenes), data are not screened to MTCA values for individual analytes; data are only screened to the MTCA value for the summation.

[b]Screening level for trivalent chromium.

[c]Total PCBs are the sum of all PCB Aroclors. Non-detect results are not included in the sum. When all results are non-detect, the highest reporting limit or detection limit is used.

[d]Dioxin/furan TEQ is calculated with 2005 World Health Organization mammal toxicity equivalence factors. Non-detect results are included at one-half the detection limit. When all dioxin and furan results are non-detect, the TEQ is shown as "ND."

[e]Total xylenes are reported from the laboratory or are the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the reporting limit or detection limit. When all results are non-detect, the highest reporting limit or detection limit is used.

[f]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors (Ecology 2015). Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[g]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbons results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

References

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC) table*. Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State* . Publication 94-115. Washington State Department of Ecology. October.

[3]Ecology. 2007. *Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures Using Toxicity Equivalency Factors* . Supporting Material for CLARC. Washington State Department of Ecology.

[4]Van den Berg, M., L. S. Birnbaum, M. Denison, M. De Vito, W. Farland, and M. Feeley. 2006. "The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds." Toxicological Sciences 93(2): 223–41.

[5]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs)*. Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

MAUL FOSTER ALONGI

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Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[(a)(1)]	Natural Background Levels[(2)]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
Total Metals (mg/kg)														
Aluminum	80,000	NV	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	32	NV	3.3 U	5.2 U	3.2 U	4.9 U	5 U	3.5 U	3.2 U	--	12 U	8.2 U	11 U	15 U
Arsenic	20	8.47	3.3 U	5.2 U	3.2 U	4.9 U	5 U	3.5 U	3.2 U	--	12 U	8.2 U	11 U	15 U
Barium	16,000	NV	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	160	0.8	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	2	0.1	0.55 UL	0.87 UL	0.54 UL	0.82 UL	0.83 UL	0.58 UL	0.53 UL	--	1.9 U	1.4 U	1.8 U	2.5 U
Calcium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	2,000[(b)]	78.5	3.5	3.8	4	7.3	6.6	19	5.3	--	5 U	3.6 U	4.6 U	6.6 U
Cobalt	24	NV	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,200	52.9	11	8.1	11	12	14	26	10	--	12	5	3.5 U	5.7
Iron	56,000	49,170	--	--	--	--	--	--	--	--	--	--	--	--
Lead	250	10.9	2.6	3.3	2.8	5.9	5.2	5.4	4.8	--	5.8 U	4.1 U	5.3 U	7.6 U
Magnesium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	3,700	691.8	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	2	NV	0.023	0.043	0.04	0.026 U	0.041	0.021	0.046	--	0.073 U	0.053 U	0.054 U	0.061 U
Nickel	1,600	54.2	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	400	NV	5.5 U	8.7 U	5.4 U	8.2 U	8.3 U	5.8 U	5.3 U	--	19 U	14 U	18 U	25 U
Silver	400	NV	1.6	1.7 U	1.1	1.6	1.8	2.3	1.2	--	3.9 U	2.7 U	3.5 U	5 U
Sodium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	0.8	NV	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	400	NV	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	24,000	85.6	32	30	25	54	45	43	25	--	29	9.7	10	18
PCBs (mg/kg)														
Aroclor 1016	NA	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1221	NV	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1232	NV	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1242	NV	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1248	NV	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1254	NA	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1260	NA	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Aroclor 1262	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs[(c)]	1	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	600	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	32	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	6.7 U	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	4.4 J	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	4.6 J	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	19	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	1.7 U	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	7.8	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	1.1 U	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	2.1 U	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	0.89 U	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	1.5 U	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	1.1 U	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	0.49 U	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	1.5 U	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	5,900	--	--	--	--
OCDF	NV	NA	--	--	--	--	--	--	--	74	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	1,500	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	110	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	120	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	73	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	2.1 U	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	7.5	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	0.49 U	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	1.5 U	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	13	--	--	--	--
Pesticides (mg/kg)														
Aldrin	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
alpha-BHC	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
beta-BHC	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
delta-BHC	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
cis-Chlordane	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
gamma-Chlordane	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
Chlordane	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
4,4'-DDD	NV	NA	0.0023 U	0.0042 U	0.0027 U^	0.0035 U^	0.0038 U^	0.0024 U^	0.0028 U^	--	0.009 U^	0.0068 U^	0.0074 U^	0.011 U^
4,4'-DDE	NV	NA	0.0023 U^	0.0042 U	0.0027 U^	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
4,4'-DDT	NV	NA	0.0023 U^	0.0042 U^	0.0027 U^	0.0035 U^	0.0038 U^	0.0024 U^	0.0028 U^	--	0.009 U^	0.0068 U^	0.0074 U^	0.011 U^
Total DDTs	NV	NA	0.0023 U	0.0042 U	0.0027 U	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
Dieldrin	NV	NA	0.0023 U^	0.0042 U	0.0027 U^	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
Endosulfan I	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
Endosulfan II	NV	NA	0.0023 U^	0.0042 U	0.0027 U^	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
Endosulfan Sulfate	NV	NA	0.0023 U	0.0042 U	0.0027 U	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
Endrin	NV	NA	0.0023 U	0.0042 U	0.0027 U	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
Endrin Aldehyde	NV	NA	0.0023 U	0.0042 U	0.0027 U	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[(a)(1)]	Natural Background Levels[(2)]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
Endrin Ketone	NV	NA	0.0023 U	0.0042 U	0.0027 U	0.0035 U	0.0038 U	0.0024 U	0.0028 U	--	0.009 U	0.0068 U	0.0074 U	0.011 U
Heptachlor	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
Heptachlor Epoxide	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
Lindane	NV	NA	0.0011 U	0.0021 U	0.0013 U	0.0017 U	0.0019 U	0.0012 U	0.0014 U	--	0.0045 U	0.0034 U	0.0037 U	0.0055 U
Methoxychlor	NV	NA	0.011 U	0.021 U	0.013 U	0.017 U	0.019 U	0.012 U	0.014 U	--	0.045 U	0.034 U	0.037 U	0.055 U
Toxaphene	NV	NA	0.11 U^	0.21 U^	0.13 U^	0.17 U^	0.19 U^	0.12 U^	0.14 U^	--	0.45 U^	0.34 U^	0.37 U	0.55 U^
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
1,1,1-Trichloroethane	2	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,1,2,2-Tetrachloroethane	5	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
1,1,2-Trichloroethane	18	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,1-Dichloroethane	180	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,1-Dichloroethene	4,000	NA	0.0048 UH	0.022 U	0.014 U	0.013 U	0.015 U	0.0082 U	0.022 U	--	0.059 U	0.019 U	0.041 U	0.064 U
1,1-Dichloropropene	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,2,3-Trichlorobenzene	64	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
1,2,3-Trichloropropane	0.0063	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	800	NA	0.0032	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
1,2-Dibromo-3-chloropropane	0.23	NA	0.0019 UJH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
1,2-Dibromoethane	0.005	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	11	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,2-Dichloropropane	27	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,3,5-Trimethylbenzene	800	NA	0.0048 UH	0.022 U*	0.014 U*	0.013 U*	0.015 U*	0.0082 U	0.022 U*	--	0.059 U*	0.019 U*	0.041 U	0.064 U*
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	1,600	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
2-Butanone	48,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
2-Hexanone	400	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	1,600	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
4-Isopropyltoluene	NV	NA	0.05	0.025 *	0.0055 U*	0.07 *	0.006 U*	0.0033 U	0.023 *	--	0.024 U*	0.042 *	0.017 U	0.026 U*
4-Methyl-2-pentanone	6,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	72,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	40	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Bromobenzene	640	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
Bromodichloromethane	16	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Bromoethane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
Bromomethane	110	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Carbon disulfide	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	14	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Chlorobenzene	1,600	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
Chlorobromomethane	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Chloroethane	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Chloroform	32	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Chloromethane	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
cis-1,2-Dichloroethene	160	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
cis-1,3-Dichloropropene	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Cyclohexane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	12	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Dibromomethane	800	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Ethylbenzene	6	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0076 *	0.0083 U	0.013 U*
Freon 113	2,400,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0083 *	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0096 *	0.017 U	0.026 U*
m,p-Xylene	NV	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.014 *	0.017 U	0.026 U*
Methyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl iodide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Methylcyclohexane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	0.014 UH	0.067 U	0.041 U	0.04 U	0.045 U	0.025 U	0.066 U	--	0.18 U	0.058 U	0.12 U	0.19 U
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
n-Propylbenzene	8,000	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
o-Xylene	16,000	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.005 *	0.0083 U	0.013 U*
sec-Butylbenzene	8,000	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
Styrene	16,000	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
tert-Butylbenzene	8,000	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
Tetrachloroethene	0.05	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Toluene	7	NA	0.0019 UH	0.0089 U	0.0055 U	0.0091	0.006 U	0.0033 U	0.0088 U	--	0.024 U	0.068	0.017 U	0.026 U
trans-1,2-Dichloroethene	1,600	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
trans-1,3-Dichloropropene	NV	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
trans-1,4-Dichloro-2-butene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U

Table 6-3
Historical Soil Analytical Data
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Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[(a)(1)]	Natural Background Levels[(2)]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
Trichlorofluoromethane (Freon 11)	24,000	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Vinyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	0.00096 UH	0.0044 U	0.0027 U	0.0026 U	0.003 U	0.0016 U	0.0044 U	--	0.012 U	0.0039 U	0.0083 U	0.013 U
Xylenes, total[(e)]	9	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.019 *	0.017 U	0.026 U*
SVOCs (mg/kg)														
1,1'-Biphenyl	130	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4,5-Tetrachlorobenzene	24	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	0.0019 UH	0.0089 U*	0.0055 U*	0.0053 U*	0.006 U*	0.0033 U	0.0088 U*	--	0.024 U*	0.0078 U*	0.017 U	0.026 U*
1,2-Dichlorobenzene	7,200	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
1,3-Dichlorobenzene	NV	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
1,4-Dichlorobenzene	190	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
1,4-Dioxane	10	NA	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	34	NA	0.035 U	0.064 U	0.042 U	0.053 U	0.056 U	0.037 U	0.043 U	--	0.28 U	0.21 U	0.23 U	0.34 U
2,3,4,6-Tetrachlorophenol	2,400	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	8,000	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2,4,6-Trichlorophenol	80	NA	0.17 U	0.32 U	0.21 U	0.27 U	0.28 U	0.18 U	0.22 U	--	1.4 U	1 U	1.1 U	1.7 U
2,4-Dichlorophenol	240	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2,4-Dimethylphenol	1,600	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2,4-Dinitrophenol	160	NA	1.2 U	2.1 U	1.4 U	1.8 U	1.9 U	1.2 U	1.4 U	--	9.3 U	6.9 U	7.5 U	11 U
2,4-Dinitrotoluene	3.2	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2,6-Dinitrotoluene	0.67	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2-Chloronaphthalene	6,400	NA	0.023 U	0.043 U	0.028 U	0.035 U	0.037 U	0.024 U	0.029 U	--	0.19 U	0.14 U	0.15 U	0.22 U
2-Chlorophenol	400	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2-Methylnaphthalene	320	NA	0.023 U	0.043 U	0.028 U	0.035 U	0.037 U	0.024 U	0.059	--	0.19 U	0.14 U	0.15 U	0.22 U
2-Methylphenol	4,000	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2-Nitroaniline	800	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
2-Nitrophenol	NV	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	0.23 U	0.43 U	0.28 U	0.35 U	0.37 U	0.24 U	0.68	--	1.9 U	1.4 U	1.5 U	2.2 U
3,3-Dichlorobenzidine	2.2	NA	0.23 U	0.43 U	0.28 U	0.35 U	0.37 U	0.24 U	0.29 U	--	1.9 U	1.4 U	1.5 U	2.2 U
3-Nitroaniline	NV	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
4,6-Dinitro-2-methylphenol	6.4	NA	1.2 U	2.1 U	1.4 U	1.8 U	1.9 U	1.2 U	1.4 U	--	9.3 U	6.9 U	7.5 U	11 U
4-Bromophenylphenyl ether	NV	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
4-Chloro-3-methylphenol	8,000	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
4-Chloroaniline	5	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
4-Chlorophenylphenyl ether	NV	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
4-Methylphenol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	50	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
4-Nitrophenol	NV	NA	1.2 U	2.1 U	1.4 U	1.8 U	1.9 U	1.2 U	1.4 U	--	9.3 U	6.9 U	7.5 U	11 U
Acenaphthene	4,800	NA	0.023 U	0.043 U	0.028 U	0.035 U	0.037 U	0.024 U	0.029 U	--	0.19 U	0.14 U	0.15 U	0.22 U
Acenaphthylene	NV	NA	0.023 U	0.043 U	0.028 U	0.035 U	0.037 U	0.024 U	0.029 U	--	0.19 U	0.14 U	0.15 U	0.22 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[(a)(1)]	Natural Background Levels[(2)]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
Acetophenone	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	24,000	NA	0.023 U	0.043 U	0.028 U	0.035 U	0.037 U	0.024 U	0.029 U	--	0.19 U	0.14 U	0.15 U	0.22 U
Atrazine	4.3	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	250	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NA	0.029 U	0.053 U	0.048	0.044 U	0.046 U	0.031 U	0.036 U	--	0.23 U	0.17 U	0.19 U	0.28 U
Benzo(a)pyrene	NA	NA	0.046	0.064 U	0.058	0.053 U	0.056 U	0.037 U	0.043 U	--	0.28 U	0.21 U	0.23 U	0.34 U
Benzo(b)fluoranthene	NV	NA	0.095	0.043 U	0.11	0.035 U	0.037 U	0.024 U	0.029 U	--	0.19 U	0.14 U	0.15 U	0.22 U
Benzo(ghi)perylene	NV	NA	0.052	0.053 U	0.035 U	0.044 U	0.046 U	0.031 U	0.036 U	--	0.23 U	0.17 U	0.19 U	0.28 U
Benzo(k)fluoranthene	NV	NA	0.029 U	0.053 U	0.035 U	0.044 U	0.046 U	0.031 U	0.036 U	--	0.23 U	0.17 U	0.19 U	0.28 U
Benzoic acid	320,000	NA	2.9 U	5.3 U	3.5 U	4.4 U	4.6 U	3.1 U	3.6 U	--	23 U	17 U	19 U	28 U
Benzyl alcohol	8,000	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Bis(2-chloro-1-methylethyl)ether	14	NA	0.17 U	0.32 U	0.21 U	0.27 U	0.28 U	0.18 U	0.22 U	--	1.4 U	1 U	1.1 U	1.7 U
Bis(2-chloroethoxy)methane	240	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Bis(2-chloroethyl)ether	0.91	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Bis(2-ethylhexyl)phthalate	71	NA	1.7 U	3.2 U	2.1 U	2.7 U	2.8 U	1.8 U	2.2 U	--	14 U	10 U	11 U	17 U
Butylbenzylphthalate	530	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Caprolactam	40,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NV	NA	0.17 U	0.32 U	0.21 U	0.27 U	0.28 U	0.18 U	0.22 U	--	1.4 U	1 U	1.1 U	1.7 U
Chrysene	NV	NA	0.049	0.053 U	0.17	0.044 U	0.046 U	0.049	0.036 U	--	0.23 U	0.17 U	0.19 U	0.28 U
Dibenzo(a,h)anthracene	NV	NA	0.046 U	0.086 U	0.056 U	0.071 U	0.074 U	0.049 U	0.058 U	--	0.37 U	0.28 U	0.3 U	0.45 U
Dibenzofuran	80	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Diethyl phthalate	64,000	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Dimethyl phthalate	NV	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Di-n-butyl phthalate	8,000	NA	0.23 U	0.43 U	0.28 U	0.35 U	0.37 U	0.24 U	0.29 U	--	1.9 U	1.4 U	1.5 U	2.2 U
Di-n-octyl phthalate	800	NA	0.23 U	0.43 U	0.28 U	0.35 U	0.37 U	0.24 U	0.29 U	--	1.9 U	1.4 U	1.5 U	2.2 U
Fluoranthene	3,200	NA	0.035	0.043 U	0.071	0.035 U	0.037 U	0.2	0.042	--	0.19 U	0.14 U	0.15 U	0.22 U
Fluorene	3,200	NA	0.023 U	0.043 U	0.028 U	0.035 U	0.037 U	0.024 U	0.029 U	--	0.19 U	0.14 U	0.15 U	0.22 U
Hexachlorobenzene	0.63	NA	0.058 U	0.11 U	0.069 U	0.088 U	0.093 U	0.061 U	0.072 U	--	0.46 U	0.34 U	0.38 U	0.56 U
Hexachlorobutadiene	13	NA	0.00096 UH	0.0044 U*	0.0027 U*	0.0026 U*	0.003 U*	0.0016 U	0.0044 U*	--	0.012 U*	0.0039 U*	0.0083 U	0.013 U*
Hexachlorocyclopentadiene	480	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Hexachloroethane	25	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.046 U	0.086 U	0.056 U	0.071 U	0.074 U	0.049 U	0.058 U	--	0.37 U	0.28 U	0.3 U	0.45 U
Isophorone	1,100	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Naphthalene	5	NA	0.0048 UH	0.022 U*	0.014 U*	0.013 U*	0.015 U*	0.0082 U	0.063	--	0.059 U*	0.019 U*	0.041 U	0.064 U*
Nitrobenzene	160	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
N-Nitrosodiphenylamine	200	NA	0.058 U	0.11 U	0.069 U	0.088 U	0.093 U	0.061 U	0.072 U	--	0.46 U	0.34 U	0.38 U	0.56 U
N-Nitrosodipropylamine	0.14	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U
Pentachlorophenol	2.5	NA	0.23 U	0.43 U	0.28 U	0.35 U	0.37 U	0.24 U	0.29 U	--	1.9 U	1.4 U	1.5 U	2.2 U
Phenanthrene	NV	NA	0.023 U	0.043 U	0.062	0.035 U	0.037 U	0.024 U	0.1	--	0.19 U	0.14 U	0.15 U	0.22 U
Phenol	24,000	NA	0.12 U	0.21 U	0.14 U	0.18 U	0.19 U	0.12 U	0.14 U	--	0.93 U	0.69 U	0.75 U	1.1 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB1		SB2		SB3			SB1, SB2, SB3	SB4		SB5	
Sample Name:			DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A
Collection Date:			April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011	April 2011
Collection Depth (ft bgs):			0-4.25	4.25-5	0-3.75	3.75-5	0-3.5	3.5-4.25	4.25-5	0-5	0-2.7	2.75-5	0-4	4-5
Pyrene	2,400	NA	0.038	0.043 U	0.085	0.035 U	0.037 U	0.14	0.081	--	0.19 U	0.14 U	0.15 U	0.22 U
Total Benzofluoranthenes	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	0.063	0.086 U	0.083	0.071 U	0.074 U	0.028	0.058 U	--	0.37 U	0.28 U	0.30 U	0.45 U
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	4.7 U	11 U	5.6 U	7.1 U	11 U	7.3 U	8.1	--	31 U	14 U	15 U	31 U
Diesel-Range Hydrocarbons	2,000	NA	61 Y	1,100 Z	83 Y	230 Z	270 Z	67 Z	440 Z	--	220 U	180 U	180 U	260 U
Lube Oil-Range Hydrocarbons	2,000	NA	540	1,000 Y	940	700 Y	780 Y	190 Y	630 Y	--	440 U	1,700	560	530 U^
Diesel+Oil[g]	2,000	NA	601	2,100	1,020	930	1,050	257	1,070	--	440 U	1,790	650	530 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a](1)	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
Total Metals (mg/kg)														
Aluminum	80,000	NV	--	--	--	--	--	--	--	--	--	--	--	13,400
Antimony	32	NV	8.2 U	5.4 U	14 U	--	--	--	--	--	--	--	--	1.3 JQ
Arsenic	20	8.47	8.2 U	5.4 U	14 U	--	20 U	10 U	10 U	10 U	10 U	10 U	6 U	2.6
Barium	16,000	NV	--	--	--	--	--	--	--	--	--	--	--	54
Beryllium	160	0.8	--	--	--	--	--	--	--	--	--	--	--	0.56
Cadmium	2	0.1	1.4 UL	0.89 U	2.4 U	--	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.2 U	1.8
Calcium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	6,250 J
Chromium	2,000[b]	78.5	11	3.5	6.1 U	--	45	24	43	71 J	32 J	37	35.5	14.6 J
Cobalt	24	NV	--	--	--	--	--	--	--	--	--	--	--	23.6
Copper	3,200	52.9	35	8.3	5.2	--	--	--	--	--	--	--	--	276
Iron	56,000	49,170	--	--	--	--	--	--	--	--	--	--	--	32,800 J
Lead	250	10.9	12	2.7 U	7.1 U	--	6 U	30	5 U	6 U	5 U	6 U	3	6.7
Magnesium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	7,840 J
Manganese	3,700	691.8	--	--	--	--	--	--	--	--	--	--	--	385
Mercury	2	NV	0.049 U	0.041	0.068 U	--	0.03 U	0.07	0.03 U	0.03 U	0.02	0.09	0.02 U	--
Nickel	1,600	54.2	--	--	--	--	--	--	--	--	--	--	--	30.3
Potassium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	494
Selenium	400	NV	14 U	8.9 U	24 U	--	--	--	--	--	--	--	--	3.5 UJ
Silver	400	NV	7.1	1.8 U	4.7 U	--	--	--	--	--	--	--	--	1.2 J
Sodium	NV	NV	--	--	--	--	--	--	--	--	--	--	--	1,080
Thallium	0.8	NV	--	--	--	--	--	--	--	--	--	--	--	2.6
Vanadium	400	NV	--	--	--	--	--	--	--	--	--	--	--	72.8
Zinc	24,000	85.6	120	30	18	--	--	--	--	--	--	--	--	51.1
PCBs (mg/kg)														
Aroclor 1016	NA	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.019 U	0.017 U	0.019 U	0.017 U	--
Aroclor 1221	NV	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.019 U	0.017 U	0.019 U	0.017 U	--
Aroclor 1232	NV	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.019 U	0.017 U	0.019 U	0.017 U	--
Aroclor 1242	NV	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.019 U	0.017 U	0.019 U	0.017 U	--
Aroclor 1248	NV	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.53	0.034	0.019 U	0.017 U	--
Aroclor 1254	NA	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.71 J	0.073 J	0.019 U	0.017 U	--
Aroclor 1260	NA	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	0.93	0.056	0.019 U	0.017 U	--
Aroclor 1262	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	NV	NA	--	--	--	--	--	--	--	0.019 U	0.017 U	0.019 U	0.017 U	--
Total PCBs[c]	1	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	2.2 J	0.16 J	0.019 U	0.017 U	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	55	--	--	--	2,650	373	1,260	26	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	7.3 U	--	--	--	653	37.9	188	2.97	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	0.92 U	--	--	--	32	1.48	12.5 U	0.221 U	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	1.6 U	--	--	--	36.1	3.49	8.65	0.193 U	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	0.75 U	--	--	--	17	2.11	4.09 J	0.114 J	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	2.1 U	--	--	--	184	23.6	38.2	1.54	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	0.57 U	--	--	--	9.97	1.55	4.2 J	0.153 U	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	1.3 U	--	--	--	16.7	8.09	12.1	2.35	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	0.74 U	--	--	--	8.52	1.3	1.82 J	0.155 U	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	1 U	--	--	--	10.8	1.97	3.14 J	1.31	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	0.9 U	--	--	--	4.85 U	0.859 J	1.08 J	0.0558 U	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	0.55 U	--	--	--	40	1.58	7.81	0.133 U	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	0.95 U	--	--	--	5.51	0.727 U	0.807 J	0.0598 U	--
2,3,7,8-TCDD	NA	NA	--	--	--	0.94 U	--	--	--	6.42	0.467 U	1.41 U	1.68	--
2,3,7,8-TCDF	NV	NA	--	--	--	1.9 U	--	--	--	5.07	0.657 U	0.552 J	0.0538 U	--
OCDD	NV	NA	--	--	--	570	--	--	--	18,400	2,480	30,800 J	298	--
OCDF	NV	NA	--	--	--	23 J	--	--	--	1,490	42.8	412	4.82	--
Total HpCDDs	NV	NA	--	--	--	100	--	--	--	4,760	708	2,900	52.5	--
Total HpCDFs	NV	NA	--	--	--	16	--	--	--	3,080 U	114	695 U	10.2 U	--
Total HxCDDs	NA	NA	--	--	--	4.6 U	--	--	--	843 U	117	205	27.3 U	--
Total HxCDFs	NV	NA	--	--	--	4.3 U	--	--	--	1,340 U	95.5 U	243	5.78 U	--
Total PeCDDs	NV	NA	--	--	--	1 U	--	--	--	140	14.9 U	18.2	13.3	--
Total PeCDFs	NV	NA	--	--	--	1.5 U	--	--	--	316 U	36.3 U	48.6 U	0.846	--
Total TCDDs	NV	NA	--	--	--	1.1 U	--	--	--	79.6 U	4.89 U	13.6 U	11.4 U	--
Total TCDFs	NV	NA	--	--	--	1.9 U	--	--	--	50.9 U	7.08 U	5.25 U	0.103 U	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	2.4	--	--	--	90	11.4 J	35.8 J	3.82 J	--
Pesticides (mg/kg)														
Aldrin	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
alpha-BHC	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
beta-BHC	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
delta-BHC	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
cis-Chlordane	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
gamma-Chlordane	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
Chlordane	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
4,4'-DDD	NV	NA	0.007 U^	0.0049 U^	0.01 U^	--	--	--	--	--	--	--	--	--
4,4'-DDE	NV	NA	0.007 U	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
4,4'-DDT	NV	NA	0.007 U^	0.0049 U^	0.01 U^	--	--	--	--	--	--	--	--	--
Total DDTs	NV	NA	0.007 U	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
Dieldrin	NV	NA	0.007 U^	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
Endosulfan I	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
Endosulfan II	NV	NA	0.007 U^	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	NV	NA	0.007 U	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
Endrin	NV	NA	0.007 U	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	NV	NA	0.007 U	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
Endrin Ketone	NV	NA	0.007 U	0.0049 U	0.01 U	--	--	--	--	--	--	--	--	--
Heptachlor	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
Lindane	NV	NA	0.0035 U	0.0024 U	0.005 U	--	--	--	--	--	--	--	--	--
Methoxychlor	NV	NA	0.035 U	0.024 U	0.05 U	--	--	--	--	--	--	--	--	--
Toxaphene	NV	NA	0.35 U^	0.24 U	0.5 U	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	0.0032 U	0.005 U*	0.0052 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,1,2,2-Tetrachloroethane	5	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,1,2-Trichloroethane	18	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,1-Dichloroethane	180	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,1-Dichloroethene	4,000	NA	0.016 U	0.025 U	0.026 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,1-Dichloropropene	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	0.0052 U
1,2,3-Trichloropropane	0.0063	NA	0.0032 U	0.005 U*	0.0052 U*	--	0.0023 U	0.003 U	0.0021 U	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	0.0052 U
1,2,4-Trimethylbenzene	800	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.7	0.0011 U	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.0064 U	0.01 UJ*	0.01 U*	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	0.0052 U
1,2-Dibromoethane	0.005	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,2-Dichloroethane	11	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,2-Dichloropropane	27	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,3,5-Trimethylbenzene	800	NA	0.016 U	0.025 U*	0.026 U*	--	0.0012 U	0.21	0.0011 U	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
1,3-Dichloropropane	1,600	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
2,2-Dichloropropane	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
2-Butanone	48,000	NA	--	--	--	--	0.0082	0.037	0.0042 J	--	--	--	--	0.0054 JQ
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	0.0059 UJ	0.0074 UJ	0.0053 UJ	--	--	--	--	--
2-Chlorotoluene	1,600	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
2-Hexanone	400	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	0.01 U
4-Chlorotoluene	1,600	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
4-Isopropyltoluene	NV	NA	0.0064 U	0.079 *	0.12 *	--	0.0012 U	0.02	0.0011 U	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	0.01 U
Acetone	72,000	NA	--	--	--	--	0.055	0.19	0.026	--	--	--	--	0.015
Acrolein	40	NA	--	--	--	--	0.059 U	0.074 U	0.053 U	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	--
Benzene	0.03	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Bromobenzene	640	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
Bromodichloromethane	16	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Bromoethane	NV	NA	--	--	--	--	0.0023 U	0.003 U	0.0021 U	--	--	--	--	--
Bromoform	130	NA	0.0032 U	0.005 U*	0.0052 U*	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Bromomethane	110	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 UJ	0.0011 UJ	--	--	--	--	0.0052 U
Carbon disulfide	8,000	NA	--	--	--	--	0.0013	0.0088	0.0034	--	--	--	--	0.0052 U
Carbon tetrachloride	14	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Chlorobenzene	1,600	NA	0.0032 U	0.005 U*	0.0052 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Chlorobromomethane	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Chloroethane	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 UJ	0.0011 UJ	--	--	--	--	0.0052 U
Chloroform	32	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Chloromethane	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
cis-1,2-Dichloroethene	160	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
cis-1,3-Dichloropropene	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Cyclohexane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0052 U
Dibromochloromethane	12	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Dibromomethane	800	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0032 U	0.005 U	0.0052 U	--	--	--	--	--	--	--	--	0.0052 U
Ethylbenzene	6	NA	0.0032 U	0.005 U*	0.035 *	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Freon 113	2,400,000	NA	--	--	--	--	0.0023 U	0.003 U	0.0021 U	--	--	--	--	0.0052 U
Hexachlorobutadiene	13	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0064 U	0.01 U*	0.019 *	--	0.0012 U	0.019	0.0011 U	--	--	--	--	0.0052 U
m,p-Xylene	NV	NA	0.0064 U	0.01 U*	0.015 *	--	0.0012 U	0.036	0.0011 U	--	--	--	--	0.0052 U
Methyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	0.0052 U
Methyl iodide	NV	NA	--	--	--	--	0.0012 UJ	0.0015 UJ	0.0011 UJ	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.0032 U	0.005 U	0.0052 U	--	--	--	--	--	--	--	--	0.0052 U
Methylcyclohexane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	0.0052 U
Methylene chloride	0.02	NA	0.048 U	0.076 U	0.078 U	--	0.0023 U	0.003 U	0.0021 U	--	--	--	--	0.0052 U
Naphthalene	5	NA	--	--	--	--	0.0059 U	0.005 J	0.0053 U	--	--	--	--	--
n-Butylbenzene	4,000	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	--
n-Propylbenzene	8,000	NA	0.0032 U	0.005 U*	0.0052 U*	--	0.0012 U	0.015	0.0011 U	--	--	--	--	--
o-Xylene	16,000	NA	0.0032 U	0.005 U*	0.0052 U*	--	0.0012 U	0.11	0.0011 U	--	--	--	--	0.0052 U
sec-Butylbenzene	8,000	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.017	0.0011 U	--	--	--	--	--
Styrene	16,000	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
tert-Butylbenzene	8,000	NA	0.0064 U	0.01 U*	0.01 U*	--	0.0012 U	0.0042	0.0011 U	--	--	--	--	--
Tetrachloroethene	0.05	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Toluene	7	NA	0.0064 U	0.011	0.019	--	0.0007 J	0.0016	0.0011 U	--	--	--	--	0.0052 U
trans-1,2-Dichloroethene	1,600	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
trans-1,3-Dichloropropene	NV	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 UJ	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
trans-1,4-Dichloro-2-butene	NV	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	--
Trichloroethene	0.03	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0052 U
Vinyl acetate	80,000	NA	--	--	--	--	0.0059 U	0.0074 U	0.0053 U	--	--	--	--	--
Vinyl chloride	0.67	NA	0.0032 U	0.005 U	0.0052 U	--	0.0012 U	0.0015 U	0.0011 U	--	--	--	--	0.0031 U
Xylenes, total[e]	9	NA	0.0064 U	0.01 U*	0.0176 *	--	0.0012 U	0.146	0.0011 U	--	--	--	--	0.0052 U
SVOCs (mg/kg)														
1,1'-Biphenyl	130	NA	--	--	--	--	--	--	--	--	--	--	--	1.8 U
1,2,4,5-Tetrachlorobenzene	24	NA	--	--	--	--	--	--	--	--	--	--	--	1.8 U
1,2,4-Trichlorobenzene	34	NA	0.0064 U	--	0.01 U*	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	--
1,2-Dichlorobenzene	7,200	NA	0.0032 U	--	0.0052 U*	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	--
1,3-Dichlorobenzene	NV	NA	0.0032 U	--	0.0052 U*	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	--
1,4-Dichlorobenzene	190	NA	0.0032 U	--	0.0052 U*	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	--
1,4-Dioxane	10	NA	--	--	--	--	--	--	--	--	--	--	--	0.72 U
1-Methylnaphthalene	34	NA	0.1 U	0.14 U	0.3 U	--	0.015 J	0.17 J	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	--
2,3,4,6-Tetrachlorophenol	2,400	NA	--	--	--	--	--	--	--	--	--	--	--	1.8 U
2,4,5-Trichlorophenol	8,000	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2,4,6-Trichlorophenol	80	NA	0.52 U	0.72 U	1.5 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2,4-Dichlorophenol	240	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2,4-Dimethylphenol	1,600	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2,4-Dinitrophenol	160	NA	3.5 U	4.8 U	9.9 U	--	0.19 U	1.9 U	0.2 U	2.8 U	0.92 U	0.38 U	0.19 U	3.5 UJ
2,4-Dinitrotoluene	3.2	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2,6-Dinitrotoluene	0.67	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2-Chloronaphthalene	6,400	NA	0.069 U	0.095 U	0.2 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
2-Chlorophenol	400	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
2-Methylnaphthalene	320	NA	0.069 U	0.095 U	0.2 U	--	0.019 U	0.17 J	0.02 U	0.28 U	0.046 J	0.026 J	0.019 U	0.062
2-Methylphenol	4,000	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	3.5 U
2-Nitroaniline	800	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
2-Nitrophenol	NV	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 UJ
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	0.69 U	0.95 U	2 U	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	0.69 U	0.95 U	2 U	--	0.096 R	0.96 R	0.099 R	1.4 R	0.46 R	0.19 R	0.093 R	3.5 U
3-Nitroaniline	NV	NA	0.35 U	0.48 U	0.99 U	--	0.096 UJ	0.96 UJ	0.099 UJ	1.4 R	0.46 R	0.19 R	0.093 R	3.5 U
4,6-Dinitro-2-methylphenol	6.4	NA	3.5 U	4.8 U	9.9 U	--	0.19 U	1.9 U	0.2 U	2.8 U	0.92 U	0.38 U	0.19 U	3.5 UJ
4-Bromophenylphenyl ether	NV	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
4-Chloro-3-methylphenol	8,000	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	1.8 U
4-Chloroaniline	5	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 R	0.46 R	0.19 R	0.093 R	3.5 U
4-Chlorophenylphenyl ether	NV	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
4-Methylphenol	8,000	NA	--	--	--	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092	0.038 U	0.019 U	3.5 U
4-Nitroaniline	50	NA	0.35 U	0.48 U	0.99 U	--	0.096 UJ	0.96 UJ	0.099 UJ	1.4 U	0.46 U	0.19 U	0.093 U	3.5 U
4-Nitrophenol	NV	NA	3.5 U	4.8 U	9.9 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	3.5 U
Acenaphthene	4,800	NA	0.069 U	0.095 U	0.2 U	--	0.019 U	0.5	0.02 U	0.14 J	0.42	0.038 U	0.019 U	0.017 JQ
Acenaphthylene	NV	NA	0.069 U	0.095 U	0.2 U	--	0.022	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	0.0054 JQ

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a](1)	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
Acetophenone	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	3.5 U
Anthracene	24,000	NA	0.069 U	0.095 U	0.2 U	--	0.014 J	0.29	0.02 U	0.28 U	0.15	0.038 U	0.019 U	0.016 JQ
Atrazine	4.3	NA	--	--	--	--	--	--	--	--	--	--	--	3.5 U
Benzaldehyde	250	NA	--	--	--	--	--	--	--	--	--	--	--	3.5 U
Benzo(a)anthracene	NV	NA	0.086 U	0.12 U	0.25 U	--	0.026	0.19 U	0.02 U	0.14 J	0.21	0.021 J	0.019 U	0.032 JQ
Benzo(a)pyrene	NA	NA	0.1 U	0.14 U	0.3 U	--	0.02	0.19 U	0.02 U	0.16 J	0.18	0.028 J	0.019 U	0.024 JQ
Benzo(b)fluoranthene	NV	NA	0.069 U	0.095 U	0.2 U	--	--	--	--	--	--	--	--	0.035 U
Benzo(ghi)perylene	NV	NA	0.086 U	0.12 U	0.25 U	--	0.01 J	0.19 U	0.02 U	0.28 U	0.092 U	0.032 J	0.019 U	0.02 JQ
Benzo(k)fluoranthene	NV	NA	0.086 U	0.12 U	0.25 U	--	--	--	--	--	--	--	--	0.035 U
Benzoic acid	320,000	NA	8.6 U	12 U	25 U	--	0.19 U	1.9 U	0.2 U	2.8 U	0.92 U	0.38 U	0.19 U	--
Benzyl alcohol	8,000	NA	0.35 U	0.48 U	0.99 U	--	0.019 R	0.19 R	0.02 R	0.28 U	0.092 U	0.038 U	0.019 U	--
Bis(2-chloro-1-methylethyl)ether	14	NA	0.52 U	0.72 U	1.5 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	3.5 U
Bis(2-chloroethoxy)methane	240	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Bis(2-chloroethyl)ether	0.91	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	3.5 U
Bis(2-ethylhexyl)phthalate	71	NA	5.2 U	7.2 U	15 U	--	0.037 J	0.48 U	0.15	0.57 J	0.23 U	3.1	0.047 U	1.8 U
Butylbenzylphthalate	530	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Caprolactam	40,000	NA	--	--	--	--	--	--	--	--	--	--	--	3.5 U
Carbazole	NV	NA	0.52 U	0.72 U	1.5 U	--	0.019 UJ	0.19 UJ	0.02 UJ	0.28 UJ	0.092 UJ	0.038 UJ	0.019 UJ	3.5 U
Chrysene	NV	NA	0.086 U	0.12 U	0.25 U	--	0.034	0.48	0.02 U	0.47	0.48	0.075	0.019 U	0.11
Dibenzo(a,h)anthracene	NV	NA	0.14 U	0.19 U	0.4 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	0.035 U
Dibenzofuran	80	NA	0.35 U	0.48 U	0.99 U	--	0.012 J	0.33	0.02 U	0.28 U	0.1	0.038 U	0.019 U	1.8 U
Diethyl phthalate	64,000	NA	0.35 U	0.48 U	0.99 U	--	0.018 J	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Dimethyl phthalate	NV	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Di-n-butyl phthalate	8,000	NA	0.69 U	0.95 U	2 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Di-n-octyl phthalate	800	NA	0.69 U	0.95 U	2 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	3.5 UJ
Fluoranthene	3,200	NA	0.069 U	0.14	0.2 U	--	0.053	1.2	0.02 U	0.6	0.64	0.028 J	0.011 J	0.043
Fluorene	3,200	NA	0.069 U	0.095 U	0.2 U	--	0.01 J	0.59	0.02 U	0.16 J	0.3	0.038 U	0.019 U	0.03 JQ
Hexachlorobenzene	0.63	NA	0.17 U	0.24 U	0.5 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Hexachlorobutadiene	13	NA	0.0032 U	--	0.0052 U*	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Hexachlorocyclopentadiene	480	NA	0.35 U	0.48 U	0.99 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	3.5 UJ
Hexachloroethane	25	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.14 U	0.19 U	0.4 U	--	0.0096 J	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	0.0052 JQ
Isophorone	1,100	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 UJ
Naphthalene	5	NA	0.016 U	0.025 U*	0.026 U*	--	0.083	0.19 U	0.02 U	0.28 U	0.065 J	0.27	0.019 U	0.035 U
Nitrobenzene	160	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
N-Nitrosodiphenylamine	200	NA	0.17 U	0.24 U	0.5 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
N-Nitrosodipropylamine	0.14	NA	0.35 U	0.48 U	0.99 U	--	0.019 U	0.19 U	0.02 U	0.28 U	0.092 U	0.038 U	0.019 U	1.8 U
Pentachlorophenol	2.5	NA	0.69 U	0.95 U	2 U	--	0.096 U	0.96 U	0.099 U	1.4 U	0.46 U	0.19 U	0.093 U	0.072 U
Phenanthrene	NV	NA	0.069 U	0.17	0.2 U	--	0.069	1.6	0.02 U	0.51	0.92	0.023 J	0.011 J	0.11
Phenol	24,000	NA	0.35 U	0.48 U	0.99 U	--	0.019 UJ	0.19 UJ	0.02 UJ	0.28 UJ	0.092 UJ	0.038 UJ	0.019 UJ	3.5 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	SB6			SB4, SB5, SB6	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01
Sample Name:			DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP	B01-S-4.5	B02-S-5.0	B03-S-5.0	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	MJJ450
Collection Date:			April 2011	April 2011	April 2011	April 2011	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017
Collection Depth (ft bgs):			0-1.5	1.5-3	3-5	0-5	4-5	4-5	4.5-5.5	3.3-5	3.5-5	3-4.5	1.5-3	2-4
Pyrene	2,400	NA	0.069 U	0.12	0.2 U	--	0.069	0.93	0.02 U	0.53	0.61	0.03 J	0.011 J	0.1
Total Benzofluoranthenes	NV	NA	--	--	--	--	0.037 J	0.26 J	0.04 U	0.3 J	0.32	0.062 J	0.037 U	--
cPAH TEQ[f][5]	0.1	NA	0.14 U	0.19 U	0.40 U	--	0.0286 J	0.154	0.04 U	0.237 J	0.247	0.0409 J	0.037 U	0.0341 JQ
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	ND	ND	ND	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	ND	DETECT	ND	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	ND	DETECT	DETECT	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	15 U	19 U	20 U	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	85 U	610 Y	320 Y	--	--	5,800	64 U	480	620	120	21	41 U
Lube Oil-Range Hydrocarbons	2,000	NA	220	2,200	2,300	--	--	19,000	160	2,600	3,600	980	51	2,000
Diesel+Oil[g]	2,000	NA	263	2,810	2,620	--	--	24,800	192	3,080	4,220	1,100	72	2,020

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
Total Metals (mg/kg)														
Aluminum	80,000	NV	19,200	17,800	22,500	18,900	25,100	18,300	21,700	25,200	26,000	8,050	23,100	17,000
Antimony	32	NV	0.79 JQ	1.1 JQ	1.3 JQ	1.3 JQ	1.3 JQ	1.6 JQ	4.8 JQ	1.1 JQ	1 JQ	1.1 JQ	1.6 JQ	0.96 JQ
Arsenic	20	8.47	1.9	1 U	0.69 JQ	1 U	1.5	1 U	1 U	0.6 JQ	1 U	1 U	1 U	1 UJ
Barium	16,000	NV	127	155	112	87.2	812	106	400	126	142	66.9	64.8	73.1
Beryllium	160	0.8	0.7	0.66	0.72	0.71	0.82	0.67	1.2	0.72	0.79	0.48	0.88	0.7
Cadmium	2	0.1	0.53	1.5	1	1.4	2.5	1.7	9.3	0.91	0.95	1.7	1.6	1.1
Calcium	NV	NV	1,820 J	10,700 J	1,490 J	3,790 J	1,450 J	5,830 J	110,000 J	1,220 J	1,310 J	12,200 J	1,500 J	2,850
Chromium	2,000[b]	78.5	21.9 J	22.6 J	21 J	25.8 J	42.7 J	23.4 J	5.9 J	21.5 J	21.1 J	8.7 J	30.6 J	21.4
Cobalt	24	NV	8.8	16.1	12.4	17.9	33.8	16.6	14.4	13.6	11.9	12.7	18	17.3
Copper	3,200	52.9	33.1	56.1	32.5	56.9	51.8	78.7	800	31.7	31	38.8	183	47.2
Iron	56,000	49,170	12,700 J	28,200 J	22200 J	28,900 J	27,500 J	33,900 J	163,000 J	21,200 J	22,200 J	31,400 J	30,300 J	27,000
Lead	250	10.9	19.7	5.1	4.4	3.1	1,110	29.7	10.1	3.9	4.5	13.1	44.4	5.6
Magnesium	NV	NV	2,160 J	6,560 J	2,990 J	5,550 J	4,270 J	7,300 J	23,900 J	3,150 J	3,130 J	8,250 J	4,370 J	4,710
Manganese	3,700	691.8	165	992	291	463	240	457	13,100	507	311	289	234	314
Mercury	2	NV	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,600	54.2	17.5	23.9	19.3	29.2	29.1	28.5	21	19.4	18.6	14.6	30.8	29.7
Potassium	NV	NV	570	1,100	233 JQ	307 JQ	243 JQ	851	11,300	232 JQ	333 JQ	705	354 JQ	407
Selenium	400	NV	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ
Silver	400	NV	0.56 JQ	1.1 J	0.84 J	1.1 J	1 J	1.3 J	6.7 J	0.85 J	0.87 JQ	1.1 J	1.1 J	1 UJ
Sodium	NV	NV	221 JQ	760	298 JQ	300 JQ	198 JQ	468	3,650	249 JQ	220 JQ	366 JQ	216 JQ	367 JQ
Thallium	0.8	NV	2.8	2.7	3.4	3.3	4	3.2	2.5 U	3.4	3.5	2.1	4.4	4
Vanadium	400	NV	54.4	75.7	69.6	86.1	94.5	82	42.2	66.1	67.6	57.1	112	83
Zinc	24,000	85.6	98.5	93.2	37.8	47.4	777	91.4	117	38.7	41.9	53.3	101	55
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs[c]	1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides (mg/kg)														
Aldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
delta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total DDTs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan II	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
Endrin Ketone	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lindane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,1,2,2-Tetrachloroethane	5	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,1,2-Trichloroethane	18	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,1-Dichloroethane	180	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,1-Dichloroethene	4,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	0.0059 U	0.0082 UJ	0.34 U	0.0048 UJ	0.011 U	0.0043 UJ	0.0081 UJ	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 UJ
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	0.0059 U	0.0082 UJ	0.34 U	0.0048 UJ	0.011 U	0.0043 UJ	0.0081 UJ	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 UJ
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 U
1,2-Dibromoethane	0.005	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,2-Dichlorobenzene	7,200	NA	0.0059 U	0.0082 UJ	0.34 U	0.0048 UJ	0.011 U	0.0043 UJ	0.0081 UJ	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 UJ
1,2-Dichloroethane	11	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,2-Dichloropropane	27	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	0.0059 U	0.0082 UJ	0.34 U	0.0048 UJ	0.011 U	0.0043 UJ	0.0081 UJ	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 UJ
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	0.0059 U	0.0082 UJ	0.34 U	0.0048 UJ	0.011 U	0.0043 UJ	0.0081 UJ	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 UJ
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	0.0029 JQ	0.014 JQ	0.68 U	0.0035 JQ	0.022 U	0.0067 JQ	0.0076 JQ	0.0097 JQ	0.0055 JQ	0.021	0.068	0.012 U
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	0.0072 JQ	0.016 U	0.68 U	0.0095 U	0.022 U	0.0086 U	0.016 U	0.011 U	0.017 U	0.013 U	0.058 U	0.012 U
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	0.012 U	0.016 U	0.68 U	0.0095 U	0.022 U	0.0086 U	0.016 U	0.011 U	0.017 U	0.013 U	0.058 U	0.012 U
Acetone	72,000	NA	0.016	0.041	0.68 U	0.013	0.023	0.018	0.012 JQ	0.054	0.03	0.058	0.21	0.0057 JQ
Acrolein	40	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
Bromodichloromethane	16	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Bromoethane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 U
Bromomethane	110	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Carbon disulfide	8,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Carbon tetrachloride	14	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Chlorobenzene	1,600	NA	0.0059 U	0.0082 UJ	0.34 U	0.0048 UJ	0.011 U	0.0043 UJ	0.0081 UJ	0.0055 U	0.0087 U	0.0066 UJ	0.029 U	0.0059 UJ
Chlorobromomethane	NV	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Chloroethane	NV	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Chloroform	32	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Chloromethane	NV	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
cis-1,2-Dichloroethene	160	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
cis-1,3-Dichloropropene	NV	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Cyclohexane	NV	NA	0.0059 U	0.0082 U	0.24 JQ	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Dibromochloromethane	12	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Dibromomethane	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Ethylbenzene	6	NA	0.0059 U	0.0082 U	0.37	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Freon 113	2,400,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0059 U	0.0082 U	0.18 JQ	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
m,p-Xylene	NV	NA	0.0059 U	0.0082 U	0.79	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Methyl acetate	80,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Methyl iodide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Methylcyclohexane	NV	NA	0.0059 U	0.0082 U	1.7	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Methylene chloride	0.02	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	0.0059 U	0.0082 U	0.72	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Toluene	7	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
trans-1,2-Dichloroethene	1,600	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
trans-1,3-Dichloropropene	NV	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
trans-1,4-Dichloro-2-butene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0059 U	0.0082 U	0.34 U	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
Vinyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	0.0035 U	0.0049 U	0.2 U	0.0029 U	0.0065 U	0.0026 U	0.0049 U	0.0033 U	0.0052 U	0.004 U	0.017 U	0.0036 U
Xylenes, total[e]	9	NA	0.0059 U	0.0082 U	1.51	0.0048 U	0.011 U	0.0043 U	0.0081 U	0.0055 U	0.0087 U	0.0066 U	0.029 U	0.0059 U
SVOCs (mg/kg)														
1,1'-Biphenyl	130	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
1,2,4,5-Tetrachlorobenzene	24	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	10	NA	0.089 U	0.79 U	0.081 UJ	0.073 U	0.1 U	0.77 U	0.12 U	0.08 U	0.093 U	0.76 U	0.081 UJ	0.72 U
1-Methylnaphthalene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	2,400	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2,4,5-Trichlorophenol	8,000	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2,4,6-Trichlorophenol	80	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2,4-Dichlorophenol	240	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2,4-Dimethylphenol	1,600	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2,4-Dinitrophenol	160	NA	0.44 U	3.9 UJ	0.4 U	0.36 U	0.5 U	3.8 UJ	0.58 U	0.4 U	0.46 U	3.8 UJ	0.4 U	3.5 UJ
2,4-Dinitrotoluene	3.2	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2,6-Dinitrotoluene	0.67	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2-Chloronaphthalene	6,400	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2-Chlorophenol	400	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2-Methylnaphthalene	320	NA	0.025	0.54	2	0.0012 JQ	0.0048 JQ	0.028 JQ	0.0039 JQ	0.00094 JQ	0.00059 JQ	0.029 JQ	0.022	0.035 U
2-Methylphenol	4,000	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
2-Nitroaniline	800	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
2-Nitrophenol	NV	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 UJ	0.3 U	0.2 U	0.24 U	1.9 UJ	0.21 U	1.8 UJ
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 UJ	0.4 U	3.5 UJ
3-Nitroaniline	NV	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
4,6-Dinitro-2-methylphenol	6.4	NA	0.44 U	3.9 UJ	0.4 U	0.36 U	0.5 U	3.8 UJ	0.58 U	0.4 U	0.46 U	3.8 UJ	0.4 U	3.5 UJ
4-Bromophenylphenyl ether	NV	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
4-Chloro-3-methylphenol	8,000	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
4-Chloroaniline	5	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 UJ	0.4 U	3.5 UJ
4-Chlorophenylphenyl ether	NV	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
4-Methylphenol	8,000	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
4-Nitroaniline	50	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
4-Nitrophenol	NV	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Acenaphthene	4,800	NA	0.0049 JQ	0.05	0.29 J	0.00034 JQ	0.013	0.025 JQ	0.0049 JQ	0.004 U	0.0076	0.14	0.1	0.035 U
Acenaphthylene	NV	NA	0.017 JQ	0.018 JQ	0.089 J	0.0017 JQ	0.028	0.026 JQ	0.0035 JQ	0.004 U	0.0046 U	0.0071 JQ	0.02 U	0.035 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
Acetophenone	8,000	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Anthracene	24,000	NA	0.014 JQ	0.041	0.16 J	0.0036 U	0.032	0.052	0.0023 JQ	0.004 U	0.0046 U	0.089	0.05 J	0.035 U
Atrazine	4.3	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Benzaldehyde	250	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Benzo(a)anthracene	NV	NA	0.03	0.062	0.02 UJ	0.00069 JQ	0.2	0.13 J	0.006	0.004 U	0.0046 U	0.14	0.058 J	0.063
Benzo(a)pyrene	NA	NA	0.028	0.05	0.02 UJ	0.0036 U	0.17	0.13 J	0.0055 JQ	0.004 U	0.0046 U	0.086	0.023 J	0.03 JQ
Benzo(b)fluoranthene	NV	NA	0.044	0.039 U	0.033 J	0.00094 JQ	0.3	0.23 J	0.0099	0.004 U	0.0046 U	0.19	0.13 J	0.035 U
Benzo(ghi)perylene	NV	NA	0.015 JQ	0.017 JQ	0.02 UJ	0.00062 JQ	0.022 J	0.046 J	0.006	0.004 U	0.0046 U	0.013 JQ	0.02 UJ	0.016 JQ
Benzo(k)fluoranthene	NV	NA	0.018 JQ	0.039 U	0.02 UJ	0.0036 U	0.005 U	0.079 J	0.0021 JQ	0.004 U	0.0046 U	0.17	0.02 UJ	0.035 U
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Bis(2-chloroethoxy)methane	240	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Bis(2-chloroethyl)ether	0.91	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Bis(2-ethylhexyl)phthalate	71	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Butylbenzylphthalate	530	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Caprolactam	40,000	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Carbazole	NV	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U
Chrysene	NV	NA	0.041	0.25	0.01 JQ	0.0011 JQ	0.22	0.24 J	0.0092	0.004 U	0.0046 U	0.3	0.078 J	0.031 JQ
Dibenzo(a,h)anthracene	NV	NA	0.0034 JQ	0.039 U	0.02 UJ	0.0036 U	0.0062 J	0.014 JQ	0.0058 U	0.004 U	0.0046 U	0.038 U	0.02 UJ	0.035 U
Dibenzofuran	80	NA	0.23 U	2 U	0.12 JQ	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.038 JQ	1.8 U
Diethyl phthalate	64,000	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Dimethyl phthalate	NV	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Di-n-butyl phthalate	8,000	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Di-n-octyl phthalate	800	NA	0.44 U	3.9 UJ	0.4 U	0.36 U	0.5 U	3.8 UJ	0.58 U	0.4 U	0.46 U	3.8 UJ	0.4 U	3.5 UJ
Fluoranthene	3,200	NA	0.082	0.026 JQ	0.029 J	0.0038	0.39	0.23 J	0.015	0.004 U	0.0046 U	0.5	0.37 J	0.035 U
Fluorene	3,200	NA	0.022 U	0.069	0.39	0.0036 U	0.023	0.033 JQ	0.0058 U	0.004 U	0.0046 U	0.13	0.17	0.035 U
Hexachlorobenzene	0.63	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Hexachlorobutadiene	13	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Hexachlorocyclopentadiene	480	NA	0.44 U	3.9 UJ	0.4 U	0.36 U	0.5 U	3.8 UJ	0.58 U	0.4 U	0.46 U	3.8 UJ	0.4 U	3.5 UJ
Hexachloroethane	25	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.012 JQ	0.0051 JQ	0.02 UJ	0.00059 JQ	0.024 J	0.042 J	0.0042 JQ	0.004 U	0.0046 U	0.0066 JQ	0.02 UJ	0.035 U
Isophorone	1,100	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 UJ	0.3 U	0.2 U	0.24 U	1.9 UJ	0.21 U	1.8 UJ
Naphthalene	5	NA	0.051	0.039 U	0.26	0.0042	0.013	0.038 U	0.012	0.004 U	0.0046 U	0.038 U	0.02 U	0.035 U
Nitrobenzene	160	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
N-Nitrosodiphenylamine	200	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
N-Nitrosodipropylamine	0.14	NA	0.23 U	2 U	0.21 U	0.18 U	0.26 U	2 U	0.3 U	0.2 U	0.24 U	1.9 U	0.21 U	1.8 U
Pentachlorophenol	2.5	NA	0.31	0.079 U	0.04 UJ	0.0073 U	0.01 U	0.077 U	0.012 U	0.008 U	0.0093 U	0.076 U	0.041 U	0.072 U
Phenanthrene	NV	NA	0.07	0.26	0.81 J	0.0045	0.11	0.17	0.013	0.004 U	0.0046 U	0.26	0.42 J	0.035 U
Phenol	24,000	NA	0.44 U	3.9 U	0.4 U	0.36 U	0.5 U	3.8 U	0.58 U	0.4 U	0.46 U	3.8 U	0.4 U	3.5 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	FC01	FC02		FC03		MS01		MS02		MS03		MS04
Sample Name:			MJJ451	MJJ452	MJJ453	MJJ4C5	MJJ4C6	MJJ454	MJJ455	MJJ456	MJJ457	MJJ458	MJJ459	MJJ460
Collection Date:			9/26/2017	9/25/2017	9/25/2017	9/29/2017	9/29/2017	9/26/2017	9/26/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):			5-7	2-4	4-6	2-4	6-8	1-4	8-12	2-4	6-8	2-4	5-7	2-4
Pyrene	2,400	NA	0.072	0.073	0.066 J	0.0045	0.37	0.27 J	0.019	0.004 U	0.0046 U	0.42	0.22 J	0.022 JQ
Total Benzofluoranthenes	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	0.0392 JQ	0.0651 JQ	0.0174 J	0.00239 JQ	0.225 J	0.182 J	0.0081 JQ	0.004 U	0.0046 U	0.142	0.0456	0.0436
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	50 U	44 U	3,300	44 U	55 U	46 U	59 U	46 U	47 U	46 U	46 U	42 U
Lube Oil-Range Hydrocarbons	2,000	NA	150	1,500	6,400	110 U	1,400	1,100	150 U	110 U	120 U	6,700	20,000	2,200
Diesel+Oil[g]	2,000	NA	175	1,520	9,700	110 U	1,430	1,120	150 U	110 U	120 U	6,720	20,000	2,220

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
Total Metals (mg/kg)														
Aluminum	80,000	NV	22,900	8,670	6,050	18,900	22,500	26,300	28,100	9,770	21,900	11,300	23,000	18,300
Antimony	32	NV	1 JQ	1.4 JQ	1 JQ	0.97 JQ	0.9 JQ	1.2 JQ	1.1 JQ	2.1 JQ	1.4 JQ	1.1 JQ	0.8 JQ	0.9 JQ
Arsenic	20	8.47	1 UJ	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 J	1 UJ	1 UJ
Barium	16,000	NV	106	94.6	26.5 JQ	108	133	134	108	43.7	85.2	51.3	94.3	76.3
Beryllium	160	0.8	0.89	0.48	0.24 JQ	0.67	0.75	0.89	0.77	0.49	0.85	0.51	0.79	0.6
Cadmium	2	0.1	1.2	1.1	0.44 JQ	1	0.92	1.1	1.1	1.2	1.6	1.1	1	0.86
Calcium	NV	NV	3,190	5,070	4,050	1,560 J	1,460 J	1,630	2,130	6,270	4,620	7,800	2,570	2,730
Chromium	2,000[b]	78.5	34	12.9	6.5	20.8 J	18.4 J	31.6	35.9	14.1	27.7	13.4	36.1	18.7
Cobalt	24	NV	20.5	11.9	4 JQ	13.2	12.9	19	15.8	15.5	24	14.9	20.6	15.1
Copper	3,200	52.9	49.2	181	22.2	33.5	26.1	56.4	42.9	56.2	89.9	57.2	52.1	60.7
Iron	56,000	49,170	30,500	27,200	8,460	21,000 J	20,400 J	31,000	29,900	34,300	39,000	29,300	28,700	26,100
Lead	250	10.9	4.2	61.4	7.8	2.5	4.1	5.8	4.7	7.5	2.7	5.9	3.1	2.9
Magnesium	NV	NV	4,660	6,300	1,460	3,240 J	2,860 J	4,670	3,730	7,880	6,910	6,960	5,160	5,170
Manganese	3,700	691.8	175	283	157	355	308	303	380	404	538	366	463	491
Mercury	2	NV	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,600	54.2	30.3	20	6.2	19.9	16.9	28.4	25.2	27.6	37.9	28.2	30.8	26.1
Potassium	NV	NV	420 JQ	573	116 JQ	213 JQ	292 JQ	307 JQ	202 JQ	1,290	868	608	829	251 JQ
Selenium	400	NV	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ
Silver	400	NV	0.86 J	0.89 J	1 UJ	0.82 J	0.84 JQ	0.91 J	1 UJ	1 J	1.2 J	0.82 J	1 UJ	1 UJ
Sodium	NV	NV	305 JQ	418	145 JQ	228 JQ	250 JQ	333 JQ	327 JQ	433	277 JQ	375 JQ	232 JQ	328 JQ
Thallium	0.8	NV	5.1	3	1.8 JQ	2.8	2.9	5.2	6.2	3.2	5.9	3.1	5.1	4
Vanadium	400	NV	93.6	53.8	26.8	70.7	60.2	99.5	97.6	58.6	121	59.9	100	70.6
Zinc	24,000	85.6	50.4	63	31.3	35.4	40	47.1	47.9	53.3	65	56.4	44.3	41.2
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs[c]	1	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides (mg/kg)														
Aldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
delta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total DDTs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan II	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
Endrin Ketone	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lindane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,1,2,2-Tetrachloroethane	5	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,1,2-Trichloroethane	18	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,1-Dichloroethane	180	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,1-Dichloroethene	4,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	0.0053 U	0.0066 UJ	0.023 UJ	0.0052 UJ	0.0058 U	--	--	0.0051 UJ	0.0047 U	0.0047 UJ	0.0053 U	0.0058 U
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	0.0053 U	0.0066 UJ	0.023 UJ	0.0052 UJ	0.0058 U	--	--	0.0051 UJ	0.0047 U	0.0047 UJ	0.0053 U	0.0058 U
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.0053 U	0.0066 U	0.023 UJ	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,2-Dibromoethane	0.005	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,2-Dichlorobenzene	7,200	NA	0.0053 U	0.0066 UJ	0.023 UJ	0.0052 UJ	0.0058 U	--	--	0.0051 UJ	0.0047 U	0.0047 UJ	0.0053 U	0.0058 U
1,2-Dichloroethane	11	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,2-Dichloropropane	27	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	0.0053 U	0.0066 UJ	0.023 UJ	0.0052 UJ	0.0058 U	--	--	0.0051 UJ	0.0047 U	0.0047 UJ	0.0053 U	0.0058 U
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	0.0053 U	0.0066 UJ	0.023 UJ	0.0052 UJ	0.0058 U	--	--	0.0051 UJ	0.0047 U	0.0047 UJ	0.0053 U	0.0058 U
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	0.011 U	0.013	0.044 JQ	0.0068 JQ	0.012 U	--	--	0.01 U	0.0043 JQ	0.0081 JQ	0.0032 JQ	0.0064 JQ
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	0.011 U	0.013 U	0.046 U	0.01 U	0.012 U	--	--	0.01 U	0.0093 U	0.0095 U	0.011 U	0.012 U
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	0.011 U	0.013 U	0.046 U	0.01 U	0.012 U	--	--	0.01 U	0.0093 U	0.0095 U	0.011 U	0.012 U
Acetone	72,000	NA	0.011 U	0.036	0.1	0.042	0.013	--	--	0.01 U	0.0089 JQ	0.024	0.012	0.037
Acrolein	40	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
Bromodichloromethane	16	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Bromoethane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	0.0053 U	0.0066 U	0.023 UJ	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Bromomethane	110	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Carbon disulfide	8,000	NA	0.0053 U	0.0066 U	0.018 JQ	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Carbon tetrachloride	14	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Chlorobenzene	1,600	NA	0.0053 U	0.0066 UJ	0.023 UJ	0.0052 UJ	0.0058 U	--	--	0.0051 UJ	0.0047 U	0.0047 UJ	0.0053 U	0.0058 U
Chlorobromomethane	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Chloroethane	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Chloroform	32	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.00067 JQ	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Chloromethane	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
cis-1,2-Dichloroethene	160	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
cis-1,3-Dichloropropene	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Cyclohexane	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Dibromochloromethane	12	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Dibromomethane	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Ethylbenzene	6	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Freon 113	2,400,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
m,p-Xylene	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Methyl acetate	80,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Methyl iodide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Methylcyclohexane	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Methylene chloride	0.02	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Toluene	7	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.00087 JQ	0.0053 U	0.0058 U
trans-1,2-Dichloroethene	1,600	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
trans-1,3-Dichloropropene	NV	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
trans-1,4-Dichloro-2-butene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
Vinyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	0.0032 U	0.004 U	0.014 U	0.0031 U	0.0035 U	--	--	0.0031 U	0.0028 U	0.0028 U	0.0032 U	0.0035 U
Xylenes, total[e]	9	NA	0.0053 U	0.0066 U	0.023 U	0.0052 U	0.0058 U	--	--	0.0051 U	0.0047 U	0.0047 U	0.0053 U	0.0058 U
SVOCs (mg/kg)														
1,1'-Biphenyl	130	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
1,2,4,5-Tetrachlorobenzene	24	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	10	NA	0.4 U	0.78 U	1.3 U	0.076 U	0.093 U	0.076 UJ	0.082 U	0.069 U	0.077 U	0.71 U	0.08 U	0.72 U
1-Methylnaphthalene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	2,400	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U		1.8 U
2,4,5-Trichlorophenol	8,000	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2,4,6-Trichlorophenol	80	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2,4-Dichlorophenol	240	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2,4-Dimethylphenol	1,600	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2,4-Dinitrophenol	160	NA	2 UJ	3.9 UJ	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 UJ	0.38 U	3.5 UJ	0.4 U	3.6 UJ
2,4-Dinitrotoluene	3.2	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2,6-Dinitrotoluene	0.67	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2-Chloronaphthalene	6,400	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2-Chlorophenol	400	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2-Methylnaphthalene	320	NA	0.02 U	0.024 JQ	0.05 JQ	0.0037 U	0.0021 JQ	0.0029 JQ	0.001 JQ	0.017 U	0.0038 UJ	0.036 U	0.004 U	0.066
2-Methylphenol	4,000	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
2-Nitroaniline	800	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
2-Nitrophenol	NV	NA	1 U	2 UJ		0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 UJ	0.2 U	
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	2 U	3.9 UJ	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 UJ	0.4 U	3.6 U
3-Nitroaniline	NV	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
4,6-Dinitro-2-methylphenol	6.4	NA	2 UJ	3.9 UJ	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 UJ	0.38 U	3.5 UJ	0.4 U	
4-Bromophenylphenyl ether	NV	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
4-Chloro-3-methylphenol	8,000	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
4-Chloroaniline	5	NA	2 U	3.9 UJ		0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 UJ	0.4 U	3.6 U
4-Chlorophenylphenyl ether	NV	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
4-Methylphenol	8,000	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
4-Nitroaniline	50	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
4-Nitrophenol	NV	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Acenaphthene	4,800	NA	0.02 U	0.039 U	0.96	0.00083 JQ	0.0029 JQ	0.08 J	0.00058 JQ	0.017 U	0.0038 U	0.036 U	0.004 U	0.0089 JQ
Acenaphthylene	NV	NA	0.02 U	0.0049 JQ	0.065 U	0.0037 U	0.0046 U	0.0012 JQ	0.00069 JQ	0.0036 JQ	0.0004 JQ	0.0048 JQ	0.004 U	0.036 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
Acetophenone	8,000	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Anthracene	24,000	NA	0.02 U	0.017 JQ	0.31	0.0037 U	0.0046 U	0.0038 J	0.0041 U	0.013 JQ	0.0038 U	0.011 JQ	0.004 U	0.015 JQ
Atrazine	4.3	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Benzaldehyde	250	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Benzo(a)anthracene	NV	NA	0.02 U	0.058	0.27 J	0.0037 U	0.0046 U	0.0058	0.0041 U	0.14 J	0.0038 U	0.12	0.004 U	0.033 JQ
Benzo(a)pyrene	NA	NA	0.0083 JQ	0.075	0.13 J	0.0037 U	0.0046 U	0.0074	0.00082 JQ	0.099 J	0.0038 U	0.099	0.00094 JQ	0.033 JQ
Benzo(b)fluoranthene	NV	NA	0.019 JQ	0.36	0.34 J	0.0037 U	0.0046 U	0.012	0.0017 JQ	0.24 J	0.0038 U	0.26	0.004 U	0.064 J
Benzo(ghi)perylene	NV	NA	0.0051 JQ	0.039 UJ	0.041 JQ	0.0037 U	0.0046 U	0.0046	0.0013 JQ	0.043 J	0.0038 U	0.048 J	0.004 UJ	0.01 JQ
Benzo(k)fluoranthene	NV	NA	0.02 U	0.077	0.56 J	0.0037 U	0.0046 U	0.0041	0.0041 U	0.07 J	0.0038 U	0.089	0.004 U	0.036 UJ
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Bis(2-chloroethoxy)methane	240	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Bis(2-chloroethyl)ether	0.91	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Bis(2-ethylhexyl)phthalate	71	NA	1 U	2 UJ	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 UJ	0.2 U	1.8 UJ	0.2 U	1.8 U
Butylbenzylphthalate	530	NA	1 U	2 UJ	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 UJ	0.2 U	1.8 UJ	0.2 U	1.8 U
Caprolactam	40,000	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Carbazole	NV	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U
Chrysene	NV	NA	0.029	0.24	0.35 J	0.0037 U	0.0046 U	0.0093	0.003 JQ	0.17 J	0.0038 U	0.16	0.004 U	0.21
Dibenzo(a,h)anthracene	NV	NA	0.02 U	0.039 UJ	0.065 UJ	0.0037 U	0.0046 U	0.0015 JQ	0.0041 U	0.022 J	0.0038 U	0.021 JQ	0.004 UJ	0.025 JQ
Dibenzofuran	80	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Diethyl phthalate	64,000	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Dimethyl phthalate	NV	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Di-n-butyl phthalate	8,000	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Di-n-octyl phthalate	800	NA	2 UJ	3.9 UJ	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 UJ	0.38 U	3.5 UJ	0.4 U	3.6 U
Fluoranthene	3,200	NA	0.02 U	0.074	1.9 J	0.0037 U	0.0046 U	0.015	0.0036 JQ	0.21 J	0.0038 U	0.15	0.004 U	0.017 JQ
Fluorene	3,200	NA	0.02 U	0.039 U	0.82	0.0012 JQ	0.0043 JQ	0.022	0.0041 U	0.017 U	0.0038 U	0.036 U	0.004 U	0.036 U
Hexachlorobenzene	0.63	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Hexachlorobutadiene	13	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Hexachlorocyclopentadiene	480	NA	2 UJ	3.9 UJ	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 UJ	0.38 U	3.5 UJ	0.4 U	3.6 UJ
Hexachloroethane	25	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.02 U	0.039 UJ	0.065 UJ	0.0037 U	0.0046 U	0.0051	0.00058 JQ	0.056 J	0.0038 U	0.043 J	0.004 UJ	0.02 JQ
Isophorone	1,100	NA	1 U	2 UJ	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 UJ	0.2 U	
Naphthalene	5	NA	0.02 U	0.039 U	0.065 U	0.0037 U	0.0046 U	0.01	0.0041 U	0.017 UJ	0.0038 U	0.036 U	0.004 U	0.036 U
Nitrobenzene	160	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
N-Nitrosodiphenylamine	200	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
N-Nitrosodipropylamine	0.14	NA	1 U	2 U	3.3 U	0.19 U	0.23 U	0.19 U	0.21 U	0.17 U	0.2 U	1.8 U	0.2 U	1.8 U
Pentachlorophenol	2.5	NA	0.04 U	0.078 UJ	0.13 UJ	0.0076 U	0.0093 U	0.0069 JQ	0.0082 U	0.034 UJ	0.0077 U	0.073 UJ	0.008 UJ	0.072 UJ
Phenanthrene	NV	NA	0.02 U	0.1	1	0.00063 JQ	0.0075	0.0037 U	0.0041 U	0.078 J	0.0038 U	0.057	0.004 U	0.17
Phenol	24,000	NA	2 U	3.9 U	6.5 U	0.37 U	0.46 U	0.37 U	0.41 U	0.34 U	0.38 U	3.5 U	0.4 U	3.6 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	MS04	MS05		MS06		NA01		OC01		OC02		OC03
Sample Name:			MJJ461	MJJ4B4	MJJ4B5	MJJ4C3	MJJ4C4	MJJ484	MJJ485	MJJ480	MJJ481	MJJ482	MJJ483	MJJ4C1
Collection Date:			9/27/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/27/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):			4-6	3.2-4	4-6	2-4	6-8	2-4	5-6	1-4	4-6	2-4	4-6	3-4
Pyrene	2,400	NA	0.01 JQ	0.13	1.4 J	0.0037 U	0.0046 U	0.019	0.0029 JQ	0.17 J	0.0039	0.13	0.004 U	0.097
Total Benzofluoranthenes	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	0.0145	0.131	0.257	0.0037 U	0.0046 U	0.0103 JQ	0.00169 JQ	0.154 J	0.0038 U	0.154 J	0.00196 JQ	0.0511 J
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	46 U	45 U	100 U	43 U	46 U	43 U	52 U	41 U	46 U	42 U	44 U	42 U
Lube Oil-Range Hydrocarbons	2,000	NA	160	6,300	90,000	110 U	120 U	110 U	130 U	210	120 U	620	110 U	1,500
Diesel+Oil[g]	2,000	NA	183	6,320	90,100	110 U	120 U	110 U	130 U	231	120 U	641	110 U	1,520

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
Total Metals (mg/kg)														
Aluminum	80,000	NV	33,900	23,900	21,700	17,400	17,700	20,200	23,100	--	--	--	--	--
Antimony	32	NV	1.6 JQ	0.99 JQ	0.82 JQ	0.97 JQ	1.7 JQ	1.3 JQ	0.89 JQ	--	--	--	--	--
Arsenic	20	8.47	1 UJ	1 UJ	1 UJ	1 UJ	2.1 J	1 UJ	1 UJ	--	--	--	--	--
Barium	16,000	NV	155	92.8	81.6	70.7	91.3	88	122	--	--	--	--	--
Beryllium	160	0.8	1.2	0.77	0.78	0.72	0.62 JQ	0.78	0.66	--	--	--	--	--
Cadmium	2	0.1	1.7	1.1	1.1	1.4	0.69	1.3	0.62	--	--	--	--	--
Calcium	NV	NV	2,040	2,910	2,430	4,030	2,360	2,160	2,000	--	--	--	--	--
Chromium	2,000[b]	78.5	37.8	25	27.7	28.5	22.4	28.1	19.9	--	--	--	--	--
Cobalt	24	NV	26	18.4	18	22.9	13.7	17.2	11.7	--	--	--	--	--
Copper	3,200	52.9	75	55.8	54.8	80.2	44	61.2	31.2	--	--	--	--	--
Iron	56,000	49,170	46,500	32,000	32,300	35,300	23,700	33,100	19,300	--	--	--	--	--
Lead	250	10.9	2.9	3.3	1.8	2.4	14	8.5	9.1	--	--	--	--	--
Magnesium	NV	NV	7,370	5,870	5,820	7,450	3,360	5,470	3,190	--	--	--	--	--
Manganese	3,700	691.8	616	516	390	395	216	526	480	--	--	--	--	--
Mercury	2	NV	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,600	54.2	40.7	29.1	32.6	36.1	20.6	28.1	17.6	--	--	--	--	--
Potassium	NV	NV	563	334 JQ	368 JQ	331 JQ	301 JQ	349 JQ	332 JQ	--	--	--	--	--
Selenium	400	NV	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	--	--	--	--	--
Silver	400	NV	1.3 J	0.95 J	0.93 J	0.99 J	1 UJ	1.2 J	1 UJ	--	--	--	--	--
Sodium	NV	NV	386 JQ	363 JQ	292 JQ	321 JQ	202 JQ	304 JQ	247 JQ	--	--	--	--	--
Thallium	0.8	NV	5.6	4.7	5	4.7	5	4.3	3	--	--	--	--	--
Vanadium	400	NV	117	87.9	90.6	94.6	71.8	85.7	54.8	--	--	--	--	--
Zinc	24,000	85.6	67.3	50.8	47.7	66.2	58.4	158	71.3	--	--	--	--	--
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1221	NV	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1232	NV	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1242	NV	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1248	NV	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1254	NA	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1260	NA	NA	--	0.036 U	0.041 U	0.0024 JQ	0.06 U	0.01 JQ	0.0022 JQ	--	--	--	--	--
Aroclor 1262	NV	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Aroclor 1268	NV	NA	--	0.036 U	0.041 U	0.036 U	0.06 U	0.035 U	0.044 U	--	--	--	--	--
Total PCBs[c]	1	NA	--	0.036 U	0.041 U	0.0024 JQ	0.06 U	0.01 JQ	0.0022 JQ	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides (mg/kg)														
Aldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
delta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total DDTs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan II	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
Endrin Ketone	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lindane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,1,2,2-Tetrachloroethane	5	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,1,2-Trichloroethane	18	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,1-Dichloroethane	180	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,1-Dichloroethene	4,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	0.0051 UJ	--	--	--	--	--	--	0.0053 UJ	0.0054 U	0.0056 U	0.0054 U	0.005 UJ
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	0.0051 UJ	--	--	--	--	--	--	0.0053 UJ	0.0054 U	0.0056 U	0.0054 U	0.005 UJ
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,2-Dibromoethane	0.005	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,2-Dichlorobenzene	7,200	NA	0.0051 UJ	--	--	--	--	--	--	0.0053 UJ	0.0054 U	0.0056 U	0.0054 U	0.005 UJ
1,2-Dichloroethane	11	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,2-Dichloropropane	27	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	0.0051 UJ	--	--	--	--	--	--	0.0053 UJ	0.0054 U	0.0056 U	0.0054 U	0.005 UJ
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	0.0051 UJ	--	--	--	--	--	--	0.0053 UJ	0.0054 U	0.0056 U	0.0054 U	0.005 UJ
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	0.0051 JQ	--	--	--	--	--	--	0.011 U	0.011 U	0.0031 JQ	0.011 U	0.0043 JQ
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	0.01 U	--	--	--	--	--	--	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	0.01 U	--	--	--	--	--	--	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U
Acetone	72,000	NA	0.035	--	--	--	--	--	--	0.011 U	0.011 U	0.017	0.0085 JQ	0.026
Acrolein	40	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
Bromodichloromethane	16	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Bromoethane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Bromomethane	110	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Carbon disulfide	8,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Carbon tetrachloride	14	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Chlorobenzene	1,600	NA	0.0051 UJ	--	--	--	--	--	--	0.0053 UJ	0.0054 U	0.0056 U	0.0054 U	0.005 UJ
Chlorobromomethane	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Chloroethane	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Chloroform	32	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Chloromethane	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
cis-1,2-Dichloroethene	160	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
cis-1,3-Dichloropropene	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Cyclohexane	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Dibromochloromethane	12	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Dibromomethane	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Ethylbenzene	6	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Freon 113	2,400,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
m,p-Xylene	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Methyl acetate	80,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Methyl iodide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Methylcyclohexane	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Methylene chloride	0.02	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Toluene	7	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
trans-1,2-Dichloroethene	1,600	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
trans-1,3-Dichloropropene	NV	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
trans-1,4-Dichloro-2-butene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U

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Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
Vinyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	0.0031 U	--	--	--	--	--	--	0.0032 U	0.0032 U	0.0034 U	0.0032 U	0.003 U
Xylenes, total[e]	9	NA	0.0051 U	--	--	--	--	--	--	0.0053 U	0.0054 U	0.0056 U	0.0054 U	0.005 U
SVOCs (mg/kg)														
1,1'-Biphenyl	130	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
1,2,4,5-Tetrachlorobenzene	24	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	10	NA	0.077 U	0.073 U	0.084 U	0.74 U	0.12 U	0.72 U	0.089 U	0.069 U	0.07 UJ	0.075 U	0.39 U	0.076 U
1-Methylnaphthalene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	2,400	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.2	0.036 JQ	0.19 U	1 U	0.19 U
2,4,5-Trichlorophenol	8,000	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2,4,6-Trichlorophenol	80	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2,4-Dichlorophenol	240	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2,4-Dimethylphenol	1,600	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2,4-Dinitrophenol	160	NA	0.38 U	0.36 U	0.41 U	3.6 UJ	0.6 U	3.5 UJ	0.44 U	0.34 U	0.35 U	0.37 U	1.9 UJ	0.37 U
2,4-Dinitrotoluene	3.2	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2,6-Dinitrotoluene	0.67	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2-Chloronaphthalene	6,400	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2-Chlorophenol	400	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2-Methylnaphthalene	320	NA	0.0019 JQ	0.0036 UJ	0.0041 UJ	0.01 JQ	0.006 JQ	0.0076 JQ	0.0056	0.00072 JQ	0.0035 U	0.0037 U	0.0037 JQ	0.00054 JQ
2-Methylphenol	4,000	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
2-Nitroaniline	800	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
2-Nitrophenol	NV	NA	0.2 U	0.18 U	0.21 U	1.9 UJ	0.31 U	1.8 UJ	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	0.38 U	0.36 U	0.41 U	3.6 UJ	0.6 U	3.5 UJ	0.44 U	0.34 U	0.35 U	0.37 U	1.9 UJ	0.37 U
3-Nitroaniline	NV	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
4,6-Dinitro-2-methylphenol	6.4	NA	0.38 U	0.36 U	0.41 U	3.6 UJ	0.6 U	3.5 UJ	0.44 U	0.34 U	0.35 U	0.37 U	1.9 UJ	0.37 U
4-Bromophenylphenyl ether	NV	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
4-Chloro-3-methylphenol	8,000	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
4-Chloroaniline	5	NA	0.38 U	0.36 U	0.41 U	3.6 UJ	0.6 U	3.5 UJ	0.44 U	0.34 U	0.35 U	0.37 U	1.9 UJ	0.37 U
4-Chlorophenylphenyl ether	NV	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
4-Methylphenol	8,000	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
4-Nitroaniline	50	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
4-Nitrophenol	NV	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Acenaphthene	4,800	NA	0.0038 U	0.0036 U	0.00045 JQ	0.036 U	0.0061 JQ	0.035 U	0.0017 JQ	0.0034 U	0.0035 U	0.0037 U	0.019 U	0.0037 U
Acenaphthylene	NV	NA	0.0038 U	0.0036 U	0.0041 U	0.036 U	0.03 U	0.035 U	0.0086	0.00084 JQ	0.0035 U	0.00062 JQ	0.019 U	0.0037 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
Acetophenone	8,000	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Anthracene	24,000	NA	0.0038 U	0.0036 U	0.0041 U	0.036 U	0.018 JQ	0.035 U	0.0042 JQ	0.0034 U	0.0035 U	0.0037 U	0.019 U	0.0037 U
Atrazine	4.3	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Benzaldehyde	250	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Benzo(a)anthracene	NV	NA	0.0038 U	0.0036 U	0.0041 U	0.036 U	0.03 U	0.035 U	0.0044 U	0.0032 JQ	0.0035 U	0.0037 U	0.019 U	0.0037 U
Benzo(a)pyrene	NA	NA	0.0013 JQ	0.0036 U	0.0041 U	0.031 JQ	0.03 U	0.015 JQ	0.0037 JQ	0.0035	0.0035 U	0.0037 U	0.005 JQ	0.0037 U
Benzo(b)fluoranthene	NV	NA	0.0034 JQ	0.0036 U	0.0041 U	0.036 U	0.17 J	0.049	0.016	0.007	0.0005 JQ	0.00068 JQ	0.012 JQ	0.0037 U
Benzo(ghi)perylene	NV	NA	0.0012 JQ	0.0036 U	0.0041 UJ	0.044 J	0.03 UJ	0.035 UJ	0.0044 UJ	0.0048	0.0035 U	0.00058 JQ	0.019 U	0.0037 U
Benzo(k)fluoranthene	NV	NA	0.0038 U	0.0036 U	0.0041 U	0.036 U	0.057 J	0.035 U	0.0044 U	0.0021 JQ	0.0035 U	0.0037 U	0.019 U	0.0037 U
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Bis(2-chloroethoxy)methane	240	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Bis(2-chloroethyl)ether	0.91	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Bis(2-ethylhexyl)phthalate	71	NA	0.2 U	0.18 U	0.21 U	1.9 UJ	0.74 J	1.8 UJ	0.22 U	0.09 JQ	0.18 U	0.19 U	1 U	0.19 U
Butylbenzylphthalate	530	NA	0.2 U	0.18 U	0.21 U	1.9 UJ	0.31 U	1.8 UJ	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Caprolactam	40,000	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Carbazole	NV	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U
Chrysene	NV	NA	0.0071	0.0036 U	0.0041 U	0.075 J	0.048 J	0.11	0.0099	0.0062	0.00068 JQ	0.0037 U	0.015 JQ	0.0037 U
Dibenzo(a,h)anthracene	NV	NA	0.0038 UJ	0.0036 UJ	0.0041 UJ	0.036 UJ	0.03 UJ	0.035 UJ	0.0044 UJ	0.0008 JQ	0.0035 U	0.0037 U	0.019 U	0.0037 U
Dibenzofuran	80	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Diethyl phthalate	64,000	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Dimethyl phthalate	NV	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Di-n-butyl phthalate	8,000	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Di-n-octyl phthalate	800	NA	0.38 U	0.36 U	0.41 U	3.6 UJ	0.6 U	3.5 UJ	0.44 U	0.34 U	0.35 U	0.37 U	1.9 UJ	0.37 U
Fluoranthene	3,200	NA	0.00082 JQ	0.0036 U	0.0041 U	0.036 U	0.12 J	0.29	0.033	0.0061	0.0014 JQ	0.00095 JQ	0.0028 JQ	0.0037 U
Fluorene	3,200	NA	0.0038 U	0.0036 U	0.0041 U	0.036 U	0.03 U	0.035 U	0.0044 U	0.0034 U	0.0035 U	0.0037 U	0.019 U	0.0037 U
Hexachlorobenzene	0.63	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Hexachlorobutadiene	13	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Hexachlorocyclopentadiene	480	NA	0.38 U	0.36 U	0.41 U	3.6 UJ	0.6 U	3.5 UJ	0.44 U	0.34 U	0.35 U	0.37 U	1.9 UJ	0.37 U
Hexachloroethane	25	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.0038 UJ	0.0036 UJ	0.0041 UJ	0.036 UJ	0.03 UJ	0.035 UJ	0.0044 UJ	0.0029 JQ	0.0035 U	0.0037 U	0.019 U	0.0037 U
Isophorone	1,100	NA	0.2 U	0.18 U	0.21 U	1.9 UJ	0.31 U	1.8 UJ	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Naphthalene	5	NA	0.0038 U	0.0036 U	0.0041 U	0.036 U	0.03 U	0.035 U	0.021	0.0034 U	0.0035 U	0.0037 U	0.019 U	0.0037 U
Nitrobenzene	160	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
N-Nitrosodiphenylamine	200	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
N-Nitrosodipropylamine	0.14	NA	0.2 U	0.18 U	0.21 U	1.9 U	0.31 U	1.8 U	0.22 U	0.17 U	0.18 U	0.19 U	1 U	0.19 U
Pentachlorophenol	2.5	NA	0.0077 UJ	0.0073 U	0.0084 U	0.074 UJ	0.061 UJ	0.072 UJ	0.0089 UJ	0.92	0.16	0.0035 JQ	0.039 U	0.0076 U
Phenanthrene	NV	NA	0.0032 JQ	0.0036 U	0.0041 U	0.036 U	0.052	0.41	0.031	0.0034 U	0.0035 U	0.0037 U	0.019 U	0.0037 U
Phenol	24,000	NA	0.38 U	0.36 U	0.41 U	3.6 U	0.6 U	3.5 U	0.44 U	0.34 U	0.35 U	0.37 U	1.9 U	0.37 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	OC03	PB01		PB02		PB03		PB04		PB05		PB06
Sample Name:			MJJ4C2	MJJ462	MJJ463	MJJ464	MJJ465	MJJ466	MJJ467	17394236	17394237	17394239	17394240	17394242
Collection Date:			9/28/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/28/2017
Collection Depth (ft bgs):			5-7	2-4	6-8	0-2	7-9	0-2	4-5	2-4	6-8	2-4	4-5	2-4
Pyrene	2,400	NA	0.0017 JQ	0.0036 U	0.0041 U	0.036 U	0.11 J	0.2	0.038	0.0091	0.0012 JQ	0.0014 JQ	0.019 U	0.0037 U
Total Benzofluoranthenes	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	0.00247 JQ	0.0036 UJ	0.0041 UJ	0.0408 J	0.0427 J	0.028 JQ	0.00628 JQ	0.00516 JQ	0.00251 JQ	0.00268 JQ	0.0102 JQ	0.0037 U
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	44 U	44 U	46 U	42 U	61 U	42 U	55 U	40 U	42 U	43 U	45 U	44 U
Lube Oil-Range Hydrocarbons	2,000	NA	110 U	110 U	120 U	3,100	22,000	860	140 U	100 U	110 U	110 U	340	110 U
Diesel+Oil[g]	2,000	NA	110 U	110 U	120 U	3,120	22,000	881	140 U	100 U	110 U	110 U	363	110 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
Total Metals (mg/kg)														
Aluminum	80,000	NV	--	10,800	6,990	26,200	26,000	20,600	22,900	--	--	--	--	24,200
Antimony	32	NV	--	8.2 JQ	7.1 JQ	1.3 JQ	1.1 JQ	1.2 JQ	1.2 JQ	--	--	--	--	1.2 JQ
Arsenic	20	8.47	--	7.7	3.9	1 UJ	1 UJ	1 U	1 U	--	--	--	--	1 U
Barium	16,000	NV	--	77.1	41.7	97.9	106	85.5	94.3	--	--	--	--	125
Beryllium	160	0.8	--	1.3	1.3	0.9	0.94	0.66	0.7	--	--	--	--	0.83
Cadmium	2	0.1	--	6.6	6.6	1.2	1.2	1.5	1.5	--	--	--	--	1.4
Calcium	NV	NV	--	11,000 J	6,720 J	3,250	1,200	2,950 J	5,910 J	--	--	--	--	1,750 J
Chromium	2,000[b]	78.5	--	56.1 J	85.4 J	32.3	35.9	24.6 J	25.2 J	--	--	--	--	27.6 J
Cobalt	24	NV	--	22.9	17.8	20.6	23.5	16.3	16.2	--	--	--	--	18.4
Copper	3,200	52.9	--	390	249	120	66.7	58.4	56.1	--	--	--	--	49.4
Iron	56,000	49,170	--	117,000 J	147,000 J	32,200	37,000	29,000 J	28,400 J	--	--	--	--	30,000 J
Lead	250	10.9	--	67.2	40	3.2	1.4	2.9	3.2	--	--	--	--	2.7
Magnesium	NV	NV	--	5,120 J	4,050 J	5,490	6,550	5,020 J	4,570 J	--	--	--	--	4,110 J
Manganese	3,700	691.8	--	880	888	239	324	515	478	--	--	--	--	530
Mercury	2	NV	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,600	54.2	--	62.9	59.2	33.7	33.7	28.3	24.9	--	--	--	--	27.2
Potassium	NV	NV	--	242 JQ	149 JQ	258 JQ	203 JQ	255 JQ	237 JQ	--	--	--	--	252 JQ
Selenium	400	NV	--	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ	--	--	--	--	3.5 UJ
Silver	400	NV	--	4.3 J	4.9 J	0.89 J	1.1 J	1.1 J	1.6 J	--	--	--	--	1.1 J
Sodium	NV	NV	--	1720	800	273 JQ	302 JQ	321 JQ	372 JQ	--	--	--	--	531
Thallium	0.8	NV	--	2.5 U	2.5 U	5.7	5.3	3.8	3.1	--	--	--	--	4
Vanadium	400	NV	--	45.1	36.8	112	98.1	87.6	84.5	--	--	--	--	99.9
Zinc	24,000	85.6	--	889	775	53.7	45	43	46.8	--	--	--	--	42.9
PCBs (mg/kg)														
Aroclor 1016	NA	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1221	NV	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1232	NV	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1242	NV	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1248	NV	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1254	NA	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1260	NA	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1262	NV	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Aroclor 1268	NV	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Total PCBs[c]	1	NA	--	--	--	0.037 U	0.036 U	0.036 U	0.05 U	--	--	--	--	--
Dioxins/Furans (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
1,2,3,4,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides (mg/kg)														
Aldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
delta-BHC	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chlordane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Total DDTs	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan II	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
Endrin Ketone	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lindane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	38	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,1,2,2-Tetrachloroethane	5	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,1,2-Trichloroethane	18	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,1-Dichloroethane	180	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,1-Dichloroethene	4,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,1-Dichloropropene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	64	NA	0.0053 U	0.039 R	0.0097 UJ	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,2,3-Trichloropropane	0.0063	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	34	NA	0.0053 U	0.039 R	0.0097 UJ	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,2,4-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.0053 U	0.039 R	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,2-Dibromoethane	0.005	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,2-Dichlorobenzene	7,200	NA	0.0053 U	0.039 R	0.0097 UJ	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,2-Dichloroethane	11	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,2-Dichloropropane	27	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,3,5-Trimethylbenzene	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	0.0053 U	0.039 R	0.0097 UJ	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
1,3-Dichloropropane	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	0.0053 U	0.039 R	0.0097 UJ	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
2,2-Dichloropropane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	48,000	NA	0.0047 JQ	0.1 J	0.018 JQ	--	--	--	--	0.0069 JQ	0.011 U	0.0073 JQ	0.023	0.0096 U
2-Chloroethylvinyl ether	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	400	NA	0.011 U	0.078 UJ	0.019 U	--	--	--	--	0.0093 U	0.011 U	0.011 U	0.021 U	0.0096 U
4-Chlorotoluene	1,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6,400	NA	0.011 U	0.078 UJ	0.019 U	--	--	--	--	0.0093 U	0.011 U	0.011 U	0.021 U	0.0096 U
Acetone	72,000	NA	0.0097 JQ	1.5 J	1.5 J	--	--	--	--	0.043	0.02	0.047	0.063	0.0098
Acrolein	40	NA	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	1.9	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Bromobenzene	640	NA	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
Bromodichloromethane	16	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Bromoethane	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	130	NA	0.0053 U	0.039 R	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Bromomethane	110	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Carbon disulfide	8,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Carbon tetrachloride	14	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Chlorobenzene	1,600	NA	0.0053 U	0.039 UJ	0.0097 UJ	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Chlorobromomethane	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Chloroethane	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Chloroform	32	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Chloromethane	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
cis-1,2-Dichloroethene	160	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
cis-1,3-Dichloropropene	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Cyclohexane	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Dibromochloromethane	12	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Dibromomethane	800	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Ethylbenzene	6	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Freon 113	2,400,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Hexachlorobutadiene	13	NA	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	8,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
m,p-Xylene	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Methyl acetate	80,000	NA	0.0053 U	0.039 UJ	0.0097 R	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Methyl iodide	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Methylcyclohexane	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Methylene chloride	0.02	NA	0.0053 U	0.039 U	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Naphthalene	5	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	4,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	16,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
sec-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	16,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
tert-Butylbenzene	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Toluene	7	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
trans-1,2-Dichloroethene	1,600	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
trans-1,3-Dichloropropene	NV	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
trans-1,4-Dichloro-2-butene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U

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Historical Soil Analytical Data
Upland Remedial Investigation
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Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0053 U	0.039 UJ	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
Vinyl acetate	80,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.67	NA	0.0032 U	0.023 UJ	0.0058 U	--	--	--	--	0.0028 U	0.0032 U	0.0033 U	0.0063 U	0.0029 U
Xylenes, total[e]	9	NA	0.0053 U	0.039 U	0.0097 U	--	--	--	--	0.0046 U	0.0054 U	0.0055 U	0.01 U	0.0048 U
SVOCs (mg/kg)														
1,1'-Biphenyl	130	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
1,2,4,5-Tetrachlorobenzene	24	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
1,2,4-Trichlorobenzene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	7,200	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	190	NA	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	10	NA	0.087 U	9 U	1.6 U	0.73 U	0.074 U	0.074 U	0.1 U	0.077 U	0.075 U	0.37 U	0.12 U	0.075 U
1-Methylnaphthalene	34	NA	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	2,400	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2,4,5-Trichlorophenol	8,000	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2,4,6-Trichlorophenol	80	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2,4-Dichlorophenol	240	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2,4-Dimethylphenol	1,600	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2,4-Dinitrophenol	160	NA	0.43 U	44 UJ	8 UJ	3.6 UJ	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 UJ	0.57 UJ	0.37 U
2,4-Dinitrotoluene	3.2	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2,6-Dinitrotoluene	0.67	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2-Chloronaphthalene	6,400	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2-Chlorophenol	400	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2-Methylnaphthalene	320	NA	0.0043 UJ	0.44 U	0.44	0.012 JQ	0.0014 JQ	0.0032 JQ	0.0015 JQ	0.00095 JQ	0.0037 U	0.015 JQ	0.0031 JQ	0.00092 JQ
2-Methylphenol	4,000	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
2-Nitroaniline	800	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
2-Nitrophenol	NV	NA	0.22 U	23 UJ	4.1 UJ	1.8 UJ	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 UJ	0.29 U	0.19 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	2.2	NA	0.43 U	44 UJ	8 UJ	3.6 UJ	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
3-Nitroaniline	NV	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
4,6-Dinitro-2-methylphenol	6.4	NA	0.43 U	44 UJ	8 UJ	3.6 UJ	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 UJ	0.57 UJ	0.37 U
4-Bromophenylphenyl ether	NV	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
4-Chloro-3-methylphenol	8,000	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
4-Chloroaniline	5	NA	0.43 U	44 UJ	8 UJ	3.6 UJ	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
4-Chlorophenylphenyl ether	NV	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
4-Methylphenol	8,000	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
4-Nitroaniline	50	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
4-Nitrophenol	NV	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Acenaphthene	4,800	NA	0.0043 U	0.44 U	0.37	0.036 U	0.0071	0.00082 JQ	0.012	0.0038 U	0.0037 U	1.5	0.0057 U	0.00088 JQ
Acenaphthylene	NV	NA	0.0043 U	0.44 U	0.15	0.036 U	0.00037 JQ	0.0037	0.0013 JQ	0.00052 JQ	0.00063 JQ		0.0057 U	0.0037 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
Acetophenone	8,000	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Anthracene	24,000	NA	0.0043 U	0.44 U	0.08 UJ	0.036 U	0.0017 JQ	0.0037 U	0.005 U	0.0038 U	0.0037 U	3	0.0057 U	0.0037 U
Atrazine	4.3	NA	0.43 U	44 U	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Benzaldehyde	250	NA	0.43 U	44 U	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Benzo(a)anthracene	NV	NA	0.0043 U	0.44 UJ	0.08 UJ	0.036 U	0.0013 JQ	0.0024 JQ	0.005 U	0.0038 U	0.0058	2.6	0.0057 U	0.0037 U
Benzo(a)pyrene	NA	NA	0.0043 U	0.44 UJ	0.08 UJ	0.019 JQ	0.0036 U	0.0018 JQ	0.005 U	0.0038 U	0.0019 JQ	1.8	0.0057 U	0.0037 U
Benzo(b)fluoranthene	NV	NA	0.0043 U	0.44 UJ	1 J	0.036 U	0.00068 JQ	0.0045	0.0016 JQ	0.0038 U	0.0051	2.5	0.0057 U	0.0037 U
Benzo(ghi)perylene	NV	NA	0.0043 U	0.44 U	0.023 JQ	0.036 UJ	0.0036 U	0.0017 JQ	0.0013 JQ	0.0038 U	0.0037 UJ	0.35 J	0.0057 UJ	0.0037 U
Benzo(k)fluoranthene	NV	NA	0.0043 U	0.44 UJ	0.08 UJ	0.036 U	0.0036 U	0.0037 U	0.005 U	0.0038 U	0.001 JQ	0.97	0.00085 JQ	0.0037 U
Benzoic acid	320,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	8,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	14	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Bis(2-chloroethoxy)methane	240	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Bis(2-chloroethyl)ether	0.91	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Bis(2-ethylhexyl)phthalate	71	NA	0.22 U	19 JQ	5.3 J	1.8 UJ	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 UJ	0.29 UJ	0.19 U
Butylbenzylphthalate	530	NA	0.22 U	23 U	4.1 U	1.8 UJ	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 UJ	0.29 UJ	0.19 U
Caprolactam	40,000	NA	0.43 U	44 U	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Carbazole	NV	NA	0.43 U	44 UJ	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U
Chrysene	NV	NA	0.0043 U	0.63 J	0.91 J	0.091	0.0015 JQ	0.007	0.0018 JQ	0.0038 U	0.0081	3.8	0.0057 U	0.0037 U
Dibenzo(a,h)anthracene	NV	NA	0.0043 U	0.44 UJ	0.08 UJ	0.036 UJ	0.0036 U	0.0037 U	0.005 U	0.0038 U	0.0037 UJ	0.23 J	0.0057 UJ	0.0037 U
Dibenzofuran	80	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.6 JQ	0.29 U	0.19 U
Diethyl phthalate	64,000	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Dimethyl phthalate	NV	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Di-n-butyl phthalate	8,000	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Di-n-octyl phthalate	800	NA	0.43 U	44 UJ	8 UJ	3.6 UJ	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 UJ	0.57 UJ	0.37 U
Fluoranthene	3,200	NA	0.0043 U	2.2 J	4.7	0.036 U	0.0092	0.0097	0.0098	0.0038 U	0.0087	7.4	0.0057 U	0.0037 U
Fluorene	3,200	NA	0.0043 U	0.44 U	0.73	0.036 U	0.006	0.0019 JQ	0.005 U	0.0038 U	0.0037 U	1.5	0.0057 U	0.0037 U
Hexachlorobenzene	0.63	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Hexachlorobutadiene	13	NA	0.22 U	23 U	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Hexachlorocyclopentadiene	480	NA	0.43 U	44 UJ	8 UJ	3.6 UJ	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 UJ	0.57 UJ	0.37 U
Hexachloroethane	25	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.0043 U	0.44 UJ	0.022 JQ	0.036 UJ	0.0036 U	0.001 JQ	0.00068 JQ	0.0038 U	0.0037 UJ	0.58 J	0.0057 UJ	0.0037 U
Isophorone	1,100	NA	0.22 U	23 UJ	4.1 UJ	1.8 UJ	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 UJ	0.29 U	0.19 U
Naphthalene	5	NA	0.0043 U	0.44 U	0.43	0.036 U	0.0054	0.0094	0.005 U	0.0038 U	0.0037 U	0.037 U	0.0057 U	0.0037 U
Nitrobenzene	160	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
N-Nitrosodiphenylamine	200	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
N-Nitrosodipropylamine	0.14	NA	0.22 U	23 UJ	4.1 U	1.8 U	0.19 U	0.19 U	0.26 U	0.2 U	0.19 U	0.94 U	0.29 U	0.19 U
Pentachlorophenol	2.5	NA	0.0087 U	1.2 J	0.46 J	0.073 UJ	0.0074 U	0.0074 U	0.01 U	0.0077 U	0.0075 UJ	0.074 UJ	0.008 JQ	0.0075 U
Phenanthrene	NV	NA	0.0043 U	0.44 U	4.9	0.067	0.0036	0.014	0.0056	0.0038 U	0.0037 U	4.9	0.0065	0.0037 U
Phenol	24,000	NA	0.43 U	44 U	8 U	3.6 U	0.36 U	0.37 U	0.5 U	0.38 U	0.37 U	1.8 U	0.57 U	0.37 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	PB06	PB07	PB08	PB09		PB10	PB10	PW01		PW02		VM01
Sample Name:			17394243	MJJ474	MJJ475	MJJ4B7	MJJ4B8	MJJ4B9	MJJ4C0	17394247	17394248	17394250	17394251	MJJ486
Collection Date:			9/28/2017	9/25/2017	9/25/2017	9/27/2017	9/29/2017	9/29/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017
Collection Depth (ft bgs):			4-6	0-0.5	0-0.5	2-4	4-5.5	2.4-4	4-6.5	2-4	4-6	1.6-2.6	6-8	2-4
Pyrene	2,400	NA	0.0043 U	0.98 J	2.6	0.036 U	0.011	0.015	0.005	0.0038 U	0.013	7.4	0.0057 U	0.0037 U
Total Benzofluoranthenes	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[f][5]	0.1	NA	0.0043 U	0.336 J	0.163 J	0.0289 JQ	0.00255 JQ	0.00303 JQ	0.0035 JQ	0.0038 U	0.00354 JQ	2.53 J	0.0041 JQ	0.0037 U
Hydrocarbon Identification (Detect/Non-Detect)														
Gasoline	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	100	NA	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	2,000	NA	46 U	170 U	84 U	44 U	44 U	42 U	54 U	43 U	46 U	190	66 U	44 U
Lube Oil-Range Hydrocarbons	2,000	NA	120 U	170,000	25,000	400	110 U	110 U	130 U	110 U	120 U	1,000	160 U	110 U
Diesel+Oil[g]	2,000	NA	120 U	170,000	25,000	422	110 U	110 U	130 U	110 U	120 U	1,190	160 U	110 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
Total Metals (mg/kg)			
Aluminum	80,000	NV	25,400
Antimony	32	NV	0.97 JQ
Arsenic	20	8.47	1 U
Barium	16,000	NV	111
Beryllium	160	0.8	0.78
Cadmium	2	0.1	1.2
Calcium	NV	NV	1,210 J
Chromium	2,000[b]	78.5	23.9 J
Cobalt	24	NV	17.8
Copper	3,200	52.9	45.7
Iron	56,000	49,170	26,800 J
Lead	250	10.9	3.8
Magnesium	NV	NV	3,990 J
Manganese	3,700	691.8	421
Mercury	2	NV	--
Nickel	1,600	54.2	22.3
Potassium	NV	NV	229 JQ
Selenium	400	NV	3.5 UJ
Silver	400	NV	0.97 J
Sodium	NV	NV	305 JQ
Thallium	0.8	NV	3.7
Vanadium	400	NV	80.1
Zinc	24,000	85.6	42.1
PCBs (mg/kg)			
Aroclor 1016	NA	NA	--
Aroclor 1221	NV	NA	--
Aroclor 1232	NV	NA	--
Aroclor 1242	NV	NA	--
Aroclor 1248	NV	NA	--
Aroclor 1254	NA	NA	--
Aroclor 1260	NA	NA	--
Aroclor 1262	NV	NA	--
Aroclor 1268	NV	NA	--
Total PCBs[c]	1	NA	--
Dioxins/Furans (pg/g)			
1,2,3,4,6,7,8-HpCDD	NV	NA	--
1,2,3,4,6,7,8-HpCDF	NV	NA	--
1,2,3,4,7,8,9-HpCDF	NV	NA	--
1,2,3,4,7,8-HxCDD	NV	NA	--

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
1,2,3,4,7,8-HxCDF	NV	NA	--
1,2,3,6,7,8-HxCDD	NV	NA	--
1,2,3,6,7,8-HxCDF	NV	NA	--
1,2,3,7,8,9-HxCDD	NV	NA	--
1,2,3,7,8,9-HxCDF	NV	NA	--
1,2,3,7,8-PeCDD	NV	NA	--
1,2,3,7,8-PeCDF	NV	NA	--
2,3,4,6,7,8-HxCDF	NV	NA	--
2,3,4,7,8-PeCDF	NV	NA	--
2,3,7,8-TCDD	NA	NA	--
2,3,7,8-TCDF	NV	NA	--
OCDD	NV	NA	--
OCDF	NV	NA	--
Total HpCDDs	NV	NA	--
Total HpCDFs	NV	NA	--
Total HxCDDs	NA	NA	--
Total HxCDFs	NV	NA	--
Total PeCDDs	NV	NA	--
Total PeCDFs	NV	NA	--
Total TCDDs	NV	NA	--
Total TCDFs	NV	NA	--
Dioxin/Furan TEQ[d][3][4]	13	NA	--
Pesticides (mg/kg)			
Aldrin	NV	NA	--
alpha-BHC	NV	NA	--
beta-BHC	NV	NA	--
delta-BHC	NV	NA	--
cis-Chlordane	NV	NA	--
gamma-Chlordane	NV	NA	--
Chlordane	NV	NA	--
4,4'-DDD	NV	NA	--
4,4'-DDE	NV	NA	--
4,4'-DDT	NV	NA	--
Total DDTs	NV	NA	--
Dieldrin	NV	NA	--
Endosulfan I	NV	NA	--
Endosulfan II	NV	NA	--
Endosulfan Sulfate	NV	NA	--
Endrin	NV	NA	--
Endrin Aldehyde	NV	NA	--

Location:	Screening Level for Soil[(a)(1)]	Natural Background Levels[(2)]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
Endrin Ketone	NV	NA	--
Heptachlor	NV	NA	--
Heptachlor Epoxide	NV	NA	--
Lindane	NV	NA	--
Methoxychlor	NV	NA	--
Toxaphene	NV	NA	--
VOCs (mg/kg)			
1,1,1,2-Tetrachloroethane	38	NA	--
1,1,1-Trichloroethane	2	NA	0.0053 U
1,1,2,2-Tetrachloroethane	5	NA	0.0053 U
1,1,2-Trichloroethane	18	NA	0.0053 U
1,1-Dichloroethane	180	NA	0.0053 U
1,1-Dichloroethene	4,000	NA	0.0053 U
1,1-Dichloropropene	NV	NA	--
1,2,3-Trichlorobenzene	64	NA	0.0053 UJ
1,2,3-Trichloropropane	0.0063	NA	--
1,2,4-Trichlorobenzene	34	NA	0.0053 UJ
1,2,4-Trimethylbenzene	800	NA	--
1,2-Dibromo-3-chloropropane	0.23	NA	0.0053 U
1,2-Dibromoethane	0.005	NA	0.0053 U
1,2-Dichlorobenzene	7,200	NA	0.0053 UJ
1,2-Dichloroethane	11	NA	0.0053 U
1,2-Dichloropropane	27	NA	0.0053 U
1,3,5-Trimethylbenzene	800	NA	--
1,3-Dichlorobenzene	NV	NA	0.0053 UJ
1,3-Dichloropropane	1,600	NA	--
1,4-Dichlorobenzene	190	NA	0.0053 UJ
2,2-Dichloropropane	NV	NA	--
2-Butanone	48,000	NA	0.0066 JQ
2-Chloroethylvinyl ether	NV	NA	--
2-Chlorotoluene	1,600	NA	--
2-Hexanone	400	NA	0.011 U
4-Chlorotoluene	1,600	NA	--
4-Isopropyltoluene	NV	NA	--
4-Methyl-2-pentanone	6,400	NA	0.011 U
Acetone	72,000	NA	0.026
Acrolein	40	NA	--
Acrylonitrile	1.9	NA	--
Benzene	0.03	NA	0.0053 U
Bromobenzene	640	NA	--

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
Bromodichloromethane	16	NA	0.0053 U
Bromoethane	NV	NA	--
Bromoform	130	NA	0.0053 U
Bromomethane	110	NA	0.0053 U
Carbon disulfide	8,000	NA	0.0053 U
Carbon tetrachloride	14	NA	0.0053 U
Chlorobenzene	1,600	NA	0.0053 UJ
Chlorobromomethane	NV	NA	0.0053 U
Chloroethane	NV	NA	0.0053 U
Chloroform	32	NA	0.0053 U
Chloromethane	NV	NA	0.0053 U
cis-1,2-Dichloroethene	160	NA	0.0053 U
cis-1,3-Dichloropropene	NV	NA	0.0053 U
Cyclohexane	NV	NA	0.0053 U
Dibromochloromethane	12	NA	0.0053 U
Dibromomethane	800	NA	--
Dichlorodifluoromethane (Freon 12)	16,000	NA	0.0053 U
Ethylbenzene	6	NA	0.0053 U
Freon 113	2,400,000	NA	0.0053 U
Hexachlorobutadiene	13	NA	--
Isopropylbenzene	8,000	NA	0.0053 U
m,p-Xylene	NV	NA	0.0053 U
Methyl acetate	80,000	NA	0.0053 U
Methyl iodide	NV	NA	--
Methyl tert-butyl ether	0.1	NA	0.0053 U
Methylcyclohexane	NV	NA	0.0053 U
Methylene chloride	0.02	NA	0.0053 U
Naphthalene	5	NA	--
n-Butylbenzene	4,000	NA	--
n-Propylbenzene	8,000	NA	--
o-Xylene	16,000	NA	0.0053 U
sec-Butylbenzene	8,000	NA	--
Styrene	16,000	NA	0.0053 U
tert-Butylbenzene	8,000	NA	--
Tetrachloroethene	0.05	NA	0.0053 U
Toluene	7	NA	0.0053 U
trans-1,2-Dichloroethene	1,600	NA	0.0053 U
trans-1,3-Dichloropropene	NV	NA	0.0053 U
trans-1,4-Dichloro-2-butene	NV	NA	--
Trichloroethene	0.03	NA	0.0053 U

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
Trichlorofluoromethane (Freon 11)	24,000	NA	0.0053 U
Vinyl acetate	80,000	NA	--
Vinyl chloride	0.67	NA	0.0032 U
Xylenes, total[e]	9	NA	0.0053 U
SVOCs (mg/kg)			
1,1'-Biphenyl	130	NA	0.21 U
1,2,4,5-Tetrachlorobenzene	24	NA	0.21 U
1,2,4-Trichlorobenzene	34	NA	--
1,2-Dichlorobenzene	7,200	NA	--
1,3-Dichlorobenzene	NV	NA	--
1,4-Dichlorobenzene	190	NA	--
1,4-Dioxane	10	NA	0.085 U
1-Methylnaphthalene	34	NA	--
2,3,4,6-Tetrachlorophenol	2,400	NA	0.21 U
2,4,5-Trichlorophenol	8,000	NA	0.21 U
2,4,6-Trichlorophenol	80	NA	0.21 U
2,4-Dichlorophenol	240	NA	0.21 U
2,4-Dimethylphenol	1,600	NA	0.21 U
2,4-Dinitrophenol	160	NA	0.42 UJ
2,4-Dinitrotoluene	3.2	NA	0.21 U
2,6-Dinitrotoluene	0.67	NA	0.21 U
2-Chloronaphthalene	6,400	NA	0.21 U
2-Chlorophenol	400	NA	0.21 U
2-Methylnaphthalene	320	NA	0.0024 JQ
2-Methylphenol	4,000	NA	0.42 U
2-Nitroaniline	800	NA	0.21 U
2-Nitrophenol	NV	NA	0.21 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NA	--
3,3-Dichlorobenzidine	2.2	NA	0.42 U
3-Nitroaniline	NV	NA	0.42 U
4,6-Dinitro-2-methylphenol	6.4	NA	0.42 UJ
4-Bromophenylphenyl ether	NV	NA	0.21 U
4-Chloro-3-methylphenol	8,000	NA	0.21 U
4-Chloroaniline	5	NA	0.42 U
4-Chlorophenylphenyl ether	NV	NA	0.21 U
4-Methylphenol	8,000	NA	0.42 U
4-Nitroaniline	50	NA	0.42 U
4-Nitrophenol	NV	NA	0.42 U
Acenaphthene	4,800	NA	0.0048
Acenaphthylene	NV	NA	0.0042 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
Acetophenone	8,000	NA	0.42 U
Anthracene	24,000	NA	0.0042 U
Atrazine	4.3	NA	0.42 U
Benzaldehyde	250	NA	0.42 U
Benzo(a)anthracene	NV	NA	0.0042 U
Benzo(a)pyrene	NA	NA	0.0042 U
Benzo(b)fluoranthene	NV	NA	0.0042 U
Benzo(ghi)perylene	NV	NA	0.0042 U
Benzo(k)fluoranthene	NV	NA	0.0042 U
Benzoic acid	320,000	NA	--
Benzyl alcohol	8,000	NA	--
Bis(2-chloro-1-methylethyl)ether	14	NA	0.42 U
Bis(2-chloroethoxy)methane	240	NA	0.21 U
Bis(2-chloroethyl)ether	0.91	NA	0.42 U
Bis(2-ethylhexyl)phthalate	71	NA	0.21 U
Butylbenzylphthalate	530	NA	0.21 U
Caprolactam	40,000	NA	0.42 U
Carbazole	NV	NA	0.42 U
Chrysene	NV	NA	0.0042 U
Dibenzo(a,h)anthracene	NV	NA	0.0042 U
Dibenzofuran	80	NA	0.21 U
Diethyl phthalate	64,000	NA	0.21 U
Dimethyl phthalate	NV	NA	0.21 U
Di-n-butyl phthalate	8,000	NA	0.21 U
Di-n-octyl phthalate	800	NA	0.42 U
Fluoranthene	3,200	NA	0.0042 U
Fluorene	3,200	NA	0.0038 JQ
Hexachlorobenzene	0.63	NA	0.21 U
Hexachlorobutadiene	13	NA	0.21 U
Hexachlorocyclopentadiene	480	NA	0.42 UJ
Hexachloroethane	25	NA	0.21 U
Indeno(1,2,3-cd)pyrene	NV	NA	0.0042 U
Isophorone	1,100	NA	0.21 U
Naphthalene	5	NA	0.0042
Nitrobenzene	160	NA	0.21 U
N-Nitrosodiphenylamine	200	NA	0.21 U
N-Nitrosodipropylamine	0.14	NA	0.21 U
Pentachlorophenol	2.5	NA	0.0085 U
Phenanthrene	NV	NA	0.007
Phenol	24,000	NA	0.42 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil[a][1]	Natural Background Levels[2]	VM01
Sample Name:			MJJ487
Collection Date:			9/26/2017
Collection Depth (ft bgs):			6-8
Pyrene	2,400	NA	0.0042 U
Total Benzofluoranthenes	NV	NA	--
cPAH TEQ[f][5]	0.1	NA	0.0042 U
Hydrocarbon Identification (Detect/Non-Detect)			
Gasoline	NA	NA	--
Diesel	NA	NA	--
Lube Oil	NA	NA	--
TPH (mg/kg)			
Gasoline-Range Hydrocarbons	100	NA	--
Diesel-Range Hydrocarbons	2,000	NA	48 U
Lube Oil-Range Hydrocarbons	2,000	NA	120 U
Diesel+Oil[g]	2,000	NA	120 U

Table 6-3
Historical Soil Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

Shading indicates values that exceed soil screening levels; non-detect results (U, UJ, UL, UH, U^, UJH) and rejected results (R) were not compared with screening criteria.

Analytical results for samples collected in 2011 are from SAIC 2011. [6]

Screening levels were not developed for organochlorine pesticides because only samples collected in 2011 were analyzed for organochlorine pesticides, and all results were non-detect with reporting limits below soil MTCA A unrestricted land use, MTCA B cancer, and MTCA B non-cancer cleanup levels.

-- = not analyzed.

^ = data qualifier as shown in SAIC 2011. Data qualifier definition unavailable.

* = internal standard, laboratory control sample, or laboratory control sample duplicate exceeds control limits.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

ft bgs = feet below ground surface.

J = result is estimated.

JQ = result is estimated and detected below the method reporting limit.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

NA = not applicable.

ND = not detected.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram.

R = result is rejected. The analyte may or may not be present in the sample.

SAIC = Science Applications International Corporation.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbon.

U = result is non-detect at the reporting limit or detection limit.

UH = the result is non-detect and was prepared or analyzed beyond the specified holding time.

UJ = result is non-detect with an estimated reporting limit or detection limit.

UJH = result is estimated, non-detect, and was prepared or analyzed beyond the specified holding time.

UL = data qualifier as shown in 2011 SAIC Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling Data Report. Data qualifier definition unavailable.

VOC = volatile organic compound.

Y = the chromatographic response resembles a typical fuel pattern.

Z = data qualifier as shown in SAIC 2011. Data qualifier definition unavailable.

[a]Screening levels are the lowest regulatory criteria value for the given matrix, selected from soil MTCA Method A unrestricted land use where available, or MTCA Method B (the lowest of cancer and noncancer values) where MTCA Method A is not available . Where a summation is performed (except Diesel+Oil and total xylenes), data are not screened to MTCA values for individual analytes; data are only screened to the MTCA value for the summation.

[b]Screening level for trivalent chromium.

[c]Total PCBs are the sum of all PCB Aroclors. Non-detect results are not included in the sum. When all results are non-detect, the highest reporting limit or detection limit is used.

[d]Dioxin/furan TEQ is calculated with 2005 World Health Organization mammal toxicity equivalence factors (Van den Berg et al. 2006). Non-detect results are included at one-half the detection limit. When all dioxin and furan results are non-detect, the TEQ is shown as "ND."

[e]Total xylenes are reported from the laboratory or are the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the reporting limit or detection limit. When all results are non-detect, the highest reporting limit or detection limit is used.

[f]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors (Ecology 2015). Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[g]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbons results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

References

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC) table.* Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State* . Publication 94-115. Washington State Department of Ecology. October.

[3]Ecology. 2007. *Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures Using Toxicity Equivalency Factors* . Supporting Material for CLARC. Washington State Department of Ecology.

[4]Van den Berg, M., L. S. Birnbaum, M. Denison, M. De Vito, W. Farland, and M. Feeley. 2006. "The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds." Toxicological Sciences 93(2): 223–41.

[5]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs).* Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

[6]SAIC. 2011. *Weyerhaeuser Aquatic Lands Lease Confirmation Sampling* . Science Applications International Corporation: Bothell, Washington. August 12.

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Cleanup Standards[1]		RAU1-02	RAU1-03	RAU2-09
Sample Name:	Organic Carbon (0.5% to 3.5%)[a]	Organic Carbon (<0.5% or >3.5%)[b]	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU2-09-SO-1.5
Collection Date:			12/02/2019	12/03/2019	12/04/2019
Collection Depth (ft bgs):			0.5-1.5	1.9-2.5	1-2
Total Organic Carbon (%)					
Total Organic Carbon	NV	NV	--[c]	--[c]	--[c]
Total Metals (mg/kg-dry)					
Arsenic	11	11	1.05 J	0.998 J	3.05
Cadmium	0.8	0.8	0.116 U	0.121 U	0.138 J
Chromium	72	72	8.45	5.5	21
Copper	390	390	30.9	12.4	49.2
Lead	21	21	2.76	2.3	11.1 J
Manganese	NV	NV	290	219	316
Mercury	0.2	0.2	0.0466 U	0.0483 U	0.252 J
Nickel	50	50	11.8	4.51	20.7
Zinc	410	410	36.3	39.1	86.9 J
PCBs (mg/kg-dry)					
Aroclor 1016	NV	NV	0.00233 UJ	--	0.00539 U
Aroclor 1221	NV	NV	0.00233 UJ	--	0.00539 U
Aroclor 1232	NV	NV	0.00233 UJ	--	0.00539 U
Aroclor 1242	NV	NV	0.00233 UJ	--	0.00539 U
Aroclor 1248	NV	NV	0.00233 UJ	--	0.00539 U
Aroclor 1254	NV	NV	0.00233 U	--	0.00539 U
Aroclor 1260	NV	NV	0.00233 U	--	0.0134
Aroclor 1268	NV	NV	--	--	--
Total PCBs[d]	0.0035	0.0035	0.00233 UJ	--	0.0134
VOCs (mg/kg-dry)					
1,1,1,2-Tetrachloroethane	NV	NV	0.0147 U	--	--
1,1,1-Trichloroethane	NV	NV	0.0147 U	--	--
1,1,2,2-Tetrachloroethane	NV	NV	0.0294 U	--	--
1,1,2-Trichloroethane	NV	NV	0.0147 U	--	--
1,1-Dichloroethane	NV	NV	0.0147 U	--	--
1,1-Dichloroethene	NV	NV	0.0147 U	--	--
1,1-Dichloropropene	NV	NV	0.0294 U	--	--
1,2,3-Trichlorobenzene	NV	NV	0.147 U	--	--
1,2,3-Trichloropropane	NV	NV	0.0294 U	--	--
1,2,4-Trichlorobenzene	NV	NV	0.147 U	--	--
1,2,4-Trimethylbenzene	NV	NV	0.0294 U	--	--
1,2-Dibromo-3-chloropropane	NV	NV	0.147 U	--	--
1,2-Dibromoethane	NV	NV	0.0294 U	--	--
1,2-Dichlorobenzene	NV	NV	0.0147 U	--	--
1,2-Dichloroethane	NV	NV	0.0147 U	--	--

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Cleanup Standards[1]		RAU1-02	RAU1-03	RAU2-09
Sample Name:	Organic Carbon (0.5% to 3.5%)[a]	Organic Carbon (<0.5% or >3.5%)[b]	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU2-09-SO-1.5
Collection Date:			12/02/2019	12/03/2019	12/04/2019
Collection Depth (ft bgs):			0.5-1.5	1.9-2.5	1-2
1,2-Dichloropropane	NV	NV	0.0147 U	--	--
1,3,5-Trimethylbenzene	NV	NV	0.0294 U	--	--
1,3-Dichlorobenzene	NV	NV	0.0147 U	--	--
1,3-Dichloropropane	NV	NV	0.0294 U	--	--
1,4-Dichlorobenzene	NV	NV	0.0147 U	--	--
2,2-Dichloropropane	NV	NV	0.0294 U	--	--
2-Butanone	NV	NV	0.294 U	--	--
2-Chlorotoluene	NV	NV	0.0294 U	--	--
2-Hexanone	NV	NV	0.294 U	--	--
4-Chlorotoluene	NV	NV	0.0294 U	--	--
4-Isopropyltoluene	NV	NV	0.0294 U	--	--
4-Methyl-2-pentanone	NV	NV	0.294 U	--	--
Acetone	NV	NV	0.588 U	--	--
Acrylonitrile	NV	NV	0.0588 U	--	--
Benzene	NV	NV	0.00588 U	--	--
Bromobenzene	NV	NV	0.0147 U	--	--
Bromodichloromethane	NV	NV	0.0294 U	--	--
Bromoform	NV	NV	0.0588 U	--	--
Bromomethane	NV	NV	0.588 U	--	--
Carbon disulfide	NV	NV	0.294 U	--	--
Carbon tetrachloride	NV	NV	0.0294 U	--	--
Chlorobenzene	NV	NV	0.0147 U	--	--
Chlorobromomethane	NV	NV	0.0294 U	--	--
Chloroethane	NV	NV	0.588 UJ	--	--
Chloroform	NV	NV	0.0294 U	--	--
Chloromethane	NV	NV	0.294 UJ	--	--
cis-1,2-Dichloroethene	NV	NV	0.0147 U	--	--
cis-1,3-Dichloropropene	NV	NV	0.0294 U	--	--
Dibromochloromethane	NV	NV	0.0588 U	--	--
Dibromomethane	NV	NV	0.0294 U	--	--
Dichlorodifluoromethane (Freon 12)	NV	NV	0.0588 UJ	--	--
Ethylbenzene	NV	NV	0.0147 U	--	--
Hexachlorobutadiene	NV	NV	0.0588 U	--	--
Isopropylbenzene	NV	NV	0.0294 U	--	--
m,p-Xylene	NV	NV	0.0294 U	--	--
Methyl tert-butyl ether	NV	NV	0.0294 U	--	--
Methylene chloride	NV	NV	0.147 U	--	--
Naphthalene	NV	NV	0.0588 U	--	--
n-Butylbenzene	NV	NV	0.0294 U	--	--

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Cleanup Standards[1]		RAU1-02	RAU1-03	RAU2-09
Sample Name:	Organic Carbon (0.5% to 3.5%)[a]	Organic Carbon (<0.5% or >3.5%)[b]	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU2-09-SO-1.5
Collection Date:			12/02/2019	12/03/2019	12/04/2019
Collection Depth (ft bgs):			0.5-1.5	1.9-2.5	1-2
n-Propylbenzene	NV	NV	0.0147 U	--	--
o-Xylene	NV	NV	0.0147 U	--	--
sec-Butylbenzene	NV	NV	0.0294 U	--	--
Styrene	NV	NV	0.0294 U	--	--
tert-Butylbenzene	NV	NV	0.0294 U	--	--
Tetrachloroethene	NV	NV	0.0147 U	--	--
Toluene	NV	NV	0.0294 U	--	--
trans-1,2-Dichloroethene	NV	NV	0.0147 U	--	--
trans-1,3-Dichloropropene	NV	NV	0.0294 U	--	--
Trichloroethene	NV	NV	0.0147 U	--	--
Trichlorofluoromethane (Freon 11)	NV	NV	0.118 U	--	--
Vinyl chloride	NV	NV	0.0147 U	--	--
Xylenes, total[e]	NV	NV	0.0294 U	--	--

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Cleanup Standards[1]		RAU1-02	RAU1-03	RAU2-09
Sample Name:	Organic Carbon (0.5% to 3.5%)[a]	Organic Carbon (<0.5% or >3.5%)[b]	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU2-09-SO-1.5
Collection Date:			12/02/2019	12/03/2019	12/04/2019
Collection Depth (ft bgs):			0.5-1.5	1.9-2.5	1-2
SVOCs (mg/kg-dry)					
1,2,4-Trichlorobenzene	NV	0.031	0.15 U	0.00373 U	0.722 U
1,2-Dichlorobenzene	NV	0.035	0.15 U	0.00373 U	0.722 U
1,2-Dinitrobenzene	NV	NV	1.5 U	0.0373 U	7.22 U
1,3-Dichlorobenzene	NV	NV	0.15 U	0.00373 U	0.722 U
1,3-Dinitrobenzene	NV	NV	1.5 U	0.0373 U	7.22 U
1,4-Dichlorobenzene	NV	0.11	0.15 U	0.00373 U	0.722 U
1,4-Dinitrobenzene	NV	NV	1.5 U	0.0373 U	7.22 U
1-Methylnaphthalene	NV	NV	0.12 U	0.00299 U	0.579 U
2,3,4,6-Tetrachlorophenol	NV	NV	0.3 U	0.00746 U	1.45 U
2,3,5,6-Tetrachlorophenol	NV	NV	0.3 U	0.00746 U	1.45 U
2,4,5-Trichlorophenol	NV	NV	0.3 U	0.00746 U	1.45 U
2,4,6-Trichlorophenol	NV	NV	0.3 U	0.00746 U	1.45 U
2,4-Dichlorophenol	NV	NV	0.3 U	0.00746 U	1.45 U
2,4-Dimethylphenol	0.029	0.029	0.3 U	0.00746 U	1.45 U
2,4-Dinitrophenol	NV	NV	1.5 U	0.0373 U	7.22 U
2,4-Dinitrotoluene	NV	NV	0.598 U	0.0149 U	2.89 U
2,6-Dinitrotoluene	NV	NV	0.598 U	0.0149 U	2.89 U
2-Chloronaphthalene	NV	NV	0.0598 U	0.00149 U	0.289 U
2-Chlorophenol	NV	NV	0.3 U	0.00746 U	1.45 U
2-Methylnaphthalene	NV	0.67	0.12 U	0.00299 U	0.579 U
2-Methylphenol	0.063	0.063	0.15 U	0.00373 U	0.722 U
2-Nitroaniline	NV	NV	1.2 U	0.0299 U	5.79 U
2-Nitrophenol	NV	NV	0.598 U	0.0149 U	2.89 U
3- & 4-Methylphenol (m,p-Cresol)	0.26	0.26	0.15 U	0.00373 U	0.722 U
3,3-Dichlorobenzidine	NV	NV	1.2 UJ	0.0299 UJ	5.79 U
3-Nitroaniline	NV	NV	1.2 U	0.0299 U	5.79 U
4,6-Dinitro-2-methylphenol	NV	NV	1.5 U	0.0373 U	7.22 U
4-Bromophenylphenyl ether	NV	NV	0.15 U	0.00373 U	0.722 U
4-Chloro-3-methylphenol	NV	NV	0.598 U	0.0149 U	2.89 U
4-Chloroaniline	NV	NV	0.15 U	0.00373 U	0.722 U
4-Chlorophenylphenyl ether	NV	NV	0.15 U	0.00373 U	0.722 U
4-Methylphenol	NV	NV	--	--	--
4-Nitroaniline	NV	NV	1.2 U	0.0299 U	5.79 U
4-Nitrophenol	NV	NV	0.598 U	0.0299 U	2.89 U
Acenaphthene	NV	0.5	0.0598 U	0.00149 U	0.289 U
Acenaphthylene	NV	1.3	0.0598 U	0.00149 U	0.289 U
Aniline	NV	NV	0.3 U	0.00746 U	1.45 U
Anthracene	NV	0.96	0.0598 U	0.00299 U	0.289 U

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Cleanup Standards[1]		RAU1-02	RAU1-03	RAU2-09
Sample Name:	Organic Carbon (0.5% to 3.5%)[a]	Organic Carbon (<0.5% or >3.5%)[b]	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU2-09-SO-1.5
Collection Date:			12/02/2019	12/03/2019	12/04/2019
Collection Depth (ft bgs):			0.5-1.5	1.9-2.5	1-2
Azobenzene	NV	NV	0.15 U	0.00373 U	0.722 U
Benzo(a)anthracene	NV	1.3	0.0598 U	0.00149 U	0.579 U
Benzo(a)pyrene	NV	1.6	0.18 U	0.00224 U	0.528 J
Benzo(b)fluoranthene	NV	NV	0.0899 U	0.00224 U	0.485 J
Benzo(ghi)perylene	NV	0.67	0.0598 U	0.00149 U	0.289 U
Benzo(k)fluoranthene	NV	NV	0.0899 U	0.00224 U	0.434 U
Benzoic acid	0.65	0.65	7.5 U	0.187 U	36.2 U
Benzyl alcohol	0.057	0.057	0.3 U	0.00746 U	1.45 U
Bis(2-chloro-1-methylethyl)ether	NV	NV	0.15 U	0.00373 U	0.722 U
Bis(2-chloroethoxy)methane	NV	NV	0.15 U	0.00373 U	0.722 U
Bis(2-chloroethyl)ether	NV	NV	0.15 U	0.00373 U	0.722 U
Bis(2-ethylhexyl)phthalate	0.5	0.5	0.899 U	0.0224 U	4.34 U
Butylbenzylphthalate	NV	0.063	0.598 U	0.0149 U	2.89 U
Carbazole	0.9	0.9	0.0899 U	0.00224 U	0.434 U
Chrysene	NV	1.4	0.0623 J	0.00149 U	0.579 U
Di(2-ethylhexyl)adipate	NV	NV	1.5 U	0.0373 U	7.22 U
Dibenzo(a,h)anthracene	NV	0.23	0.0598 U	0.00149 U	0.289 U
Dibenzofuran	0.2	0.2	0.0598 U	0.00149 U	0.289 U
Diethyl phthalate	NV	0.2	0.598 U	0.0299 U	2.89 U
Dimethyl phthalate	NV	0.071	0.598 U	0.0149 U	2.89 U
Di-n-butyl phthalate	0.38	0.38	0.598 U	0.0299 U	2.89 U
Di-n-octyl phthalate	0.039	0.039	0.598 U	0.0149 U	2.89 U
Fluoranthene	NV	1.7	0.0598 U	0.00149 U	0.289 U
Fluorene	NV	0.54	0.0598 U	0.00149 U	0.289 U
Hexachlorobenzene	NV	0.022	0.0598 U	0.00149 U	0.289 U
Hexachlorobutadiene	NV	0.011	0.15 U	0.00373 U	0.722 U
Hexachlorocyclopentadiene	NV	NV	0.3 U	0.00746 U	1.45 U
Hexachloroethane	NV	NV	0.15 U	0.00373 U	0.722 U
Indeno(1,2,3-cd)pyrene	NV	0.6	0.0598 U	0.00149 U	0.289 U
Isophorone	NV	NV	0.15 U	0.00373 U	0.722 U
Naphthalene	NV	2.1	0.12 U	0.00299 U	0.579 U
Nitrobenzene	NV	NV	0.598 U	0.0149 U	2.89 U
N-Nitrosodimethylamine	NV	NV	0.15 U	0.00373 U	0.722 U
N-Nitrosodiphenylamine	NV	NV	0.15 U	0.00373 U	0.722 U
N-Nitrosodipropylamine	NV	NV	0.15 U	0.00373 U	0.722 U
Pentachlorophenol	0.36	0.36	0.598 U	0.0149 U	2.89 U
Phenanthrene	NV	1.5	0.0598 U	0.00149 U	0.289 U
Phenol	0.12	0.12	0.12 U	0.00596 U	0.579 U
Pyrene	NV	2.6	0.0598 U	0.00149 U	0.289 U

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Cleanup Standards[1]		RAU1-02	RAU1-03	RAU2-09
Sample Name:	Organic Carbon (0.5% to 3.5%)[a]	Organic Carbon (<0.5% or >3.5%)[b]	RAU1-02-SO-1	RAU1-03-SO-2.2	RAU2-09-SO-1.5
Collection Date:			12/02/2019	12/03/2019	12/04/2019
Collection Depth (ft bgs):			0.5-1.5	1.9-2.5	1-2
Pyridine	NV	NV	0.3 U	0.00746 U	1.45 U
Total benzofluoranthenes[f]	NV	3.2	0.0899 U	0.00224 U	0.702 J
cPAH TEQ[g][2]	0.021	0.021	0.109 J	0.00224 U	0.659 J
Total PAH[h]	17	17	0.0623 J	0.00299 U	1.01 J
Total LPAH[i]	NV	5.2	0.12 U	0.00299 U	0.579 U
Total HPAH[j]	NV	12	0.0623 J	0.00224 U	1.013 J
TPH (mg/kg-dry)					
Diesel-Range Hydrocarbons	340	340	57.7 U	13.2 J	443 U
Lube Oil-Range Hydrocarbons	3,600	3,600	1,280	22.5 U	3,190

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Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
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Notes

Shading indicates values that exceed soil screening levels; non-detect results (U, UJ) were not compared with screening criteria.

Cleanup standards are applied based on sample TOC results. TOC analysis was not performed on the selected samples. Results are assumed to be within the 0.5 to 3.5 percent TOC range.

-- = not analyzed.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

ft bgs = feet below ground surface.

HPAH = high-molecular-weight PAH.

J = result is estimated.

LPAH = low-molecular-weight PAH.

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

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

TOC = total organic content.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the reporting limit or detection limit.

UJ = result is non-detect with an estimated reporting limit or detection limit.

VOC = volatile organic compound.

[a]Cleanup standard applied to samples with TOC results within 0.5 to 3.5 percent TOC range.

[b]Cleanup standards applied to samples with TOC results outside of the 0.5 to 3.5 percent TOC range.

[c]TOC analysis not performed. Result assumed to be within the 0.5 to 3.5 percent TOC range.

[d]Total PCBs are the sum of all PCB Aroclors. Non-detect results are not included in the sum. When all results are non-detect, the highest reporting limit or detection limit is used.

[e]Total xylenes are reported from the laboratory or are the sum of o-xylene and m,p-xylene. When all results are non-detect, the highest reporting limit or detection limit is used.

[f]Total benzofluoranthenes are reported by the laboratory for samples collected in 2015. Total benzofluoranthenes are calculated as the sum of detected benzo(b)fluoranthene and benzo(k)fluoranthene for the remaining samples. Non-detect results are not included in the sum. When both analytical results are non-detect, the highest detection limit is used.

[g]cPAH TEQ is calculated as the sum of each cPAH multiplied by the corresponding toxicity equivalence factor. Non-detect results are also multiplied by one-half. When all cPAHs are non-detect, the highest detection limit or reporting limit is shown.

[h]Total PAH is the sum of detected 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluorene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.

[i]LPAH is the sum of detected acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.

[j]HPAH is the sum of detected benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.

Table 6-4
Soil Analytical Results within 10 Feet of the Ordinary High Water Line
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

References

[1]MFA. 2022. Table 5-3. *In-Water Remedial Investigation Report* . Maul Foster & Alongi, Inc. August 18.

[2]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs).* Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Anions (ug/L)								
Sulfide	3	0	3	0%	NA	NA	0	NC
Dissolved Metals (ug/L)								
Arsenic, Dissolved	20	6	14	30%	1	6	1	17%
Cadmium, Dissolved	7	0	7	0%	NA	NA	0	NC
Chromium, Dissolved	7	0	7	0%	NA	NA	0	NC
Lead, Dissolved	20	8	12	40%	0	7	0	0%
Manganese, Dissolved	13	13	0	100%	1,260	12,900	13	100%
Mercury, Dissolved	7	0	7	0%	NA	NA	0	NC
Total Metals (ug/L)								
Aluminum	18	15	3	83%	139	17,800	1	7%
Antimony	18	0	18	0%	NA	NA	0	NC
Arsenic	79	51	28	65%	1	57	10	20%
Barium	18	18	0	100%	11	288	0	0%
Beryllium	18	3	15	17%	1	1	0	0%
Cadmium	66	18	48	27%	0	5	1	6%
Calcium	18	18	0	100%	7,850	79,900	0	0%
Chromium	66	45	21	68%	1	123	3	7%
Chromium, hexavalent	1	0	1	0%	NA	NA	0	NC
Cobalt	18	6	12	33%	9	13	6	100%
Copper	59	57	2	97%	1	246	0	0%
Iron	18	18	0	100%	9,280	76,600	16	89%
Lead	79	46	33	58%	0	91	13	28%
Magnesium	18	18	0	100%	3,960	37,400	0	0%
Manganese	72	72	0	100%	269	23,000	66	92%
Mercury	48	15	33	31%	0	11	2	13%
Nickel	59	43	16	73%	1	97	0	0%
Potassium	18	13	5	72%	1,780	29,700	0	0%
Selenium	18	0	18	0%	NA	NA	0	NC

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Silver	18	5	13	28%	1.4	2.4	0	0%
Sodium	18	18	0	100%	4,600	60,900	0	0%
Thallium	18	0	18	0%	NA	NA	0	NC
Vanadium	18	8	10	44%	6.9	96.8	1	13%
Zinc	59	47	12	80%	2.03	1,190	0	0%
PCB Aroclors (ug/L)								
Aroclor 1016	15	0	15	0%	NA	NA	0	NC
Aroclor 1221	15	0	15	0%	NA	NA	0	NC
Aroclor 1232	15	0	15	0%	NA	NA	0	NC
Aroclor 1242	15	0	15	0%	NA	NA	0	NC
Aroclor 1248	15	0	15	0%	NA	NA	0	NC
Aroclor 1254	15	0	15	0%	NA	NA	0	NC
Aroclor 1260	15	0	15	0%	NA	NA	0	NC
Aroclor 1262	5	0	5	0%	NA	NA	0	NC
Aroclor 1268	9	0	9	0%	NA	NA	0	NC
Total PCBs[b]	15	0	15	0%	NA	NA	0	NC
VOCs (ug/L)								
1,1,1,2-Tetrachloroethane	16	0	16	0%	NA	NA	0	NC
1,1,1-Trichloroethane	34	0	34	0%	NA	NA	0	NC
1,1,2,2-Tetrachloroethane	34	0	34	0%	NA	NA	0	NC
1,1,2-Trichloroethane	34	1	33	3%	0.29	0.29	0	0%
1,1-Dichloroethane	34	2	32	6%	0.12	0.721	0	0%
1,1-Dichloroethene	34	0	34	0%	NA	NA	0	NC
1,1-Dichloropropene	16	0	16	0%	NA	NA	0	NC
1,2,3-Trichlorobenzene	34	0	34	0%	NA	NA	0	NC
1,2,3-Trichloropropane	16	0	16	0%	NA	NA	0	NC
1,2,4-Trichlorobenzene	34	0	34	0%	NA	NA	0	NC
1,2,4-Trimethylbenzene	16	3	13	19%	0.37	11.2	0	0%
1,2-Dibromo-3-chloropropane	34	0	34	0%	NA	NA	0	NC

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
1,2-Dibromoethane	34	0	34	0%	NA	NA	0	NC
1,2-Dichlorobenzene	34	0	34	0%	NA	NA	0	NC
1,2-Dichloroethane	34	1	33	3%	0.27	0.27	0	0%
1,2-Dichloropropane	34	0	34	0%	NA	NA	0	NC
1,3,5-Trimethylbenzene	16	2	14	13%	0.19	2.88	0	0%
1,3-Dichlorobenzene	34	0	34	0%	NA	NA	0	NC
1,3-Dichloropropane	16	0	16	0%	NA	NA	0	NC
1,4-Dichlorobenzene	34	0	34	0%	NA	NA	0	NC
2,2-Dichloropropane	16	0	16	0%	NA	NA	0	NC
2-Butanone	34	1	33	3%	0.85	0.85	0	0%
2-Chloroethylvinyl ether	3	0	3	0%	NA	NA	0	NC
2-Chlorotoluene	16	0	16	0%	NA	NA	0	NC
2-Hexanone	34	0	34	0%	NA	NA	0	NC
4-Chlorotoluene	16	0	16	0%	NA	NA	0	NC
4-Isopropyltoluene	16	0	16	0%	NA	NA	0	NC
4-Methyl-2-pentanone	34	0	34	0%	NA	NA	0	NC
Acetone	34	5	29	15%	4	7.3	0	0%
Acrolein	3	0	3	0%	NA	NA	0	NC
Acrylonitrile	16	0	16	0%	NA	NA	0	NC
Benzene	36	3	33	8%	0.31	0.76	0	0%
Bromobenzene	16	0	16	0%	NA	NA	0	NC
Bromodichloromethane	34	0	34	0%	NA	NA	0	NC
Bromoethane	3	0	3	0%	NA	NA	0	NC
Bromoform	34	0	34	0%	NA	NA	0	NC
Bromomethane	34	0	34	0%	NA	NA	0	NC
Carbon disulfide	34	2	32	6%	0.26	0.4	0	0%
Carbon tetrachloride	34	0	34	0%	NA	NA	0	NC
Chlorobenzene	34	0	34	0%	NA	NA	0	NC
Chlorobromomethane	34	0	34	0%	NA	NA	0	NC

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	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Chloroethane	34	2	32	6%	0.13	0.39	0	0%
Chloroform	34	0	34	0%	NA	NA	0	NC
Chloromethane	34	1	33	3%	0.22	0.22	0	0%
cis-1,2-Dichloroethene	34	2	32	6%	0.24	0.25	0	0%
cis-1,3-Dichloropropene	34	0	34	0%	NA	NA	0	NC
Cyclohexane	18	2	16	11%	1.3	1.5	0	0%
Dibromochloromethane	34	0	34	0%	NA	NA	0	NC
Dibromomethane	16	0	16	0%	NA	NA	0	NC
Dichlorodifluoromethane (Freon 12)	31	0	31	0%	NA	NA	0	NC
Ethylbenzene	36	5	31	14%	0.12	1.1	0	0%
Freon 113	21	0	21	0%	NA	NA	0	NC
Hexachlorobutadiene	16	0	16	0%	NA	NA	0	NC
Isopropylbenzene	34	2	32	6%	0.39	0.49	0	0%
m,p-Xylene	34	7	27	21%	0.15	5.02	0	0%
Methyl acetate	18	0	18	0%	NA	NA	0	NC
Methyl iodide	3	0	3	0%	NA	NA	0	NC
Methyl tert-butyl ether	31	0	31	0%	NA	NA	0	NC
Methylcyclohexane	18	4	14	22%	0.34	2.2	0	0%
Methylene chloride	34	1	33	3%	0.23	0.23	0	0%
Naphthalene	16	3	13	19%	2.9	149	0	0%
n-Butylbenzene	16	0	16	0%	NA	NA	0	NC
n-Propylbenzene	16	1	15	6%	0.567	0.567	0	0%
o-Xylene	34	7	27	21%	0.11	3.04	0	0%
sec-Butylbenzene	16	0	16	0%	NA	NA	0	NC
Styrene	34	0	34	0%	NA	NA	0	NC
tert-Butylbenzene	16	0	16	0%	NA	NA	0	NC
Tetrachloroethene	34	0	34	0%	NA	NA	0	NC
Toluene	36	7	29	19%	0.16	4.92	0	0%
trans-1,2-Dichloroethene	34	0	34	0%	NA	NA	0	NC

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
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	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
trans-1,3-Dichloropropene	34	0	34	0%	NA	NA	0	NC
trans-1,4-Dichloro-2-butene	3	0	3	0%	NA	NA	0	NC
Trichloroethene	34	0	34	0%	NA	NA	0	NC
Trichlorofluoromethane (Freon 11)	34	0	34	0%	NA	NA	0	NC
Vinyl Acetate	3	0	3	0%	NA	NA	0	NC
Vinyl chloride	34	0	34	0%	NA	NA	0	NC
Xylenes, total[c]	36	8	28	22%	0.25	8.06	0	0%
SVOCs (ug/L)								
1,1'-Biphenyl	23	0	23	0%	NA	NA	0	NC
1,2,4,5-Tetrachlorobenzene	23	0	23	0%	NA	NA	0	NC
1,2,4-Trichlorobenzene	28	0	28	0%	NA	NA	0	NC
1,2-Dichlorobenzene	28	0	28	0%	NA	NA	0	NC
1,2-Dinitrobenzene	21	0	21	0%	NA	NA	0	NC
1,3-Dichlorobenzene	28	1	27	4%	0.0483	0.0483	0	0%
1,3-Dinitrobenzene	21	0	21	0%	NA	NA	0	NC
1,4-Dichlorobenzene	28	1	27	4%	0.0704	0.0704	0	0%
1,4-Dinitrobenzene	21	0	21	0%	NA	NA	0	NC
1,4-Dioxane	23	0	23	0%	NA	NA	0	NC
1-Methylnaphthalene	38	12	26	32%	0.0332	46.3	6	50%
2,3,4,6-Tetrachlorophenol	44	2	42	5%	0.172	390	0	0%
2,3,5,6-Tetrachlorophenol	21	2	19	10%	0.0489	0.0586	0	0%
2,4,5-Trichlorophenol	51	1	50	2%	150	150	0	0%
2,4,6-Trichlorophenol	51	0	51	0%	NA	NA	0	NC
2,4-Dichlorophenol	51	1	50	2%	21	21	0	0%
2,4-Dimethylphenol	51	0	51	0%	NA	NA	0	NC
2,4-Dinitrophenol	51	0	51	0%	NA	NA	0	NC
2,4-Dinitrotoluene	51	0	51	0%	NA	NA	0	NC
2,6-Dinitrotoluene	51	0	51	0%	NA	NA	0	NC
2-Chloronaphthalene	51	0	51	0%	NA	NA	0	NC

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
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	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
2-Chlorophenol	51	1	50	2%	0.68	0.68	0	0%
2-Methylnaphthalene	61	23	38	38%	0.014	61.9	1	4%
2-Methylphenol	51	0	51	0%	NA	NA	0	NC
2-Nitroaniline	51	0	51	0%	NA	NA	0	NC
2-Nitrophenol	51	0	51	0%	NA	NA	0	NC
3- & 4-Methylphenol (m,p-Cresol)	21	5	16	24%	0.0322	2.78	0	0%
3,3-Dichlorobenzidine	51	0	51	0%	NA	NA	0	NC
3-Nitroaniline	51	0	51	0%	NA	NA	0	NC
4,6-Dinitro-2-methylphenol	51	0	51	0%	NA	NA	0	NC
4-Bromophenylphenyl ether	51	0	51	0%	NA	NA	0	NC
4-Chloro-3-methylphenol	51	0	51	0%	NA	NA	0	NC
4-Chloroaniline	51	0	51	0%	NA	NA	0	NC
4-Chlorophenylphenyl ether	51	0	51	0%	NA	NA	0	NC
4-Methylphenol	30	2	28	7%	1.4	12	0	0%
4-Nitroaniline	51	0	51	0%	NA	NA	0	NC
4-Nitrophenol	51	0	51	0%	NA	NA	0	NC
Acenaphthene	61	45	16	74%	0.013	43.9	0	0%
Acenaphthylene	61	5	56	8%	0.014	1.59	0	0%
Acetophenone	23	0	23	0%	NA	NA	0	NC
Aniline	21	0	21	0%	NA	NA	0	NC
Anthracene	61	16	45	26%	0.0104	2.53	0	0%
Atrazine	23	0	23	0%	NA	NA	0	NC
Azobenzene	21	0	21	0%	NA	NA	0	NC
Benzaldehyde	23	0	23	0%	NA	NA	0	NC
Benzo(a)anthracene	61	12	49	20%	0.0115	0.55	0	0%
Benzo(a)pyrene	61	4	57	7%	0.013	0.338	0	NC
Benzo(b)fluoranthene	54	8	46	15%	0.0178	0.27	0	0%
Benzo(ghi)perylene	61	0	61	0%	NA	NA	0	NC
Benzo(k)fluoranthene	54	3	51	6%	0.0123	0.0667	0	0%

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
Benzoic acid	28	3	25	11%	3.2	97	0	0%
Benzyl alcohol	28	0	28	0%	NA	NA	0	NC
Bis(2-chloro-1-methylethyl)ether	51	0	51	0%	NA	NA	0	NC
Bis(2-chloroethoxy)methane	51	0	51	0%	NA	NA	0	NC
Bis(2-chloroethyl)ether	51	1	50	2%	3	3	1	100%
Bis(2-ethylhexyl)phthalate	51	3	48	6%	0.345	0.91	0	0%
Butylbenzylphthalate	51	0	51	0%	NA	NA	0	NC
Caprolactam	23	3	20	13%	1.3	2.3	0	0%
Carbazole	61	7	54	11%	0.0338	6.73	0	0%
Chrysene	61	9	52	15%	0.01	11	0	0%
Di(2-ethylhexyl)adipate	21	0	21	0%	NA	NA	0	NC
Dibenzo(a,h)anthracene	61	0	61	0%	NA	NA	0	NC
Dibenzofuran	61	8	53	13%	0.0581	16.4	1	13%
Diethyl phthalate	51	0	51	0%	NA	NA	0	NC
Dimethyl phthalate	51	0	51	0%	NA	NA	0	NC
Di-n-butyl phthalate	51	0	51	0%	NA	NA	0	NC
Di-n-octyl phthalate	51	0	51	0%	NA	NA	0	NC
Fluoranthene	61	25	36	41%	0.0104	23	0	0%
Fluorene	61	28	33	46%	0.0175	25.8	0	0%
Hexachlorobenzene	51	0	51	0%	NA	NA	0	NC
Hexachlorobutadiene	51	0	51	0%	NA	NA	0	NC
Hexachlorocyclopentadiene	51	0	51	0%	NA	NA	0	NC
Hexachloroethane	51	0	51	0%	NA	NA	0	NC
Indeno(1,2,3-cd)pyrene	61	0	61	0%	NA	NA	0	NC
Isophorone	51	0	51	0%	NA	NA	0	NC
Naphthalene	61	26	35	43%	0.017	200	1	4%
Nitrobenzene	51	0	51	0%	NA	NA	0	NC
N-Nitrosodimethylamine	21	0	21	0%	NA	NA	0	NC
N-Nitrosodiphenylamine	51	0	51	0%	NA	NA	0	NC

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[a]	Frequency of Detected Exceedances for All Samples
N-Nitrosodipropylamine	51	0	51	0%	NA	NA	0	NC
Pentachlorophenol	51	12	39	24%	0.046	1600	6	50%
Phenanthrene	61	36	25	59%	0.01	13.2	0	0%
Phenol	51	1	50	2%	25	25	0	0%
Pyrene	61	19	42	31%	0.014	16	0	0%
Pyridine	21	0	21	0%	NA	NA	0	NC
Total Benzofluoranthenes	7	0	7	0%	NA	NA	0	NC
cPAH TEQ[d][1]	61	16	45	26%	0.0112	15.1	4	24%
TPH (ug/L)								
Gasoline-Range Hydrocarbons	1	1	0	100%	239	239	NA	0%
Diesel-Range Hydrocarbons	73	25	48	34%	108	40,000	NA	32%
Lube Oil-Range Hydrocarbons	73	21	52	29%	201	481,000	NA	95%
Diesel+Oil[e]	73	36	37	49%	210	484,000	NA	67%
TPH with Silica Gel Treatment (ug/L)								
Diesel-Range Hydrocarbons	13	0	13	0%	NA	NA	0	NC
Lube Oil-Range Hydrocarbons	13	3	10	23%	14,700	96,100	3	100%
Diesel+Oil[e]	13	3	10	23%	14,800	98,300	NA	100%

Table 6-5
Analytical Summary of 2015–2020 Groundwater Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

MTCA = Model Toxics Control Act.

NA = not applicable.

NC = not calculated.

ND = not detected.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbons.

ug/L = micrograms per liter.

VOC = volatile organic compound.

[a]Screening levels are the lowest regulatory criteria value for the given matrix, selected from groundwater MTCA Method A where available, or MTCA Method B (the lowest of cancer and noncancer values) where MTCA Method A is not available. The proposed screening for sulfide is the Clean Water Act chronic screening level for hydrogen sulfide. Where a summation is performed (except Diesel+Oil and total xylenes), data are not screened to MTCA values for individual analytes; data are only screened to the MTCA value for the summation.

[b]Total PCBs are the sum of all PCB Aroclors; where all results are non-detect, the highest method reporting limit or method detection limit is used.

[c]Total xylenes are reported from the laboratory or the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the method reporting limit or method detection limit. When all results are non-detect, the highest method reporting limit or method detection limit is used.

[d]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors (Ecology 2015). Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[e]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbons results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

Reference

[5]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs)*. Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-01	RAU1-02	RAU1-03		RAU1-04	RAU1-05	RAU1-06	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		RAU1-01-GW-7.5	RAU1-02-GW-6	RAU1-03-GW-7.5	RAU1-03-GW-7.5-DUP	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-06-GW-7.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		7.5	6	7.5	7.5	7.5	6.5	7.5	7.5	7	7	8.5	7	7
Anions (ug/L)														
Sulfide	2	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Metals (ug/L)														
Arsenic	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	750	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)														
Arsenic	5	5.21	12.5 U	0.5 U	0.5 U	1.07	2.14	1.68	1.2	0.5 U	5.3	1.62	1.47	1.86
Cadmium	5	0.04 U	1 U	0.04 U	0.04 U	0.4 U	0.111 J	0.04 U	0.04 U	0.04 U	0.27	0.04 U	0.04 U	0.634
Chromium	50	14.9	13.4 J	2.25 J	2.44 J	1 U	11.8	5.12 J	2.49 J	1 U	38.6	10.5	10.1	8.88
Chromium, hexavalent	0.046	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	640	13.6	26.4	4.58 J	5.79	1.83 J	23.5	8.06	4.54 J	1.78 J	59.8	21.4	15.9	17.8
Lead	15	2.66 U	9.7	2.22 U	2.53 U	1 U	8.22	1.5 U	0.843 U	1.01 U	29.6	1.97 U	3.63 U	9.06
Manganese	750	980	831	2,650	2,640	2,140	2,020	2,830	325	337	12,600	14,600	5,050	1,390
Mercury	2	0.04 U	1 U	0.08 U	0.0443 J	0.04 U	0.0523 J	0.04 U	0.04 U	0.04 U	0.116	0.04 U	0.04 U	0.04 U
Nickel	320	7.03	12.5 U	1.62	1.84	2.26	11.8	2.94	1.35	1.07	24.1	9.06	5.54	5.12
Zinc	4,800	36.7	175	15.2	17.6	7.68	46.5	9.06	3.91 J	2.34 J	101	10.6	12.3	1,190
PCB Aroclors (ug/L)														
Aroclor 1016	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs[b]	0.10	--	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (ug/L)														
1,1,1,2-Tetrachloroethane	1.7	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,1,1-Trichloroethane	200	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	0.22	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,1,2-Trichloroethane	0.77	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,1-Dichloroethane	7.7	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.721	0.2 U
1,1-Dichloroethene	400	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,1-Dichloropropene	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
1,2,3-Trichlorobenzene	6.4	1 U	1 U	--	--	1 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U
1,2,3-Trichloropropane	0.00038	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
1,2,4-Trichlorobenzene	1.5	1 U	1 U	--	--	1 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U
1,2,4-Trimethylbenzene	80	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.674 J	11.2
1,2-Dibromo-3-chloropropane	0.014	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	2.5 U	2.5 U
1,2-Dibromoethane	0.01	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-01	RAU1-02	RAU1-03		RAU1-04	RAU1-05	RAU1-06	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		RAU1-01-GW-7.5	RAU1-02-GW-6	RAU1-03-GW-7.5	RAU1-03-GW-7.5-DUP	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-06-GW-7.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		7.5	6	7.5	7.5	7.5	6.5	7.5	7.5	7	7	8.5	7	7
1,2-Dichlorobenzene	720	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,2-Dichloroethane	5	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,2-Dichloropropane	1.2	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,3,5-Trimethylbenzene	80	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	2.88
1,3-Dichlorobenzene	NV	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,3-Dichloropropane	160	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
1,4-Dichlorobenzene	8.1	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
2,2-Dichloropropane	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
2-Butanone	4,800	5 U	5 U	--	--	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
2-Chlorotoluene	160	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
2-Hexanone	40	10 UJ	5 U	--	--	10 UJ	10 UJ	10 UJ	10 UJ	--	5 U	--	10 UJ	10 UJ
4-Chlorotoluene	160	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
4-Isopropyltoluene	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
4-Methyl-2-pentanone	640	5 U	5 U	--	--	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Acetone	7,200	10 U	10 U	--	--	10 U	10 U	10 U	10 U	--	10 U	--	20 UJ	20 UJ
Acrylonitrile	0.081	1 U	1 U	--	--	1 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U
Benzene	5	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	--	0.1 U	0.1 U
Bromobenzene	64	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
Bromodichloromethane	0.71	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Bromoform	5.5	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Bromomethane	11	5 U	5 U	--	--	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Carbon disulfide	800	5 U	5 U	--	--	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Carbon tetrachloride	0.63	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Chlorobenzene	160	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
Chlorobromomethane	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Chloroethane	NV	5 U	30 U	--	--	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Chloroform	1.4	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Chloromethane	NV	2.5 U	7 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	2.5 U	2.5 U
cis-1,2-Dichloroethene	16	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
cis-1,3-Dichloropropene	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Dibromochloromethane	0.52	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Dibromomethane	80	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Dichlorodifluoromethane (Freon 12)	1,600	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Ethylbenzene	700	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.686
Hexachlorobutadiene	0.56	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	2.5 U	2.5 U
Isopropylbenzene	800	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
m,p-Xylene	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	5.02
Methyl tert-butyl ether	20	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Methylene chloride	5	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	1.5 U	1.5 U
Naphthalene	160	2.9	2 UJ	--	--	1 U	1 U	1 U	1 U	--	2 UJ	--	2 UJ	4.6

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-01	RAU1-02	RAU1-03		RAU1-04	RAU1-05	RAU1-06	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		RAU1-01-GW-7.5	RAU1-02-GW-6	RAU1-03-GW-7.5	RAU1-03-GW-7.5-DUP	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-06-GW-7.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		7.5	6	7.5	7.5	7.5	6.5	7.5	7.5	7	7	8.5	7	7
n-Butylbenzene	400	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
n-Propylbenzene	800	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.567
o-Xylene	1,600	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.292 J	3.04
sec-Butylbenzene	800	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Styrene	1,600	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
tert-Butylbenzene	800	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Tetrachloroethene	5	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
Toluene	1,000	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
trans-1,2-Dichloroethene	160	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
trans-1,3-Dichloropropene	NV	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Trichloroethene	5	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
Trichlorofluoromethane (Freon 11)	2,400	1 U	1 U	--	--	1 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U
Vinyl chloride	0.2	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
Xylenes, total[c]	1,000	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.542 J	8.06
SVOCs (ug/L)														
1,2,4-Trichlorobenzene	1.5	0.588 UJ	0.108 UJ	0.112 U	0.102 U	0.108 UJ	0.543 UJ	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,2-Dichlorobenzene	720	0.588 UJ	0.108 UJ	0.112 U	0.102 U	0.108 UJ	0.543 UJ	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,2-Dinitrobenzene	1.6	5.88 U	1.08 U	1.12 U	1.02 U	1.08 U	5.43 U	1.04 U	0.248 UJ	1.08 U	1.32 U	11.6 U	5.62 U	10.8 U
1,3-Dichlorobenzene	NV	0.588 UJ	0.108 UJ	0.112 U	0.102 U	0.108 UJ	0.543 UJ	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,3-Dinitrobenzene	1.6	5.88 U	1.08 U	1.12 U	1.02 U	1.08 U	5.43 U	1.04 U	0.248 UJ	1.08 U	1.32 U	11.6 U	5.62 U	10.8 U
1,4-Dichlorobenzene	8.1	0.588 UJ	0.108 UJ	0.112 U	0.102 U	0.108 UJ	0.543 UJ	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,4-Dinitrobenzene	1.6	5.88 U	1.08 U	1.12 U	1.02 U	1.08 U	5.43 U	1.04 U	0.248 UJ	1.08 U	1.32 U	11.6 U	5.62 U	10.8 U
1-Methylnaphthalene	1.5	0.688 J	0.086 UJ	0.0899 U	0.0816 U	0.086 UJ	2.12 J	0.0833 U	0.0198 UJ	0.086 U	0.105 U	20.4	0.609 J	8.42
2,3,4,6-Tetrachlorophenol	480	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2,3,5,6-Tetrachlorophenol	NV	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2,4,5-Trichlorophenol	1,600	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2,4,6-Trichlorophenol	8	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2,4-Dichlorophenol	48	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2,4-Dimethylphenol	320	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2,4-Dinitrophenol	32	5.88 U	1.08 U	1.12 U	1.02 U	1.08 U	5.43 U	1.04 U	0.248 U	1.08 U	1.32 U	11.6 U	5.62 U	10.8 U
2,4-Dinitrotoluene	0.28	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 UJ	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
2,6-Dinitrotoluene	0.058	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 UJ	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
2-Chloronaphthalene	640	0.235 UJ	0.043 UJ	0.0449 U	0.0408 U	0.043 UJ	0.217 UJ	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
2-Chlorophenol	40	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 U	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
2-Methylnaphthalene	32	0.471 UJ	0.086 UJ	0.0899 U	0.0816 U	0.086 UJ	1.75 J	0.0833 U	0.0198 UJ	0.086 U	0.105 U	19.4	0.493 J	8.6
2-Methylphenol	800	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 U	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
2-Nitroaniline	160	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
2-Nitrophenol	NV	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 U	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
3- & 4-Methylphenol (m,p-Cresol)	NV	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 U	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
3,3-Dichlorobenzidine	0.19	11.8 U	2.15 U	2.25 U	2.04 U	2.15 U	10.9 U	2.08 U	0.495 R	2.15 U	2.63 U	23.3 U	11.2 U	21.5 U

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-01	RAU1-02	RAU1-03		RAU1-04	RAU1-05	RAU1-06	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		RAU1-01-GW-7.5	RAU1-02-GW-6	RAU1-03-GW-7.5	RAU1-03-GW-7.5-DUP	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-06-GW-7.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		7.5	6	7.5	7.5	7.5	6.5	7.5	7.5	7	7	8.5	7	7
3-Nitroaniline	NV	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	8.99 U	8.6 U
4,6-Dinitro-2-methylphenol	1.3	5.88 U	1.08 U	1.12 U	1.02 U	1.08 U	5.43 U	1.04 U	0.248 U	1.08 U	1.32 U	11.6 U	5.62 U	10.8 U
4-Bromophenylphenyl ether	NV	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
4-Chloro-3-methylphenol	1,600	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 U	0.86 U	0.526 U	4.65 U	2.25 U	4.3 U
4-Chloroaniline	0.44	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
4-Chlorophenylphenyl ether	NV	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
4-Nitroaniline	4.4	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
4-Nitrophenol	NV	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 U	0.43 U	0.526 U	9.3 U	7.64 U	8.6 U
Acenaphthene	480	43.9	0.0499 J	4.82	4.78	0.121	4.47	0.0417 U	0.0099 UJ	0.231	0.323	17.6	0.607	1.29 U
Acenaphthylene	NV	0.235 U	0.043 U	0.0449 U	0.0408 U	0.043 U	0.217 U	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Aniline	15	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 UJ	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
Anthracene	2,400	1.44	0.043 U	0.05 J	0.0479 J	0.043 U	0.276 J	0.0417 U	0.0104 J	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Azobenzene	0.4	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Benzo(a)anthracene	NV	0.274 J	0.043 U	0.0449 U	0.0408 U	0.043 U	0.239 J	0.0417 U	0.0115 J	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Benzo(a)pyrene	NA	0.353 U	0.0645 U	0.0674 U	0.0612 U	0.0645 U	0.326 U	0.0625 U	0.0149 UJ	0.0645 U	0.0789 U	0.698 U	0.337 U	0.645 U
Benzo(b)fluoranthene	NV	0.353 U	0.0645 U	0.0674 U	0.0612 U	0.0645 U	0.326 U	0.0625 U	0.0149 UJ	0.0645 U	0.0789 U	0.698 U	0.337 U	0.645 U
Benzo(ghi)perylene	NV	0.235 U	0.043 U	0.0449 U	0.0408 U	0.043 U	0.217 U	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Benzo(k)fluoranthene	NV	0.353 U	0.0645 U	0.0674 U	0.0612 U	0.0645 U	0.326 U	0.0625 U	0.0149 UJ	0.0645 U	0.0789 U	0.698 U	0.337 U	0.645 U
Benzoic acid	64,000	29.4 U	5.38 U	5.62 U	5.1 U	5.38 U	27.2 U	5.21 U	1.24 U	5.38 U	6.58 U	58.1 U	28.1 U	53.8 U
Benzyl alcohol	1,600	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 U	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
Bis(2-chloro-1-methylethyl)ether	0.63	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Bis(2-chloroethoxy)methane	48	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Bis(2-chloroethyl)ether	0.04	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Bis(2-ethylhexyl)phthalate	6.3	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Butylbenzylphthalate	46	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Carbazole	NV	3.85	0.0645 U	0.0674 U	0.0612 U	0.0645 U	0.328 J	0.0625 U	0.0149 UJ	0.0645 U	0.0789 U	6.73	0.337 U	0.645 U
Chrysene	NV	0.235 U	0.043 U	0.0449 U	0.0408 U	0.043 U	0.217 U	0.0417 U	0.01 J	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Di(2-ethylhexyl)adipate	73	5.88 U	1.08 U	1.12 U	1.02 U	1.08 U	5.43 U	1.04 U	0.248 UJ	1.08 U	1.32 U	11.6 U	5.62 U	10.8 U
Dibenzo(a,h)anthracene	NV	0.235 U	0.043 U	0.0449 U	0.0408 U	0.043 U	0.217 U	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Dibenzofuran	8	16.4	0.043 U	0.0449 U	0.0408 U	0.043 U	1.81	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	3.06	0.225 U	0.43 U
Diethyl phthalate	13,000	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Dimethyl phthalate	NV	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Di-n-butyl phthalate	1,600	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Di-n-octyl phthalate	160	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 UJ	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Fluoranthene	640	4.32	0.043 U	0.0514 J	0.0574 J	0.043 U	0.84	0.0417 U	0.0104 J	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Fluorene	320	25.8	0.043 U	1.31	1.33	0.0935	2.26	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	5.66	0.556	1.37
Hexachlorobenzene	0.027	0.235 U	0.043 U	0.0449 U	0.0408 U	0.043 U	0.217 U	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Hexachlorobutadiene	0.56	0.588 UJ	0.108 UJ	0.112 U	0.102 U	0.108 UJ	0.543 UJ	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Hexachlorocyclopentadiene	48	1.18 U	0.215 U	0.225 U	0.204 U	0.215 U	1.09 U	0.208 U	0.0495 UJ	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
Hexachloroethane	1.1	0.588 UJ	0.108 UJ	0.112 U	0.102 U	0.108 UJ	0.543 UJ	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-01	RAU1-02	RAU1-03		RAU1-04	RAU1-05	RAU1-06	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		RAU1-01-GW-7.5	RAU1-02-GW-6	RAU1-03-GW-7.5	RAU1-03-GW-7.5-DUP	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-06-GW-7.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/2/2019	12/2/2019	12/3/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		7.5	6	7.5	7.5	7.5	6.5	7.5	7.5	7	7	8.5	7	7
Indeno(1,2,3-cd)pyrene	NV	0.235 U	0.043 U	0.0449 U	0.0408 U	0.043 U	0.217 U	0.0417 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Isophorone	92	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Naphthalene	160	2.5 J	0.086 UJ	0.0899 U	0.0816 U	0.086 UJ	0.435 UJ	0.0833 U	0.0396 UJ	0.086 U	0.105 U	200	0.449 U	3.07
Nitrobenzene	16	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 UJ	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
N-Nitrosodimethylamine	0.00023	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
N-Nitrosodiphenylamine	18	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	2.15 U
N-Nitrosodipropylamine	0.013	0.588 U	0.108 U	0.112 U	0.102 U	0.108 U	0.543 U	0.104 U	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Pentachlorophenol	0.22	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 U	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
Phenanthrene	NV	0.935	0.043 U	0.611	0.618	0.043 U	2.21	0.0417 U	0.0268 J	0.065 J	0.0526 U	2.76	0.541	1.19
Phenol	4,800	4.71 U	0.86 U	0.899 U	0.816 U	0.86 U	4.35 U	0.833 U	0.198 U	0.86 U	1.05 U	9.3 U	4.49 U	8.6 U
Pyrene	240	2.38	0.043 U	0.0449 U	0.0408 U	0.043 U	0.65	0.0417 U	0.014 J	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Pyridine	8	2.35 U	0.43 U	0.449 U	0.408 U	0.43 U	2.17 U	0.417 U	0.099 UJ	0.43 U	0.526 U	4.65 U	2.25 U	4.3 U
cPAH TEQ[d][2]	0.1	0.264 J	0.0645 U	0.0674 U	0.0612 U	0.0645 U	0.242 J	0.0625 U	0.0112 J	0.0645 U	0.0789 U	0.698 U	0.337 U	0.645 U
Hydrocarbon Identification (Detect/Non-detect)														
Gasoline	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
TPH (ug/L)														
Gasoline-Range Hydrocarbons	1,000	--	--	--	--	--	--	--	--	--	--	--	--	239
Diesel-Range Hydrocarbons	500	204 J	108 U	189 J	133 J	108 J	110 U	105 U	106 U	104 U	205 J	340	781 J	683 J
Lube Oil-Range Hydrocarbons	500	202 U	215 U	217 U	201 J	204 U	958	211 U	213 U	208 U	238 U	222 U	1,990 J	1,290 J
Diesel+Oil[e]	500	305 J	215 U	298 J	334 J	210 J	1,010	211 U	213 U	208 U	324 J	451	2,770 J	1,970 J
TPH with Silica Gel Treatment (ug/L)														
Diesel-Range Hydrocarbons	500	--	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	500	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[e]	500	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09	RAU3-03
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9	RAU3-03-GW-5
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9	5
Anions (ug/L)														
Sulfide	2	--	--	--	--	--	--	--	--	--	--	--	50 U	--
Dissolved Metals (ug/L)														
Arsenic	5	1 U	1 U	1.43	--	--	--	--	--	--	--	--	--	--
Lead	15	0.2 U	0.2 U	1.16	--	--	--	--	--	--	--	--	--	--
Manganese	750	5,920	6,020	7,910	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)														
Arsenic	5	4.45	1.02	2.07	2.96	2.43	5.92	1.45	0.896 J	1.02	2.55	10 U	1.58	0.63 J
Cadmium	5	--	--	--	0.273	0.103 J	0.365	0.126 J	0.0777 J	0.0612 J	5.02	0.04 U	0.04 U	0.2 U
Chromium	50	--	--	--	41.8	7.7	46.8	17.1	12.5	11	10.4	10 U	0.765 J	5.39
Chromium, hexavalent	0.046	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	640	--	--	--	118	27.1	150	34.4	19.8	24.2	84.9	10 U	0.919 J	12.6
Lead	15	9.24	1.1	2.26	7.73	21.5	34	5.78	2.93 U	2.1 U	24.5	0.176 J	0.1 U	1.35
Manganese	750	6,340	6,110	7,840	1,750	3,030	3,650	2,400	3,390	8,090	1,410	338	743	6,330
Mercury	2	--	--	--	0.392	11.4	8.48	0.479	0.0969	0.041 J	0.226	0.04 U	0.04 U	0.04 U
Nickel	320	--	--	--	25	5.7	37.4	10.3	6.9	6.41	8.1	10 U	2 U	3.38
Zinc	4,800	--	--	--	62.7	29.1	125	52.5	51.1	22	423	40 U	2.53 J	7.26
PCB Aroclors (ug/L)														
Aroclor 1016	NA	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0211 U	--
Aroclor 1221	NV	--	--	--	--	--	--	--	--	--	--	0.04 U	0.0211 U	--
Aroclor 1232	NV	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0211 U	--
Aroclor 1242	NV	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0211 U	--
Aroclor 1248	NV	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0211 U	--
Aroclor 1254	NA	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0211 U	--
Aroclor 1260	NA	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0211 U	--
Total PCBs[b]	0.10	--	--	--	--	--	--	--	--	--	--	0.04 U	0.0211 U	--
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	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
1,1,2-Trichloroethane	0.77	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
1,1-Dichloroethane	7.7	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
1,1-Dichloroethene	400	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
1,1-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
1,2,3-Trichlorobenzene	6.4	--	--	--	--	--	--	--	--	--	1 U	--	--	--
1,2,3-Trichloropropane	0.00038	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
1,2,4-Trichlorobenzene	1.5	--	--	--	--	--	--	--	--	--	1 U	--	--	--
1,2,4-Trimethylbenzene	80	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
1,2-Dibromo-3-chloropropane	0.014	--	--	--	--	--	--	--	--	--	2.5 U	--	--	--
1,2-Dibromoethane	0.01	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09	RAU3-03
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9	RAU3-03-GW-5
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9	5
1,2-Dichlorobenzene	720	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
1,2-Dichloroethane	5	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
1,2-Dichloropropane	1.2	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
1,3,5-Trimethylbenzene	80	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
1,3-Dichlorobenzene	NV	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
1,3-Dichloropropane	160	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
1,4-Dichlorobenzene	8.1	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
2,2-Dichloropropane	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
2-Butanone	4,800	--	--	--	--	--	--	--	--	--	5 U	--	--	--
2-Chlorotoluene	160	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
2-Hexanone	40	--	--	--	--	--	--	--	--	--	10 UJ	--	--	--
4-Chlorotoluene	160	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
4-Isopropyltoluene	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
4-Methyl-2-pentanone	640	--	--	--	--	--	--	--	--	--	5 U	--	--	--
Acetone	7,200	--	--	--	--	--	--	--	--	--	20 UJ	--	--	--
Acrylonitrile	0.081	--	--	--	--	--	--	--	--	--	1 U	--	--	--
Benzene	5	--	--	--	--	--	--	--	--	--	0.1 U	--	--	--
Bromobenzene	64	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
Bromodichloromethane	0.71	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Bromoform	5.5	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Bromomethane	11	--	--	--	--	--	--	--	--	--	5 U	--	--	--
Carbon disulfide	800	--	--	--	--	--	--	--	--	--	5 U	--	--	--
Carbon tetrachloride	0.63	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Chlorobenzene	160	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
Chlorobromomethane	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Chloroethane	NV	--	--	--	--	--	--	--	--	--	5 U	--	--	--
Chloroform	1.4	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Chloromethane	NV	--	--	--	--	--	--	--	--	--	2.5 U	--	--	--
cis-1,2-Dichloroethene	16	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
cis-1,3-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Dibromochloromethane	0.52	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Dibromomethane	80	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Dichlorodifluoromethane (Freon 12)	1,600	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Ethylbenzene	700	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
Hexachlorobutadiene	0.56	--	--	--	--	--	--	--	--	--	2.5 U	--	--	--
Isopropylbenzene	800	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
m,p-Xylene	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Methyl tert-butyl ether	20	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Methylene chloride	5	--	--	--	--	--	--	--	--	--	1.5 U	--	--	--
Naphthalene	160	--	--	--	--	--	--	--	--	--	149	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09	RAU3-03
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9	RAU3-03-GW-5
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9	5
n-Butylbenzene	400	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
n-Propylbenzene	800	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
o-Xylene	1,600	--	--	--	--	--	--	--	--	--	0.25 U	--	--	--
sec-Butylbenzene	800	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Styrene	1,600	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
tert-Butylbenzene	800	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Tetrachloroethene	5	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
Toluene	1,000	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
trans-1,2-Dichloroethene	160	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
trans-1,3-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
Trichloroethene	5	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
Trichlorofluoromethane (Freon 11)	2,400	--	--	--	--	--	--	--	--	--	1 U	--	--	--
Vinyl chloride	0.2	--	--	--	--	--	--	--	--	--	0.2 U	--	--	--
Xylenes, total[c]	1,000	--	--	--	--	--	--	--	--	--	0.5 U	--	--	--
SVOCs (ug/L)														
1,2,4-Trichlorobenzene	1.5	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ	--
1,2-Dichlorobenzene	720	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ	--
1,2-Dinitrobenzene	1.6	--	--	--	0.99 U	10.1 U	0.248 U	1.05 U	1.06 U	0.278 U	--	0.266 U	0.238 U	--
1,3-Dichlorobenzene	NV	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0483 J	--
1,3-Dinitrobenzene	1.6	--	--	--	0.99 U	10.1 U	0.248 U	1.05 U	1.06 U	0.278 U	--	0.266 U	0.238 U	--
1,4-Dichlorobenzene	8.1	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0704 J	--
1,4-Dinitrobenzene	1.6	--	--	--	0.99 U	10.1 U	0.248 U	1.05 U	1.06 U	0.278 U	--	0.266 U	0.238 U	--
1-Methylnaphthalene	1.5	--	--	--	0.0792 UJ	0.808 UJ	0.0198 UJ	0.945 J	0.0851 UJ	0.0222 UJ	46.3	0.0213 UJ	0.0332 J	--
2,3,4,6-Tetrachlorophenol	480	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.172	--	0.0532 U	0.0476 U	--
2,3,5,6-Tetrachlorophenol	NV	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0586 J	--	0.0532 U	0.0489 J	--
2,4,5-Trichlorophenol	1,600	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
2,4,6-Trichlorophenol	8	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
2,4-Dichlorophenol	48	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
2,4-Dimethylphenol	320	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
2,4-Dinitrophenol	32	--	--	--	0.99 U	10.1 U	0.248 U	1.05 U	1.06 U	0.278 U	--	0.266 U	0.238 U	--
2,4-Dinitrotoluene	0.28	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 U	0.111 U	--	0.106 U	0.0952 U	--
2,6-Dinitrotoluene	0.058	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 U	0.111 U	--	0.106 U	0.0952 U	--
2-Chloronaphthalene	640	--	--	--	0.0396 UJ	0.404 UJ	0.0099 UJ	0.0421 UJ	0.0426 UJ	0.0111 UJ	--	0.0106 UJ	0.00952 UJ	--
2-Chlorophenol	40	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
2-Methylnaphthalene	32	--	--	--	0.0792 UJ	0.808 UJ	0.0269 J	1.41 J	0.0851 UJ	0.0222 UJ	61.9	0.0213 UJ	0.0248 J	--
2-Methylphenol	800	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
2-Nitroaniline	160	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
2-Nitrophenol	NV	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 U	0.111 U	--	0.106 U	0.0952 U	--
3- & 4-Methylphenol (m,p-Cresol)	NV	--	--	--	0.346	1.43 J	0.0322 J	0.105 U	2.78 J	0.0278 U	--	0.0266 U	0.0733	--
3,3-Dichlorobenzidine	0.19	--	--	--	1.98 U	20.2 U	0.495 U	2.11 U	2.13 R	0.556 U	--	0.532 UJ	0.476 UJ	--

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Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09	RAU3-03
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9	RAU3-03-GW-5
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9	5
3-Nitroaniline	NV	--	--	--	0.792 U	8.08 U	0.396 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
4,6-Dinitro-2-methylphenol	1.3	--	--	--	0.99 U	10.1 U	0.248 U	1.05 U	1.06 U	0.278 U	--	0.266 U	0.238 U	--
4-Bromophenylphenyl ether	NV	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
4-Chloro-3-methylphenol	1,600	--	--	--	0.396 U	4.04 U	0.297 U	0.421 U	0.426 U	0.222 U	--	0.106 U	0.19 U	--
4-Chloroaniline	0.44	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
4-Chlorophenylphenyl ether	NV	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 UJ	0.0238 UJ	--
4-Nitroaniline	4.4	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
4-Nitrophenol	NV	--	--	--	0.396 U	4.04 U	0.198 U	0.421 U	0.426 U	0.111 U	--	0.213 U	0.19 U	--
Acenaphthene	480	--	--	--	1.58	0.404 U	0.0772	3.47	0.117	0.0662	9.75	0.0106 U	0.967	--
Acenaphthylene	NV	--	--	--	0.0396 U	0.404 U	0.0099 U	0.0421 U	0.0426 U	0.0111 U	1.59	0.0106 U	0.0164 J	--
Aniline	15	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
Anthracene	2,400	--	--	--	0.0655 J	0.404 U	0.012 J	0.14	0.0426 U	0.0111 U	2.53	0.0106 U	0.0261	--
Azobenzene	0.4	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
Benzo(a)anthracene	NV	--	--	--	0.0396 U	0.404 U	0.0119 J	0.0548 J	0.0441 J	0.0111 U	0.55	0.0106 U	0.0124 J	--
Benzo(a)pyrene	NA	--	--	--	0.0594 U	0.606 U	0.0223 J	0.0632 U	0.0638 U	0.0333 U	0.338 J	0.016 U	0.0168 J	--
Benzo(b)fluoranthene	NV	--	--	--	0.0594 U	0.606 U	0.0183 J	0.0632 U	0.0638 U	0.0167 U	0.27 J	0.0205 J	0.0178 J	--
Benzo(ghi)perylene	NV	--	--	--	0.0396 U	0.404 U	0.0396 U	0.0421 U	0.0426 U	0.0111 U	0.386 U	0.0106 U	0.00952 U	--
Benzo(k)fluoranthene	NV	--	--	--	0.0594 U	0.606 U	0.0149 U	0.0632 U	0.0667 J	0.0167 U	0.193 U	0.016 U	0.0143 U	--
Benzoic acid	64,000	--	--	--	4.95 U	50.5 U	1.24 U	5.26 U	5.32 U	1.39 U	--	2.66 U	3.2 J	--
Benzyl alcohol	1,600	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 U	0.111 U	--	0.106 U	0.0952 U	--
Bis(2-chloro-1-methylethyl)ether	0.63	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
Bis(2-chloroethoxy)methane	48	--	--	--	0.099 U	1.01 U	0.0495 U	0.105 U	0.298 U	0.0278 U	--	0.0266 U	0.0476 U	--
Bis(2-chloroethyl)ether	0.04	--	--	--	0.099 U	1.01 U	0.0495 U	0.105 U	0.106 U	0.0278 U	--	0.0532 U	0.0476 U	--
Bis(2-ethylhexyl)phthalate	6.3	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.765	0.345 J	--
Butylbenzylphthalate	46	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
Carbazole	NV	--	--	--	0.0594 U	0.606 U	0.0149 U	0.269	0.0638 U	0.0167 U	1.95	0.016 U	0.0338	--
Chrysene	NV	--	--	--	0.0534 J	0.404 U	0.01 J	0.0421 U	0.0426 U	0.0111 U	0.483	0.0106 U	0.0131 J	--
Di(2-ethylhexyl)adipate	73	--	--	--	0.99 U	10.1 U	0.248 U	1.05 U	1.06 U	0.278 U	--	0.266 U	0.238 U	--
Dibenzo(a,h)anthracene	NV	--	--	--	0.0396 U	0.404 U	0.0396 U	0.0421 U	0.0426 U	0.0111 U	0.193 U	0.0106 U	0.00952 U	--
Dibenzofuran	8	--	--	--	0.0396 U	0.404 U	0.0099 U	0.603	0.0426 U	0.0111 U	6.51	0.0106 U	0.0581	--
Diethyl phthalate	13,000	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
Dimethyl phthalate	NV	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
Di-n-butyl phthalate	1,600	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
Di-n-octyl phthalate	160	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 U	0.222 U	--	0.213 U	0.19 U	--
Fluoranthene	640	--	--	--	0.201	0.404 U	0.0253	0.568	0.0577 J	0.0131 J	2.23	0.025	0.139	--
Fluorene	320	--	--	--	0.262	0.404 U	0.0184 J	1.45	0.0426 U	0.0175 J	10.2	0.0106 U	0.0805	--
Hexachlorobenzene	0.027	--	--	--	0.0396 U	0.404 U	0.0099 U	0.0421 U	0.0426 U	0.0111 U	--	0.0106 U	0.00952 U	--
Hexachlorobutadiene	0.56	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ	--
Hexachlorocyclopentadiene	48	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U	--
Hexachloroethane	1.1	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09	RAU3-03
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9	RAU3-03-GW-5
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9	5
Indeno(1,2,3-cd)pyrene	NV	--	--	--	0.0396 U	0.404 U	0.0396 U	0.0421 U	0.0426 U	0.0111 U	0.193 U	0.0106 U	0.00952 U	--
Isophorone	92	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
Naphthalene	160	--	--	--	0.158 UJ	0.808 UJ	0.042 J	2.41 J	0.0851 UJ	0.0444 UJ	129	0.0426 UJ	0.0647 J	--
Nitrobenzene	16	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 U	0.111 U	--	0.106 U	0.0952 U	--
N-Nitrosodimethylamine	0.00023	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
N-Nitrosodiphenylamine	18	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0278 U	--	0.0266 U	0.0238 U	--
N-Nitrosodipropylamine	0.013	--	--	--	0.099 U	1.01 U	0.0248 U	0.105 U	0.106 U	0.0778 U	--	0.0266 U	0.0238 U	--
Pentachlorophenol	0.22	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 U	0.254	--	0.106 U	0.0952 U	--
Phenanthrene	NV	--	--	--	0.189	0.404 U	0.0471	1.54	0.0662 J	0.0299	13.2	0.0193 J	0.0661	--
Phenol	4,800	--	--	--	0.792 U	8.08 U	0.198 U	0.842 U	0.851 R	0.222 U	--	0.213 U	0.19 U	--
Pyrene	240	--	--	--	0.162	0.404 U	0.0242	0.378	0.055 J	0.0142 J	1.84	0.0197 J	0.0836	--
Pyridine	8	--	--	--	0.396 U	4.04 U	0.099 U	0.421 U	0.426 UJ	0.111 U	--	0.106 U	0.0952 U	--
cPAH TEQ[d][2]	0.1	--	--	--	0.0421 J	0.606 U	0.0301 J	0.0478 J	0.0506 J	0.0333 U	0.454 J	0.0125 J	0.0216 J	--
Hydrocarbon Identification (Detect/Non-detect)														
Gasoline	NA	--	--	--	--	--	--	--	--	--	--	--	--	ND
Diesel	NA	--	--	--	--	--	--	--	--	--	--	--	--	ND
Lube Oil	NA	--	--	--	--	--	--	--	--	--	--	--	--	ND
TPH (ug/L)														
Gasoline-Range Hydrocarbons	1,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	500	220 U	208 U	230 U	115 U	200 J	95.2 U	105 U	106 U	101 U	526	103 U	95.2 U	--
Lube Oil-Range Hydrocarbons	500	440 U	417 U	460 U	230 U	215 U	190 U	211 U	213 U	202 U	213 U	206 U	190 U	--
Diesel+Oil[e]	500	440 U	417 U	460 U	230 U	308 J	190 U	211 U	213 U	202 U	526	206 U	190 U	--
TPH with Silica Gel Treatment (ug/L)														
Diesel-Range Hydrocarbons	500	220 U	208 U	230 U	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	500	440 U	417 U	460 U	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[e]	500	440 U	417 U	460 U	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU3-05	RAU3-06	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-07	RAU4-08	RAU4-09	RAU4-10	RAU4-11
Sample Name:		RAU3-05-GW-8.0	RAU3-06-GW-6.5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-07-GW-7.0	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-10-GW-8.0	RAU4-11-GW-7.0
Collection Date:		12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):		8	6.5	6.5	7	7	7	7.5	4.5	7	7.5	7	8	7
Anions (ug/L)														
Sulfide	2	--	--	--	--	--	--	--	--	--	--	--	50 UJ	50 UJ
Dissolved Metals (ug/L)														
Arsenic	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	750	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)														
Arsenic	5	1.37	0.889 J	0.739 J	3.61	3.23	0.5 U	3.04 J	11.2	1.25	1.76	0.5 U	1.86	1.37
Cadmium	5	0.056 J	0.04 U	0.04 U	0.103 J	0.122 J	0.04 U	0.329 J	1.3	0.04 U	0.205	0.04 U	0.0472 J	0.04 U
Chromium	50	1.58 J	1.31 J	1.86 J	16.2	16.9	1 U	33.2	123 J	2.87 J	17.9	1.12 J	6.89	5.68 J
Chromium, hexavalent	0.046	--	--	--	--	--	--	--	0.25 R	--	--	--	--	--
Copper	640	4.48 J	5.14	3.12 J	32.1	33.1	1 U	117	246	10.6	39.4	2.68 J	13.4	5.66
Lead	15	0.64	1.56 U	0.5 U	3.84 U	3.84 U	0.265 U	20.8	29.1	0.899	3.12 U	0.378 U	1.89 U	1.23 U
Manganese	750	5,160	1,550	3,800	4,860	4,720	8,690	4,460	9,960	10,000	13,900	13,500	3,570	9,060
Mercury	2	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.2 U	0.2 U	0.04 U	0.0494 J	0.04 U	0.04 U	0.04 U
Nickel	320	2.11	1.06	1.13	7.33	9.11	2.11	21.3	96.8 J	3.02	14.6	0.842 J	6.78	2.97
Zinc	4,800	3.92 J	3.63 J	2.04 J	18.2	19.4	2.03 J	351	280	6.62	22.3	2.37 J	12.8	9.46
PCB Aroclors (ug/L)														
Aroclor 1016	NA	--	--	--	--	--	0.0217 U	0.0204 U	0.0568 UJ	--	--	--	--	--
Aroclor 1221	NV	--	--	--	--	--	0.0217 U	0.0204 U	0.0455 UJ	--	--	--	--	--
Aroclor 1232	NV	--	--	--	--	--	0.0217 U	0.0204 U	0.0682 UJ	--	--	--	--	--
Aroclor 1242	NV	--	--	--	--	--	0.0217 U	0.0204 U	0.0795 UJ	--	--	--	--	--
Aroclor 1248	NV	--	--	--	--	--	0.0217 U	0.0204 U	0.102 UJ	--	--	--	--	--
Aroclor 1254	NA	--	--	--	--	--	0.0217 U	0.0204 U	0.0568 UJ	--	--	--	--	--
Aroclor 1260	NA	--	--	--	--	--	0.0217 U	0.0204 U	0.0227 UJ	--	--	--	--	--
Total PCBs[b]	0.10	--	--	--	--	--	0.0217 U	0.0204 U	0.102 UJ	--	--	--	--	--
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	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.77	--	--	0.25 U	0.25 U	0.25 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	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	6.4	--	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.00038	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.5	--	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	80	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.014	--	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.01	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU3-05	RAU3-06	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-07	RAU4-08	RAU4-09	RAU4-10	RAU4-11
Sample Name:		RAU3-05-GW-8.0	RAU3-06-GW-6.5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-07-GW-7.0	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-10-GW-8.0	RAU4-11-GW-7.0
Collection Date:		12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):		8	6.5	6.5	7	7	7	7.5	4.5	7	7.5	7	8	7
1,2-Dichlorobenzene	720	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,2-Dichloroethane	5	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1.2	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	80	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,3-Dichloropropane	160	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
2-Butanone	4,800	--	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
2-Chlorotoluene	160	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
2-Hexanone	40	--	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
4-Chlorotoluene	160	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	640	--	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Acetone	7,200	--	--	10 U	10 U	10 U	--	--	--	--	--	--	--	--
Acrylonitrile	0.081	--	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
Benzene	5	--	--	0.1 U	0.1 U	0.1 U	--	--	0.7	--	--	--	--	--
Bromobenzene	64	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
Bromodichloromethane	0.71	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Bromoform	5.5	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Bromomethane	11	--	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Carbon disulfide	800	--	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.63	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Chlorobenzene	160	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Chloroethane	NV	--	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Chloroform	1.4	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Chloromethane	NV	--	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	16	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Dibromochloromethane	0.52	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Dibromomethane	80	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	1,600	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Ethylbenzene	700	--	--	0.25 U	0.25 U	0.25 U	--	--	0.26 J	--	--	--	--	--
Hexachlorobutadiene	0.56	--	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
Isopropylbenzene	800	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
m,p-Xylene	NV	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	20	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Methylene chloride	5	--	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
Naphthalene	160	--	--	2 UJ	2 UJ	2 UJ	--	--	--	--	--	--	--	--

Location:	Screening Level for Groundwater[a][1]	RAU3-05	RAU3-06	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-07	RAU4-08	RAU4-09	RAU4-10	RAU4-11
Sample Name:		RAU3-05-GW-8.0	RAU3-06-GW-6.5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-07-GW-7.0	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-10-GW-8.0	RAU4-11-GW-7.0
Collection Date:		12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):		8	6.5	6.5	7	7	7	7.5	4.5	7	7.5	7	8	7
n-Butylbenzene	400	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
n-Propylbenzene	800	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
o-Xylene	1,600	--	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
sec-Butylbenzene	800	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Styrene	1,600	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
tert-Butylbenzene	800	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Tetrachloroethene	5	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
Toluene	1,000	--	--	0.5 U	0.5 U	0.5 U	--	--	4.92	--	--	--	--	--
trans-1,2-Dichloroethene	160	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	--	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Trichloroethene	5	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	2,400	--	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
Vinyl chloride	0.2	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
Xylenes, total[c]	1,000	--	--	0.5 U	0.5 U	0.5 U	--	--	0.75 U	--	--	--	--	--
SVOCs (ug/L)														
1,2,4-Trichlorobenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	720	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dinitrobenzene	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dinitrobenzene	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	1.5	--	--	0.0387 U	0.04 U	0.0756 U	0.0455 J	0.0966	37.7 U	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	480	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	8	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	48	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	320	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	32	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.058	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	640	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	40	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	32	--	--	0.0387 U	0.0875 U	0.0756 U	0.0582 J	0.0376 U	37.7 U	--	--	--	--	--
2-Methylphenol	800	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	160	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	0.19	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU3-05	RAU3-06	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-07	RAU4-08	RAU4-09	RAU4-10	RAU4-11
Sample Name:		RAU3-05-GW-8.0	RAU3-06-GW-6.5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-07-GW-7.0	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-10-GW-8.0	RAU4-11-GW-7.0
Collection Date:		12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):		8	6.5	6.5	7	7	7	7.5	4.5	7	7.5	7	8	7
3-Nitroaniline	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenylphenyl ether	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	4.4	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	480	--	--	0.0266 J	0.0625 U	0.0709 U	0.0414	0.0564 U	18.9 U	--	--	--	--	--
Acenaphthylene	NV	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0188 U	18.9 U	--	--	--	--	--
Aniline	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	2,400	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0376 U	18.9 U	--	--	--	--	--
Azobenzene	0.4	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	--	--	0.00968 U	0.01 U	0.0189 U	0.0102 U	0.106 U	9.44 U	--	--	--	--	--
Benzo(a)pyrene	NA	--	--	0.00968 U	0.01 U	0.00945 U	0.0217 U	0.0188 U	18.9 U	--	--	--	--	--
Benzo(b)fluoranthene	NV	--	--	0.00968 U	0.01 U	0.00945 U	0.0102 U	0.0094 U	18.9 U	--	--	--	--	--
Benzo(ghi)perylene	NV	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0188 U	18.9 U	--	--	--	--	--
Benzo(k)fluoranthene	NV	--	--	0.00968 U	0.01 U	0.00945 U	0.0102 U	0.0188 U	24.8 U	--	--	--	--	--
Benzoic acid	64,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	0.63	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	48	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	0.04	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6.3	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	46	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NV	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0587 U	18.9 U	--	--	--	--	--
Chrysene	NV	--	--	0.00968 U	0.01 U	0.00945 U	0.0102 U	0.106 U	18.9 U	--	--	--	--	--
Di(2-ethylhexyl)adipate	73	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	--	--	0.0194 U	0.01 U	0.00945 U	0.0102 U	0.0094 U	18.9 U	--	--	--	--	--
Dibenzofuran	8	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0188 U	18.9 U	--	--	--	--	--
Diethyl phthalate	13,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	160	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	640	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0188 U	18.9 U	--	--	--	--	--
Fluorene	320	--	--	0.061	0.02 U	0.0189 U	0.0204 U	0.0408	18.9 U	--	--	--	--	--
Hexachlorobenzene	0.027	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.56	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	48	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a](1)	RAU3-05	RAU3-06	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-07	RAU4-08	RAU4-09	RAU4-10	RAU4-11
Sample Name:		RAU3-05-GW-8.0	RAU3-06-GW-6.5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-07-GW-7.0	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-10-GW-8.0	RAU4-11-GW-7.0
Collection Date:		12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019
Collection Depth (ft bgs):		8	6.5	6.5	7	7	7	7.5	4.5	7	7.5	7	8	7
Indeno(1,2,3-cd)pyrene	NV	--	--	0.00968 U	0.01 U	0.00945 U	0.0102 U	0.0094 U	18.9 U	--	--	--	--	--
Isophorone	92	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	160	--	--	0.0387 U	0.08 U	0.0378 U	0.0843 J	0.102 J	37.7 U	--	--	--	--	--
Nitrobenzene	16	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	0.00023	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	18	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	0.013	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	--	--	0.0387 U	0.04 U	0.0378 U	0.0409 U	0.0376 U	37.7 U	--	--	--	--	--
Phenol	4,800	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	240	--	--	0.0194 U	0.02 U	0.0189 U	0.0204 U	0.0188 U	18.9 U	--	--	--	--	--
Pyridine	8	--	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[d](2)	0.1	--	--	0.0194 U	0.01 U	0.0189 U	0.0217 U	0.106 U	24.8 U	--	--	--	--	--
Hydrocarbon Identification (Detect/Non-detect)														
Gasoline	NA	ND	ND	--	--	--	--	--	ND	ND	ND	ND	ND	ND
Diesel	NA	ND	ND	--	--	--	--	--	ND	ND	ND	ND	ND	ND
Lube Oil	NA	ND	ND	--	--	--	--	--	DETECT	ND	ND	ND	ND	ND
TPH (ug/L)														
Gasoline-Range Hydrocarbons	1,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	500	--	--	204 J	167 J	180 J	170 J	94.3 U	5,490 U	--	--	--	--	--
Lube Oil-Range Hydrocarbons	500	--	--	230 U	200 U	206 U	204 U	6,540	481,000	--	--	--	--	--
Diesel+Oil[e]	500	--	--	319 J	267 J	283 J	272 J	6,590	484,000	--	--	--	--	--
TPH with Silica Gel Treatment (ug/L)														
Diesel-Range Hydrocarbons	500	--	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range Hydrocarbons	500	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[e]	500	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU4-12	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU5-01	RAU5-03	RAU6-02
Sample Name:		RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0	RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-18-GW-5.0	RAU4-19-GW-5.0	RAU4-20-GW-10.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU6-02-GW-12
Collection Date:		12/11/2019	7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/11/2019
Collection Depth (ft bgs):		9	6.5	6	5	4	4.5	5	5	10.5	13	7	6.5	12
Anions (ug/L)														
Sulfide	2	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Metals (ug/L)														
Arsenic	5	--	1 U	2.98	1 U	1 U	1.03	1 U	1 U	4.7	6.17	--	2.28	--
Lead	15	--	0.487	7.46	0.2 U	0.2 U	0.332	0.2 U	1.12	1.7	3.43	--	1.55	--
Manganese	750	--	7,900	11,700	3,230	7,590	10,200	12,300	11,400	1,260	12,900	--	5,230	--
Total Metals (ug/L)														
Arsenic	5	1.35	15.8	8.29	1 U	5.43	3.05	2.15	1.24	8.91	56.8	5.82	2.46	1.72
Cadmium	5	0.2 U	--	--	--	--	--	--	--	--	--	0.04 U	--	0.2 U
Chromium	50	14.1	--	--	--	--	--	--	--	--	--	4.13 J	--	2.5 U
Chromium, hexavalent	0.046	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	640	21.3	--	--	--	--	--	--	--	--	--	3.97 J	--	0.967 J
Lead	15	1.27	42.1	33.8	0.29	10.1	7.68	8.84	2.16	5.07	91.2	1 U	3.5	0.525
Manganese	750	17,600	12,000	12,500	3,240	8,140	10,600	13,100	11,400	1,310	23,000	7,410	5,220	4,000
Mercury	2	0.04 U	--	--	--	--	--	--	--	--	--	0.04 U	--	0.04 U
Nickel	320	19.2	--	--	--	--	--	--	--	--	--	3.96	--	1.43
Zinc	4,800	33.1	--	--	--	--	--	--	--	--	--	15.1	--	6.72
PCB Aroclors (ug/L)														
Aroclor 1016	NA	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Aroclor 1221	NV	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Aroclor 1232	NV	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Aroclor 1242	NV	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Aroclor 1248	NV	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Aroclor 1254	NA	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Aroclor 1260	NA	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
Total PCBs[b]	0.10	--	--	--	--	--	--	--	--	--	--	0.0235 U	--	--
VOCs (ug/L)														
1,1,1,2-Tetrachloroethane	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	200	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.77	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	7.7	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	400	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	6.4	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.00038	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	80	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.014	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU4-12	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU5-01	RAU5-03	RAU6-02
Sample Name:		RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0	RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-18-GW-5.0	RAU4-19-GW-5.0	RAU4-20-GW-10.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU6-02-GW-12
Collection Date:		12/11/2019	7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/11/2019
Collection Depth (ft bgs):		9	6.5	6	5	4	4.5	5	5	10.5	13	7	6.5	12
1,2-Dichlorobenzene	720	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	5	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	80	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	160	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	--	--	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	4,800	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	40	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	640	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	7,200	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	5	--	--	--	--	--	--	--	--	--	--	0.1 U	--	--
Bromobenzene	64	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.71	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	11	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	800	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.63	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	16	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	0.52	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	80	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	700	--	--	--	--	--	--	--	--	--	--	0.25 U	--	--
Hexachlorobutadiene	0.56	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	20	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	160	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU4-12	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU5-01	RAU5-03	RAU6-02
Sample Name:		RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0	RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-18-GW-5.0	RAU4-19-GW-5.0	RAU4-20-GW-10.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU6-02-GW-12
Collection Date:		12/11/2019	7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/11/2019
Collection Depth (ft bgs):		9	6.5	6	5	4	4.5	5	5	10.5	13	7	6.5	12
n-Butylbenzene	400	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	1,000	--	--	--	--	--	--	--	--	--	--	0.5 U	--	--
trans-1,2-Dichloroethene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	2,400	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes, total[c]	1,000	--	--	--	--	--	--	--	--	--	--	0.75 U	--	--
SVOCs (ug/L)														
1,2,4-Trichlorobenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	720	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dinitrobenzene	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dinitrobenzene	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	1.5	--	--	--	--	--	--	--	--	--	--	0.0377 U	--	--
2,3,4,6-Tetrachlorophenol	480	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	8	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	48	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	320	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	32	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.058	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	640	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	40	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	32	--	--	--	--	--	--	--	--	--	--	0.0377 U	--	--
2-Methylphenol	800	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	160	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	0.19	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU4-12	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU5-01	RAU5-03	RAU6-02
Sample Name:		RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0	RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-18-GW-5.0	RAU4-19-GW-5.0	RAU4-20-GW-10.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU6-02-GW-12
Collection Date:		12/11/2019	7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/11/2019
Collection Depth (ft bgs):		9	6.5	6	5	4	4.5	5	5	10.5	13	7	6.5	12
3-Nitroaniline	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenylphenyl ether	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	4.4	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	480	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Acenaphthylene	NV	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Aniline	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	2,400	--	--	--	--	--	--	--	--	--	--	0.0377 U	--	--
Azobenzene	0.4	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	--	--	--	--	--	--	--	--	--	--	0.00943 U	--	--
Benzo(a)pyrene	NA	--	--	--	--	--	--	--	--	--	--	0.00943 U	--	--
Benzo(b)fluoranthene	NV	--	--	--	--	--	--	--	--	--	--	0.00943 U	--	--
Benzo(ghi)perylene	NV	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Benzo(k)fluoranthene	NV	--	--	--	--	--	--	--	--	--	--	0.00943 U	--	--
Benzoic acid	64,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	0.63	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	48	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	0.04	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6.3	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	46	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NV	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Chrysene	NV	--	--	--	--	--	--	--	--	--	--	0.00943 U	--	--
Di(2-ethylhexyl)adipate	73	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	--	--	--	--	--	--	--	--	--	--	0.00943 U	--	--
Dibenzofuran	8	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Diethyl phthalate	13,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	160	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	640	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Fluorene	320	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Hexachlorobenzene	0.027	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.56	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	48	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU4-12	RAU4-13	RAU4-14	RAU4-15	RAU4-16	RAU4-17	RAU4-18	RAU4-19	RAU4-20	RAU4-21	RAU5-01	RAU5-03	RAU6-02
Sample Name:		RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0	RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-18-GW-5.0	RAU4-19-GW-5.0	RAU4-20-GW-10.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU6-02-GW-12
Collection Date:		12/11/2019	7/22/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/11/2019
Collection Depth (ft bgs):		9	6.5	6	5	4	4.5	5	5	10.5	13	7	6.5	12
Indeno(1,2,3-cd)pyrene	NV	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Isophorone	92	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	160	--	--	--	--	--	--	--	--	--	--	0.0754 U	--	--
Nitrobenzene	16	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	0.00023	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	18	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	0.013	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	--	--	--	--	--	--	--	--	--	--	0.0377 U	--	--
Phenol	4,800	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	240	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Pyridine	8	--	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[d][2]	0.1	--	--	--	--	--	--	--	--	--	--	0.0189 U	--	--
Hydrocarbon Identification (Detect/Non-detect)														
Gasoline	NA	ND	--	--	--	--	--	--	--	--	--	ND	--	ND
Diesel	NA	ND	--	--	--	--	--	--	--	--	--	ND	--	ND
Lube Oil	NA	ND	--	--	--	--	--	--	--	--	--	DETECT	--	ND
TPH (ug/L)														
Gasoline-Range Hydrocarbons	1,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	500	--	222 U	320	217 U	4,710 U	4,490 U	227 U	399	304	247 U	132 U	206 U	--
Lube Oil-Range Hydrocarbons	500	--	444 U	465 U	435 U	83,500	96,500	455 U	412 U	430 U	15,000	1,840	412 U	--
Diesel+Oil[e]	500	--	444 U	553	435 U	85,900	98,700	455 U	605	519	15,100	1,910	412 U	--
TPH with Silica Gel Treatment (ug/L)														
Diesel-Range Hydrocarbons	500	--	222 U	233 U	217 U	4,710 U	4,490 U	227 U	206 U	215 U	247 U	--	206 U	--
Lube Oil-Range Hydrocarbons	500	--	444 U	465 U	435 U	82,700	96,100	455 U	412 U	430 U	14,700	--	412 U	--
Diesel+Oil[e]	500	--	444 U	465 U	435 U	85,100	98,300	455 U	412 U	430 U	14,800	--	412 U	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU7-01	RAU7-02
Sample Name:		RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		12/5/2019	12/5/2019
Collection Depth (ft bgs):		8.5	9.5
Anions (ug/L)			
Sulfide	2	--	--
Dissolved Metals (ug/L)			
Arsenic	5	--	--
Lead	15	--	--
Manganese	750	--	--
Total Metals (ug/L)			
Arsenic	5	1.95	0.5 U
Cadmium	5	0.04 U	0.04 U
Chromium	50	6.32 J	3.58 J
Chromium, hexavalent	0.046	--	--
Copper	640	14.2	8.87
Lead	15	1.45 U	0.741 U
Manganese	750	18,200	269
Mercury	2	0.04 U	0.04 U
Nickel	320	4.62	2.77
Zinc	4,800	18.3	12.8
PCB Aroclors (ug/L)			
Aroclor 1016	NA	--	--
Aroclor 1221	NV	--	--
Aroclor 1232	NV	--	--
Aroclor 1242	NV	--	--
Aroclor 1248	NV	--	--
Aroclor 1254	NA	--	--
Aroclor 1260	NA	--	--
Total PCBs[b]	0.10	--	--
VOCs (ug/L)			
1,1,1,2-Tetrachloroethane	1.7	--	--
1,1,1-Trichloroethane	200	--	--
1,1,2,2-Tetrachloroethane	0.22	--	--
1,1,2-Trichloroethane	0.77	--	--
1,1-Dichloroethane	7.7	--	--
1,1-Dichloroethene	400	--	--
1,1-Dichloropropene	NV	--	--
1,2,3-Trichlorobenzene	6.4	--	--
1,2,3-Trichloropropane	0.00038	--	--
1,2,4-Trichlorobenzene	1.5	--	--
1,2,4-Trimethylbenzene	80	--	--
1,2-Dibromo-3-chloropropane	0.014	--	--
1,2-Dibromoethane	0.01	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU7-01	RAU7-02
Sample Name:		RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		12/5/2019	12/5/2019
Collection Depth (ft bgs):		8.5	9.5
1,2-Dichlorobenzene	720	--	--
1,2-Dichloroethane	5	--	--
1,2-Dichloropropane	1.2	--	--
1,3,5-Trimethylbenzene	80	--	--
1,3-Dichlorobenzene	NV	--	--
1,3-Dichloropropane	160	--	--
1,4-Dichlorobenzene	8.1	--	--
2,2-Dichloropropane	NV	--	--
2-Butanone	4,800	--	--
2-Chlorotoluene	160	--	--
2-Hexanone	40	--	--
4-Chlorotoluene	160	--	--
4-Isopropyltoluene	NV	--	--
4-Methyl-2-pentanone	640	--	--
Acetone	7,200	--	--
Acrylonitrile	0.081	--	--
Benzene	5	--	--
Bromobenzene	64	--	--
Bromodichloromethane	0.71	--	--
Bromoform	5.5	--	--
Bromomethane	11	--	--
Carbon disulfide	800	--	--
Carbon tetrachloride	0.63	--	--
Chlorobenzene	160	--	--
Chlorobromomethane	NV	--	--
Chloroethane	NV	--	--
Chloroform	1.4	--	--
Chloromethane	NV	--	--
cis-1,2-Dichloroethene	16	--	--
cis-1,3-Dichloropropene	NV	--	--
Dibromochloromethane	0.52	--	--
Dibromomethane	80	--	--
Dichlorodifluoromethane (Freon 12)	1,600	--	--
Ethylbenzene	700	--	--
Hexachlorobutadiene	0.56	--	--
Isopropylbenzene	800	--	--
m,p-Xylene	NV	--	--
Methyl tert-butyl ether	20	--	--
Methylene chloride	5	--	--
Naphthalene	160	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU7-01	RAU7-02
Sample Name:		RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		12/5/2019	12/5/2019
Collection Depth (ft bgs):		8.5	9.5
n-Butylbenzene	400	--	--
n-Propylbenzene	800	--	--
o-Xylene	1,600	--	--
sec-Butylbenzene	800	--	--
Styrene	1,600	--	--
tert-Butylbenzene	800	--	--
Tetrachloroethene	5	--	--
Toluene	1,000	--	--
trans-1,2-Dichloroethene	160	--	--
trans-1,3-Dichloropropene	NV	--	--
Trichloroethene	5	--	--
Trichlorofluoromethane (Freon 11)	2,400	--	--
Vinyl chloride	0.2	--	--
Xylenes, total[c]	1,000	--	--
SVOCs (ug/L)			
1,2,4-Trichlorobenzene	1.5	--	--
1,2-Dichlorobenzene	720	--	--
1,2-Dinitrobenzene	1.6	--	--
1,3-Dichlorobenzene	NV	--	--
1,3-Dinitrobenzene	1.6	--	--
1,4-Dichlorobenzene	8.1	--	--
1,4-Dinitrobenzene	1.6	--	--
1-Methylnaphthalene	1.5	0.0405 U	0.0468 U
2,3,4,6-Tetrachlorophenol	480	--	--
2,3,5,6-Tetrachlorophenol	NV	--	--
2,4,5-Trichlorophenol	1,600	--	--
2,4,6-Trichlorophenol	8	--	--
2,4-Dichlorophenol	48	--	--
2,4-Dimethylphenol	320	--	--
2,4-Dinitrophenol	32	--	--
2,4-Dinitrotoluene	0.28	--	--
2,6-Dinitrotoluene	0.058	--	--
2-Chloronaphthalene	640	--	--
2-Chlorophenol	40	--	--
2-Methylnaphthalene	32	0.0405 U	0.0468 U
2-Methylphenol	800	--	--
2-Nitroaniline	160	--	--
2-Nitrophenol	NV	--	--
3- & 4-Methylphenol (m,p-Cresol)	NV	--	--
3,3-Dichlorobenzidine	0.19	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU7-01	RAU7-02
Sample Name:		RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		12/5/2019	12/5/2019
Collection Depth (ft bgs):		8.5	9.5
3-Nitroaniline	NV	--	--
4,6-Dinitro-2-methylphenol	1.3	--	--
4-Bromophenylphenyl ether	NV	--	--
4-Chloro-3-methylphenol	1,600	--	--
4-Chloroaniline	0.44	--	--
4-Chlorophenylphenyl ether	NV	--	--
4-Nitroaniline	4.4	--	--
4-Nitrophenol	NV	--	--
Acenaphthene	480	0.279	0.248
Acenaphthylene	NV	0.0203 U	0.0234 U
Aniline	15	--	--
Anthracene	2,400	0.0203 U	0.0339 J
Azobenzene	0.4	--	--
Benzo(a)anthracene	NV	0.0101 U	0.0181 J
Benzo(a)pyrene	NA	0.0101 U	0.0234 U
Benzo(b)fluoranthene	NV	0.0101 U	0.031
Benzo(ghi)perylene	NV	0.0203 U	0.0234 U
Benzo(k)fluoranthene	NV	0.0101 U	0.0123 J
Benzoic acid	64,000	--	--
Benzyl alcohol	1,600	--	--
Bis(2-chloro-1-methylethyl)ether	0.63	--	--
Bis(2-chloroethoxy)methane	48	--	--
Bis(2-chloroethyl)ether	0.04	--	--
Bis(2-ethylhexyl)phthalate	6.3	--	--
Butylbenzylphthalate	46	--	--
Carbazole	NV	0.0203 U	0.0234 U
Chrysene	NV	0.0101 U	0.0269 J
Di(2-ethylhexyl)adipate	73	--	--
Dibenzo(a,h)anthracene	NV	0.0101 U	0.0117 U
Dibenzofuran	8	0.0203 U	0.076
Diethyl phthalate	13,000	--	--
Dimethyl phthalate	NV	--	--
Di-n-butyl phthalate	1,600	--	--
Di-n-octyl phthalate	160	--	--
Fluoranthene	640	0.0203 U	0.0631
Fluorene	320	0.0203 U	0.175
Hexachlorobenzene	0.027	--	--
Hexachlorobutadiene	0.56	--	--
Hexachlorocyclopentadiene	48	--	--
Hexachloroethane	1.1	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	RAU7-01	RAU7-02
Sample Name:		RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		12/5/2019	12/5/2019
Collection Depth (ft bgs):		8.5	9.5
Indeno(1,2,3-cd)pyrene	NV	0.0101 U	0.0117 U
Isophorone	92	--	--
Naphthalene	160	0.0405 U	0.0468 U
Nitrobenzene	16	--	--
N-Nitrosodimethylamine	0.00023	--	--
N-Nitrosodiphenylamine	18	--	--
N-Nitrosodipropylamine	0.013	--	--
Pentachlorophenol	0.22	--	--
Phenanthrene	NV	0.0947	0.0836 J
Phenol	4,800	--	--
Pyrene	240	0.0203 U	0.0626
Pyridine	8	--	--
cPAH TEQ[d][2]	0.1	0.0101 U	0.0193 J
Hydrocarbon Identification (Detect/Non-detect)			
Gasoline	NA	--	--
Diesel	NA	--	--
Lube Oil	NA	--	--
TPH (ug/L)			
Gasoline-Range Hydrocarbons	1,000	--	--
Diesel-Range Hydrocarbons	500	108 J	104 U
Lube Oil-Range Hydrocarbons	500	204 U	208 U
Diesel+Oil[e]	500	210 J	208 U
TPH with Silica Gel Treatment (ug/L)			
Diesel-Range Hydrocarbons	500	--	--
Lube Oil-Range Hydrocarbons	500	--	--
Diesel+Oil[e]	500	--	--

Table 6-6
Upland RI Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

Shading indicates values that exceed groundwater screening levels; non-detect results (U and UJ) and rejected results (R) were not compared with screening criteria.

-- = not analyzed.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

ft bgs = feet below ground surface.

J = result is estimated.

MTCA = Model Toxics Control Act.

NA = not applicable.

ND = not detected.

NV = no value.

PCB = polychlorinated biphenyl.

R = result is rejected. The analyte may or may not be present in the sample.

RI = remedial investigation.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the method reporting limit or method detection limit.

UJ = result is non-detect with an estimated reporting limit or detection limit.

ug/L = micrograms per liter.

VOC = volatile organic compound.

[a]Screening levels are the lowest regulatory criteria value for the given matrix, selected from groundwater MTCA Method A where available, or MTCA Method B (the lowest of cancer and noncancer values) where MTCA Method A is not available. The proposed screening for sulfide is the Clean Water Act chronic screening level for hydrogen sulfide. Where a summation is performed (except Diesel+Oil and total xylenes), data are not screened to MTCA values for individual analytes; data are only screened to the MTCA value for the summation.

[b]Total PCBs are the sum of all PCB Aroclors; where all results are non-detect, the highest method reporting limit or method detection limit is used.

[c]Total xylenes are reported from the laboratory or the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the method reporting limit or method detection limit. When all results are non-detect, the highest method reporting limit or method detection limit is used.

[d]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors (Ecology 2015). Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[e]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbons results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

References

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC) table.* Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs).* Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01	FC02	FC03	MS01	MS02	MS03
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	6.5	3.5	--	--	--	--	--	--
Dissolved Metals (ug/L)														
Arsenic	5	50 U	50 U	50 U	50 U	50 U	50 U	50 U	--	--	--	--	--	--
Cadmium	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	--	--	--	--	--
Chromium	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--
Lead	15	20 U	20 U	20 U	20 U	20 U	20 U	20 U	--	--	--	--	--	--
Mercury	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	--	--	--	--
Total Metals (ug/L)														
Aluminum	16,000	--	--	--	--	--	--	--	17,800	139 JQ	2180	429	989	2540
Antimony	6.4	--	--	--	--	--	--	--	60 U	60 U	60 U	60 U	60 U	60 U
Arsenic	5	50 U	50 U	50 U	50 U	50 U	50 U	50 U	4.8	1 U	1 U	1 U	1 U	1 U
Barium	3,200	--	--	--	--	--	--	--	288	70.4 JQ	34.5 JQ	79.2 JQ	84.6 JQ	23.5 JQ
Beryllium	32	--	--	--	--	--	--	--	0.92 JQ	5 U	5 U	5 U	5 U	0.68 JQ
Cadmium	5	2 U	2	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Calcium	NV	--	--	--	--	--	--	--	79,900	38,900	12,600	43,100	11,700	35,100
Chromium	50	18	116	6	5 U	66	13	11	30.3	10 U	10 U	10 U	10 U	10 U
Cobalt	4.8	--	--	--	--	--	--	--	9.6 JQ	13.4 JQ	50 U	50 U	8.6 JQ	50 U
Copper	640	--	--	--	--	--	--	--	82.3	12.2 JQ	17.8 JQ	7.6 JQ	9.7 JQ	31.3
Iron	11,000	--	--	--	--	--	--	--	56,200	52,100	9,280	24,400	34,500	50,500
Lead	15	20 U	80	20 U	20 U	20 U	20 U	20 U	53	10 U	18.6	3.1 JQ	10 U	10.7
Magnesium	NV	--	--	--	--	--	--	--	37,400	31,400	3,960 JQ	16,300	10,300	14,800
Manganese	750	--	--	--	--	--	--	--	6,070	18,400	1,120	4,090	12,100	2,030
Mercury	2	0.1 U	0.1	0.7	0.1 U	0.1	0.1	0.1 U	--	--	--	--	--	--
Nickel	320	--	--	--	--	--	--	--	18.9 JQ	40 U	40 U	40 U	40 U	40 U
Potassium	NV	--	--	--	--	--	--	--	29,700	5,000 U	5,000 U	16,400	5,000 U	5,080
Selenium	80	--	--	--	--	--	--	--	35 U	35 U	35 U	35 U	35 U	35 U
Silver	80	--	--	--	--	--	--	--	1.9 JQ	2.4 JQ	10 UJ	1.4 JQ	2.3 JQ	10 UJ
Sodium	NV	--	--	--	--	--	--	--	38,100	60,900	4,600 JQ	18,300	28,800	23,700
Thallium	0.16	--	--	--	--	--	--	--	25 U	25 U	25 U	25 U	25 U	25 U
Vanadium	80	--	--	--	--	--	--	--	68.8	50 U	12.1 JQ	50 U	50 U	15.5 JQ
Zinc	4,800	--	--	--	--	--	--	--	232	60 U	24.8 JQ	60 U	60 U	23.7 JQ
PCB Aroclors (ug/L)														
Aroclor 1016	NA	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1221	NV	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1232	NV	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1242	NV	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1248	NV	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1254	NA	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1260	NA	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
Aroclor 1262	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	NV	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01	FC02	FC03	MS01	MS02	MS03
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	6.5	3.5	--	--	--	--	--	--
Total PCBs[b]	0.10	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--
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	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.22	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.77	0.2 U	0.2 U	0.29	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	7.7	0.2 U	0.2 U	0.12 J	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	400	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	6.4	0.5 U	0.5 U	0.5 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.00038	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.5	0.5 U	0.5 U	0.5 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	80	0.2 U	0.37	0.2 U	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.014	0.5 U	0.5 U	0.5 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	0.01	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	720	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.27 JQ	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1.2	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	80	0.2 U	0.19 J	0.2 U	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	160	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
2-Butanone	4,800	5 U	0.85 J	5 U	--	--	--	--	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinyl ether	NV	1 R	1 R	1 R	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	160	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
2-Hexanone	40	5 U	5 U	5 U	--	--	--	--	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorotoluene	160	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	640	5 U	5 U	5 U	--	--	--	--	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	7,200	5 U	5 U	5 U	--	--	--	--	5 U	5	5 U	5 U	4 JQ	5 U
Acrolein	4	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	0.081	1 U	1 U	1 U	--	--	--	--	--	--	--	--	--	--
Benzene	5	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.31 JQ	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	64	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.71	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoethane	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
Bromoform	5.5	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	1 U	1 U	1 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	800	0.2 U	0.4	0.2 U	--	--	--	--	0.5 U	0.26 JQ	0.5 U	0.5 U	0.5 U	0.5 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01	FC02	FC03	MS01	MS02	MS03
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	6.5	3.5	--	--	--	--	--	--
Carbon tetrachloride	0.63	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	160	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobromomethane	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	NV	0.2 U	0.2 U	0.39	--	--	--	--	0.5 U	0.13 JQ	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	1.4	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	NV	0.5 U	0.5 U	0.5 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	16	0.2 U	0.2 U	0.25	--	--	--	--	0.5 U	0.24 JQ	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	NV	--	--	--	--	--	--	--	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.52	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	80	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	1,600	--	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	700	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	240,000	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.56	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	800	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.39 JQ	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylene	NV	0.27 J	0.4	0.15 J	--	--	--	--	0.5 U	2.9	0.5 U	0.5 U	0.5 U	0.5 U
Methyl acetate	8,000	--	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl iodide	NV	1 U	1 U	1 U	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	20	--	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylcyclohexane	NV	--	--	--	--	--	--	--	0.5 U	1.2	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	5	1 U	1 U	1 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	160	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	400	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	800	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
o-Xylene	1,600	0.11 J	0.57	0.2 U	--	--	--	--	0.5 U	2.8	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	800	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
Styrene	1,600	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	800	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	5	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	1,000	1.2	0.34	0.2 U	--	--	--	--	0.5 U	0.44 JQ	0.5 U	0.5 U	0.16 JQ	0.5 U
trans-1,2-Dichloroethene	160	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	NV	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,4-Dichloro-2-butene	NV	1 U	1 U	1 U	--	--	--	--	--	--	--	--	--	--
Trichloroethene	5	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane (Freon 11)	2,400	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Acetate	8,000	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.2	0.2 U	0.2 U	0.2 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes, total[c]	1,000	0.38 J	0.97	0.25 J	--	--	--	--	0.5 U	5.7	0.5 U	0.5 U	0.5 U	0.5 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01	FC02	FC03	MS01	MS02	MS03
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	6.5	3.5	--	--	--	--	--	--
SVOCs (ug/L)														
1,1'-Biphenyl	5.5	--	--	--	--	--	--	--	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
1,2,4,5-Tetrachlorobenzene	2.4	--	--	--	--	--	--	--	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
1,2,4-Trichlorobenzene	1.5	1 U	20 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--
1,2-Dichlorobenzene	720	1 U	20 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	1 U	20 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--
1,4-Dioxane	0.44	--	--	--	--	--	--	--	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U
1-Methylnaphthalene	1.5	1 U	20 U	1 U	1 U	1 U	1.7	2	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	480	--	--	--	--	--	--	--	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2,4,5-Trichlorophenol	1,600	5 U	100 U	5 U	5 U	5 U	5 U	5 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2,4,6-Trichlorophenol	8	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2,4-Dichlorophenol	48	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2,4-Dimethylphenol	320	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2,4-Dinitrophenol	32	20 UJ	400 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
2,4-Dinitrotoluene	0.28	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2,6-Dinitrotoluene	0.058	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2-Chloronaphthalene	640	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2-Chlorophenol	40	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2-Methylnaphthalene	32	1 U	20 U	1 U	1 U	1 U	1.7	2	0.04 JQ	4.7 J	0.04 JQ	0.095 U	0.045 JQ	0.48 U
2-Methylphenol	800	1 U	20 U	1 U	1 U	1 U	1 U	1 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
2-Nitroaniline	160	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
2-Nitrophenol	NV	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
3,3-Dichlorobenzidine	0.19	5 U	100 U	5 U	5 U	5 U	5 U	5 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
3-Nitroaniline	NV	3 U	60 U	3 U	3 U	3 U	3 U	3 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
4,6-Dinitro-2-methylphenol	1.3	10 U	200 U	10 U	10 U	10 U	10 U	10 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
4-Bromophenylphenyl ether	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
4-Chloro-3-methylphenol	1,600	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
4-Chloroaniline	0.44	5 U	100 U	5 U	5 U	5 U	5 U	5 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
4-Chlorophenylphenyl ether	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
4-Methylphenol	1,600	2 U	40 U	2 U	2 U	2 U	2 U	1.4 J	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
4-Nitroaniline	4.4	3 U	60 U	3 U	3 U	3 U	3 U	3 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
4-Nitrophenol	NV	10 UJ	200 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Acenaphthene	480	1 U	20 U	1 U	1 U	1 U	4.1	0.8 J	0.096	0.43 JQ	0.019 JQ	0.33 J	0.7	0.67 J
Acenaphthylene	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.095 U	0.48 U	0.1 U	0.014 JQ	0.095 U	0.48 U
Acetophenone	800	--	--	--	--	--	--	--	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Anthracene	2,400	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.095 U	0.079 JQ	0.1 U	0.095 U	0.095 U	0.14 JQ
Atrazine	0.38	--	--	--	--	--	--	--	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Benzaldehyde	11	--	--	--	--	--	--	--	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Benzo(a)anthracene	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.016 JQ	0.48 U	0.1 U	0.095 U	0.095 U	0.076 JQ

Table 6-7
Historical Groundwater Analytical Data
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Location:	Screening Level for Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01	FC02	FC03	MS01	MS02	MS03
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	6.5	3.5	--	--	--	--	--	--
Benzo(a)pyrene	NA	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.013 JQ	0.48 U	0.1 U	0.095 U	0.095 U	0.48 U
Benzo(b)fluoranthene	NV	--	--	--	--	--	--	--	0.021 JQ	0.48 U	0.1 U	0.095 U	0.095 U	0.064 JQ
Benzo(ghi)perylene	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.095 U	0.48 U	0.1 UJ	0.095 U	0.095 U	0.48 U
Benzo(k)fluoranthene	NV	--	--	--	--	--	--	--	0.095 U	0.48 U	0.1 U	0.095 U	0.095 U	0.051 JQ
Benzoic acid	64,000	20 UJ	97 J	20 UJ	20 UJ	20 UJ	20 UJ	14 J	--	--	--	--	--	--
Benzyl alcohol	1,600	2 U	40 U	2 U	2 U	2 U	2 U	2 U	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	0.63	1 U	20 U	1 U	1 U	1 U	1 U	1 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Bis(2-chloroethoxy)methane	48	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Bis(2-chloroethyl)ether	0.04	1 U	20 U	1 U	1 U	1 U	1 U	1 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Bis(2-ethylhexyl)phthalate	6.3	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 UJ	4.8 U	4.8 U	4.8 U
Butylbenzylphthalate	46	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 UJ	4.8 U	4.8 U	4.8 U
Caprolactam	8,000	--	--	--	--	--	--	--	9.5 U	9.5 U	10 U	1.3 JQ	9.5 U	9.5 U
Carbazole	NV	1 U	20 U	1 U	1 U	1 U	0.7 J	1 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Chrysene	NV	1 U	11 J	1 U	1 U	1 U	1 U	1 U	0.021 JQ	0.48 U	0.1 U	0.095 U	0.095 U	0.077 JQ
Dibenzo(a,h)anthracene	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.095 U	0.48 U	0.1 U	0.095 U	0.095 U	0.48 U
Dibenzofuran	8	1 U	20 U	1 U	1 U	1 U	1.4	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Diethyl phthalate	13,000	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Dimethyl phthalate	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Di-n-butyl phthalate	1,600	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Di-n-octyl phthalate	160	1 U	20 U	1 U	1 U	1 U	1 U	1 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Fluoranthene	640	1 U	23	1 U	1 U	1 U	0.7 J	1 U	0.043 JQ	0.48 U	0.019 JQ	0.095 U	0.095 U	0.44 JQ
Fluorene	320	1 U	20 U	1 U	1 U	1 U	2	1 U	0.079 JQ	0.72 J	0.1 U	0.095 U	0.095 U	0.62 J
Hexachlorobenzene	0.027	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Hexachlorobutadiene	0.56	3 U	60 U	3 U	3 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Hexachlorocyclopentadiene	48	5 UJ	100 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Hexachloroethane	1.1	2 U	40 U	2 U	2 U	2 U	2 U	2 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Indeno(1,2,3-cd)pyrene	NV	1 U	20 U	1 U	1 U	1 U	1 U	1 U	0.095 U	0.48 U	0.1 U	0.095 U	0.095 U	0.48 U
Isophorone	92	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Naphthalene	160	1 U	20 U	1 U	1 U	1 U	13	5.5	0.15	1.7 J	0.034 JQ	0.022 JQ	0.15	0.48 U
Nitrobenzene	16	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
N-Nitrosodiphenylamine	18	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
N-Nitrosodipropylamine	0.013	1 U	20 U	1 U	1 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U
Pentachlorophenol	0.22	10 UJ	200 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	0.3	0.95 U	0.2 U	19 J	0.96	1.5 J
Phenanthrene	NV	1 U	12 J	1 U	1 U	1 U	1.7	0.6 J	0.091 JQ	0.7 J	0.1 U	0.04 JQ	0.019 JQ	0.82 J
Phenol	4,800	1 U	20 U	1 U	1 U	1 U	1 U	1 U	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U
Pyrene	240	1 U	16 J	1 U	1 U	1 U	0.5 J	1 U	0.045 JQ	0.48 U	0.1 U	0.029 JQ	0.095 U	0.37 JQ
Total Benzofluoranthenes	NV	2 U	40 U	2 U	2 U	2 U	2 U	2 U	--	--	--	--	--	--
cPAH TEQ[c][2]	0.1	2 U	15 J	2 U	2 U	2 U	2 U	2 U	0.0312 JQ	0.48 U	0.1 U	0.095 U	0.095 U	0.308 JQ

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
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Location:	Screening Level for Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	CR-22	CR-23	FC01	FC02	FC03	MS01	MS02	MS03
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/13/2015	10/13/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	6.5	3.5	--	--	--	--	--	--
Hydrocarbon Identification (Detect/Non-detect)														
Gasoline	NA	ND	DETECT	ND	--	--	--	--	--	--	--	--	--	--
Diesel	NA	ND	DETECT	DETECT	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	ND	DETECT	DETECT	--	--	--	--	--	--	--	--	--	--
TPH (ug/L)														
Diesel-Range Hydrocarbons	500	--	40,000 J	500 J	1,000	720	450	3,400 J	170 U	2,100	200 U	200 U	190 U	350 U
Lube Oil-Range Hydrocarbons	500	--	110,000 J	1,500 J	1,600	3,100	960	3,200 J	430 U	3,200	780	490 U	470 U	34,000
Diesel+Oil[e]	500	--	150,000 J	2,000 J	2,600	3,820	1,410	6,600 J	430 U	5,300	880	490 U	470 U	34,200

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
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Location:	Screening Level for Groundwater[a][1]	MS04	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ493	MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/27/2017	9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Metals (ug/L)														
Arsenic	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	5	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	50	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	2	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)														
Aluminum	16,000	200 U	1360	269	200 U	387	1890	200 U	14,100	281	--	--	--	1,900
Antimony	6.4	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	--	--	--	60 U
Arsenic	5	1.7	1 U	1 U	1 U	1 U	3.5	1 U	4.4	1 U				1.6
Barium	3,200	11.2 JQ	34.2 JQ	24.9 JQ	20.7 JQ	19.4 JQ	116 JQ	18.5 JQ	232	13.7 JQ	--	--	--	38.4 JQ
Beryllium	32	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 JQ	5 U	--	--	--	5 U
Cadmium	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
Calcium	NV	16,900	39,600	7,850	18,500	22,900	59,400	13,300	20,000	10,500	--	--	--	16,100
Chromium	50	10 U	10 U	10 U	10 U	10 U	10 U	10 U	19.7	10 U				10 U
Cobalt	4.8	50 U	50 U	11.3 JQ	50 U	50 U	10.5 JQ	50 U	9.5 JQ	50 U	--	--	--	50 U
Copper	640	7.5 JQ	11.8 JQ	7.1 JQ	6.3 JQ	13.4 JQ	24.2 JQ	6.3 JQ	56.5	8.4 JQ				17.6 JQ
Iron	11,000	28,000	15,500	34,600	20,500	26,000	76,600	26,800	36,100	10,700	--	--	--	24,100
Lead	15	3.7 JQ	9.6 JQ	10 U	4.2 JQ	7.3 JQ	6.6 JQ	8.3 JQ	23.8	5.1 JQ				10.4
Magnesium	NV	6,420	12,500	11,000	8,620	12,300	33,100	11,700	13,700	8,810	--	--	--	11,000
Manganese	750	563	854	5,100	2,110	2,380	10,600	3,950	2,170	1,730				2,120
Mercury	2	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	320	40 U	40 U	40 U	40 U	4.9 JQ	40 U	40 U	11 JQ	40 U				5.4 JQ
Potassium	NV	1,780 JQ	4,420 JQ	5,000 U	4,630 JQ	5,870	13,500	4,660 JQ	4,600 JQ	3,070 JQ	--	--	--	3,850 JQ
Selenium	80	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	--	--	--	35 U
Silver	80	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	--	--	--	10 UJ
Sodium	NV	10,300	17,100	29,700	16,900	22,700	25,500	31,500	35,000	26,300	--	--	--	30,700
Thallium	0.16	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	--	--	--	25 U
Vanadium	80	50 U	6.9 JQ	50 U	50 U	50 U	12.1 JQ	50 U	96.8	50 U	--	--	--	10.3 JQ
Zinc	4,800	60 U	28.1 JQ	60 U	60 U	29.6 JQ	60 U	60 U	57.2 JQ	46.8 JQ				60 U
PCB Aroclors (ug/L)														
Aroclor 1016	NA	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1221	NV	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1232	NV	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1242	NV	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1248	NV	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1254	NA	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1260	NA	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1262	NV	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
Aroclor 1268	NV	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	MS04	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ493	MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/27/2017	9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs[b]	0.10	--	--	--	--	--	--	0.95 U	0.95 U	0.95 U	--	--	--	1 U
VOCs (ug/L)														
1,1,1,2-Tetrachloroethane	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,2,2-Tetrachloroethane	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,2-Trichloroethane	0.77	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethane	7.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethene	400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloropropene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	6.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2,3-Trichloropropane	0.00038	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2,4-Trimethylbenzene	80	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dibromoethane	0.01	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichlorobenzene	720	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichloropropane	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,3,5-Trimethylbenzene	80	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,3-Dichloropropane	160	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
2,2-Dichloropropane	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	4,800	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	5 U	--
2-Chloroethylvinyl ether	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	40	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	5 U	--
4-Chlorotoluene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	640	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	5 U	--
Acetone	7,200	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5.7	5 U	5 U	--
Acrolein	4	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.76	0.5 U	0.5 U	--
Bromobenzene	64	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.71	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Bromoethane	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	5.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Carbon disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	MS04	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ493	MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/27/2017	9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.63	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chlorobenzene	160	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chlorobromomethane	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chloroethane	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chloroform	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chloromethane	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.22 JQ	0.5 U	0.5 U	--
cis-1,2-Dichloroethene	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
cis-1,3-Dichloropropene	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Cyclohexane	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	1.5	0.5 U	--
Dibromochloromethane	0.52	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Dibromomethane	80	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	1,600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.22 JQ	0.12 JQ	0.5 U	--
Freon 113	240,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Hexachlorobutadiene	0.56	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	800	0.5 U	0.5 U	0.49 JQ	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
m,p-Xylene	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.51	0.53	0.5 U	--
Methyl acetate	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Methyl iodide	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Methylcyclohexane	NV	0.5 U	0.5 U	0.34 JQ	0.5 U	0.5 U	0.5 U	--	--	--	0.71	2.2	0.5 U	--
Methylene chloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Naphthalene	160	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	400	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	1,600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.18 JQ	0.24 JQ	0.5 U	--
sec-Butylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	1,600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
tert-Butylbenzene	800	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Toluene	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	1.7	0.73	0.5 U	--
trans-1,2-Dichloroethene	160	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
trans-1,3-Dichloropropene	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
trans-1,4-Dichloro-2-butene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Trichlorofluoromethane (Freon 11)	2,400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Vinyl Acetate	8,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Xylenes, total[c]	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.69 JQ	0.77 JQ	0.5 U	--

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Upland Remedial Investigation
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Location:	Screening Level for Groundwater[a][1]	MS04	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ493	MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/27/2017	9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--	--
SVOCs (ug/L)														
1,1'-Biphenyl	5.5	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	2.4	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
1,2,4-Trichlorobenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	720	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	8.1	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	0.44	2 U	2 UJ	2 U	2 UJ	2 U	2 UJ	2 U	2 UJ	2 U	2 UJ	2 U	2 U	2 U
1-Methylnaphthalene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	480	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	390 J	5 U	5 U	5 U
2,4,5-Trichlorophenol	1,600	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	150 J	5 U	5 U	5 U
2,4,6-Trichlorophenol	8	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
2,4-Dichlorophenol	48	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	21 J	5 U	5 U	5 U
2,4-Dimethylphenol	320	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
2,4-Dinitrophenol	32	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
2,4-Dinitrotoluene	0.28	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
2,6-Dinitrotoluene	0.058	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
2-Chloronaphthalene	640	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
2-Chlorophenol	40	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	0.68 JQ	5 U	5 U	5 U
2-Methylnaphthalene	32	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.029 JQ	0.1 U	0.15 J	0.29	5 UJ	0.21	0.1 U	0.45
2-Methylphenol	800	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
2-Nitroaniline	160	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
2-Nitrophenol	NV	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
3,3-Dichlorobenzidine	0.19	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
3-Nitroaniline	NV	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	1.3	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
4-Bromophenylphenyl ether	NV	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
4-Chloro-3-methylphenol	1,600	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
4-Chloroaniline	0.44	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
4-Chlorophenylphenyl ether	NV	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
4-Methylphenol	1,600	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	12 J	10 U	10 U	10 U
4-Nitroaniline	4.4	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
4-Nitrophenol	NV	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Acenaphthene	480	0.013 JQ	3.1 J	0.21	0.02 JQ	0.014 JQ	0.02 JQ	0.079 JQ	0.26 J	0.4	5 UJ	0.12	0.083 JQ	4.9
Acenaphthylene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.037 JQ
Acetophenone	800	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Anthracene	2,400	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.24
Atrazine	0.38	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Benzaldehyde	11	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Benzo(a)anthracene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.031 JQ

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	MS04	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ493	MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/27/2017	9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	NA	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.05 JQ	0.1 U	5 UJ	0.1 U	0.1 U	0.1 U
Benzo(ghi)perylene	NV	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 UJ	0.1 UJ
Benzo(k)fluoranthene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.1 U
Benzoic acid	64,000	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	0.63	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	48	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Bis(2-chloroethyl)ether	0.04	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	3 JQ	10 U	10 UJ	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	6.3	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	0.91 JQ	5 U	5 UJ	5 U	5 UJ	5 UJ
Butylbenzylphthalate	46	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 UJ
Caprolactam	8,000	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	2.3 JQ	10 U	10 UJ	10 U	10 U	10 U
Carbazole	NV	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Chrysene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.1 U
Dibenzo(a,h)anthracene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.1 U
Dibenzofuran	8	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Diethyl phthalate	13,000	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Dimethyl phthalate	NV	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Di-n-butyl phthalate	1,600	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Di-n-octyl phthalate	160	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Fluoranthene	640	0.1 U	0.12 J	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.027 JQ	0.03 JQ	10 UJ	0.1 U	0.1 U	0.64
Fluorene	320	0.1 U	1.1 J	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.18 J	0.25	5 UJ	0.065 JQ	0.1 U	2.5
Hexachlorobenzene	0.027	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Hexachlorobutadiene	0.56	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Hexachlorocyclopentadiene	48	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U
Hexachloroethane	1.1	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	NV	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.1 U
Isophorone	92	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Naphthalene	160	0.1 U	0.21 J	0.1	0.1 UJ	0.1 U	0.017 JQ	0.1 U	1.6 J	1.3	5 UJ	0.5	0.018 JQ	2.7
Nitrobenzene	16	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
N-Nitrosodiphenylamine	18	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
N-Nitrosodipropylamine	0.013	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Pentachlorophenol	0.22	0.2 U	0.061 JQ	0.2 U	0.18 JQ	0.2 U	0.2 UJ	0.2 U	0.091 JQ	0.06 JQ	1,600 J	0.046 JQ	0.2 U	0.2 U
Phenanthrene	NV	0.1 U	0.1 UJ	0.012 JQ	0.1 UJ	0.1 U	0.14 J	0.015 JQ	0.077 JQ	0.14	5 UJ	0.036 JQ	0.1 U	1
Phenol	4,800	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	25 J	10 U	10 U	10 U
Pyrene	240	0.1 U	0.12 J	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	5 UJ	0.1 U	0.1 U	0.6
Total Benzofluoranthenes	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[d][2]	0.1	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.0755 JQ	0.1 U	5 UJ	0.1 U	0.1 U	0.0736 JQ

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	MS04	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ493	MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/27/2017	9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--	--
Hydrocarbon Identification (Detect/Non-detect)														
Gasoline	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
TPH (ug/L)														
Diesel-Range Hydrocarbons	500	180 U	170 U	200 U	170 U	200 U	200 U	180 U	370 U	170 U	200 U	170 U	200 U	170 U
Lube Oil-Range Hydrocarbons	500	450 U	740	500 U	420 U	500 U	500 U	450 U	79,000	430 U	500 U	430 U	500 U	420 U
Diesel+Oil[e]	500	450 U	825	500 U	420 U	500 U	500 U	450 U	79,200	430 U	500 U	430 U	500 U	420 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	PB10	PW01	PW02	VM01
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017
Collection Depth (ft bgs):		--	--	--	--
Dissolved Metals (ug/L)					
Arsenic	5	--	--	--	--
Cadmium	5	--	--	--	--
Chromium	50	--	--	--	--
Lead	15	--	--	--	--
Mercury	2	--	--	--	--
Total Metals (ug/L)					
Aluminum	16,000	1,020	--	--	5,000
Antimony	6.4	60 U	--	--	60 U
Arsenic	5	1 U			1.4
Barium	3,200	34.3 JQ	--	--	64.5 JQ
Beryllium	32	5 U	--	--	5 U
Cadmium	5	1 U			1 U
Calcium	NV	29,200	--	--	11,300
Chromium	50	10 U			2.6 JQ
Cobalt	4.8	50 U	--	--	50 U
Copper	640	11.1 JQ			17.5 JQ
Iron	11,000	28,200	--	--	34,400
Lead	15	9.4 JQ			4.4 JQ
Magnesium	NV	16,100	--	--	8,680
Manganese	750	4,050			6,260
Mercury	2	--	--	--	--
Nickel	320	40 U			5.4 JQ
Potassium	NV	4,680 JQ	--	--	5,000 U
Selenium	80	35 U	--	--	35 U
Silver	80	10 UJ	--	--	1.7 JQ
Sodium	NV	41,700	--	--	32,900
Thallium	0.16	25 U	--	--	25 U
Vanadium	80	50 U	--	--	17.1 JQ
Zinc	4,800	60 U			60 U
PCB Aroclors (ug/L)					
Aroclor 1016	NA	1 U	--	--	--
Aroclor 1221	NV	1 U	--	--	--
Aroclor 1232	NV	1 U	--	--	--
Aroclor 1242	NV	1 U	--	--	--
Aroclor 1248	NV	1 U	--	--	--
Aroclor 1254	NA	1 U	--	--	--
Aroclor 1260	NA	1 U	--	--	--
Aroclor 1262	NV	1 U	--	--	--
Aroclor 1268	NV	1 U	--	--	--

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	PB10	PW01	PW02	VM01
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017
Collection Depth (ft bgs):		--	--	--	--
Total PCBs[b]	0.10	1 U	--	--	--
VOCs (ug/L)					
1,1,1,2-Tetrachloroethane	1.7	--	--	--	--
1,1,1-Trichloroethane	200	--	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.22	--	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.77	--	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	7.7	--	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	400	--	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	NV	--	--	--	--
1,2,3-Trichlorobenzene	6.4	--	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.00038	--	--	--	--
1,2,4-Trichlorobenzene	1.5	--	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	80	--	--	--	--
1,2-Dibromo-3-chloropropane	0.014	--	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	0.01	--	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	720	--	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	--	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1.2	--	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	80	--	--	--	--
1,3-Dichlorobenzene	NV	--	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	160	--	--	--	--
1,4-Dichlorobenzene	8.1	--	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	NV	--	--	--	--
2-Butanone	4,800	--	5 U	5 U	5 U
2-Chloroethylvinyl ether	NV	--	--	--	--
2-Chlorotoluene	160	--	--	--	--
2-Hexanone	40	--	5 U	5 U	5 U
4-Chlorotoluene	160	--	--	--	--
4-Isopropyltoluene	NV	--	--	--	--
4-Methyl-2-pentanone	640	--	5 U	5 U	5 U
Acetone	7,200	--	7.3	5.2	5 U
Acrolein	4	--	--	--	--
Acrylonitrile	0.081	--	--	--	--
Benzene	5	--	0.5 U	0.5 U	0.5 U
Bromobenzene	64	--	--	--	--
Bromodichloromethane	0.71	--	0.5 U	0.5 U	0.5 U
Bromoethane	NV	--	--	--	--
Bromoform	5.5	--	0.5 U	0.5 U	0.5 U
Bromomethane	11	--	0.5 U	0.5 U	0.5 U
Carbon disulfide	800	--	0.5 U	0.5 U	0.5 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	PB10	PW01	PW02	VM01
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017
Collection Depth (ft bgs):		--	--	--	--
Carbon tetrachloride	0.63	--	0.5 U	0.5 U	0.5 U
Chlorobenzene	160	--	0.5 U	0.5 U	0.5 U
Chlorobromomethane	NV	--	0.5 U	0.5 U	0.5 U
Chloroethane	NV	--	0.5 U	0.5 U	0.5 U
Chloroform	1.4	--	0.5 U	0.5 U	0.5 U
Chloromethane	NV	--	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	16	--	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	NV	--	0.5 U	0.5 U	0.5 U
Cyclohexane	NV	--	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.52	--	0.5 U	0.5 U	0.5 U
Dibromomethane	80	--	--	--	--
Dichlorodifluoromethane (Freon 12)	1,600	--	0.5 U	0.5 U	0.5 U
Ethylbenzene	700	--	0.5 U	0.5 U	0.5 U
Freon 113	240,000	--	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.56	--	--	--	--
Isopropylbenzene	800	--	0.5 U	0.5 U	0.5 U
m,p-Xylene	NV	--	0.5 U	0.5 U	0.5 U
Methyl acetate	8,000	--	0.5 U	0.5 U	0.5 U
Methyl iodide	NV	--	--	--	--
Methyl tert-butyl ether	20	--	0.5 U	0.5 U	0.5 U
Methylcyclohexane	NV	--	0.5 U	0.5 U	0.5 U
Methylene chloride	5	--	0.23 JQ	0.5 U	0.5 U
Naphthalene	160	--	--	--	--
n-Butylbenzene	400	--	--	--	--
n-Propylbenzene	800	--	--	--	--
o-Xylene	1,600	--	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	800	--	--	--	--
Styrene	1,600	--	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	800	--	--	--	--
Tetrachloroethene	5	--	0.5 U	0.5 U	0.5 U
Toluene	1,000	--	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	160	--	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	NV	--	0.5 U	0.5 U	0.5 U
trans-1,4-Dichloro-2-butene	NV	--	--	--	--
Trichloroethene	5	--	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane (Freon 11)	2,400	--	0.5 U	0.5 U	0.5 U
Vinyl Acetate	8,000	--	--	--	--
Vinyl chloride	0.2	--	0.5 U	0.5 U	0.5 U
Xylenes, total[c]	1,000	--	0.5 U	0.5 U	0.5 U

Location:	Screening Level for Groundwater[a][1]	PB10	PW01	PW02	VM01
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017
Collection Depth (ft bgs):		--	--	--	--
SVOCs (ug/L)					
1,1'-Biphenyl	5.5	5 U	5 U	5 UJ	4.8 U
1,2,4,5-Tetrachlorobenzene	2.4	5 U	5 U	5 UJ	4.8 U
1,2,4-Trichlorobenzene	1.5	--	--	--	--
1,2-Dichlorobenzene	720	--	--	--	--
1,3-Dichlorobenzene	NV	--	--	--	--
1,4-Dichlorobenzene	8.1	--	--	--	--
1,4-Dioxane	0.44	2 U	2 U	2 UJ	1.9 U
1-Methylnaphthalene	1.5	--	--	--	--
2,3,4,6-Tetrachlorophenol	480	5 U	5 U	5 UJ	4.8 U
2,4,5-Trichlorophenol	1,600	5 U	5 U	5 UJ	4.8 U
2,4,6-Trichlorophenol	8	5 U	5 U	5 UJ	4.8 U
2,4-Dichlorophenol	48	5 U	5 U	5 UJ	4.8 U
2,4-Dimethylphenol	320	5 U	5 U	5 UJ	4.8 U
2,4-Dinitrophenol	32	10 U	10 U	10 UJ	9.5 U
2,4-Dinitrotoluene	0.28	5 U	5 U	5 UJ	4.8 U
2,6-Dinitrotoluene	0.058	5 U	5 U	5 UJ	4.8 U
2-Chloronaphthalene	640	5 U	5 U	5 UJ	4.8 U
2-Chlorophenol	40	5 U	5 U	5 UJ	4.8 U
2-Methylnaphthalene	32	0.048 JQ	0.041 JQ	0.1 UJ	0.014 JQ
2-Methylphenol	800	10 U	10 U	10 UJ	9.5 U
2-Nitroaniline	160	5 U	5 U	5 UJ	4.8 U
2-Nitrophenol	NV	5 U	5 U	5 UJ	4.8 U
3,3-Dichlorobenzidine	0.19	10 U	10 U	10 UJ	9.5 U
3-Nitroaniline	NV	10 U	10 U	10 UJ	9.5 U
4,6-Dinitro-2-methylphenol	1.3	10 U	10 U	10 UJ	9.5 U
4-Bromophenylphenyl ether	NV	5 U	5 U	5 UJ	4.8 U
4-Chloro-3-methylphenol	1,600	5 U	5 U	5 UJ	4.8 U
4-Chloroaniline	0.44	10 U	10 U	10 UJ	9.5 U
4-Chlorophenylphenyl ether	NV	5 U	5 U	5 UJ	4.8 U
4-Methylphenol	1,600	10 U	10 U	10 UJ	9.5 U
4-Nitroaniline	4.4	10 U	10 U	10 UJ	9.5 U
4-Nitrophenol	NV	10 U	10 U	10 UJ	9.5 U
Acenaphthene	480	0.8	0.11	0.036 JQ	0.21
Acenaphthylene	NV	0.031 JQ	0.1 U	0.1 UJ	0.095 U
Acetophenone	800	10 U	10 U	10 UJ	9.5 U
Anthracene	2,400	0.031 JQ	0.061 JQ	0.1 UJ	0.095 U
Atrazine	0.38	10 U	10 U	10 UJ	9.5 U
Benzaldehyde	11	10 U	10 U	10 UJ	9.5 U
Benzo(a)anthracene	NV	0.1 U	0.1 U	0.1 UJ	0.095 U

Location:	Screening Level for Groundwater[a][1]	PB10	PW01	PW02	VM01
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017
Collection Depth (ft bgs):		--	--	--	--
Benzo(a)pyrene	NA	0.1 U	0.1 U	0.1 UJ	0.095 U
Benzo(b)fluoranthene	NV	0.1 U	0.1 U	0.1 UJ	0.095 U
Benzo(ghi)perylene	NV	0.1 UJ	0.1 UJ	0.1 UJ	0.095 U
Benzo(k)fluoranthene	NV	0.1 U	0.1 U	0.1 UJ	0.095 U
Benzoic acid	64,000	--	--	--	--
Benzyl alcohol	1,600	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	0.63	10 U	10 U	10 UJ	9.5 U
Bis(2-chloroethoxy)methane	48	5 U	5 U	5 UJ	4.8 U
Bis(2-chloroethyl)ether	0.04	10 U	10 U	10 UJ	9.5 U
Bis(2-ethylhexyl)phthalate	6.3	5 UJ	5 UJ	5 UJ	4.8 U
Butylbenzylphthalate	46	5 UJ	5 UJ	5 UJ	4.8 U
Caprolactam	8,000	10 U	10 U	10 UJ	1.4 JQ
Carbazole	NV	10 U	10 U	10 UJ	9.5 U
Chrysene	NV	0.1 U	0.1 U	0.1 UJ	0.095 U
Dibenzo(a,h)anthracene	NV	0.1 U	0.1 U	0.1 UJ	0.095 U
Dibenzofuran	8	5 U	5 U	5 UJ	4.8 U
Diethyl phthalate	13,000	5 U	5 U	5 UJ	4.8 U
Dimethyl phthalate	NV	5 U	5 U	5 UJ	4.8 U
Di-n-butyl phthalate	1,600	5 U	5 U	5 UJ	4.8 U
Di-n-octyl phthalate	160	10 U	10 U	10 UJ	9.5 U
Fluoranthene	640	0.028 JQ	0.021 JQ	0.1 UJ	0.095 U
Fluorene	320	0.37	0.083 JQ	0.1 UJ	0.095 U
Hexachlorobenzene	0.027	5 U	5 U	5 UJ	4.8 U
Hexachlorobutadiene	0.56	5 U	5 U	5 UJ	4.8 U
Hexachlorocyclopentadiene	48	10 UJ	10 UJ	10 UJ	9.5 U
Hexachloroethane	1.1	5 U	5 U	5 UJ	4.8 U
Indeno(1,2,3-cd)pyrene	NV	0.1 U	0.1 U	0.1 UJ	0.095 U
Isophorone	92	5 U	5 U	5 UJ	4.8 U
Naphthalene	160	0.41	0.29	0.1 UJ	0.095 U
Nitrobenzene	16	5 U	5 U	5 UJ	4.8 U
N-Nitrosodiphenylamine	18	5 U	5 U	5 UJ	4.8 U
N-Nitrosodipropylamine	0.013	5 U	5 U	5 UJ	4.8 U
Pentachlorophenol	0.22	0.2 U	0.2 U	0.2 UJ	0.075 JQ
Phenanthrene	NV	0.11	0.1 U	0.01 JQ	0.095 U
Phenol	4,800	10 U	10 U	10 UJ	9.5 U
Pyrene	240	0.1 U	0.1 U	0.1 UJ	0.095 U
Total Benzofluoranthenes	NV	--	--	--	--
cPAH TEQ[d][2]	0.1	0.1 U	0.1 U	0.1 UJ	0.095 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Groundwater[a][1]	PB10	PW01	PW02	VM01
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017
Collection Depth (ft bgs):		--	--	--	--
Hydrocarbon Identification (Detect/Non-detect)					
Gasoline	NA	--	--	--	--
Diesel	NA	--	--	--	--
Lube Oil	NA	--	--	--	--
TPH (ug/L)					
Diesel-Range Hydrocarbons	500	200 U	170 U	200 U	170 U
Lube Oil-Range Hydrocarbons	500	500 U	420 U	500 U	430 U
Diesel+Oil[e]	500	500 U	420 U	500 U	430 U

Table 6-7
Historical Groundwater Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

Shading indicates values that exceed groundwater screening levels; non-detect results (U and UJ) and rejected results (R) were not compared with screening criteria.

-- = not analyzed or not measured.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

ft bgs = feet below ground surface.

J = result is estimated.

JQ = result is estimated and detected below the method reporting limit.

MTCA = Model Toxics Control Act.

NA = not applicable.

ND = not detected.

NV = no value.

PCB = polychlorinated biphenyl.

R = result is rejected. The analyte may or may not be present in the sample.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbon.

U = result is non-detect at the method reporting limit or method detection limit.

UJ = result is non-detect with an estimated reporting limit or detection limit.

ug/L = micrograms per liter.

VOC = volatile organic compound.

[a]Screening levels are the lowest regulatory criteria value for the given matrix, selected from groundwater MTCA Method A where available, or MTCA Method B (the lowest of cancer and noncancer values) where MTCA Method A is not available. Historical data are screened to the most up-to-date MTCA Method A/B screening values. Where a summation is performed (except Diesel+Oil and total xylenes), data are not screened to MTCA values for individual analytes; data are only screened to the MTCA value for the summation.

[b]Total PCBs are the sum of all PCB Aroclors; where all results are non-detect, the highest method reporting limit or method detection limit is used.

[c]Total xylenes are reported from the laboratory or the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the method reporting limit or method detection limit. When all results are non-detect, the highest method reporting limit or method detection limit is used.

[d]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors (Ecology 2015). Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[e]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbons results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

References

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC) table.* Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs).* Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

Table 6-8
Selected 30-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	B01	B02	B03	FC01	FC02	MS01	MS02	MS03	MS04	MS05	OC01	OC02
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	MJJ488	MJJ489	MJJ490	MJJ491	MJJ492	MJJ493	MJJ4C7	MJJ4A2	MJJ4A3
Collection Date:		10/12/2015	10/12/2015	10/12/2015	9/26/2017	9/26/2017	9/26/2017	9/25/2017	9/26/2017	9/27/2017	9/28/2017	9/28/2017	9/28/2017
Collection Depth (ft bgs):		7.5	6	7.5	--	--	--	--	--	--	--	--	--
VOCs (ug/L)													
1,2-Dibromoethane	0.3	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	3.5	0.2 U	0.2 U	0.2 U	0.5 U	0.27 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	2.4	0.2 U	0.2 U	0.2 U	0.5 U	0.31 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	2,800	0.2 U	0.2 U	0.2 U	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylene	NV	0.27 J	0.4	0.15 J	0.5 U	2.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	860	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	8.9	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
o-Xylene	NV	0.11 J	0.57	0.2 U	0.5 U	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	15,000	1.2	0.34	0.2 U	0.5 U	0.44 JQ	0.5 U	0.16 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)[b]	320	0.38 J	0.97	0.25 J	0.5 U	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SVOCs (ug/L)													
Naphthalene	8.9	1 U	20 U	1 U	0.15	1.7 J	0.022 JQ	0.15	0.48 U	0.1 U	0.21 J	0.1 UJ	0.1 U

Table 6-8
Selected 30-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	PB01	PB02	PB03	PB04	PB05	PB06	PB09	PB10	PW01	PW02	VM01	RAU1-07
Sample Name:		MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8	MJJ4C9	17394249	17394252	MJJ4A5	RAU1-07-GW-7.5
Collection Date:		9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017	9/29/2017	9/28/2017	9/29/2017	9/26/2017	12/2/2019
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	7.5
VOCs (ug/L)													
1,2-Dibromoethane	0.3	--	--	--	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.25 U
1,2-Dichloroethane	3.5	--	--	--	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.2 U
Benzene	2.4	--	--	--	0.76	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.1 U
Ethylbenzene	2,800	--	--	--	0.22 JQ	0.12 JQ	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.25 U
m,p-Xylene	NV	--	--	--	0.51	0.53	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	860	--	--	--	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	8.9	--	--	--	--	--	--	--	--	--	--	--	1 U
o-Xylene	NV	--	--	--	0.18 JQ	0.24 JQ	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.25 U
Toluene	15,000	--	--	--	1.7	0.73	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)[b]	320	--	--	--	0.69 JQ	0.77 JQ	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
SVOCs (ug/L)													
Naphthalene	8.9	0.1 U	1.6 J	1.3	5 UJ	0.5	0.018 JQ	2.7	0.41	0.29	0.1 UJ	0.095 U	0.0396 UJ

Table 6-8
Selected 30-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-06
Sample Name:		RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0	RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-06-GW-6.5
Collection Date:		12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019	7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019
Collection Depth (ft bgs):		7	7	8.5	7	7	7	7	6	7.5	6	7.5	6.5
VOCs (ug/L)													
1,2-Dibromoethane	0.3	--	0.25 U	--	0.25 U	0.25 U	--	--	--	--	--	--	--
1,2-Dichloroethane	3.5	--	0.2 U	--	0.2 U	0.2 U	--	--	--	--	--	--	--
Benzene	2.4	--	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--
Ethylbenzene	2,800	--	0.25 U	--	0.25 U	0.686	--	--	--	--	--	--	--
m,p-Xylene	NV	--	0.5 U	--	0.5 U	5.02	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	--	0.5 U	--	0.5 U	0.5 U	--	--	--	--	--	--	--
Naphthalene	8.9	--	2 UJ	--	2 UJ	4.6	--	--	--	--	--	--	--
o-Xylene	NV	--	0.25 U	--	0.292 J	3.04	--	--	--	--	--	--	--
Toluene	15,000	--	0.5 U	--	0.5 U	0.5 U	--	--	--	--	--	--	--
Xylenes (total)[b]	320	--	0.5 U	--	0.542 J	8.06	--	--	--	--	--	--	--
SVOCs (ug/L)													
Naphthalene	8.9	0.086 U	0.105 U	200	0.449 U	3.07	--	--	--	0.158 UJ	0.808 UJ	0.042 J	0.0444 UJ

Table 6-8
Selected 30-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU2-07	RAU2-08	RAU4-04	RAU4-14	RAU4-15	RAU4-16	RAU7-01
Sample Name:		RAU2-07-GW-7.5	RAU2-08-GW-9	RAU4-04-GW-7.0	RAU4-14-GW-6.0	RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU7-01-GW-8.5
Collection Date:		12/5/2019	12/11/2019	12/5/2019	7/21/2020	7/21/2020	7/21/2020	12/5/2019
Collection Depth (ft bgs):		7.5	9	7	6	5	4	8.5
VOCs (ug/L)								
1,2-Dibromoethane	0.3	0.25 U	--	--	--	--	--	--
1,2-Dichloroethane	3.5	0.2 U	--	--	--	--	--	--
Benzene	2.4	0.1 U	--	--	--	--	--	--
Ethylbenzene	2,800	0.25 U	--	--	--	--	--	--
m,p-Xylene	NV	0.5 U	--	--	--	--	--	--
Methyl tert-butyl ether	860	0.5 U	--	--	--	--	--	--
Naphthalene	8.9	149	--	--	--	--	--	--
o-Xylene	NV	0.25 U	--	--	--	--	--	--
Toluene	15,000	0.5 U	--	--	--	--	--	--
Xylenes (total)[b]	320	0.5 U	--	--	--	--	--	--
SVOCs (ug/L)								
Naphthalene	8.9	129	0.0426 UJ	0.0843 J	--	--	--	0.0405 U

Table 6-8
Selected 30-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

Selected data includes only groundwater samples collected within 30 feet of any existing, enclosed structure on the site, and the associated compounds referenced in section E-6 and E-7 of Ecology's 2022 Vapor Intrusion Guidance (Ecology 2022b). Aliphatic and aromatic carbon fraction results were not available.

Shading indicates values that exceed MTCA Method B screening values; non-detect results (U and UJ) were not compared with screening criteria.

-- = not analyzed or no data available.

ft bgs = feet below ground surface.

J = result is estimated.

JQ = result is estimated and detected below the method reporting limit.

MTCA = Model Toxics Control Act.

NV = no value.

SVOC = semivolatile organic compound.

U = result is non-detect to method reporting limit or method detection limit.

ug/L = micrograms per liter.

UJ = result is non-detect with an estimated reporting limit or detection limit.

VOC = volatile organic compound.

[a]The lowest of cancer and noncancer values are shown.

[b]Total xylenes are reported from the laboratory or the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the method reporting limit or method detection limit. When all results are non-detect, the highest reporting limit or detection limit is used.

References

[1]Ecology. 2022a. *Cleanup Levels and Risk Calculation (CLARC) table* . Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 2022b. *Guidance for Evaluating Vapor Intrusion in Washington State* . Publication No. 09-09-047. Washington State Department of Ecology, Toxics Cleanup Program, Olympia, Washington. March.

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Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	FC01	FC02	FC03	MS01	MS02	MS03	MS04
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492	MJJ493
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	--	--	--	--	--	--	--
Dissolved Metals (ug/L)													
Mercury	1.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	--	--	--	--	--
Total Metals (ug/L)													
Mercury	1.1	0.1 U	0.1	0.7	0.1 U	0.1	--	--	--	--	--	--	--
VOCs (ug/L)													
1,1,1,2-Tetrachloroethane	7.1	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	5,400	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	5.9	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	5.1	0.2 U	0.2 U	0.29	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	11	0.2 U	0.2 U	0.12 J	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	130	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Difluoroethane[b]	29,000	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	21	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene[b]	410	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	39	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	240	0.2 U	0.37	0.2 U	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.16	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	0.3	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	2,500	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	3.5	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.27 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	10	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Butadiene[b]	0.038	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene[b]	8	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	170	0.2 U	0.19 J	0.2 U	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	1,700,000	5 U	0.85 J	5 U	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloro-1,3-butadiene[b]	0.0065	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	7,300	5 U	5 U	5 U	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitropropane[b]	1.7	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	470,000	5 U	5 U	5 U	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetaldehyde[b]	620	--	--	--	--	--	--	--	--	--	--	--	--
Acetonitrile[b]	33,000	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	2.9	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--
Acrylonitrile	12	1 U	1 U	1 U	--	--	--	--	--	--	--	--	--
Allyl chloride[b]	1.5	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	2.4	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.31 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzyl chloride[b]	6.2	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	630	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--
Bromodichloromethane	1.4	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	220	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	FC01	FC02	FC03	MS01	MS02	MS03	MS04
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492	MJJ493
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	--	--	--	--	--	--	--
Bromomethane	11	1 U	1 U	1 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	840	0.2 U	0.4	0.2 U	--	--	0.5 U	0.26 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.62	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	340	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodifluoromethane[b]	18,000	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	15,000	0.2 U	0.2 U	0.39	--	--	0.5 U	0.13 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	1.2	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	150	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	750	--	--	--	--	--	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexanone[b]	2,100,000	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	97	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	4.2	--	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl acetate[b]	10,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl acrylate[b]	500	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	2,800	0.2 U	0.2 U	0.2 U	--	--	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl methacrylate[b]	14,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethylene oxide[b]	0.053	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	170	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heptane[b]	4	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
Hydrogen sulfide[b]	3.3	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	910	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.39 JQ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylene	NV	0.27 J	0.4	0.15 J	--	--	0.5 U	2.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile[b]	2,400	--	--	--	--	--	--	--	--	--	--	--	--
Methanol[b]	91,000,000	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	--	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	780	1 U	1 U	1 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl methacrylate[b]	50,000	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	8.9	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
n-Hexane[b]	7.2	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	2,300	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--
o-Xylene	NV	0.11 J	0.57	0.2 U	--	--	0.5 U	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Phosgene[b]	0.32	--	--	--	--	--	--	--	--	--	--	--	--
Propionaldehyde[b]	2,000	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	8,200	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butyl ethyl ether[b]	780	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	25	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran[b]	520,000	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	15,000	1.2	0.34	0.2 U	--	--	0.5 U	0.44 JQ	0.5 U	0.5 U	0.16 JQ	0.5 U	0.5 U
trans-1,2-Dichloroethene	77	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	B01	B02	B03	CR-20	CR-21	FC01	FC02	FC03	MS01	MS02	MS03	MS04
Sample Name:		B01-GW-10.0	B02-GW-6	B03-GW-10	CR20-GW-5.0	CR21-GW-10	MJJ488	MJJ489	MJJ4D2	MJJ490	MJJ491	MJJ492	MJJ493
Collection Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	9/26/2017	9/26/2017	9/29/2017	9/26/2017	9/25/2017	9/26/2017	9/27/2017
Collection Depth (ft bgs):		7.5	6	7.5	5.5	7.5	--	--	--	--	--	--	--
Trichloroethene	1.4	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane (Freon 11)	120	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Triethylamine[b]	980	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl acetate	7,800	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--
Vinyl bromide[b]	0.47	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.33	0.2 U	0.2 U	0.2 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (total)[c]	320	0.38 J	0.97	0.25 J	--	--	0.5 U	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SVOCs (ug/L)													
1,2,4-Trichlorobenzene	39	1 U	20 U	1 U	1 U	1 U	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,500	1 U	20 U	1 U	1 U	1 U	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	1 U	20 U	1 U	1 U	1 U	--	--	--	--	--	--	--
1,4-Dioxane	4,700	--	--	--	--	--	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
Hexachlorobenzene	0.24	1 U	20 U	1 U	1 U	1 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	5 U
Hexachlorobutadiene	0.64	3 U	60 U	3 U	3 U	3 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	5 U
Hexachlorocyclopentadiene	4.2	5 UJ	100 UJ	5 UJ	5 UJ	5 UJ	9.5 U	9.5 U	10 U	9.5 U	9.5 U	9.5 U	10 U
Hexachloroethane	3.8	2 U	40 U	2 U	2 U	2 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	5 U
Naphthalene	8.9	1 U	20 U	1 U	1 U	1 U	0.15	1.7 J	0.034 JQ	0.022 JQ	0.15	0.48 U	0.1 U
Organochlorine Pesticides (ug/L)													
Heptachlor[b]	0.51	--	--	--	--	--	--	--	--	--	--	--	--
Mirex[b]	0.015	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Metals (ug/L)													
Mercury	1.1	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)													
Mercury	1.1	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (ug/L)													
1,1,1,2-Tetrachloroethane	7.1	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	5,400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,2,2-Tetrachloroethane	5.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,2-Trichloroethane	5.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethene	130	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Difluoroethane[b]	29,000	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	21	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene[b]	410	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	39	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2,4-Trimethylbenzene	240	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dibromoethane	0.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichlorobenzene	2,500	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichloroethane	3.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichloropropane	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
1,3-Butadiene[b]	0.038	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene[b]	8	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	170	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
2-Butanone	1,700,000	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	5 U	--
2-Chloro-1,3-butadiene[b]	0.0065	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	7,300	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	5 U	--
2-Nitropropane[b]	1.7	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	470,000	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	5 U	--
Acetaldehyde[b]	620	--	--	--	--	--	--	--	--	--	--	--	--
Acetonitrile[b]	33,000	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	2.9	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	12	--	--	--	--	--	--	--	--	--	--	--	--
Allyl chloride[b]	1.5	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	2.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.76	0.5 U	0.5 U	--
Benzyl chloride[b]	6.2	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	630	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Bromoform	220	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Carbon disulfide	840	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Carbon tetrachloride	0.62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chlorobenzene	340	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chlorodifluoromethane[b]	18,000	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	15,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chloroform	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Chloromethane	150	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.22 JQ	0.5 U	0.5 U	--
Cyclohexane	750	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	1.5	0.5 U	--
Cyclohexanone[b]	2,100,000	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	97	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	4.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Ethyl acetate[b]	10,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl acrylate[b]	500	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	2,800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.22 JQ	0.12 JQ	0.5 U	--
Ethyl methacrylate[b]	14,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethylene oxide[b]	0.053	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	170	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Heptane[b]	4	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	--	--	--	--	--	--	--	--	--	--	--
Hydrogen sulfide[b]	3.3	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	910	0.5 U	0.49 JQ	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
m,p-Xylene	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.51	0.53	0.5 U	--
Methacrylonitrile[b]	2,400	--	--	--	--	--	--	--	--	--	--	--	--
Methanol[b]	91,000,000	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Methylene chloride	780	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Methyl methacrylate[b]	50,000	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	--	--	--	--	--	--	--	--	--	--	--
n-Hexane[b]	7.2	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	2,300	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.18 JQ	0.24 JQ	0.5 U	--
Phosgene[b]	0.32	--	--	--	--	--	--	--	--	--	--	--	--
Propionaldehyde[b]	2,000	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	8,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
tert-Butyl ethyl ether[b]	780	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	25	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Tetrahydrofuran[b]	520,000	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	15,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	1.7	0.73	0.5 U	--
trans-1,2-Dichloroethene	77	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	MS05	MS06	OC01	OC02	OC03	PB01	PB02	PB03	PB04	PB05	PB06	PB09
Sample Name:		MJJ4C7	MJJ4D1	MJJ4A2	MJJ4A3	MJJ4D0	MJJ494	MJJ495	MJJ496	17394238	17394241	17394244	MJJ4C8
Collection Date:		9/28/2017	9/29/2017	9/28/2017	9/28/2017	9/28/2017	9/26/2017	9/27/2017	9/27/2017	9/28/2017	9/27/2017	9/28/2017	9/29/2017
Collection Depth (ft bgs):		--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Trichlorofluoromethane (Freon 11)	120	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Triethylamine[b]	980	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl acetate	7,800	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl bromide[b]	0.47	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.33	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Xylenes (total)[c]	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	0.69 JQ	0.77 JQ	0.5 U	--
SVOCs (ug/L)													
1,2,4-Trichlorobenzene	39	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,500	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	4,700	2 UJ	2 U	2 UJ	2 U	2 UJ	2 U	2 UJ	2 U	2 UJ	2 U	2 U	2 U
Hexachlorobenzene	0.24	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Hexachlorobutadiene	0.64	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Hexachlorocyclopentadiene	4.2	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U
Hexachloroethane	3.8	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Naphthalene	8.9	0.21 J	0.1	0.1 UJ	0.1 U	0.017 JQ	0.1 U	1.6 J	1.3	5 UJ	0.5	0.018 JQ	2.7
Organochlorine Pesticides (ug/L)													
Heptachlor[b]	0.51	--	--	--	--	--	--	--	--	--	--	--	--
Mirex[b]	0.015	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	PB10	PW01	PW02	VM01	RAU1-04	RAU1-05	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017	12/2/2019	12/2/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		--	--	--	--	7.5	6.5	7.5	7	7	8.5	7	7
Dissolved Metals (ug/L)													
Mercury	1.1	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)													
Mercury	1.1	--	--	--	--	0.04 U	0.0523 J	0.04 U	0.04 U	0.116	0.04 U	0.04 U	0.04 U
VOCs (ug/L)													
1,1,1,2-Tetrachloroethane	7.1	--	--	--	--	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,1,1-Trichloroethane	5,400	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	5.9	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,1,2-Trichloroethane	5.1	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,1-Dichloroethane	11	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.721	0.2 U
1,1-Dichloroethene	130	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,1-Difluoroethane[b]	29,000	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	21	--	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
1,2,3-Trimethylbenzene[b]	410	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	39	--	0.5 U	0.5 U	0.5 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U
1,2,4-Trimethylbenzene	240	--	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.674 J	11.2
1,2-Dibromo-3-chloropropane	0.16	--	0.5 U	0.5 U	0.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	2.5 U	2.5 U
1,2-Dibromoethane	0.3	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,2-Dichlorobenzene	2,500	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,2-Dichloroethane	3.5	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
1,2-Dichloropropane	10	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
1,3-Butadiene[b]	0.038	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene[b]	8	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	170	--	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	2.88
1,4-Dichlorobenzene	5	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
2-Butanone	1,700,000	--	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
2-Chloro-1,3-butadiene[b]	0.0065	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	7,300	--	5 U	5 U	5 U	10 UJ	10 UJ	10 UJ	--	5 U	--	10 UJ	10 UJ
2-Nitropropane[b]	1.7	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	470,000	--	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Acetaldehyde[b]	620	--	--	--	--	--	--	--	--	--	--	--	--
Acetonitrile[b]	33,000	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	2.9	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	12	--	--	--	--	1 U	1 U	1 U	--	1 U	--	1 U	1 U
Allyl chloride[b]	1.5	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	2.4	--	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	--	0.1 U	--	0.1 U	0.1 U
Benzyl chloride[b]	6.2	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	630	--	--	--	--	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
Bromodichloromethane	1.4	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Bromoform	220	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	PB10	PW01	PW02	VM01	RAU1-04	RAU1-05	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017	12/2/2019	12/2/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		--	--	--	--	7.5	6.5	7.5	7	7	8.5	7	7
Bromomethane	11	--	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Carbon disulfide	840	--	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Carbon tetrachloride	0.62	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Chlorobenzene	340	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.25 U
Chlorodifluoromethane[b]	18,000	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	15,000	--	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	--	5 U	--	5 U	5 U
Chloroform	1.2	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Chloromethane	150	--	0.5 U	0.5 U	0.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	2.5 U	2.5 U
Cyclohexane	750	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Cyclohexanone[b]	2,100,000	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	97	--	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Dichlorodifluoromethane (Freon 12)	4.2	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Ethyl acetate[b]	10,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl acrylate[b]	500	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	2,800	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.686
Ethyl methacrylate[b]	14,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethylene oxide[b]	0.053	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	170	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Heptane[b]	4	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	--	--	--	2.5 U	2.5 U	2.5 U	--	2.5 U	--	2.5 U	2.5 U
Hydrogen sulfide[b]	3.3	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	910	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
m,p-Xylene	NV	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	5.02
Methacrylonitrile[b]	2,400	--	--	--	--	--	--	--	--	--	--	--	--
Methanol[b]	91,000,000	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
Methylene chloride	780	--	0.23 JQ	0.5 U	0.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	--	1.5 U	1.5 U
Methyl methacrylate[b]	50,000	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	--	--	--	1 U	1 U	1 U	--	2 UJ	--	2 UJ	4.6
n-Hexane[b]	7.2	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	2,300	--	--	--	--	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.25 U	0.567
o-Xylene	NV	--	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.25 U	--	0.25 U	--	0.292 J	3.04
Phosgene[b]	0.32	--	--	--	--	--	--	--	--	--	--	--	--
Propionaldehyde[b]	2,000	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	8,200	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
tert-Butyl ethyl ether[b]	780	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	25	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
Tetrahydrofuran[b]	520,000	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	15,000	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.5 U	0.5 U
trans-1,2-Dichloroethene	77	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	PB10	PW01	PW02	VM01	RAU1-04	RAU1-05	RAU1-07	RAU1-08	RAU1-09	RAU1-10	RAU1-11	RAU1-12
Sample Name:		MJJ4C9	17394249	17394252	MJJ4A5	RAU1-04-GW-7.5	RAU1-05-GW-6.5	RAU1-07-GW-7.5	RAU1-08-GW-7.0	RAU1-09-GW-7.0	RAU1-10-GW-8.5	RAU1-11-GW-7.0	RAU1-12-GW-7.0
Collection Date:		9/29/2017	9/28/2017	9/29/2017	9/26/2017	12/2/2019	12/2/2019	12/2/2019	12/4/2019	12/3/2019	12/4/2019	12/3/2019	12/3/2019
Collection Depth (ft bgs):		--	--	--	--	7.5	6.5	7.5	7	7	8.5	7	7
Trichloroethene	1.4	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
Trichlorofluoromethane (Freon 11)	120	--	0.5 U	0.5 U	0.5 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U
Triethylamine[b]	980	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl acetate	7,800	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl bromide[b]	0.47	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.33	--	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--	0.2 U	0.2 U
Xylenes (total)[c]	320	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--	0.542 J	8.06
SVOCs (ug/L)													
1,2,4-Trichlorobenzene	39	--	--	--	--	0.108 UJ	0.543 UJ	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,2-Dichlorobenzene	2,500	--	--	--	--	0.108 UJ	0.543 UJ	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,4-Dichlorobenzene	5	--	--	--	--	0.108 UJ	0.543 UJ	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
1,4-Dioxane	4,700	2 U	2 U	2 UJ	1.9 U	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.24	5 U	5 U	5 UJ	4.8 U	0.043 U	0.217 U	0.0099 UJ	0.043 U	0.0526 U	0.465 U	0.225 U	0.43 U
Hexachlorobutadiene	0.64	5 U	5 U	5 UJ	4.8 U	0.108 UJ	0.543 UJ	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Hexachlorocyclopentadiene	4.2	10 UJ	10 UJ	10 UJ	9.5 U	0.215 U	1.09 U	0.0495 UJ	0.215 U	0.263 U	2.33 U	1.12 U	2.15 U
Hexachloroethane	3.8	5 U	5 U	5 UJ	4.8 U	0.108 UJ	0.543 UJ	0.0248 UJ	0.108 U	0.132 U	1.16 U	0.562 U	1.08 U
Naphthalene	8.9	0.41	0.29	0.1 UJ	0.095 U	0.086 UJ	0.435 UJ	0.0396 UJ	0.086 U	0.105 U	200	0.449 U	3.07
Organochlorine Pesticides (ug/L)													
Heptachlor[b]	0.51	--	--	--	--	--	--	--	--	--	--	--	--
Mirex[b]	0.015	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9
Dissolved Metals (ug/L)													
Mercury	1.1	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)													
Mercury	1.1	--	--	--	0.392	11.4	8.48	0.479	0.0969	0.041 J	0.226	0.04 U	0.04 U
VOCs (ug/L)													
1,1,1,2-Tetrachloroethane	7.1	--	--	--	--	--	--	--	--	--	0.2 U	--	--
1,1,1-Trichloroethane	5,400	--	--	--	--	--	--	--	--	--	0.2 U	--	--
1,1,2,2-Tetrachloroethane	5.9	--	--	--	--	--	--	--	--	--	0.25 U	--	--
1,1,2-Trichloroethane	5.1	--	--	--	--	--	--	--	--	--	0.25 U	--	--
1,1-Dichloroethane	11	--	--	--	--	--	--	--	--	--	0.2 U	--	--
1,1-Dichloroethene	130	--	--	--	--	--	--	--	--	--	0.2 U	--	--
1,1-Difluoroethane[b]	29,000	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	21	--	--	--	--	--	--	--	--	--	0.5 U	--	--
1,2,3-Trimethylbenzene[b]	410	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	39	--	--	--	--	--	--	--	--	--	1 U	--	--
1,2,4-Trimethylbenzene	240	--	--	--	--	--	--	--	--	--	0.5 U	--	--
1,2-Dibromo-3-chloropropane	0.16	--	--	--	--	--	--	--	--	--	2.5 U	--	--
1,2-Dibromoethane	0.3	--	--	--	--	--	--	--	--	--	0.25 U	--	--
1,2-Dichlorobenzene	2,500	--	--	--	--	--	--	--	--	--	0.25 U	--	--
1,2-Dichloroethane	3.5	--	--	--	--	--	--	--	--	--	0.2 U	--	--
1,2-Dichloropropane	10	--	--	--	--	--	--	--	--	--	0.25 U	--	--
1,3-Butadiene[b]	0.038	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene[b]	8	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	170	--	--	--	--	--	--	--	--	--	0.5 U	--	--
1,4-Dichlorobenzene	5	--	--	--	--	--	--	--	--	--	0.25 U	--	--
2-Butanone	1,700,000	--	--	--	--	--	--	--	--	--	5 U	--	--
2-Chloro-1,3-butadiene[b]	0.0065	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	7,300	--	--	--	--	--	--	--	--	--	10 UJ	--	--
2-Nitropropane[b]	1.7	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	470,000	--	--	--	--	--	--	--	--	--	5 U	--	--
Acetaldehyde[b]	620	--	--	--	--	--	--	--	--	--	--	--	--
Acetonitrile[b]	33,000	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	2.9	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	12	--	--	--	--	--	--	--	--	--	1 U	--	--
Allyl chloride[b]	1.5	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	2.4	--	--	--	--	--	--	--	--	--	0.1 U	--	--
Benzyl chloride[b]	6.2	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	630	--	--	--	--	--	--	--	--	--	0.25 U	--	--
Bromodichloromethane	1.4	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Bromoform	220	--	--	--	--	--	--	--	--	--	0.5 U	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9
Bromomethane	11	--	--	--	--	--	--	--	--	--	5 U	--	--
Carbon disulfide	840	--	--	--	--	--	--	--	--	--	5 U	--	--
Carbon tetrachloride	0.62	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Chlorobenzene	340	--	--	--	--	--	--	--	--	--	0.25 U	--	--
Chlorodifluoromethane[b]	18,000	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	15,000	--	--	--	--	--	--	--	--	--	5 U	--	--
Chloroform	1.2	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Chloromethane	150	--	--	--	--	--	--	--	--	--	2.5 U	--	--
Cyclohexane	750	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexanone[b]	2,100,000	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	97	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Dichlorodifluoromethane (Freon 12)	4.2	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Ethyl acetate[b]	10,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl acrylate[b]	500	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	2,800	--	--	--	--	--	--	--	--	--	0.25 U	--	--
Ethyl methacrylate[b]	14,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethylene oxide[b]	0.053	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	170	--	--	--	--	--	--	--	--	--	--	--	--
Heptane[b]	4	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	--	--	--	--	--	--	--	--	2.5 U	--	--
Hydrogen sulfide[b]	3.3	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	910	--	--	--	--	--	--	--	--	--	0.5 U	--	--
m,p-Xylene	NV	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Methacrylonitrile[b]	2,400	--	--	--	--	--	--	--	--	--	--	--	--
Methanol[b]	91,000,000	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	--	--	--	--	--	--	--	--	--	0.5 U	--	--
Methylene chloride	780	--	--	--	--	--	--	--	--	--	1.5 U	--	--
Methyl methacrylate[b]	50,000	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	--	--	--	--	--	--	--	--	149	--	--
n-Hexane[b]	7.2	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	2,300	--	--	--	--	--	--	--	--	--	0.25 U	--	--
o-Xylene	NV	--	--	--	--	--	--	--	--	--	0.25 U	--	--
Phosgene[b]	0.32	--	--	--	--	--	--	--	--	--	--	--	--
Propionaldehyde[b]	2,000	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	8,200	--	--	--	--	--	--	--	--	--	0.5 U	--	--
tert-Butyl ethyl ether[b]	780	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	25	--	--	--	--	--	--	--	--	--	0.2 U	--	--
Tetrahydrofuran[b]	520,000	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	15,000	--	--	--	--	--	--	--	--	--	0.5 U	--	--
trans-1,2-Dichloroethene	77	--	--	--	--	--	--	--	--	--	0.2 U	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU1-13		RAU1-14	RAU2-01	RAU2-02	RAU2-03	RAU2-04	RAU2-05	RAU2-06	RAU2-07	RAU2-08	RAU2-09
Sample Name:		RAU1-13-GW-7	RAU1-13-GW-7-DUP	RAU1-14-GW-6.0	RAU2-01-GW-7.5	RAU2-02-GW-6	RAU2-03-GW-7.5	RAU2-04-GW-7.5	RAU2-05-GW-7.5	RAU2-06-GW-6.5	RAU2-07-GW-7.5	RAU2-08-GW-9	RAU2-09-GW-9
Collection Date:		7/22/2020	7/22/2020	7/22/2020	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/5/2019	12/11/2019	12/11/2019
Collection Depth (ft bgs):		7	7	6	7.5	6	7.5	7.5	7.5	6.5	7.5	9	9
Trichloroethene	1.4	--	--	--	--	--	--	--	--	--	0.2 U	--	--
Trichlorofluoromethane (Freon 11)	120	--	--	--	--	--	--	--	--	--	1 U	--	--
Triethylamine[b]	980	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl acetate	7,800	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl bromide[b]	0.47	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.33	--	--	--	--	--	--	--	--	--	0.2 U	--	--
Xylenes (total)[c]	320	--	--	--	--	--	--	--	--	--	0.5 U	--	--
SVOCs (ug/L)													
1,2,4-Trichlorobenzene	39	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ
1,2-Dichlorobenzene	2,500	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ
1,4-Dichlorobenzene	5	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0704 J
1,4-Dioxane	4,700	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.24	--	--	--	0.0396 U	0.404 U	0.0099 U	0.0421 U	0.0426 U	0.0111 U	--	0.0106 U	0.00952 U
Hexachlorobutadiene	0.64	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ
Hexachlorocyclopentadiene	4.2	--	--	--	0.198 U	2.02 U	0.0495 U	0.211 U	0.213 U	0.0556 U	--	0.0532 U	0.0476 U
Hexachloroethane	3.8	--	--	--	0.099 UJ	1.01 UJ	0.0248 UJ	0.105 UJ	0.106 UJ	0.0278 UJ	--	0.0266 UJ	0.0238 UJ
Naphthalene	8.9	--	--	--	0.158 UJ	0.808 UJ	0.042 J	2.41 J	0.0851 UJ	0.0444 UJ	129	0.0426 UJ	0.0647 J
Organochlorine Pesticides (ug/L)													
Heptachlor[b]	0.51	--	--	--	--	--	--	--	--	--	--	--	--
Mirex[b]	0.015	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU3-03	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-08	RAU4-09	RAU4-12	RAU4-13	RAU4-14
Sample Name:		RAU3-03-GW-5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0
Collection Date:		12/11/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/11/2019	7/22/2020	7/21/2020
Collection Depth (ft bgs):		5	6.5	7	7	7	7.5	4.5	7.5	7	9	6.5	6
Dissolved Metals (ug/L)													
Mercury	1.1	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)													
Mercury	1.1	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.2 U	0.2 U	0.0494 J	0.04 U	0.04 U	--	--
VOCs (ug/L)													
1,1,1,2-Tetrachloroethane	7.1	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	5,400	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	5.9	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5.1	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,1-Dichloroethane	11	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
1,1-Dichloroethene	130	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
1,1-Difluoroethane[b]	29,000	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	21	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene[b]	410	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	39	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	240	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.16	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.3	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,500	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,2-Dichloroethane	3.5	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
1,2-Dichloropropane	10	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
1,3-Butadiene[b]	0.038	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene[b]	8	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	170	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
2-Butanone	1,700,000	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
2-Chloro-1,3-butadiene[b]	0.0065	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	7,300	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
2-Nitropropane[b]	1.7	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	470,000	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Acetaldehyde[b]	620	--	--	--	--	--	--	--	--	--	--	--	--
Acetonitrile[b]	33,000	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	2.9	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	12	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
Allyl chloride[b]	1.5	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	2.4	--	0.1 U	0.1 U	0.1 U	--	--	0.7	--	--	--	--	--
Benzyl chloride[b]	6.2	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	630	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
Bromodichloromethane	1.4	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Bromoform	220	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU3-03	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-08	RAU4-09	RAU4-12	RAU4-13	RAU4-14
Sample Name:		RAU3-03-GW-5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0
Collection Date:		12/11/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/11/2019	7/22/2020	7/21/2020
Collection Depth (ft bgs):		5	6.5	7	7	7	7.5	4.5	7.5	7	9	6.5	6
Bromomethane	11	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Carbon disulfide	840	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.62	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Chlorobenzene	340	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
Chlorodifluoromethane[b]	18,000	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	15,000	--	5 U	5 U	5 U	--	--	--	--	--	--	--	--
Chloroform	1.2	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Chloromethane	150	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
Cyclohexane	750	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexanone[b]	2,100,000	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	97	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	4.2	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Ethyl acetate[b]	10,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl acrylate[b]	500	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	2,800	--	0.25 U	0.25 U	0.25 U	--	--	0.26 J	--	--	--	--	--
Ethyl methacrylate[b]	14,000	--	--	--	--	--	--	--	--	--	--	--	--
Ethylene oxide[b]	0.053	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	170	--	--	--	--	--	--	--	--	--	--	--	--
Heptane[b]	4	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
Hydrogen sulfide[b]	3.3	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	910	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
m,p-Xylene	NV	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Methacrylonitrile[b]	2,400	--	--	--	--	--	--	--	--	--	--	--	--
Methanol[b]	91,000,000	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
Methylene chloride	780	--	2.5 U	2.5 U	2.5 U	--	--	--	--	--	--	--	--
Methyl methacrylate[b]	50,000	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	2 UJ	2 UJ	2 UJ	--	--	--	--	--	--	--	--
n-Hexane[b]	7.2	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	2,300	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
o-Xylene	NV	--	0.25 U	0.25 U	0.25 U	--	--	--	--	--	--	--	--
Phosgene[b]	0.32	--	--	--	--	--	--	--	--	--	--	--	--
Propionaldehyde[b]	2,000	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	8,200	--	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--
tert-Butyl ethyl ether[b]	780	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	25	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
Tetrahydrofuran[b]	520,000	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	15,000	--	0.5 U	0.5 U	0.5 U	--	--	4.92	--	--	--	--	--
trans-1,2-Dichloroethene	77	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU3-03	RAU4-01	RAU4-02		RAU4-04	RAU4-05	RAU4-06	RAU4-08	RAU4-09	RAU4-12	RAU4-13	RAU4-14
Sample Name:		RAU3-03-GW-5	RAU4-01-GW-6.5	RAU4-02-GW-7	RAU4-02-GW-7-DUP	RAU4-04-GW-7.0	RAU4-05-GW-7.5	RAU4-06-GW-4.5	RAU4-08-GW-7.5	RAU4-09-GW-7.0	RAU4-12-GW-9	RAU4-13-GW-6.5	RAU4-14-GW-6.0
Collection Date:		12/11/2019	12/3/2019	12/3/2019	12/3/2019	12/5/2019	12/4/2019	12/5/2019	12/4/2019	12/5/2019	12/11/2019	7/22/2020	7/21/2020
Collection Depth (ft bgs):		5	6.5	7	7	7	7.5	4.5	7.5	7	9	6.5	6
Trichloroethene	1.4	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	120	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--
Triethylamine[b]	980	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl acetate	7,800	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl bromide[b]	0.47	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	0.33	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--
Xylenes (total)[c]	320	--	0.5 U	0.5 U	0.5 U	--	--	0.75 U	--	--	--	--	--
SVOCs (ug/L)													
1,2,4-Trichlorobenzene	39	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,500	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	4,700	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.24	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	4.2	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	3.8	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	0.0387 U	0.08 U	0.0378 U	0.0843 J	0.102 J	37.7 U	--	--	--	--	--
Organochlorine Pesticides (ug/L)													
Heptachlor[b]	0.51	--	--	--	--	--	--	--	--	--	--	--	--
Mirex[b]	0.015	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU4-15	RAU4-16	RAU4-17	RAU4-21	RAU5-01	RAU5-03	RAU7-01	RAU7-02
Sample Name:		RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/5/2019	12/5/2019
Collection Depth (ft bgs):		5	4	4.5	13	7	6.5	8.5	9.5
Dissolved Metals (ug/L)									
Mercury	1.1	--	--	--	--	--	--	--	--
Total Metals (ug/L)									
Mercury	1.1	--	--	--	--	0.04 U	--	0.04 U	0.04 U
VOCs (ug/L)									
1,1,1,2-Tetrachloroethane	7.1	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	5,400	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	5.9	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5.1	--	--	--	--	--	--	--	--
1,1-Dichloroethane	11	--	--	--	--	--	--	--	--
1,1-Dichloroethene	130	--	--	--	--	--	--	--	--
1,1-Difluoroethane[b]	29,000	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	21	--	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene[b]	410	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	39	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	240	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.16	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.3	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,500	--	--	--	--	--	--	--	--
1,2-Dichloroethane	3.5	--	--	--	--	--	--	--	--
1,2-Dichloropropane	10	--	--	--	--	--	--	--	--
1,3-Butadiene[b]	0.038	--	--	--	--	--	--	--	--
1,3-Dichloropropene[b]	8	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	170	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	--	--	--	--	--	--	--	--
2-Butanone	1,700,000	--	--	--	--	--	--	--	--
2-Chloro-1,3-butadiene[b]	0.0065	--	--	--	--	--	--	--	--
2-Hexanone	7,300	--	--	--	--	--	--	--	--
2-Nitropropane[b]	1.7	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	470,000	--	--	--	--	--	--	--	--
Acetaldehyde[b]	620	--	--	--	--	--	--	--	--
Acetonitrile[b]	33,000	--	--	--	--	--	--	--	--
Acrolein	2.9	--	--	--	--	--	--	--	--
Acrylonitrile	12	--	--	--	--	--	--	--	--
Allyl chloride[b]	1.5	--	--	--	--	--	--	--	--
Benzene	2.4	--	--	--	--	0.1 U	--	--	--
Benzyl chloride[b]	6.2	--	--	--	--	--	--	--	--
Bromobenzene	630	--	--	--	--	--	--	--	--
Bromodichloromethane	1.4	--	--	--	--	--	--	--	--
Bromoform	220	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU4-15	RAU4-16	RAU4-17	RAU4-21	RAU5-01	RAU5-03	RAU7-01	RAU7-02
Sample Name:		RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/5/2019	12/5/2019
Collection Depth (ft bgs):		5	4	4.5	13	7	6.5	8.5	9.5
Bromomethane	11	--	--	--	--	--	--	--	--
Carbon disulfide	840	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.62	--	--	--	--	--	--	--	--
Chlorobenzene	340	--	--	--	--	--	--	--	--
Chlorodifluoromethane[b]	18,000	--	--	--	--	--	--	--	--
Chloroethane	15,000	--	--	--	--	--	--	--	--
Chloroform	1.2	--	--	--	--	--	--	--	--
Chloromethane	150	--	--	--	--	--	--	--	--
Cyclohexane	750	--	--	--	--	--	--	--	--
Cyclohexanone[b]	2,100,000	--	--	--	--	--	--	--	--
Dibromomethane	97	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	4.2	--	--	--	--	--	--	--	--
Ethyl acetate[b]	10,000	--	--	--	--	--	--	--	--
Ethyl acrylate[b]	500	--	--	--	--	--	--	--	--
Ethylbenzene	2,800	--	--	--	--	0.25 U	--	--	--
Ethyl methacrylate[b]	14,000	--	--	--	--	--	--	--	--
Ethylene oxide[b]	0.053	--	--	--	--	--	--	--	--
Freon 113	170	--	--	--	--	--	--	--	--
Heptane[b]	4	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	--	--	--	--	--	--	--
Hydrogen sulfide[b]	3.3	--	--	--	--	--	--	--	--
Isopropylbenzene	910	--	--	--	--	--	--	--	--
m,p-Xylene	NV	--	--	--	--	--	--	--	--
Methacrylonitrile[b]	2,400	--	--	--	--	--	--	--	--
Methanol[b]	91,000,000	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	860	--	--	--	--	--	--	--	--
Methylene chloride	780	--	--	--	--	--	--	--	--
Methyl methacrylate[b]	50,000	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	--	--	--	--	--	--	--
n-Hexane[b]	7.2	--	--	--	--	--	--	--	--
n-Propylbenzene	2,300	--	--	--	--	--	--	--	--
o-Xylene	NV	--	--	--	--	--	--	--	--
Phosgene[b]	0.32	--	--	--	--	--	--	--	--
Propionaldehyde[b]	2,000	--	--	--	--	--	--	--	--
Styrene	8,200	--	--	--	--	--	--	--	--
tert-Butyl ethyl ether[b]	780	--	--	--	--	--	--	--	--
Tetrachloroethene	25	--	--	--	--	--	--	--	--
Tetrahydrofuran[b]	520,000	--	--	--	--	--	--	--	--
Toluene	15,000	--	--	--	--	0.5 U	--	--	--
trans-1,2-Dichloroethene	77	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	MTCA Method B, Vapor Intrusion, Groundwater[a][1]	RAU4-15	RAU4-16	RAU4-17	RAU4-21	RAU5-01	RAU5-03	RAU7-01	RAU7-02
Sample Name:		RAU4-15-GW-5.0	RAU4-16-GW-4.0	RAU4-17-GW-4.5	RAU4-21-GW-13.0	RAU5-01-GW-7.0	RAU5-03-GW-6.5	RAU7-01-GW-8.5	RAU7-02-GW-9.5
Collection Date:		7/21/2020	7/21/2020	7/21/2020	7/21/2020	12/3/2019	7/22/2020	12/5/2019	12/5/2019
Collection Depth (ft bgs):		5	4	4.5	13	7	6.5	8.5	9.5
Trichloroethene	1.4	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	120	--	--	--	--	--	--	--	--
Triethylamine[b]	980	--	--	--	--	--	--	--	--
Vinyl acetate	7,800	--	--	--	--	--	--	--	--
Vinyl bromide[b]	0.47	--	--	--	--	--	--	--	--
Vinyl chloride	0.33	--	--	--	--	--	--	--	--
Xylenes (total)[c]	320	--	--	--	--	0.75 U	--	--	--
SVOCs (ug/L)									
1,2,4-Trichlorobenzene	39	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,500	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	5	--	--	--	--	--	--	--	--
1,4-Dioxane	4,700	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.24	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.64	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	4.2	--	--	--	--	--	--	--	--
Hexachloroethane	3.8	--	--	--	--	--	--	--	--
Naphthalene	8.9	--	--	--	--	0.0754 U	--	0.0405 U	0.0468 U
Organochlorine Pesticides (ug/L)									
Heptachlor[b]	0.51	--	--	--	--	--	--	--	--
Mirex[b]	0.015	--	--	--	--	--	--	--	--

Table 6-9
Selected 100-Foot Buffer Zone Groundwater Analytical Results
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

Selected data includes only groundwater samples collected within 100 feet of any existing, enclosed structure on the site, and only the compounds with MTCA Method B vapor intrusion groundwater screening levels, including those with screening levels but no associated sample results.

Shading indicates values that exceed MTCA Method B screening values; non-detect results (U and UJ) were not compared with screening criteria.
-- = not analyzed or no data available.
ft bgs = feet below ground surface.
J = result is estimated.
JQ = result is estimated and detected below the method reporting limit.
MTCA = Model Toxics Control Act.
NV = no value.
SVOC = semivolatile organic compound.
U = result is non-detect to method reporting limit or method detection limit.
UJ = result is non-detect with an estimated reporting limit or detection limit.
ug/L = micrograms per liter.
VOC = volatile organic compound.
[a]The lowest of cancer and noncancer values are shown.
[b]MTCA Method B groundwater vapor intrusion screening value present; however, no analytical results are available.
[c]Total xylenes are reported from the laboratory or the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the method reporting limit or method detection limit. When all results are non-detect, the highest reporting limit or detection limit is used.

Reference

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC) table* . Washington State Department of Ecology, Toxics Cleanup Program. July errata.

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Table 6-10
Analytical Summary of 2017 Soil Gas Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

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	Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Screening Level Exceedances[(a)]	Frequency of Detected Exceedances for All Samples
VOCs (ug/m^3)								
1,1,1,2-Tetrachloroethane	6	0	6	0%	NA	NA	0	0%
1,1,1-Trichloroethane	6	1	5	17%	3	3	0	0%
1,1,2,2-Tetrachloroethane	6	0	6	0%	NA	NA	0	0%
1,1,2-Trichloroethane	6	0	6	0%	NA	NA	0	0%
1,1-Dichloroethane	6	0	6	0%	NA	NA	0	0%
1,1-Dichloroethene	6	0	6	0%	NA	NA	0	0%
1,2,4-Trichlorobenzene	6	0	6	0%	NA	NA	0	0%
1,2,4-Trimethylbenzene	6	6	0	100%	1	140	0	0%
1,2-Dibromoethane	6	0	6	0%	NA	NA	0	0%
1,2-Dichlorobenzene	6	0	6	0%	NA	NA	0	0%
1,2-Dichloroethane	6	0	6	0%	NA	NA	0	0%
1,2-Dichloropropane	6	0	6	0%	NA	NA	0	0%
1,3-Butadiene	6	0	6	0%	NA	NA	0	0%
2-Butanone	6	6	0	100%	3	9	0	0%
4-Methyl-2-pentanone	6	3	3	50%	1	1	0	0%
Acetonitrile	5	0	5	0%	NA	NA	0	0%
Acrylonitrile	5	0	5	0%	NA	NA	0	0%
Benzene	6	2	4	33%	1	2	0	0%
Benzyl Chloride	6	0	6	0%	NA	NA	0	0%
Bromodichloromethane	6	0	6	0%	NA	NA	0	0%
Bromoform	6	0	6	0%	NA	NA	0	0%
Bromomethane	6	0	6	0%	NA	NA	0	0%
Carbon disulfide	6	0	6	0%	NA	NA	0	0%
Carbon tetrachloride	6	0	6	0%	NA	NA	0	0%
Chlorobenzene	6	0	6	0%	NA	NA	0	0%
Chloroethane	6	0	6	0%	NA	NA	0	0%
Chloroform	6	0	6	0%	NA	NA	0	0%
Chloromethane	6	0	6	0%	NA	NA	0	0%

Table 6-10
Analytical Summary of 2017 Soil Gas Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Dibromochloromethane	6	0	6	0%	NA	NA	NA	NC
Dichlorodifluoromethane (Freon 12)	6	6	0	100%	1.9	3.1	0	0%
Ethylbenzene	6	5	1	83%	0.65	9.2	0	0%
Freon 113	6	0	6	0%	NA	NA	0	0%
Hexachlorobutadiene	6	0	6	0%	NA	NA	0	0%
Hexachloroethane	5	0	5	0%	NA	NA	0	0%
Isopropylbenzene	6	1	5	17%	2	2	0	0%
m,p-Xylene	6	6	0	100%	2	41	NA	NC
Methyl tert-butyl ether	6	0	6	0%	NA	NA	0	0%
Methylene chloride	6	0	6	0%	NA	NA	0	0%
Naphthalene	6	0	6	0%	NA	NA	0	0%
n-Hexane	6	4	2	67%	0.52	4.5	0	0%
o-Xylene	6	6	0	100%	0.72	15	NA	NC
Styrene	6	1	5	17%	1.6	1.6	0	0%
Tetrachloroethene	6	6	0	100%	1.3	36	0	0%
Toluene	6	6	0	100%	2.2	31	0	0%
Trichloroethene	6	0	6	0%	NA	NA	0	0%
Trichlorofluoromethane (Freon 11)	6	4	2	67%	1.2	1.2	0	0%
Vinyl acetate	6	0	6	0%	NA	NA	0	0%
Vinyl chloride	6	0	6	0%	NA	NA	0	0%
Xylenes, total	6	6	0	100%	2.72	56	0	0%
VPH (ug/m3)								
C5-C6 Aliphatic Hydrocarbons	5	1	4	20%	68	68	NA	NC
C6-C8 Aliphatic Hydrocarbons	5	1	4	20%	250	250	NA	NC
C8-C10 Aliphatic Hydrocarbons	5	0	5	0%	NA	NA	NA	NC
C8-C10 Aromatic Hydrocarbons	5	1	4	20%	320	320	NA	NC
C10-C12 Aliphatic Hydrocarbons	5	0	5	0%	NA	NA	NA	NC
C10-C12 Aromatic Hydrocarbons	5	0	5	0%	NA	NA	NA	NC
TPH (ug/m^3)								
Diesel-Range Hydrocarbons	5	0	5	0%	NA	NA	NA	NC
Generic TPH	5	5	0	100%	190	490	0	0%

Table 6-10
Analytical Summary of 2017 Soil Gas Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Notes

NA = not applicable.

NC = not calculated.

TPH = total petroleum hydrocarbons.

ug/m^3 = micrograms per cubic meter.

VOC = volatile organic compound.

VPH = volatile petroleum hydrocarbon.

[a]Screening levels are selected from MTCA Method B vapor intrusion for sub-slab soil gas, the lowest of cancer and noncancer values. Historical data are screened to the most up-to-date MTCA Method B screening values.

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Table 6-11
Historical Soil Gas Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil Gas[a][1]	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5A
Sample Name:		SS-1	SS-2	SS-3	SS-4	SS-5	SS-5A
Collection Date:		07/26/2017	07/26/2017	07/26/2017	07/26/2017	07/26/2017	09/07/2017
Sample Depth (inches bgs):		14	12	8	12	8	8
VOCs (ug/m^3)							
1,1,1,2-Tetrachloroethane	11	4.9 U	5.2 UJ	5 U	4.9 UJ	12 UJ	5 U
1,1,1-Trichloroethane	76,000	0.78 U	2.5 J	0.8 U	0.78 UJ	2 UJ	0.79 U
1,1,2,2-Tetrachloroethane	1.4	0.98 U	1 UJ	1 U	0.99 UJ	2.5 UJ	1 U
1,1,2-Trichloroethane	3	0.78 U	0.83 UJ	0.8 U	0.78 UJ	2 UJ	0.79 U
1,1-Dichloroethane	52	0.58 U	0.62 UJ	0.59 U	0.58 UJ	1.4 UJ	0.59 U
1,1-Dichloroethene	3,000	0.57 U	0.6 UJ	0.58 U	0.57 UJ	1.4 UJ	0.57 U
1,2,4-Trichlorobenzene	30	5.3 U	5.6 UJ	5.4 U	5.3 UJ	13 UJ	5.4 U
1,2,4-Trimethylbenzene	910	1	1.5 J	1.9	0.72 J	140 J	18
1,2-Dibromoethane	0.14	1.1 U	1.2 UJ	1.1 U	1.1 UJ	2.8 UJ	1.1 U
1,2-Dichlorobenzene	3,000	0.86 U	0.91 UJ	0.88 U	0.86 UJ	2.2 UJ	0.87 U
1,2-Dichloroethane	3.2	0.58 U	0.62 UJ	0.59 U	0.58 UJ	1.4 UJ	0.59 U
1,2-Dichloropropane	23	0.66 U	0.7 UJ	0.67 U	0.66 UJ	1.7 UJ	0.67 U
1,3-Butadiene	2.8	0.32 U	0.34 UJ	0.32 U	0.32 UJ	0.8 UJ	0.32 U
2-Butanone	76,000	7.5	8.6 J	5.3	5.6 J	7.9 J	2.7
4-Methyl-2-pentanone	46,000	0.71	0.95 J	0.7	0.59 UJ	1.5 UJ	0.59 U
Acetonitrile	910	1.2 U	1.3 UJ	1.2 U	1.2 UJ	3 UJ	--
Acrylonitrile	1.2	1.6 U	1.6 UJ	1.6 U	1.6 UJ	3.9 UJ	--
Benzene	11	0.46 U	0.9 J	0.47 U	0.46 UJ	1.2 UJ	1.7
Benzyl Chloride	1.7	0.74 U	0.79 UJ	0.76 U	0.74 UJ	1.9 UJ	0.75 U
Bromodichloromethane	2.3	0.96 U	1 UJ	0.98 U	0.96 UJ	2.4 UJ	0.97 U
Bromoform	76	1.5 U	1.6 UJ	1.5 U	1.5 UJ	3.7 UJ	1.5 U
Bromomethane	76	2.8 U	3 UJ	2.8 U	2.8 UJ	7 UJ	2.8 U
Carbon disulfide	11,000	2.2 U	2.4 UJ	2.3 U	2.2 UJ	5.6 UJ	2.2 U
Carbon tetrachloride	14	0.9 U	0.96 UJ	0.92 U	0.91 UJ	2.3 UJ	0.91 UJ
Chlorobenzene	760	0.66 U	0.7 UJ	0.67 U	0.66 UJ	1.6 UJ	0.67 U
Chloroethane	150,000	1.9 U	2 UJ	1.9 U	1.9 UJ	4.7 UJ	1.9 U

Table 6-11
Historical Soil Gas Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil Gas[a][1]	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5A
Sample Name:		SS-1	SS-2	SS-3	SS-4	SS-5	SS-5A
Collection Date:		07/26/2017	07/26/2017	07/26/2017	07/26/2017	07/26/2017	09/07/2017
Sample Depth (inches bgs):		14	12	8	12	8	8
Chloroform	3.6	0.7 U	0.74 UJ	0.71 U	0.7 UJ	1.8 UJ	0.71 U
Chloromethane	1,400	1.5 U	1.6 UJ	1.5 U	1.5 UJ	3.7 UJ	1.5 U
Dibromochloromethane	NV	1.2 U	1.3 UJ	1.2 U	1.2 UJ	3.1 UJ	1.2 U
Dichlorodifluoromethane (Freon 12)	1,500	2.1	2.1 J	2.2	2 J	1.9 J	3.1
Ethylbenzene	15,000	0.65	0.83 J	1.2	0.62 UJ	2 J	9.2
Freon 113	76,000	1.1 U	1.2 UJ	1.1 U	1.1 UJ	2.8 UJ	1.1 U
Hexachlorobutadiene	3.8	7.6 U	8.1 UJ	7.8 U	7.7 UJ	19 UJ	7.7 U
Hexachloroethane	7.6	6.9 U	7.4 UJ	7.1 U	7 UJ	17 UJ	--
Isopropylbenzene	6,100	0.7 U	0.75 UJ	0.72 U	0.71 UJ	2 J	0.71 U
m,p-Xylene	NV	2.5	3.1 J	4.8	2 J	6.3 J	41
Methyl tert-butyl ether	320	0.52 U	0.55 UJ	0.53 U	0.52 UJ	1.3 UJ	0.52 U
Methylene chloride	2,200	0.99 U	1 UJ	1 U	1 UJ	2.5 UJ	1 U
Naphthalene	2.5	3.7 U	4 UJ	3.8 U	3.8 UJ	9.4 UJ	3.8 U
n-Hexane	11,000	0.5 U	4.5 J	0.8	0.52 J	1.3 UJ	1.9
o-Xylene	NV	0.94	1.2 J	1.8	0.72 J	4.9 J	15
Styrene	15,000	0.61 U	0.65 UJ	0.62 U	0.61 UJ	1.5 UJ	1.6
Tetrachloroethene	320	2	36 J	1.5	1.3 J	5.4 J	7.8
Toluene	76,000	2.6	9.1 J	4.5	2.2 J	4.2 J	31
Trichloroethene	11	0.77 U	0.82 UJ	0.78 U	0.77 UJ	1.9 UJ	0.78 U
Trichlorofluoromethane (Freon 11)	11,000	1.2	1.2 J	0.82 U	1.2 J	2 UJ	1.2
Vinyl acetate	3,000	2.5 U	2.7 UJ	2.6 U	2.5 UJ	6.3 UJ	2.6 U
Vinyl chloride	9.5	0.36 U	0.39 UJ	0.37 U	0.37 UJ	0.92 UJ	0.37 U
Xylenes, total[b]	1,500	3.4	4.3 J	6.6	2.7 J	11 J	56
VPH (ug/m^3)							
C5-C6 Aliphatic Hydrocarbons	NV	46 U	68 J	47 U	47 UJ	47 UJ	--
C6-C8 Aliphatic Hydrocarbons	NV	59 U	250 J	60 U	59 UJ	59 UJ	--
C8-C10 Aliphatic Hydrocarbons	NV	83 U	88 UJ	85 U	84 UJ	84 UJ	--

Table 6-11
Historical Soil Gas Analytical Data
Upland Remedial Investigation
Grays Harbor Historical Seaport Authority

Location:	Screening Level for Soil Gas[a][1]	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5A
Sample Name:		SS-1	SS-2	SS-3	SS-4	SS-5	SS-5A
Collection Date:		07/26/2017	07/26/2017	07/26/2017	07/26/2017	07/26/2017	09/07/2017
Sample Depth (inches bgs):		14	12	8	12	8	8
C8-C10 Aromatic Hydrocarbons	NV	70 U	75 UJ	72 U	71 UJ	320 J	--
C10-C12 Aliphatic Hydrocarbons	NV	100 U	100 UJ	100 U	100 UJ	100 UJ	--
C10-C12 Aromatic Hydrocarbons	NV	78 U	83 UJ	80 U	79 UJ	79 UJ	--
TPH (ug/m^3)							
Diesel-Range Organics	NV	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	--
Generic TPH[c]	1,500	190	470	200	190	490	--

Notes

Detected results were compared with soil gas screening levels; non-detects (U and UJ) were not compared with screening criteria. There were no exceedances.

-- = not analyzed.

bgs = below ground surface.

J = result is estimated.

MTCA = Model Toxics Control Act.

NV = no value.

TPH = total petroleum hydrocarbon.

U = result is non-detect at the method reporting limit.

UJ = result is non-detect with an estimated method reporting limit.

ug/m^3 = micrograms per cubic meter.

VOC = volatile organic compound.

VPH = volatile petroleum hydrocarbons.

[a]Screening levels are selected from MTCA Method B vapor intrusion for sub-slab soil gas, the lowest of cancer and noncancer values. Historical data are screened to the most up-to-date MTCA Method B screening values.

[b]Total xylenes are reported from the lab or the sum of o-xylene and m,p-xylene. Non-detect results are summed at one-half the method reporting limit.

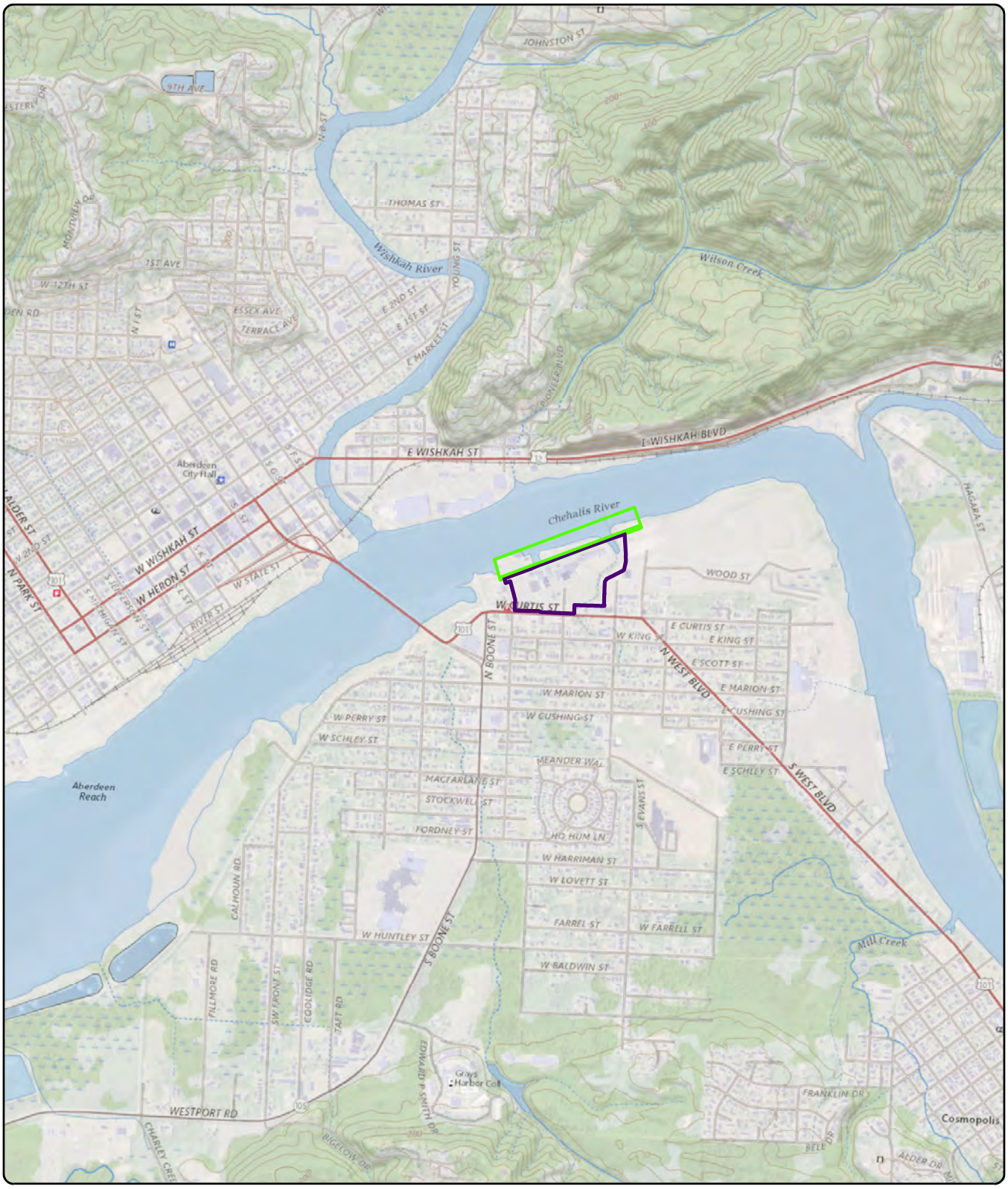
[c]Generic TPH is the sum of benzene, ethylbenzene, toluene, total xylenes, naphthalene, C5-C6 aliphatic hydrocarbons, C6-C8 aliphatic hydrocarbons, C8-C10 aliphatic hydrocarbons, C10-C12 aliphatic hydrocarbons, and C8-C10 aromatic hydrocarbons. Non-detect results are summed at one-half the method reporting limit.

Reference

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC) table* . Washington State Department of Ecology, Toxics Cleanup Program. July errata.

FIGURES





Notes:
Site Address: 500 N Custer Street, Aberdeen, Washington.
U.S. Geological Survey (1990) 7.5-minute topographic quadrangle: Aberdeen.
Township 17 north, range 9 west, sections 9 and 10.

Legend

- The Site
- Approximate Aquatic Lands Lease Area



Figure 1-1
Site Location
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 1,000 2,000
Feet

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Print Date: 10/27/2022

Reviewed By: mpollock

Produced By: stumer

Project: M1044.02.013

Figure 1-2
Site Vicinity and In-Water Lease Area

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington



Legend

- Approximate Line of Ordinary High Water
- The Site
- Approximate Aquatic Lands Lease Area
- Tax Lot

0 100 200
Feet

Data Sources:
Aerial photograph obtained from Esri; tax lot data obtained from Grays Harbor County.

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Project: M1044.02.013

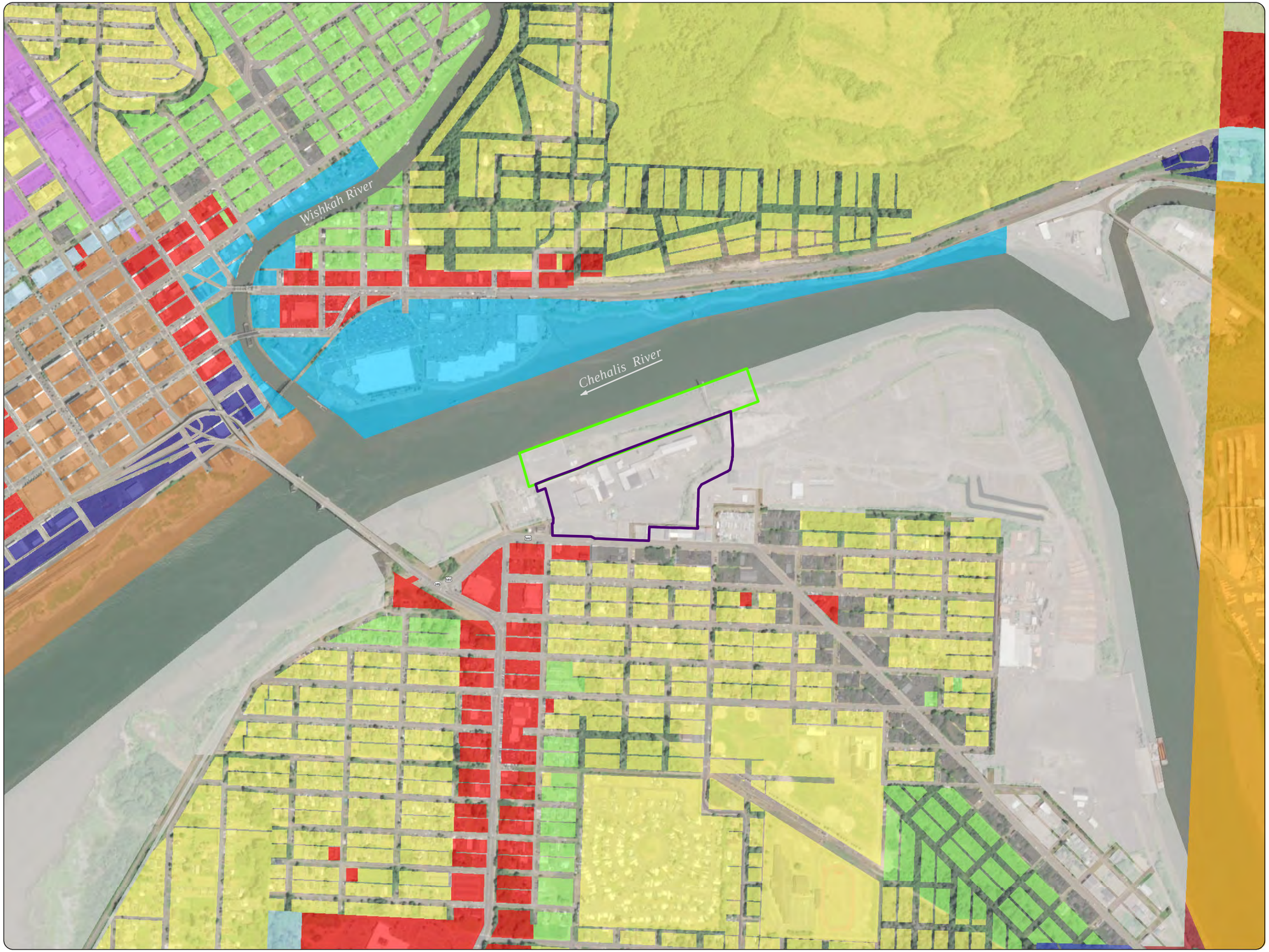

Figure 2-1
Zoning Designations

Weyerhaeuser Sawmill
Aberdeen/Seaport
Landing Site
Aberdeen, Washington

Legend

- The Site
- Approximate Aquatic Lands Lease Area

Zoning Designation

- Aberdeen CD Downtown Commercial
- Aberdeen CG General Commercial
- Aberdeen CR Commercial/Residential
- Aberdeen I Industrial
- Aberdeen LI Light Industrial
- Aberdeen MI Major Institutional
- Aberdeen RM Multiple Family Residential
- Aberdeen RP Residential Professional
- Aberdeen RS Single Family Residential
- Aberdeen WD Waterfront Development
- Cosmopolis MU Mixed Use
- Cosmopolis WA Waterfront Use
- County C2 General Commercial
- County G5 General Development Five
- County I2 Industrial
- County R2 General Residential

Notes:
Aberdeen = City of Aberdeen.
Cosmopolis = City of Cosmopolis.
County = Grays Harbor County.

0 500 1,000
Feet

Data Sources:
Aerial photograph obtained from Mapbox; zoning data obtained from Grays Harbor County.

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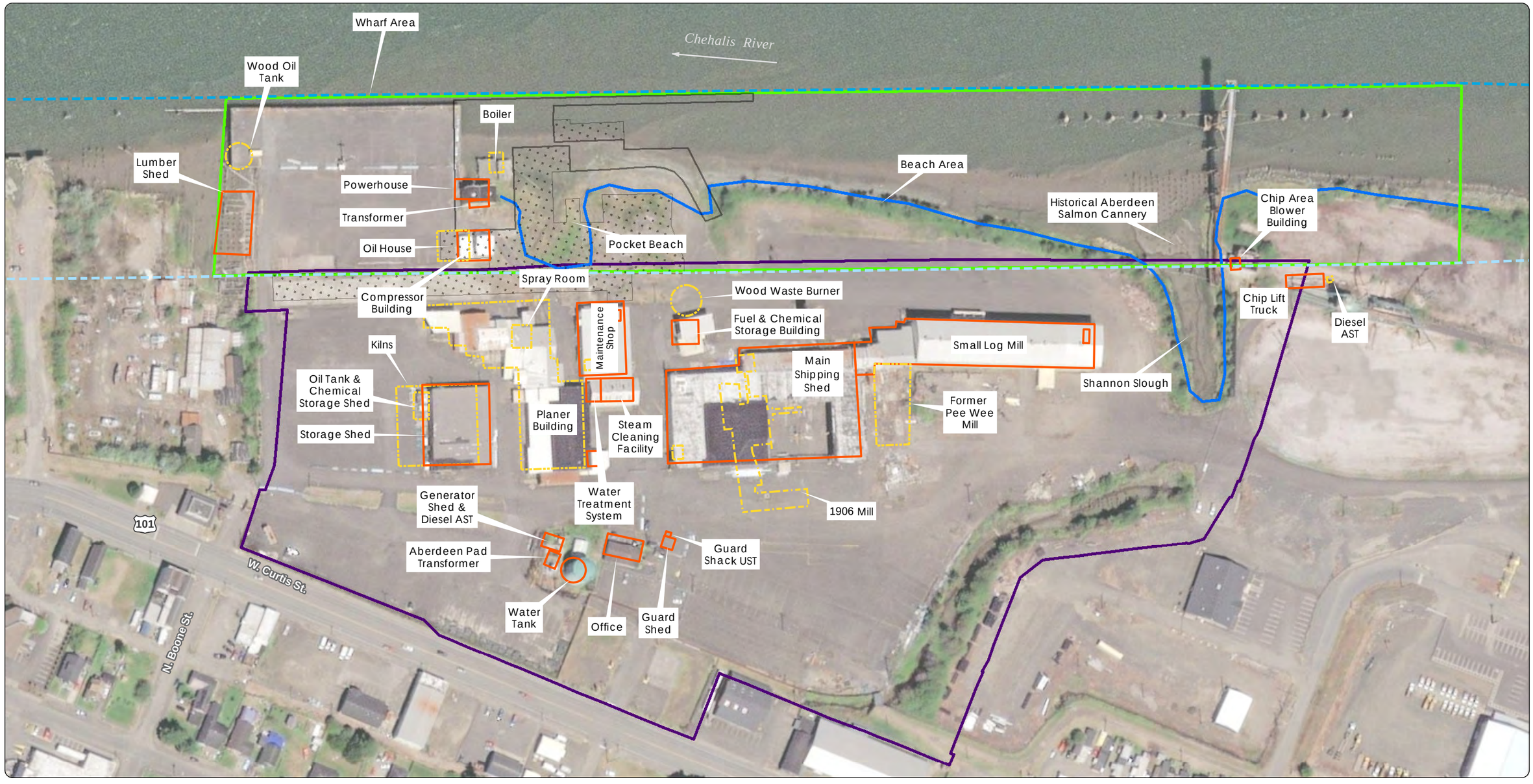

Notes:
Aquatic lands lease areas were digitized from print maps of Aberdeen tidelands dated March 22, 2001, and January 15, 1907, on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
AST = aboveground storage tank.
UST = underground storage tank.

Data Sources:
Aerial photograph obtained from Esri; tax lots and roads obtained from Grays Harbor County; harbor lines obtained from Washington Department of Natural Resources; former features obtained from Level I Environmental Site Assessment, PES Environmental; August 13, 2010.

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Legend

- Approximate Line of Ordinary High Water
- Former Mill
- Former Wharf Extension
- Existing Buildings/Features
- Former Buildings/Features
- Inner Harbor Line
- Outer Harbor Line
- The Site
- Approximate Aquatic Lands Lease Area

Figure 2-2
Historical and Current Site Features

Weyerhaeuser Sawmill Aberdeen/
Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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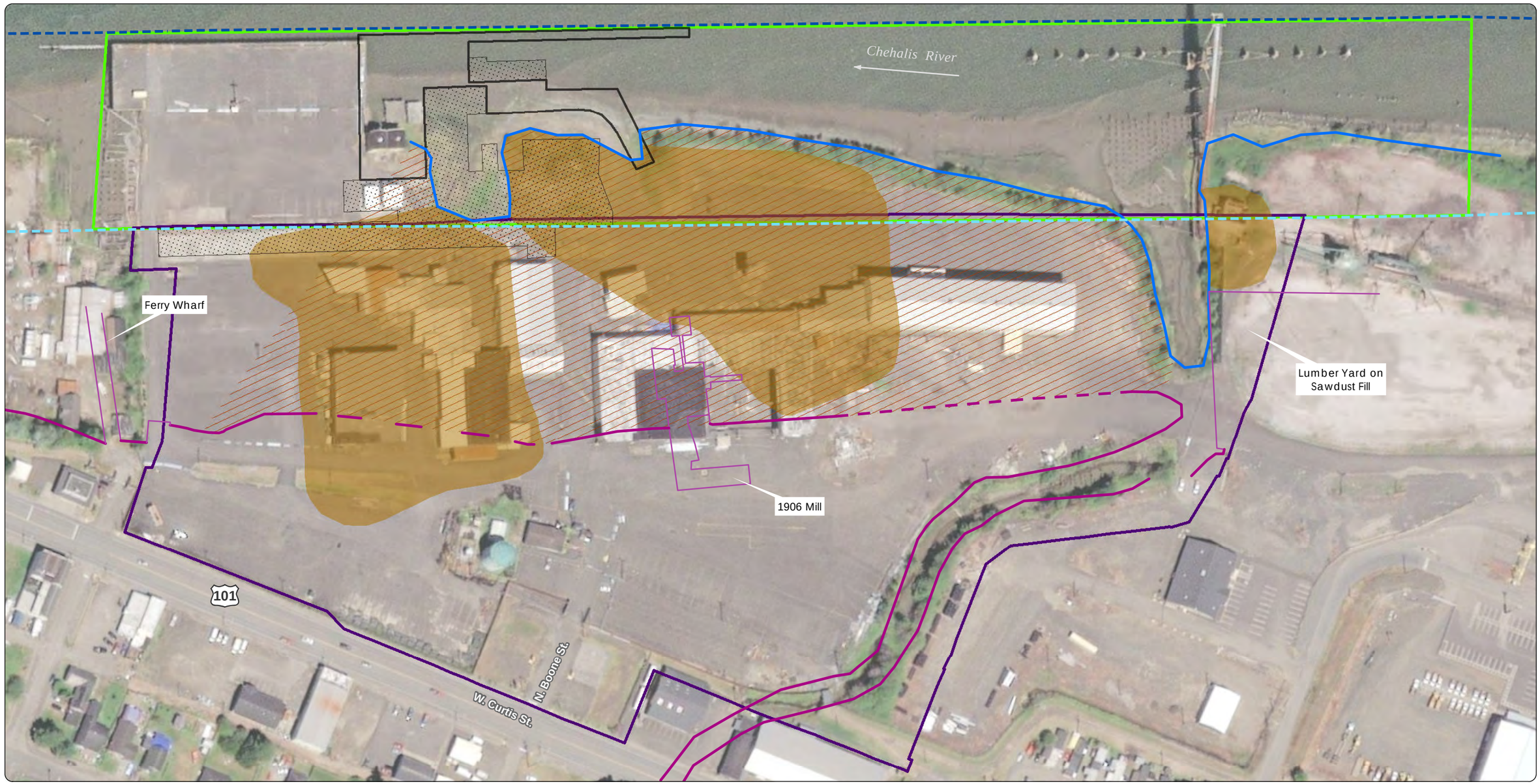

Note:
Sanborn = Sanborn Fire Insurance map.

Data Sources:
Aerial photograph obtained from Esri; parcels and roads obtained from Grays Harbor County; shoreline boundaries are approximate and derived from Sanborn Fire Insurance maps; harbor lines obtained from Washington Department of Natural Resources; extent of wood waste is approximate and derived from geographic logs.

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Legend

- Extent of Wood Waste
- The Site
- Approximate Aquatic Lands Lease Area
- Inner Harbor Line
- Outer Harbor Line
- Approximate Line of Ordinary High Water
- Former Wharf Extension
- Former Mill
- Fill

Sanborn Boundaries, 1906 (approximate)

- Shoreline/Slough
- Built Structure

Figure 2-3
Historical Fill Events and Shoreline Changes
Weyerhaeuser Sawmill
Aberdeen/Seaport
Landing Site
Aberdeen, Washington

0 100 200
Feet

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Print Date: 9/8/2022
Reviewed by: ddomenighini
Produced By: slumer
Project: M1044.02.013



Notes:
RAU = remedial action unit.

Data Source:
Aerial photograph obtained from Esri.

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Legend

Approximate Line of Ordinary High Water

Remedial Action Unit Boundaries

- RAU1
- RAU2
- RAU3
- RAU4
- RAU5
- RAU6
- RAU7

Figure 2-4
Remedial Action Units

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, WA

0 100 200
Feet



Notes:
Aquatic lands lease areas were digitized from print maps of Aberdeen tidelands dated March 22, 2001, and January 15, 1907, on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
LiDAR = Light detection and ranging.
NAVD 88 = North American Vertical Datum of 1988.

Data Sources:
Bathymetric survey performed in 2016; LiDAR survey performed in 2009; aerial photograph obtained from Esri; navigation channel obtained from Gray's Harbor GIS.

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Legend

- Approximate Line of Ordinary High Water
- Inner Harbor Line
- Outer Harbor Line
- Approximate Aquatic Lands Lease Area
- The Site
- One-Foot Contour Bathymetry (NAVD 88)
- One-Foot Contour LiDAR (NAVD 88)
- Navigation Channel

Figure 3-1
Topography and Bathymetry
Weyerhaeuser Sawmill
Aberdeen/Seaport
Landing Site
Aberdeen, Washington

0 100 200
Feet

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Produced By: sturner
Project: M1044.02.013



Legend

Remedial Investigation

- 2019 Soil Sample Location
- 2019 Soil and Groundwater Sample Location
- 2020 Soil and Groundwater Sample Location

- Approximate Line of Ordinary High Water
- Former Mill
- The Site

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined determined from Grays Harbor Historical Seaport Authority Critical Areas Report (Grette Associates LLC, dated October 2019).

Figure 4-1
Remedial Investigation Sample Locations

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Reviewed by: ilenahansen
Produced By: slurner
Project: M1044.02.013



Data Sources:
Aerial photograph obtained from Esri; Line of ordinary high water determined from Grays Harbor Historical Seaport Authority Critical Areas Report (Grette Associates LLC, dated October 2019).
Sample locations obtained from:
E&E. 2018. Seaport Landing Site Targeted Brownfields Assessment. Ecology and Environment, Inc. May.
MFA. 2016. Focused Investigation Report. Maul Foster Alongi. July 14.
MFA. 2017. Study Area Investigation-Aquatic Lands Lease. Maul Foster Alongi. April 11.
SAIC. 2011. Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling, Aberdeen, WA. Data Report Final. Submitted to Washington Department of Natural Resources. August 12.

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Legend

- Approximate Line of Ordinary High
- Former Mill
- The Site

Previous Investigations

- 2011 Soil Sample Location
- 2015 Soil Sample Location
- 2017 Soil Sample Location
- 2017 Soil and Groundwater Sample

Figure 6-1
Historical Sample Locations

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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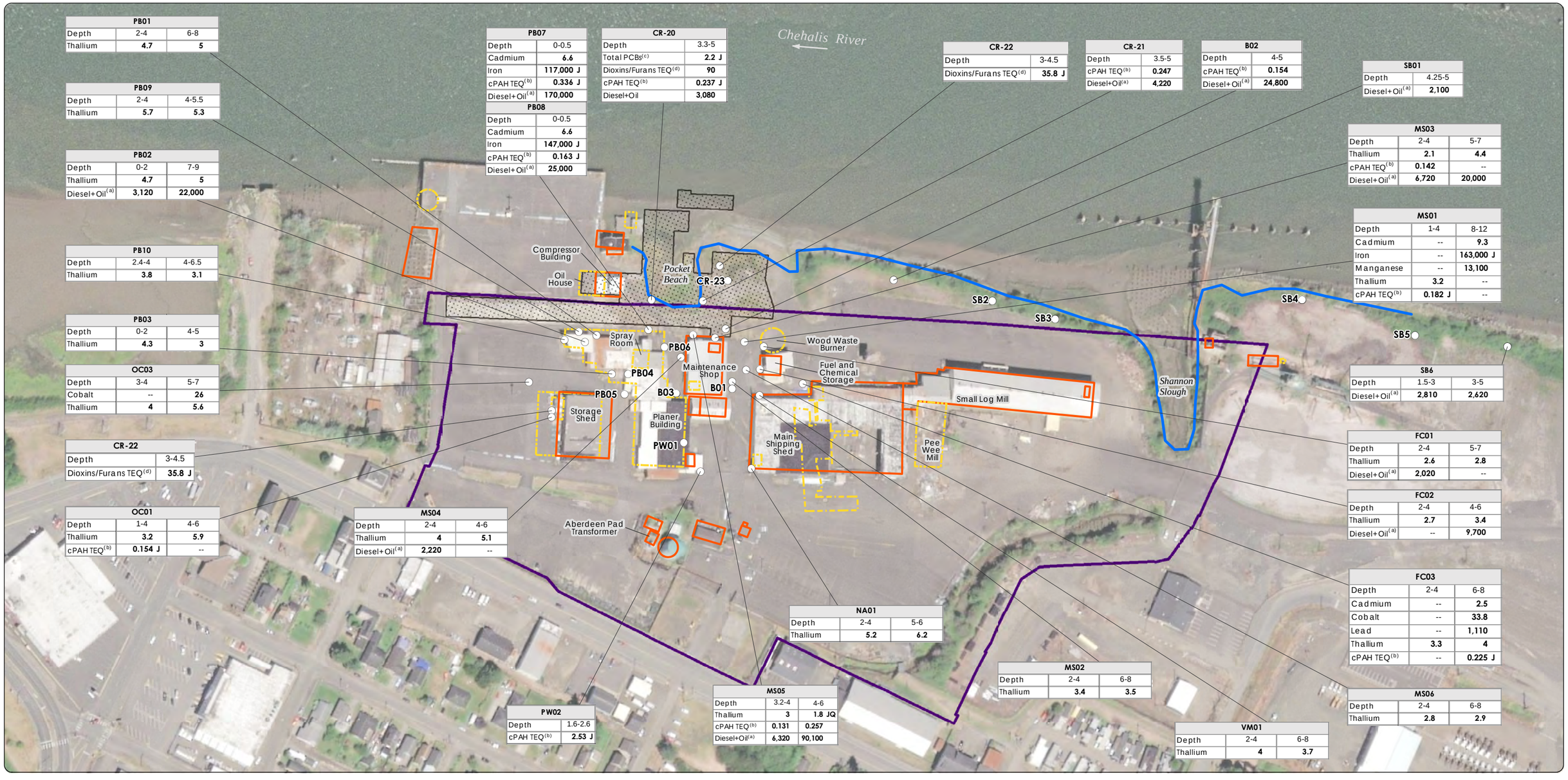

PB01		
Depth	2-4	6-8
Thallium	**4.7**	**5**

PB09		
Depth	2-4	4-5.5
Thallium	**5.7**	**5.3**

PB02		
Depth	0-2	7-9
Thallium	**4.7**	**5**
Diesel+Oil[a]	**3,120**	**22,000**

PB10		
Depth	2.4-4	4-6.5
Thallium	**3.8**	**3.1**

PB03		
Depth	0-2	4-5
Thallium	**4.3**	**3**

OC03		
Depth	3-4	5-7
Cobalt	--	**26**
Thallium	**4**	**5.6**

CR-22	
Depth	3-4.5
Dioxins/Furans TEQ[d]	**35.8 J**

OC01		
Depth	1-4	4-6
Thallium	**3.2**	**5.9**
cPAH TEQ[b]	**0.154 J**	--

MS04		
Depth	2-4	4-6
Thallium	**4**	**5.1**
Diesel+Oil[a]	**2,220**	--

PB07	
Depth	0-0.5
Cadmium	**6.6**
Iron	**117,000 J**
cPAH TEQ[b]	**0.336 J**
Diesel+Oil[a]	**170,000**

PB08	
Depth	0-0.5
Cadmium	**6.6**
Iron	**147,000 J**
cPAH TEQ[b]	**0.163 J**
Diesel+Oil[a]	**25,000**

CR-20	
Depth	3.3-5
Total PCBs[c]	**2.2 J**
Dioxins/Furans TEQ[d]	**90**
cPAH TEQ[b]	**0.237 J**
Diesel+Oil	**3,080**

CR-22	
Depth	3-4.5
Dioxins/Furans TEQ[d]	**35.8 J**

CR-21	
Depth	3.5-5
cPAH TEQ[b]	**0.247**
Diesel+Oil[a]	**4,220**

B02	
Depth	4-5
cPAH TEQ[b]	**0.154**
Diesel+Oil[a]	**24,800**

SB01	
Depth	4.25-5
Diesel+Oil[a]	**2,100**

MS03		
Depth	2-4	5-7
Thallium	**2.1**	**4.4**
cPAH TEQ[b]	**0.142**	--
Diesel+Oil[a]	**6,720**	**20,000**

MS01		
Depth	1-4	8-12
Cadmium	--	**9.3**
Iron	--	**163,000 J**
Manganese	--	**13,100**
Thallium	**3.2**	--
cPAH TEQ[b]	**0.182 J**	--

SB6		
Depth	1.5-3	3-5
Diesel+Oil[a]	**2,810**	**2,620**

FC01		
Depth	2-4	5-7
Thallium	**2.6**	**2.8**
Diesel+Oil[a]	**2,020**	--

FC02		
Depth	2-4	4-6
Thallium	**2.7**	**3.4**
Diesel+Oil[a]	--	**9,700**

FC03		
Depth	2-4	6-8
Cadmium	--	**2.5**
Cobalt	--	**33.8**
Lead	--	**1,110**
Thallium	**3.3**	**4**
cPAH TEQ[b]	--	**0.225 J**

NA01		
Depth	2-4	5-6
Thallium	**5.2**	**6.2**

MS02		
Depth	2-4	6-8
Thallium	**3.4**	**3.5**

MS05		
Depth	3.2-4	4-6
Thallium	**3**	**1.8 JQ**
cPAH TEQ[b]	**0.131**	**0.257**
Diesel+Oil[a]	**6,320**	**90,100**

PW02	
Depth	1.6-2.6
cPAH TEQ[b]	**2.53 J**

VM01		
Depth	2-4	6-8
Thallium	**4**	**3.7**

MS06		
Depth	2-4	6-8
Thallium	**2.8**	**2.9**

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019; sample locations obtained from:
E&E. 2018. Seaport Landing Site Targeted Brownfields Assessment. Ecology and Environment, Inc. May.
MFA. 2016. Focused Investigation Report. Maul Foster Alongi. July 14.
MFA. 2017. Study Area Investigation-Aquatic Lands Lease. Maul Foster Alongi. April 11.
SAIC. 2011. Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling, Aberdeen, WA. Data Report Final. Submitted to Washington Department of Natural Resources. August 12.

Notes:
All concentrations represented as mg/kg except for dioxins/furans, which are pg/g.
All depths represented as feet below ground surface.
Detected values are bolded.
cPAH = carcinogenic polycyclic aromatic hydrocarbons.
Dioxins/Furans = polychlorinated dibenzo-p-dioxins and dibenzofurans.
J = result is estimated.
mg/kg = milligrams per kilogram.
pg/g = picograms per gram.
PCB = polychlorinated biphenyl.
TEQ = toxicity equivalent quotient.

[a]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbon results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.
[b]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors. Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.
[c]Total PCBs are the sum of all PCB Aroclors. Non-detect results are not included in the sum. When all results are non-detect, the highest reporting limit or detection limit is used.
[d]Dioxin/furan TEQ is calculated with 2005 World Health Organization mammal toxicity equivalence factors. Non-detect results are included at one-half the detection limit. When all dioxin and furan results are non-detect, the TEQ is shown as "ND."

Legend
- Soil Sample Location
- Approximate Line of Ordinary High Water
- Existing Buildings/Features
- Former Buildings/Features
- Former Mill
- The Site

Figure 6-2a
Historical Soil Cleanup Level Exceedances
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1\044.02_13\04\Fig6-2a_Historical_Soil_Cleanup_Level_Exceedances.mxd
Print Date: 12/9/2022
Reviewed by: ilenahansen
Produced By: ielstrott
Project: M1\044.02.013

Path: X:\1044\02_13\04\Fig6-2b_RI_Soil_CUL_Exceedances.mxd
Print Date: 12/7/2022
Reviewed by: ileahansen
Produced By: ielstrott
Project: M1044.02.013

RAU2-09		
Depth	1-2	7.5-8.5
cPAH TEQ[(b)]	**0.659 J**	--
Diesel+Oil[(a)]	**3,410**	**37,500**

RAU2-GA1		
Depth	2.5-4	5-6.5
cPAH TEQ[(b)]	**0.511 J**	**0.126 J**

RAU1-04		
Depth	0-0.5	1-1.5
Dioxins/Furans TEQ[(c)]	**57.5 J**	--
cPAH TEQ[(b)]	--	**0.631 J**

RAU1-05		
Depth	0-0.5	1-2
Dioxins/Furans TEQ[(c)]	**64.6 J**	--
Diesel+Oil[(a)]	--	**8,820**

RAU1-08		
Depth	1.5-2.5	6.5-7.5
cPAH TEQ[(b)]	--	**0.247 J**
Diesel+Oil[(a)]	**8,940**	**10,100**

RAU1-02	
Depth	0.5-1.5
cPAH TEQ[(b)]	**0.109 J**

RAU1-12	
Depth	2-3.5
GRO	**118 J**

RAU1-10	
Depth	1.5-2.5
cPAH TEQ[(b)]	**0.152 J**

RAU2-GA2		
Depth	2.5-4	7.5-9
Dioxins/Furans TEQ[(c)]	**61.0 J**	--
cPAH TEQ[(b)]	**4.15 J**	**0.110 J**

RAU4-08	
Depth	1-2.5
Diesel+Oil[(a)]	**5,090**

RAU3-05	
Depth	1.2-2
cPAH TEQ[(b)]	**0.128 J**

RAU3-01	
Depth	1.5-2.5
Diesel+Oil[(a)]	**8,600**

RAU4-16	
Depth	2.5-3.5
Diesel+Oil[(a)]	**15,900**

RAU3-02	
Depth	2-3
cPAH TEQ[(b)]	**0.187 J**

RAU4-21	
Depth	10.5-11.5
Diesel+Oil[(a)]	**11,200**

RAU1-07	
Depth	1-2.5
Diesel+Oil[(a)]	**3,300**

RAU4-17	
Depth	2-3
Diesel+Oil[(a)]	**2,710**

RAU1-09	
Depth	1-2
Benzene	**0.0474**
cPAH TEQ[(b)]	**1.23 J**
Diesel+Oil[(a)]	**4,210**

RAU4-05	
Depth	1-2.5
Diesel+Oil[(a)]	**3,230**

RAU6-03	
Depth	2-3
cPAH TEQ[(b)]	**0.139 J**

RAU4-19	
Depth	2-3
Diesel+Oil[(a)]	**4,740**

RAU4-06	
Depth	1-2
Diesel+Oil[(a)]	**4,700**

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019.

Notes:
All concentrations represented as mg/kg except for dioxins/furans, which are pg/g.
All depths represented as feet below ground surface.
Detected values are bolded.
cPAH = carcinogenic polycyclic aromatic hydrocarbons.
Dioxins/Furans = polychlorinated dibenzo-p-dioxins and dibenzofurans.
GRO = gasoline-range hydrpcarbons.
J = result is estimated.
mg/kg = milligrams per kilogram.
pg/g = picograms per gram.
TEQ = toxicity equivalent quotient.

[(a)] Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbon results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.
[(b)] cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors. Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.
[(c)] Dioxin/furan TEQ is calculated with 2005 World Health Organization mammal toxicity equivalence factors. Non-detect results are included at one-half the detection limit. When all dioxin and furan results are non-detect, the TEQ is shown as "ND."

Legend

- Soil Sample Location
- Approximate Line of Ordinary High Water
- Existing Buildings/Features
- Former Buildings/Features
- Former Mill
- The Site

Figure 6-2b
Remedial Investigation Soil Cleanup Level Exceedances

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1044_02_13\04\Fig6-3_Sediment_CUL_Exceedances_Riverbank.mxd
Print Date: 10/31/2022
Reviewed by: ilenahansen
Produced By: slurner
Project: M1044.02.013

RAU1-02	
Depth	0.5-1.5
cPAH TEQ[b]	**0.109 J**

RAU2-09	
Depth	1-2
Mercury	**0.252 J**
Total PCBs[a]	**0.0134**
cPAH TEQ[b]	**0.659 J**

RAU1-03

Compressor Building
Oil House
Pocket Beach
Wood Waste Burner
Spray Room
Maintenance Shop
Fuel and Chemical Storage
Small Log Mill
Shannon Slough
Planer Building
Storage Shed
Main Shipping Shed
Pee Wee Mill
Aberdeen Pad Transformer

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019; sample locations obtained from:
MFA. 2016. Focused Investigation Report. Maul Foster & Alongi, Inc. July 14.

Notes:
All concentrations represented as mg/kg.
All depths represented as feet below ground surface.
Detected values are bolded.
RAU1-03 is shown as a riverbank sample location, though no contaminants exceed sediment cleanup levels.
BFA = benzofluoranthene.
cPAH = carcinogenic polycyclic aromatic hydrocarbons.
J = result is estimated.
mg/kg = milligrams per kilogram.
PCB = polychlorinated biphenyl.
TEQ = toxicity equivalent quotient.

[a]Total PCBs are the sum of all PCB Aroclors. Non-detect results are not included in the sum. When all results are non-detect, the highest reporting limit or detection limit is used.
[b]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors. Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

Legend

- Soil Sample Location
- Approximate Line of Ordinary High Water
- Existing Buildings/Features
- Former Buildings/Features
- Former Mill
- The Site

Figure 6-3
Sediment Cleanup Level Exceedances in Riverbank Soil Samples

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1044.02_1310\4\Fig6-4a_Historical_GW_Cleanup_Level_Exceedances.mxd
Print Date: 10/31/2022
Reviewed by: ilenahansen
Produced By: slurner
Project: M1044.02.013

PB01	
Depth	--
T-Iron	26,800
T-Manganese	3,950

CR-20	
Depth	5.5
Diesel+Oil[b]	2,600

CR-22	
Depth	6.5
1-MN	1.7
Diesel+Oil[b]	1,410

CR-23	
Depth	3.5
1-MN	2
Diesel+Oil[b]	6,600 J

CR-21	
Depth	7.5
T-Chromium	66
Diesel+Oil[b]	3,820

B02	
Depth	6
T-Chromium	116
T-Lead	80
cPAH TEQ[a]	15 J
Diesel+Oil[b]	150,000 J

PB09	
Depth	--
T-Iron	24,100
T-Manganese	2,120

MS03	
Depth	--
T-Iron	50,500
T-Manganese	2,030
PCP	1.5 J
cPAH TEQ[a]	0.308 JQ
Diesel+Oil[b]	34,200

PB02	
Depth	--
T-Cobalt	9.5 JQ
T-Iron	36,100
T-Lead	23.8
T-Manganese	2,170
T-Vanadium	96.8
BCEE	3 JQ
Diesel+Oil[b]	79,200

MS01	
Depth	--
T-Iron	24,400
T-Manganese	4,090
PCP	19 J

PB10	
Depth	--
T-Iron	28,200
T-Manganese	4,050

PB03	
Depth	--
T-Manganese	1,730

FC01	
Depth	--
T-Aluminum	17,800
T-Cobalt	9.6 JQ
T-Iron	56,200
T-Lead	53
T-Manganese	6,070
PCP	0.3

OC03	
Depth	--
T-Cobalt	10.5 JQ
T-Iron	76,600
T-Manganese	10,600

OC02	
Depth	--
T-Iron	26,000
T-Manganese	2,380

FC02	
Depth	--
T-Cobalt	13.4 JQ
T-Iron	52,100
T-Manganese	18,400
Diesel+Oil[b]	5,300

OC01	
Depth	--
T-Iron	20,500
T-Manganese	2,110

PB04	
Depth	--
PCP	1,600 J

MS04	
Depth	--
T-Iron	28,000

FC03	
Depth	--
T-Lead	18.6
T-Manganese	1,120
Diesel+Oil[b]	880

B03	
Depth	7.5
Diesel+Oil[b]	2,000 J

MS05	
Depth	--
T-Iron	15,500
T-Manganese	854
Diesel+Oil[b]	825

MS02	
Depth	--
T-Cobalt	8.6 JQ
T-Iron	34,500
T-Manganese	12,100
PCP	0.96

VM01	
Depth	--
T-Iron	34,400
T-Manganese	6,260

MS06	
Depth	--
T-Cobalt	11.3 JQ
T-Iron	34,600
T-Manganese	5,100

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019; sample locations obtained from:
E&E. 2018. Seaport Landing Site Targeted Brownfields Assessment. Ecology and Environment, Inc. May.
MFA. 2016. Focused Investigation Report. Maul Foster Alongi. July 14.
MFA. 2017. Study Area Investigation-Aquatic Lands Lease. Maul Foster Alongi. April 11.
SAIC. 2011. Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling, Aberdeen, WA. Data Report Final. Submitted to Washington Department of Natural Resources. August 12.

Notes:
All concentrations represented as ug/L.
All depths represented as feet below ground surface.
Detected values are bolded.
Depth not measured or reported in historical data is noted as --.
1-MN = 1-methylnaphthalene.
BCEE = bis(2-chloroethyl)ether.
cPAH = carcinogenic polycyclic aromatic hydrocarbons.
J = result is estimated.
JQ = result is estimated and detected below the method reporting limit.
PAH = polycyclic aromatic hydrocarbons.
PCP = pentachlorophenol.
T- = total fraction.
TEQ = toxicity equivalent quotient.
ug/L = micrograms per liter.

[a]cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors. Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.
[b]Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbon results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

Legend
- Groundwater Sample Location
- Approximate Line of Ordinary High Water
- Existing Buildings/Features
- Former Buildings/Features
- Former Mill
- The Site

Figure 6-4a
Historical Groundwater Cleanup Level Exceedances
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1044_02_13\04\Fig6-4b_RI_Groundwater_CUL_Exceedances.mxd
Print Date: 12/7/2022
Reviewed by: jlienhansen
Produced By: ielstrott
Project: M1044.02.013

RAU1-01	
Depth	7.5
T-Arsenic	**5.21**
T-Manganese	**980**
Dibenzofuran	**16.4**
cPAH TEQ[a]	**0.264 J**

RAU1-04	
Depth	7.5
T-Manganese	**2,140**

RAU2-05	
Depth	7.5
T-Manganese	**3,390**

RAU2-06	
Depth	6.5
T-Manganese	**8,090**
PCP	**0.254**

RAU2-04	
Depth	7.5
T-Manganese	**2,400**

RAU3-05	
Depth	8
T-Manganese	**5,160**

RAU1-05	
Depth	6.5
T-Manganese	**2,020**
1-MN	**2.12 J**
cPAH TEQ[a]	**0.242 J**
Diesel+Oil[b]	**1,010**

RAU1-10	
Depth	8.5
T-Manganese	**14,600**
1-MN	**20.4**
Naphthalene	**200**

RAU1-02	
Depth	6
T-Manganese	**831**

RAU1-03	
Depth	7.5
T-Manganese	**2,650**

RAU1-06	
Depth	7.5
T-Manganese	**2,830**

RAU1-11	
Depth	7
T-Manganese	**5,050**
Diesel+Oil[b]	**2,770 J**

RAU4-02	
Depth	7
T-Manganese	**4,860**

RAU4-07	
Depth	7
T-Manganese	**10,000**

RAU4-10	
Depth	8
T-Manganese	**3,570**

RAU4-08	
Depth	7.5
T-Manganese	**13,900**

RAU4-13	
Depth	6.5
D-Manganese	**7,900**
T-Manganese	**12,000**
T-Arsenic	**15.8**
T-Lead	**42.1**

RAU4-11	
Depth	7
T-Manganese	**9,060**

RAU4-14	
Depth	6
D-Manganese	**11,700**
T-Manganese	**12,500**
T-Arsenic	**8.29**
T-Lead	**33.8**
Diesel+Oil[b]	**553**

RAU4-09	
Depth	7
T-Manganese	**13,500**

RAU7-01	
Depth	8.5
T-Manganese	**18,200**

RAU4-15	
Depth	5
D-Manganese	**3,230**
T-Manganese	**3,240**

RAU4-04	
Depth	7
T-Manganese	**8,690**

RAU4-12	
Depth	9
T-Manganese	**17,600**

RAU4-16	
Depth	4
D-Manganese	**7,590**
T-Manganese	**8,140**
T-Arsenic	**5.43**
Diesel+Oil[b]	**85,900**

RAU4-21	
Depth	13
D-Arsenic	**6.17**
T-Arsenic	**56.8**
T-Lead	**91.2**
D-Manganese	**12,900**
T-Manganese	**23,000**
Diesel+Oil[b]	**15,100**

RAU4-17	
Depth	4.5
D-Manganese	**10,200**
T-Manganese	**10,600**
Diesel+Oil[b]	**98,700**

RAU4-06	
Depth	4.5
T-Arsenic	**11.2**
T-Chromium	**123 J**
T-Lead	**29.1**
T-Manganese	**9,960**
Diesel+Oil[b]	**484,000**

RAU2-03	
Depth	7.5
T-Arsenic	**5.92**
T-Lead	**34**
T-Manganese	**3,650**
T-Mercury	**8.48**

RAU2-02	
Depth	6
T-Lead	**21.5**
T-Manganese	**3,030**
T-Mercury	**11.4**

RAU1-12	
Depth	7
T-Manganese	**1,390**
1-MN	**8.42**
Diesel+Oil[b]	**1,970 J**

RAU3-06	
Depth	6.5
T-Manganese	**1,550**

RAU1-09	
Depth	7
T-Arsenic	**5.3**
T-Lead	**29.6**
T-Manganese	**12,600**

RAU1-14	
Depth	6
D-Manganese	**7,910**
T-Manganese	**7,840**

RAU1-13	
Depth	7
D-Manganese	**6,020**
T-Manganese	**6,340**

RAU2-01	
Depth	7.5
T-Manganese	**1,750**

RAU3-03	
Depth	5
T-Manganese	**6,330**

RAU2-07	
Depth	7.5
T-Cadmium	**5.02**
T-Lead	**24.5**
T-Manganese	**1,410**
1-MN	**46.3**
2-MN	**61.9**
cPAH TEQ[a]	**0.454 J**
Diesel+Oil[b]	**526**

RAU5-03	
Depth	6.5
D-Manganese	**5,230**
T-Manganese	**5,220**

RAU5-01	
Depth	7
T-Arsenic	**5.82**
T-Manganese	**7,410**
Diesel+Oil[b]	**1,910**

RAU4-01	
Depth	6.5
T-Manganese	**3,800**

RAU4-18	
Depth	5
D-Manganese	**12,300**
T-Manganese	**13,100**

RAU6-02	
Depth	12
T-Manganese	**4,000**

RAU4-20	
Depth	10.5
D-Manganese	**1,260**
T-Manganese	**1,310**
T-Arsenic	**8.91**
Diesel+Oil[b]	**519**

RAU4-05	
Depth	7.5
T-Lead	**20.8**
T-Manganese	**4,460**
Diesel+Oil[b]	**6,590**

RAU4-19	
Depth	5
D-Manganese	**11,400**
T-Manganese	**11,400**
Diesel+Oil[b]	**605**

Chehalis River

Compressor Building
Oil House
Pocket Beach
RAU2-08
RAU2-09
Wood Waste Burner
Spray Room
RAU1-07
RAU1-08
Maintenance Shop
Storage Shed
Planer Building
Fuel and Chemical Storage
Main Shipping Shed
Small Log Mill
Pee Wee Mill
Shannon Slough
RAU7-02
RAU3-04
RAU5-02
RAU6-01
Aberdeen Pad Transformer

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019.

Notes:
All concentrations represented as ug/L.
All depths represented as feet below ground surface.
1-MN = 1-methylnaphthalene.
2-MN = 2-methylnaphthalene.
cPAH = carcinogenic polycyclic aromatic hydrocarbons.
D- = dissolved metals fraction.
J = result is estimated.
PAH = polycyclic aromatic hydrocarbons.
PCP = pentachlorophenol.
T- = total metals fraction.
TEQ = toxicity equivalent quotient.
ug/L = micrograms per liter.

[a] cPAH TEQ is calculated with toxicity equivalence factors from Washington Ecology Evaluating the Human Heath Toxicity of Carcinogenic PAHs Using Toxicity Equivalence Factors. Non-detect results are included at one-half the detection limit or reporting limit. When all cPAHs are non-detect, the highest reported detection limit or reporting limit is shown.

[b] Diesel+oil is the sum of diesel- and lube-oil-range hydrocarbon results. Non-detect results are summed at one-half the reporting limit or detection limit. When both results are non-detect, the highest reporting limit or detection limit is used.

Legend

- Groundwater Sample Location
- Approximate Line of Ordinary High Water
- Existing Buildings/Features
- Former Buildings/Features
- Former Mill
- The Site

Figure 6-4b
Remedial Investigation Groundwater Cleanup Level Exceedances

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1044 02 13\04\Fig6-5 GW Vapor Intrusion Exceedances within 100ft of Building.mxd
Print Date: 10/31/2022
Reviewed by: ilenahansen
Produced By: sturner
Project: M1044.02.013

RAU1-10	
Depth	8.5
Naphthalene	**200**

RAU2-03	
Depth	7.5
T-Mercury	**8.48**

RAU2-02	
Depth	6
T-Mercury	**11.4**

RAU2-07	
Depth	7.5
Naphthalene	**149**

RAU2-08, RAU2-09, CR-20, CR-21, RAU1-05, RAU2-04, RAU2-01, RAU2-05, RAU1-04, RAU4-08, PB09, PB01, RAU2-06, MS05, B02, PB10, PB02, RAU1-07, MS03, PB06, RAU1-08, MS01, FC01, RAU1-11, RAU4-13, RAU7-01, MS04, RAU1-12, RAU4-09, RAU4-02, RAU4-14, PB03, PB04, MS06, FC02, RAU1-09, MS02, FC03, RAU7-02, OC03, PB05, B03, B01, VM01, RAU4-01, RAU4-15, RAU4-04, OC02, OC01, RAU1-13, RAU4-12, RAU1-14, RAU4-16, RAU4-21, RAU4-06, RAU4-17, PW01, RAU4-05, PW02, RAU5-03, RAU3-03, RAU5-01

Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019.

Notes:
All depths represented as feet below ground surface.
All concentrations are represented as ug/L.
Detected values are bolded.
T- = total metals fraction.
ug/L = micrograms per liter.

Legend

- Groundwater Sample Location
- Approximate Line of Ordinary High Water
- Existing Buildings/Features
- Former Buildings/Features
- Former Mill
- The Site

Figure 6-5
Groundwater-Vapor Intrusion Exceedances in Samples within 100 Feet of a Building

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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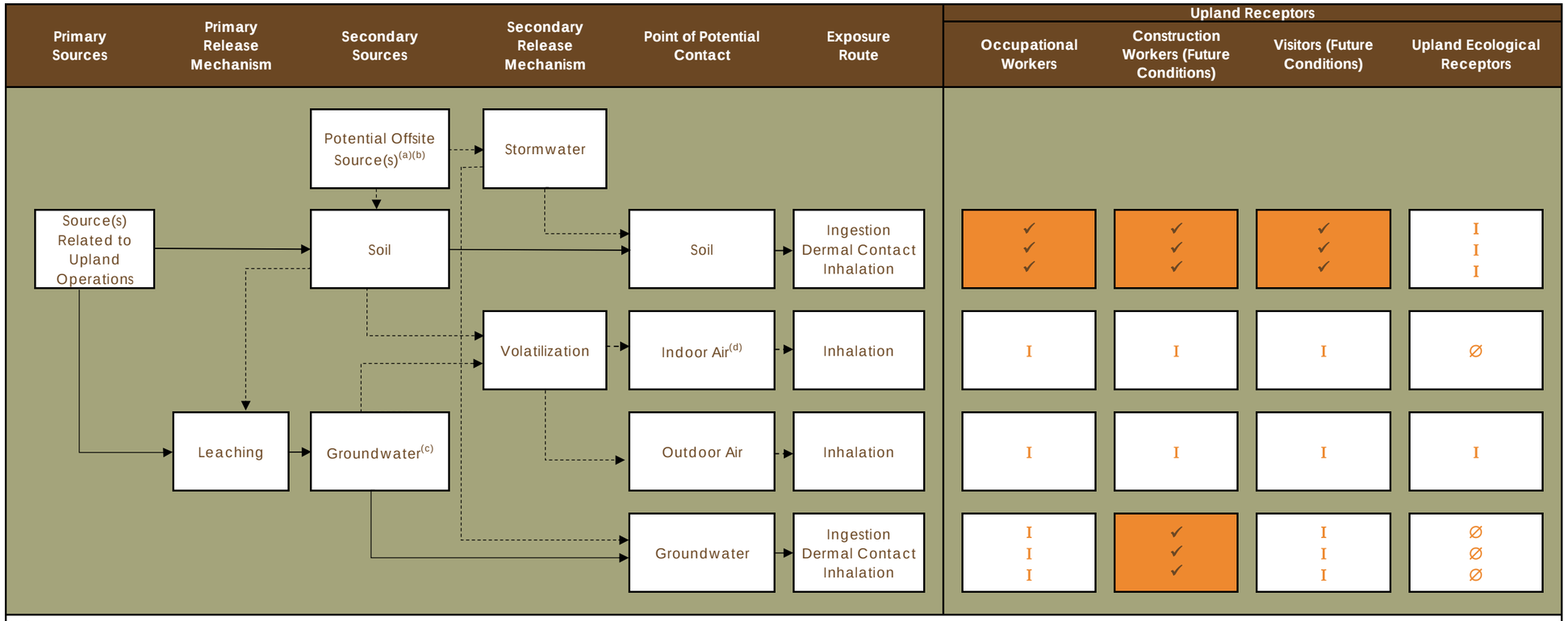
Figure 7-1
Conceptual Site Model
Upland Remedial Investigation
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Notes

Primary pathway

Potential pathway

✓ Potentially complete exposure route

∅ Incomplete exposure route

I Insignificant exposure route

Transport pathways from the Site to the Chehalis River and river sediments are discussed in the *Draft In-Water RI Report* (MFA 2022), and are not included here.

(a)Transport pathways from potential offsite sources include stormwater discharge to Shannon Slough and airborne deposition to soil.

(b)Potential offsite sources transported via stormwater may come into contact with soil due to the damaged and/or degraded stormwater infrastructure observed during a stormwater system investigation at the Site (MFA 2016).

(c)Site 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

(d)Potential impacts to indoor air quality from vapor intrusion are addressed in the RI report main text.

Figure 7-2
Visible Percent Wood Waste in Soil

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

RAU7-01
RAU7-02
RAU4-11
RAU4-10
RAU4-09
RAU4-08
RAU4-13
RAU4-12
RAU1-02
RAU1-03
RAU4-07
RAU4-14
RAU4-04
RAU1-06
RAU1-01
RAU2-GA2
RAU2-08
RAU1-05
RAU4-15
RAU4-21
RAU4-03
RAU2-GA1
RAU1-11
RAU4-02
RAU4-16
RAU4-17
RAU2-09
RAU1-04
RAU1-12
RAU3-07
RAU1-10
RAU4-01
RAU4-06
RAU4-19
RAU2-05
RAU2-06
RAU1-07
RAU1-08
RAU1-09
RAU4-05
RAU4-18
RAU2-01
RAU4-20
RAU2-04
RAU1-13
RAU6-01
RAU3-05
RAU2-03
RAU2-02
RAU1-14
RAU2-07
RAU3-01
RAU3-02
RAU5-03
RAU5-02
RAU5-01
RAU6-03
RAU3-06
RAU3-04
RAU6-02
RAU3-03

Legend

- Approximate Line of Ordinary High Water
- Approximate Aquatic Land Lease Area

Total Percent Wood Content

- Not sampled
- No wood observed at depth interval
- <0.5%
- 5.1 to 10%
- 10.1 to 20%
- 20.1 to 50%
- >75%

Collected Sample Depth Interval

- < 1 foot
- 1-3 feet
- 3-5 feet
- 5-7 feet
- 7-9 feet
- 9-11 feet
- 11-13 feet
- 13-15 feet
- 15-17 feet
- 17-19 feet
- 19-21 feet
- 21-23 feet
- 23-25 feet
- 25-27 feet

Notes:
Each sample location shown to the approximate depth sampled.
Wood waste content estimated during visual inspection.
Field staff did not document any intervals between 50.1 and 75% wood waste.

0 100 200
Feet

Data Source:
Aerial photograph obtained from Esri.

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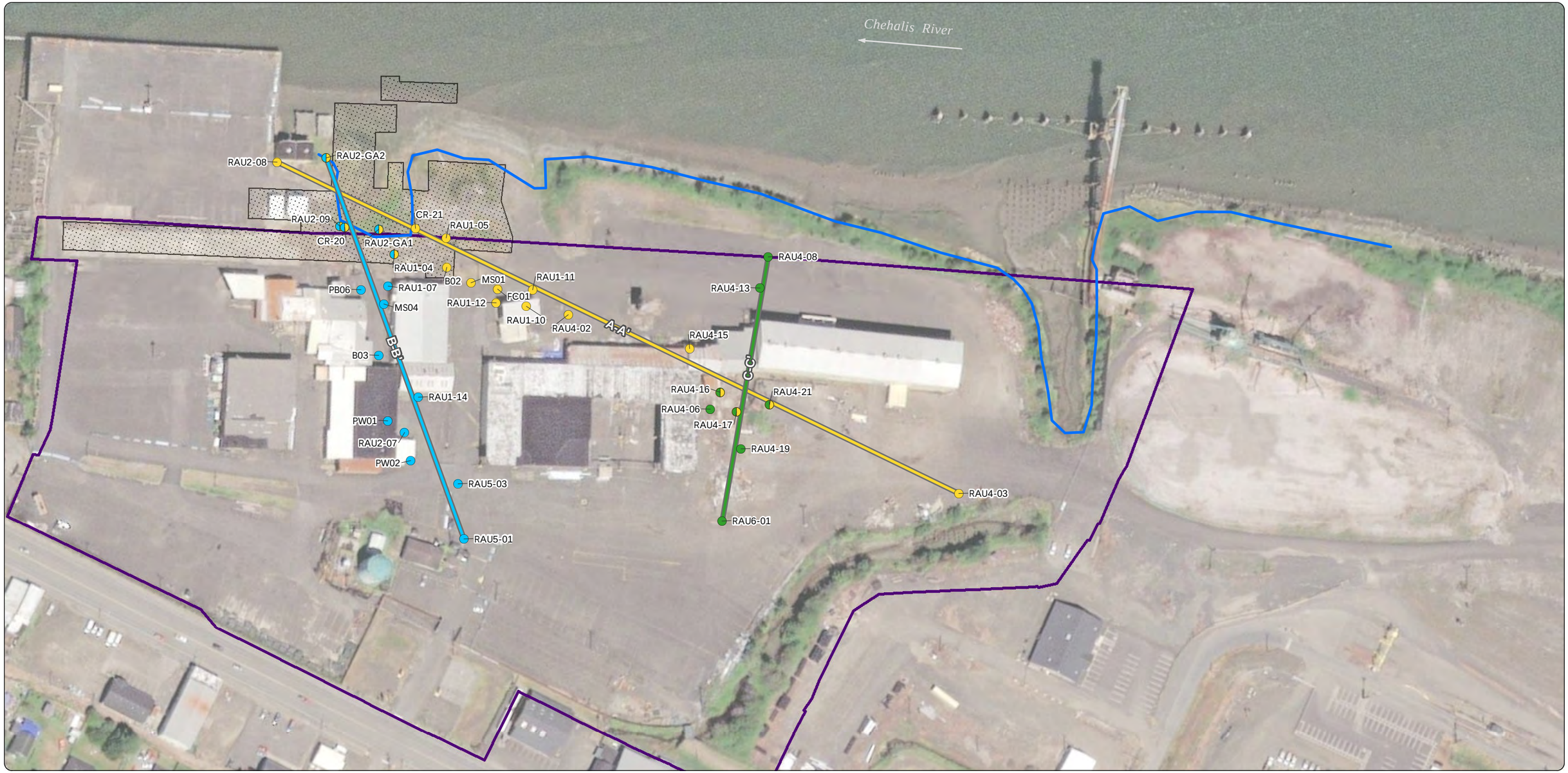
Produced By: sturner
Project: M1044.02.013



Data Sources:
Aerial photograph obtained from Esri; line of ordinary high water determined from Grette Associates LLC critical areas report dated October 2019.

Legend

Cross Sections
- A-A' (see Figure 7-3b)
- B-B' (see Figure 7-3c)
- C-C' (see Figure 7-3d)

Remedial Investigation Locations
- A-A'
- A-A' and B-B'
- A-A' and C-C'
- B-B'
- C-C'

- Approximate Line of Ordinary High Water
- Former Mill
- The Site

Figure 7-3a
Cross Section Transect Lines

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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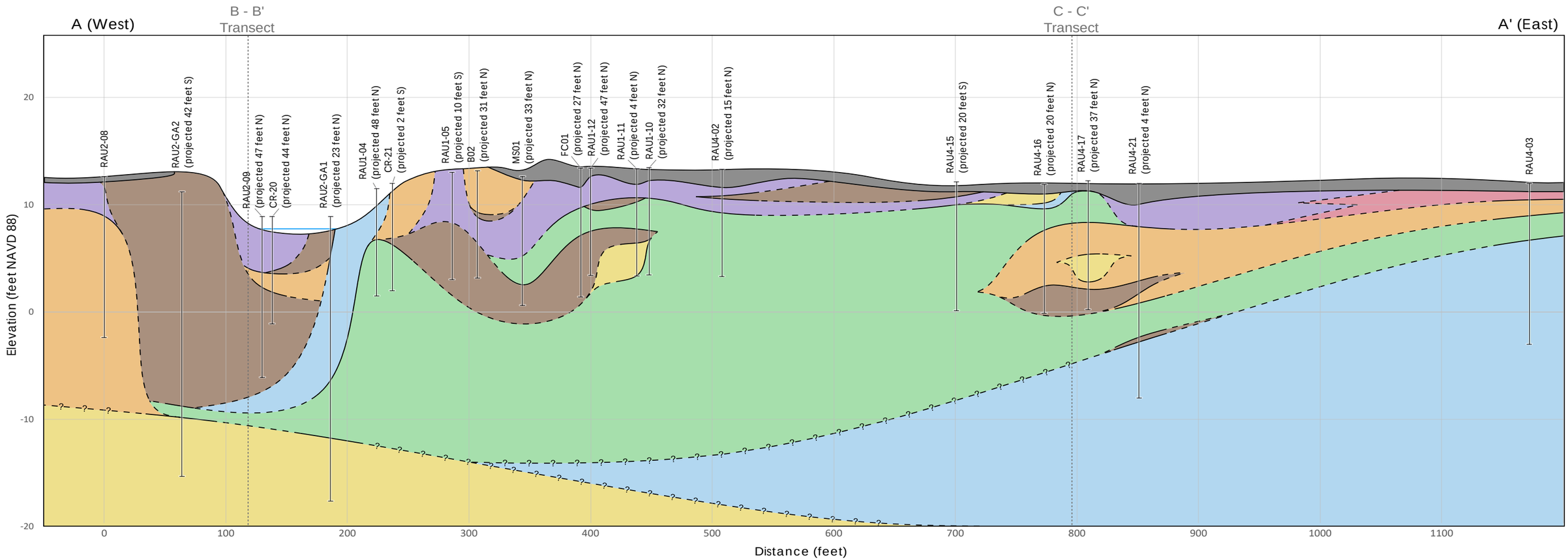
Print Date: 10/31/2022
Reviewed by: ilenahansen
Produced By: sturner
Project: M1044.02.013

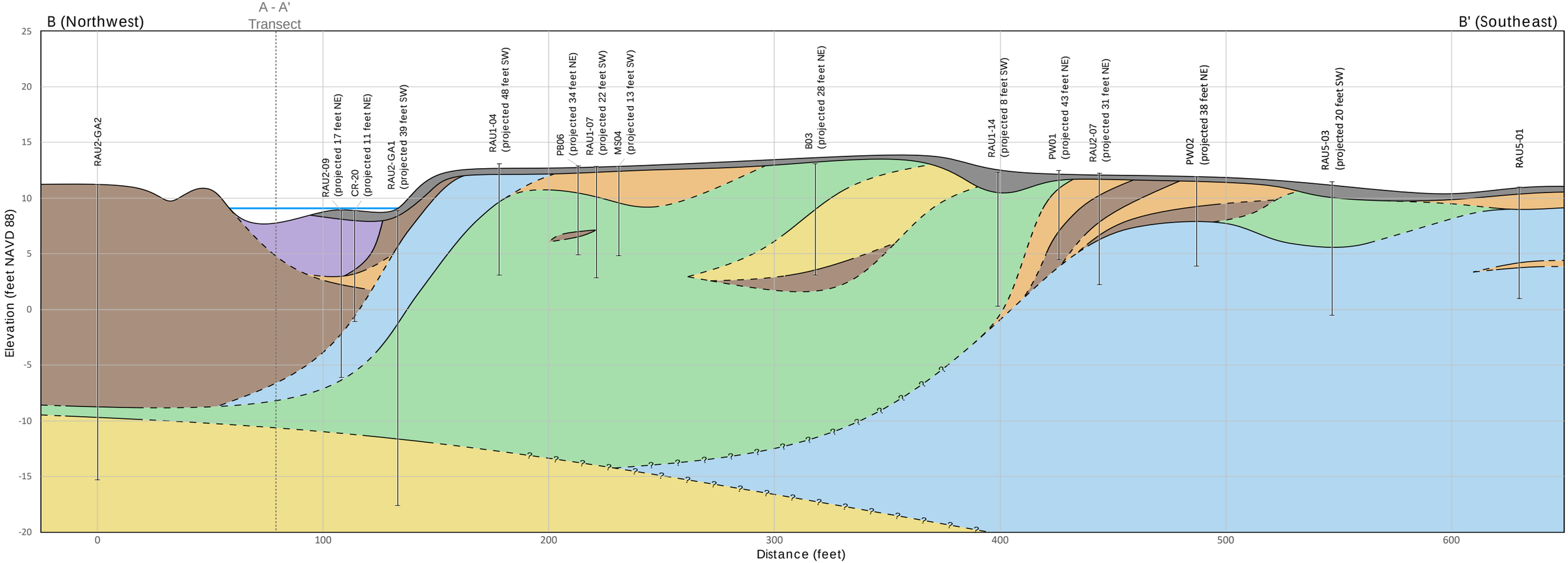
Figure 7-3b
Geologic Cross Section A to A'
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington



Notes:
All feature locations are approximate.
Contacts are dashed where inferred.
Contacts are queried where uncertain.
Projected boring elevations are shown at surveyed elevation of boring location rather than surface elevation of transect line.
Soils containing greater than 25% wood waste are considered wood waste.
Vertical exaggeration is 10x.
N = north.
NAVD 88 = North American Vertical Datum of 1988.
S = south.

Legend
- Gravel
- Sandy Gravel / Gravelly Sand
- Sand
- Silty Sand / Sandy Silt
- Silt
- Silty Gravel / Gravelly Silt
- Wood Waste
- Concrete / Asphalt
- Cross Section Intersection
- Borehole Location
- Ordinary High Water

Figure 7-3c
Geologic Cross Section B to B'
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

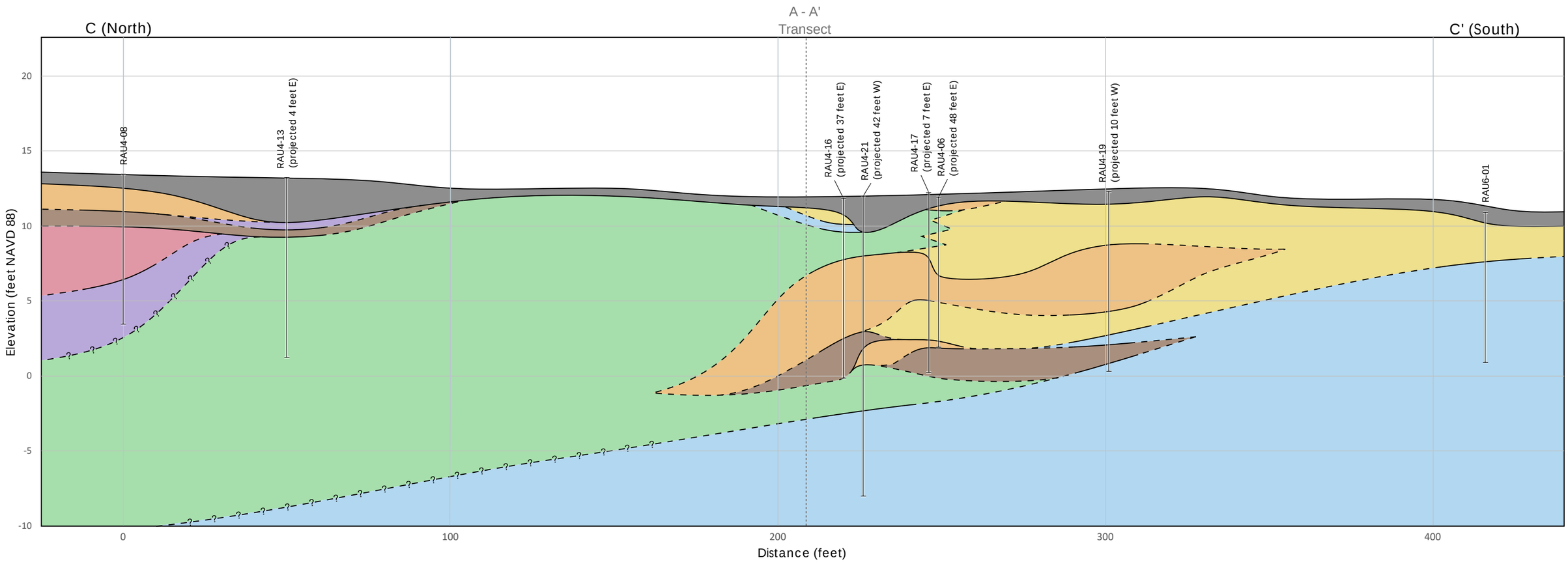


Notes:
All feature locations are approximate.
Contacts are dashed where inferred.
Contacts are queried where uncertain.
Projected boring elevations are shown at surveyed elevation of boring location rather than surface elevation of transect line.
Soils containing greater than 25% wood waste are considered wood waste.
Vertical exaggeration is 5x.
NE = northeast.
NAVD 88 = North American Vertical Datum of 1988.
SW = southwest.

Legend
- Gravel
- Sandy Gravel / Gravelly Sand
- Sand
- Silty Sand / Sandy Silt
- Silt
- Silty Gravel / Gravelly Silt
- Wood Waste
- Concrete / Asphalt
- Cross Section Intersection
- Borehole Location
- Ordinary High Water

MAUL FOSTER ALONGI

Figure 7-3d
Geologic Cross Section C to C'
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington



Notes:
All feature locations are approximate.
Contacts are dashed where inferred.
Contacts are queried where uncertain.
Projected boring elevations are shown at surveyed elevation of boring location rather than surface elevation of transect line.
Soils containing greater than 25% wood waste are considered wood waste.
Vertical exaggeration is 5x.
E = east.
NAVD 88 = North American Vertical Datum of 1988.
W = west.

Legend
- Gravel
- Sandy Gravel / Gravelly Sand
- Sand
- Silty Sand / Sandy Silt
- Silt
- Silty Gravel / Gravelly Silt
- Wood Waste
- Concrete / Asphalt
- Cross Section Intersection
- Borehole Location
- Ordinary High Water

APPENDIX A

STUDY AREA INVESTIGATION REPORT

FINAL STUDY AREA INVESTIGATION—AQUATIC LANDS LEASE

WEYERHAEUSER SAWMILL ABERDEEN/SEAPORT LANDING SITE

FACILITY SITE ID 1126, CLEANUP SITE ID 4987, AGREED ORDER ID 11225
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES AQUATIC LANDS LEASE NO. 22-092275

Prepared for

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

June 19, 2019
Project No. 1044.02.06

MAUL FOSTER ALONGI

Prepared by
Maul Foster & Alongi, Inc.
2815 Second Avenue, Suite 540, Seattle, WA 98121

FINAL STUDY AREA INVESTIGATION—AQUATIC LANDS LEASE

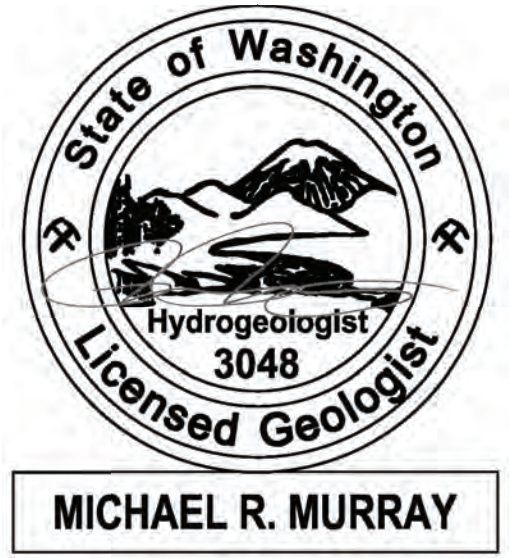
WEYERHAEUSER SAWMILL ABERDEEN/SEAPORT LANDING SITE
FACILITY SITE ID 1126, CLEANUP SITE ID 4987, AGREED ORDER 1125
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES AQUATIC LANDS LEASE NO. 22-092275

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Phil Wiescher, PhD
Senior Scientist

Michael Stringer
Principal Planner



6/19/19

Michael R. Murray LHG
Senior Hydrogeologist

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ACRONYMS AND ABBREVIATIONS

AET	Apparent effects threshold
ARI	Analytical Resources, Inc.
bgs	below ground surface
bml	below mudline
BTEX	benzene, toluene, ethylbenzene, and xylenes
cm	centimeter
COI	chemical of interest
cPAH	carcinogenic PAH
CSL	cleanup screening level
CSM	conceptual site model
CUL	cleanup level
dioxins	polychlorinated dibenzo-p-dioxins and -furans
DNR	Department of Natural Resources
dw	dry weight
Ecology	Washington State Department of Ecology
FS	feasibility study
GHHSA	Grays Harbor Historical Seaport Authority
leased Property	approximately 16.9-acre leased tidelands at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
MTCA	Model Toxics Control Act
NAPL	nonaqueous-phase liquids
NAVD-88	North American Vertical Datum of 1988
NPDES	National Pollutant Discharge Elimination System
OC	organic carbon-normalized
PARIS	Ecology Water Quality Permitting and Reporting Information System
PCP	pentachlorophenol
pg/g	picograms per gram
ppt	parts per thousand
QIN	Quinault Indian Nation
RI	remedial investigation
SAI	Study Area Investigation
SAIAA	Study Area Investigation and Alternatives Analysis
SAIC	Science Applications International Corporation
SCO	sediment cleanup objective

ACRONYMS AND ABBREVIATIONS (CONTINUED)

Site	Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
SMS	Sediment Management Standards
SVOC	semivolatile organic compound
TEE	terrestrial ecological evaluation
TEQ	toxicity equivalence quotient
TOC	total organic carbon
TPH	total petroleum hydrocarbons
ug/kg	micrograms per kilogram
USEPA	U.S. Environmental Protection Agency
WAC	Washington Administrative Code
WQC	National Recommended Water Quality Criteria

1 INTRODUCTION

1.1 Purpose and Objectives

Maul Foster & Alongi, Inc. (MFA) has prepared this Study Area Investigation (SAI) Report for the Grays Harbor Historical Seaport Authority (GHHSA) to characterize nature and extent of environmental impacts at the approximately 16.9-acre leased tidelands (herein referred to as "the leased Property") at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. The Site is located adjacent to the Chehalis River at 500 North Custer Street in Aberdeen, Washington (see Figure 1-1). The Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site includes approximately 23.6 acres of upland property and the adjacent tidelands (i.e., the leased Property), which are leased from the Washington State Department of Natural Resources (DNR) under lease number 22-092275 (see Figure 1-2). Historically, the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site was used as a lumber mill by Weyerhaeuser and other wood products companies. The leased Property is proposed for future use as the homeport for the *Lady Washington* and *Hawaiian Chieftain* tall ships as part of a new maritime heritage facility called Seaport Landing.

Environmental sampling previously conducted in the former sawmill area and the lumber shed processing operations area (see Figure 1-3) indicates that hazardous substances have impacted sediments on the leased Property. Prior investigations indicate that polychlorinated dibenzo-p-dioxins and -furans (dioxins); semivolatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), metals including mercury, and woodwaste, are present in sediment on the leased Property.

This report describes results of investigations that have been conducted at the leased Property, including the most recent investigations in October 2015.[1] Prior investigations informed identification of chemicals of interest (COIs) for the leased Property as well as the approximate spatial extent of the 2015 investigation area. The purpose of the 2015 investigation was to generate data to characterize the nature and extent of contaminants in the leased Property media relative to appropriate cleanup levels (CULs). The results will inform additional characterization needs (data gaps) to be addressed as part of the forthcoming remedial investigation (RI) activities.

Note that this report addresses only the leased Property. The upland property will be evaluated separately.

1.2 Regulatory Framework

On August 17, 2015, the GHHSA entered into Agreed Order DE 11225 with Ecology. The order required the GHHSA to investigate the aquatic lease area and produce an SAI Report. This report has been prepared to satisfy the requirements of the Agreed Order.

[1] A stormwater sample collected in January 2016 is also discussed in this report.

The Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is listed on Ecology's database as Facility Site ID 1126/Cleanup Site ID 4987. This SAI focuses on the leased Property and is not intended to be a complete RI for the Site as defined by the Washington State Department of Ecology (Ecology) under the Model Toxics Control Act (MTCA).

Weyerhaeuser assumed the aquatic land lease at the time of the property acquisition in 1955. A prior aquatic land lease (Aquatic Land Lease No. 22-A02150) was signed by DNR on September 13, 2001. Subsequently, GHHSA entered into a sublease agreement with Weyerhaeuser for the leased Property. In addition to the sublease agreement, DNR, Weyerhaeuser, and GHHSA jointly entered into a consent to sublease agreement that identifies a number of requirements to be completed before the termination of the master tideland lease. These include a requirement to submit an RI and feasibility study (FS) report for the leased Property. On April 14, 2017, the GHHSA entered into aquatic lands lease No. 22-092275 with the DNR. This tract borders the GHHSA-owned properties to the north, along the Chehalis River.

DNR requires "bookend" sediment sampling at the initiation and termination of an aquatic lease in order to differentiate baseline sediment conditions from impacts that may have occurred during the lease period, as well as to evaluate long-term trends in sediment conditions. On February 2, 2011, in correspondence with Weyerhaeuser, DNR requested sediment sampling and proposed a sampling approach for the leased Property. Floyd|Snider, consultant to Weyerhaeuser, proposed a reduction to the DNR-requested sampling in a proposal letter prepared for Weyerhaeuser on March 15, 2012 (Floyd|Snider, 2012). On March 26, 2012, DNR modified the Floyd|Snider proposed sediment sampling plan (DNR, 2012) by expanding the analyte list for three proposed surface sediment samples from the Chehalis River and requested three sediment core samples in the Former Mill Area, an area within the leased Property (see Figure 1-3).

MFA conducted sediment sampling on November 7-8, 2013, consistent with an Ecology and DNR-approved Sampling and Analysis Plan (MFA, 2013). The results of the investigation were provided to Ecology and DNR in a sediment sampling report on February 5, 2014 (MFA, 2014). On April 4, 2014, DNR requested an RI/FS for the leased Property (DNR, 2014). During a July 2, 2014 meeting between DNR, Ecology, the GHHSA, and MFA, an RI/FS work plan due date of October 2, 2014, was set. Comments on the sediment sampling report were received from Ecology by e-mail on July 9, 2014 (Ecology, 2014a), and these were addressed in the SAI work plan (MFA, 2015). Subsequent revisions to the sampling and analytical approach were made at the request of Ecology and are captured herein.

This SAI has been completed for the leased Property to address the substantive requirements of MTCA (Washington Administrative Code [WAC] 173-340) and the Sediment Management Standards (SMS) (WAC 173-204-550). This report was submitted to Ecology on April 11, 2017. MFA received comments on April 5, 2019, and is now submitting this revised report incorporating those comments.

1.3 Quinault Indian Nation Treaty Rights

The Quinault Indian Nation (QIN) is a sovereign Tribal government with federally protected treaty rights. Their 1856 treaty provides Quinault tribal members the right to harvest fish and shellfish in their usual and accustomed areas, which include Grays Harbor and streams that empty into Grays

Harbor. Harvest in Grays Harbor is conducted in tribally regulated gillnet fisheries via drift gillnetting or setnetting. Drift gillnetting consists of deploying a gillnet across the Chehalis River, perpendicular to the shoreline. Setnets are affixed to the Chehalis Riverbank on one end and secured with an anchor in the Chehalis at the other end.

Tribal fishing operations, including both drift gillnetting and setnetting methods, are conducted within the leased Property and directly offshore. Setnets are occasionally affixed to trees and other shoreline features along the shoreline within the leased Property. Any in-water activities have the potential to impact the QIN fishers' use of this portion of the Chehalis River for federally protected treaty fishing. GHHSA is negotiating a Memorandum of Agreement with the QIN to formalize coordination related to the Site. Further coordination with the QIN will help identify all potential fishing and harvesting uses in the area and will be described in the forthcoming RI report.

2 BACKGROUND

The background and physical setting descriptions below for the leased Property are summarized from site investigations, interviews with the GHHSA, and review of past environmental reports.

2.1 Location and Current Property Conditions

The Site is located in the alluvial meander plain of the Chehalis River in the northwestern margins of the Willapa Hills physiographic region of southwest Washington. Located at 500 North Custer Street in Aberdeen, the Site is approximately 2 miles upriver from Grays Harbor. The City of Aberdeen is situated in southwestern Washington, approximately 15 miles from the Pacific Ocean and approximately 70 air miles west-southwest of Tacoma, Washington. US Highway 101 and US Highway 105 are located less than 0.25 mile south of the site. The Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property is situated in sections 9 and 10 of township 17 north, range 9 west, Willamette Base Meridian. It is bordered on the west by a former boatyard and marine service center, to the east by a log storage yard, to the north by the Chehalis River, and to the south by residential and commercial development.

2.2 Property History

The operational history of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property is detailed in a Level I environmental site assessment (PES, 2010). Sawmills had operated on the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property, on both the uplands and leased Property, since before 1900. The South Aberdeen waterfront has been developed for commercial and industrial use since the early 1890s. The piling (commonly referred to as a pile field) at the mouth of Shannon Slough marks the location of an early Aberdeen salmon cannery. In the late 1890s, the Aberdeen Lumber sawmill was constructed on the upland property with logs rafted along the shoreline to feed the mill. Aberdeen Lumber was later sold, becoming Schafer Brothers Lumber and Door Co.

Mill #4. The business expanded, and so did its footprint. Schafer Brothers later sold the property to Simpson Timber Company.

Weyerhaeuser acquired the property in 1955 and operated several sawmills and associated support facilities through January 2009, when the mill known as the small log sawmill was permanently closed. Until the mid-1960s raw logs were brought to the mill in log rafts on the Chehalis River and tied up to pilings in the river in front of the Big Mill. After the mid-1960s, raw logs were brought to the mill by truck and staged on log decks at various locations in and adjacent to the property. The Big Mill was originally configured to manufacture shingles and slats for housing construction. During World War II, the Big Mill was converted for manufacturing ship keels for the war effort. The precursor to the small log mill was added in 1972; small log mill operations were performed in the upland portion of the site outside the leased Property. The last upgrade to the small log mill took place in 2003. In 2006, the Big Mill and attached finger pier were closed; the associated structures were removed between 2006 and 2008. This area is now known as the Former Mill Area. The small log mill continued to operate into early 2009. The GHHSA acquired the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site uplands on March 29, 2013. Currently, there are no active wood-products-manufacturing operations at the property. Historical and current site features are shown in Figure 1-3.

2.3 Shoreline Modifications and Historical Fill Events

Historical Sanborn maps from 1906, 1914, 1928, 1948, and 1989 provided in Appendix A offer insight into the development of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property. Specifically, the Sanborn maps depict development of mill-related structures on pilings in the Chehalis River, shoreline modifications resulting from filling events, and other important details regarding the composition of fill materials. Shoreline modifications since 1906 illustrated in the Sanborn maps in Appendix A are summarized below.

1906: The 1906 Sanborn maps show a mill and related structures extending into the Chehalis from Front Street between North Custer and Columbus streets. The structures are constructed on posts. These former mill structures were farther east than subsequent mill structures that formed the Former Mill Area. The 1906 mill and mill-related structures were in the approximate location of the present-day former Main Shipping Shed. While this particular area is not depicted in the 1914 Sanborns, by 1928 these mill structures no longer exist. In fact, new mill-related structures are constructed in the location of the area now referred to as the Former Mill Area (see Figure 1-3) to the west of Custer Street and extending approximately to Clark Street.

Shoreline on either side of the 1906 mill area is not fully depicted in the maps. However, the shoreline along Front Street at the mouth of the Shannon Slough is undeveloped. There is another mill to the east of the present-day Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site, just east of Lawrence Street. Sanborn maps show mill-related development consisting primarily of irregular lumber piles on planked fill or planked on sawdust.

1914: As noted above, the 1906 mill area is not visible in the 1914 Sanborn maps. However, the Sanborn maps show that the shoreline at the mouth of Shannon Slough has been modified to extend farther north into the Chehalis River, as it was filled in with irregular lumber piles.

1928: The 1928 Sanborn maps show further offshore development north into the Chehalis River. As noted in the 1906 description, the 1906 mill structures had been removed and the mill area shifted farther west between Custer and Clark streets. All of the structures shown are constructed on planks in the Chehalis River. The wharf that is currently on the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is constructed as of 1928—the wharf and mill site are built on pilings. Shoreline to the east of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is relatively unchanged.

1948: As of 1948, the area between the planked over-water structures and Front Street between Clark and Custer have been filled in with refuse and planked. The over-water structures remain on planks. Shoreline to the east of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is relatively unchanged as of 1948.

1989: As of 1989, the entire former in-water area of the Chehalis north of Custer Street and to the east to Shannon Slough has been filled. According to the Sanborns, fill material in this area consisted of earth and rock and lumber piles on filled ground. The area east of Shannon Slough is shown as fill consisting of sawdust piles.

2.4 Leased Property Operations

Former facility operations in the leased Property area, with demonstrated or potential environmental impacts, are discussed below. These former operational areas of interest were carried forward for evaluation and characterization. Upland facility operations are not included in this discussion but are detailed in the Level I environmental site assessment (PES, 2010). The areas of interest identified below are shown on Figure 1-3.

2.4.1 Former Mill Area and Pocket Beach

The mill that appeared in the 1928 Sanborns between Custer and Clark streets was originally constructed on pilings over the Chehalis River and the pocket beach area. This area is referred to as the Former Mill Area. Mill facilities and equipment were installed over plank flooring. Before 1970, there was no spill protection to prevent spills on the flooring from falling into the river below. In the mid-1970s, Weyerhaeuser reportedly reworked the flooring to prevent releases through the planking. Beginning in approximately 1980, containment pans were installed beneath all mill hydraulic components.

The original mill at this site was closed in 2006 and was removed between 2006 and 2008, exposing the Chehalis River and the pocket beach. Over 1,000 creosoted wood pilings were also removed from this area during mill demolition. It is unknown whether these pilings were pulled out completely or removed to mudline. This data gap will be addressed during the RI. Creosote-treated piles can be harmful and toxic to aquatic species. Therefore, the removal of the creosote-treated pilings has been a major focus of DNR's Restoration Program and has also been used in the regulatory process to generate mitigation credits. Since removal of the mill and pilings and debris in the Chehalis River, the pocket beach area has been colonized by vegetation characteristic of wetland environments, such as cattail (*Typha sp.*) and rushes (*Juncus sp.*). This location in the river has also been observed to be a

depositional area with debris including loose pilings and household appliances floating downstream and becoming lodged against the wharf.

2.4.2 Lumber Shed

The lumber shed located in the northwest corner of the leased Property was used to store finished products. Historically, an iron fuel-oil tank was used to supply the fuel-oil-fired internal combustion engine powered cranes at the west end of the wharf. According to the GHHSA staff, a fire destroyed much of this area in 1965.

2.4.3 Former Boiler

Wood-fired boilers were located adjacent to the powerhouse at the east end of the wharf. The boilers contained asbestos that reportedly was removed during demolition of the mill. One transformer is currently present at the powerhouse and is not known to contain PCBs. The powerhouse has been cleaned and a vault below the powerhouse has been cleaned and filled with pea gravel. An oil house was also located next to the powerhouse.

2.4.4 Tidelands and Beach Area

Along the Chehalis River, the area between the Former Mill Area and the mouth of Shannon Slough consists of former tidal flats that historically were filled with unknown types and quantities of debris, including construction debris and woodwaste. See Section 2.3 for information detailing what is known, based on historical Sanborn maps, regarding these fill events.

2.4.5 Shannon Slough

Shannon Slough meanders from south to north across the eastern portion of the property and discharges into the Chehalis River next to the former chip area. Shannon Slough receives stormwater runoff from the property, upstream residential areas, and the highway. Currently, after passing through catch basins and oil/water separators, stormwater is discharged through various culverts directly into Shannon Slough or into the Chehalis River. The Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site National Pollutant Discharge Elimination System (NPDES) sampling location is at the outfall along the west bank of the slough. Releases of paint waste to Shannon Slough in 1989 resulted in a Clean Water Act conviction and subsequent remediation activities (PES, 2010). Shannon Slough discharges to the Chehalis River in the leased Property, forming a small deltaic feature. Multiple pilings are present in the mudflats along the northeastern portion of the slough. Information is not available regarding whether these pilings contain creosote. According to Sanborn Fire Insurance Maps (provided in Appendix A), the pilings have been on the Property since at least 1906. Given their age, it is reasonable to assume that the pilings were creosote-treated.

2.5 Previous Investigations

Environmental data collected at and in the vicinity of the leased Property, dating back to 1999, are summarized below. Historical and current sample locations are shown on Figure 2-1.

2.5.1 Ecology Sediment Investigation

In 1999, Ecology conducted a sediment quality investigation on the Chehalis River (Ecology, 1999). Two of the samples (7S and 14S) collected during this investigation came from the leased Property. Samples were analyzed for all SMS compounds and for the presence of wood debris. There were no exceedances of the SMS, and no woodwaste accumulations were observed. The absence of impacts at these locations helped inform the spatial sampling extent for the 2013 and 2015 investigations.

2.5.2 Level I Environmental Site Assessment

In August 2010, PES prepared an extensive Level I environmental site assessment report. The document summarized past releases of contaminants to the leased Property, including the following:

- In 1989, red-end paint wastes (containing 1,1,1-trichloroethane and naphthalene) were released to Shannon Slough, resulting in a U.S. Environmental Protection Agency (USEPA) fine and cleanup action. PAHs; pentachlorophenol (PCP); and benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in sediments, but PCBs were not.
- In 1992, storm system sediments (in catch basins and oil/water separators, located on the Seaport Authority property) were evaluated. Aroclor 1260 was detected at 959 micrograms per kilogram (ug/kg) at CB-1, located southwest of the planer. PAHs and BTEX were commonly detected in the storm system sediments, with dibenzofuran, phenol, and 2- and 4-methylphenol detected at the catch basin at the main shipping shed. Stormwater outfall locations were evaluated during a stormwater system evaluation conducted by MFA in May 2015. The results of this evaluation are presented in Section 2.5.7.
- Between 2006 and 2008, the Big Mill (which sat over the pocket beach area) was demolished. Over 1,000 piles were removed during the demolition.
- The facility stormwater pollution prevention plan significant spills report lists three spills: a June 2001 release of 17.5 gallons of hydraulic oil (with 1 gallon spilling into the Chehalis River); an August 2002 release of 4 gallons of hydraulic oil to the Chehalis River; and a March 2005 release of 50 gallons of diesel fuel to land near the stacker (in the upland area).
- The Big Mill, originally constructed in 1924, contained hydraulic equipment installed over plank flooring. Drip pans were installed under the hydraulic equipment in approximately 1980.

Numerous recognized environmental conditions were also identified in the Level I environmental site assessment for the upland Seaport Authority Property (PES, 2010).

2.5.3 Phase II Environmental Site Assessment

In April 2011, Science Applications International Corporation (SAIC) conducted a soil and sediment investigation at the leased Property (SAIC, 2011) on behalf of DNR. Three composited sediment samples were collected near the Wharf Area immediately downstream of the 1999 Ecology sample

location 7s (see Figure 2-1). The surface sediment samples were analyzed for all SMS constituents and for the presence of woodwaste and dioxins. Butyl benzyl phthalate was detected at a concentration slightly above the sediment cleanup objective (SCO). No accumulation of woodwaste was encountered. Surface sediment dioxins with a toxicity equivalence quotient (TEQ) of 6.1 picograms per gram (pg/g) were detected in the area. The absence of woodwaste and the low-level concentrations of SMS constituents in sediment at these locations helped inform the spatial sampling extent for the 2013 and 2015 investigations.

SAIC also collected surface and subsurface sediments in the Former Mill Area (see Figure 2-1). Fine wood debris was encountered in surface sediment at two of the three locations, with woodwaste observed in all subsurface sediment throughout the length of the cores (i.e., 5 feet below mudline [bml]). Surface and core sediment samples from all three locations were tested for SMS chemicals. A composite of the three surface samples was analyzed for dioxins. The reported dioxin TEQ was 68 pg/g. Two of the sample locations had initial surface mercury detections in excess of the SMS cleanup screening level (CSL). Subsequent averaging with split samples collected by Weyerhaeuser found that the surface mercury concentrations exceeded the sediment quality standard but were below the CSL. One of the sample locations had surface exceedances of the SMS CSL for bis(2-ethylhexyl) phthalate and 1,4-dichlorobenzene. There were also concentrations of several chemicals in subsurface sediment above SMS CSLs. Note, however, that surface sediments are the point of compliance under the SMS (Ecology, 2008). These results showed potential for woodwaste and chemical impacts in this area and informed additional investigations conducted in 2013 and 2015.

SAIC further collected six soil borings from the filled tidelands area to depths of 5 feet below ground surface (bgs) (see Figure 2-1 for locations SB1 through SB6; note that SB5 and SB6 are outside the leased Property). Generally, the soil cores were observed to have dark brown, sandy sawdust at a depth of approximately 4 to 5 feet bgs, overlain by light brown sawdust and wood chips. Soil samples were analyzed for MTCA Method A constituents (up to three sample depth horizons per location), and two composite soil samples from each of the filled tideland areas were analyzed for dioxins. No chemicals were detected above MTCA Method A criteria, with the exception of motor oil at 1.5 to 3 feet bgs and 3 to 5 feet bgs at sample location SB-6, which is outside the leased Property. The dioxin TEQs for the composite soil samples collected in the filled tidelands were 13.5 pg/g and 2.37 pg/g for the composite samples from locations SB1-SB3 and SB4-SB6, respectively.

2.5.4 Water Investigation Report

In January 2010, Floyd|Snider evaluated water quality at the upper pocket beach area under the Former Mill Area. After evaluating the seeps and river water, the study concluded that the water coming from the seeps does not have the same general chemical parameters as the river water, suggesting that the seeps are not bank storage of river water captured during high tide, but more likely are related to groundwater discharge. Analytical data showed low-level detections of metals and TPH at the stormwater outfall and seep locations, and samples were non-detect for volatile organic compounds. Also, the study indicated that an intermittent sheen previously observed at one of the seeps in 2009 was not observed during the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site visit in January 2010.

2.5.5 NPDES Data Review

When the facility was active, stormwater was managed under an NPDES industrial stormwater permit administered by Ecology (Permit Nos. SO3001015 and WAR001015). Data from the facility NPDES stormwater program obtained from the Ecology Water Quality Permitting and Reporting Information System (PARIS) were retrieved. Between 2003 and 2007, the facility had benchmark exceedances for pH, turbidity, biological oxygen demand, and zinc. MFA searched the PARIS database for NPDES data on August 1, 2014, and May 1, 2019; not all facility NPDES data were available in the database.

2.5.6 2013 Leased Property Sediment Sampling

In November 2013, MFA collected sediment samples from six locations in the Former Mill Area (pocket beach) and in the Chehalis River (see Figure 2-1). The 2013 investigation data were originally presented in the sediment sampling report (MFA, 2014) and the results are discussed herein alongside the results from the more recent October 2015 investigation. The sampling approach is briefly described below.

The Chehalis River surface sediment samples (CR-01 through CR-03) were analyzed for SMS constituents with marine criteria, dioxins, and total organic carbon (TOC). No impacts, including woodwaste, were observed in surface sediments collected in the Chehalis River portion of the leased Property. Therefore, analysis was not conducted for conventional parameters used to evaluate toxicity in sediment impacted with woodwaste.

DNR and Ecology requested sampling in the Former Mill Area to further delineate historical elevated concentrations of butyl benzyl phthalate, PCP, mercury, and dioxins (DNR, 2012). Sediment cores were analyzed using a tiered approach, and the list of analytes included mercury, dioxins, PCBs, SVOCs, and TPH. Analysis for conventional parameters (TOC, total volatile solids, total solids, ammonia, total sulfides, and percent fines) was conducted on surface sediment samples and some subsurface sediment containing more than 25 percent woodwaste by volume.

2.5.7 Stormwater System Evaluation

As discussed in Section 2.5.2, sediment contamination resulting from potential stormwater pathways present at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site were noted in the PES report (PES, 2010). Based on this possibility, MFA conducted a stormwater system evaluation in May 2015. MFA's review of existing stormwater system plans available for the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site indicated inconsistences between "as-built" drawings of stormwater features at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site and the actual location of features.

MFA field-verified the stormwater system features, including catch basins and outfalls, and recorded locations using a handheld global positioning system receiver. When possible, stormwater conveyance features were opened to verify diameter of pipe connections present and approximate direction of piping entering and leaving the feature. Locations of stormwater features observed at the leased Property are included in Figure 2-2.

Two catch basins with associated outfalls (OFs 2 and 14) were observed at the west of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site and appeared to discharge on the neighboring Pakonen Boatyard facility (see Figure 2-2). The ultimate location of the outfall was not visually observed because of dense vegetation and high tide at the time of observation. The outlet from the catch basin attached to OF 14 is composed of a cement 8-inch-diameter pipe while OF 2 piping is composed of 12-inch-diameter corrugated metal pipe. No water was present in these catch basins during observation; however, indications of recent stormwater flow though these catch basins was observed. OF 2 drains an area where lumber was formerly stored and loaded onto ships, while OF 14 drains a driveway that accesses the site on the west side.

In the fall of 2015, MFA oversaw the cleaning of the site's stormwater catch basins, oil/water separators, and storm lines. The cleaning removed sediment and solids buildup from within the pipes, catch basins, and oil/water separators. Following cleaning of the system, a camera video inspection was performed to evaluate the existing conditions of the pipe network. Based on initial observations, the storm lines are in poor condition. MFA is currently working with the GHHSA on a design to improve/enhance the stormwater system at the site; the design will also allow the system to serve as a showcase for best management practices for stormwater. One stormwater sample was collected in the pocket beach area as part of this investigation in 2016; the results are included in the analysis below.

3 LEASED PROPERTY INVESTIGATION

MFA conducted the leased Property investigation in October 2015. The investigation included characterization of tideland soils, groundwater, seep water, and surface and subsurface sediments.

3.1 Objectives and Approach

Consistent with the SMS, and as stipulated in WAC 173-204-550, the purpose of this SAI was to collect, develop, and evaluate information sufficient to allow establishment of cleanup standards and selection of a cleanup action, should that be deemed necessary.

The investigation objectives related to hazardous substances included the following:

- Information gathering with respect to physical site features that have the potential to contribute to or transport contamination, e.g., storm drain system.
- Identification and characterization of significant hazardous substance source areas in the leased Property through a review of historical information; investigation results; and the collection of environmental samples for physical observation, field screening, and chemical analyses.
- Evaluation of contaminant migration pathways at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. Key elements relevant to contaminant migration include,

but are not limited to, the rate and direction of groundwater flow, preferential migration pathways, and sediment-river interactions.

- Determination of the nature, extent, and distribution of hazardous substances, focusing on the vertical and lateral extent of contamination.
- Identification of all current and reasonably likely future human and ecological receptors that may be exposed to hazardous substances.
- Evaluation of the risk to human health and the environment from releases of hazardous substances at or from the leased Property.
- Generation or use of data of sufficient quality for site characterization and risk assessment.
- Development of the information required for evaluating and designing source control measures or remedial actions to address contaminant releases, if deemed necessary.

The SAI scope was designed to address characterization needs resulting from the previous investigations described in Section 2.5. Additional characterization needs will be identified and will be addressed as part of forthcoming RI activities; evaluation of the need for and type of remedial actions will be described in the forthcoming FS. Potential sources of impacts and features of interest on the leased Property include the Chehalis River and the following areas (shown in Figure 1-3):

- Former Mill Area and pocket beach
- Lumber shed area
- Wharf area
- Former boiler area
- Tidelands and beach area
- Shannon Slough

3.2 Field Investigation

The SAI was conducted on the leased Property in general accordance with the SAI work plan (MFA, 2015) in October 2015. Four soil borings upgradient of the pocket beach were advanced using a GeoProbe® direct-push drill rig for soil and reconnaissance groundwater sampling. Surface and subsurface sediment samples were collected from the pocket beach and the Chehalis River, using manual and mechanically assisted (GeoProbe) sampling techniques from a barge, and an opportunistic seep sample was collected from the pocket beach area. The investigation included geologic characterization, observation of visually apparent impacts, and analysis of samples for COIs. Figure 2-1 shows sample locations, and the field sampling methodology is presented in Appendix B.

3.2.1 Soil and Reconnaissance Groundwater

Four borings (CR-20, 21, 22, and 23) were advanced in the tidelands area immediately upgradient of the pocket beach retaining wall. Samples from these upland borings were collected to assess potential for subsurface impacts associated with former mill operations in this area. Soil from these four borings

were evaluated in the field for visual impacts (e.g., woodwaste) and field screened using a photoionization detector. Soil boring logs are provided as Appendix C. Woodwaste impacts were observed at all boring locations, and one soil sample from each location was submitted to the laboratory for analysis for COIs; see Table 3-1 for soil descriptions.

Reconnaissance groundwater samples were collected from all four boring locations to evaluate potential upgradient sources to the pocket beach. Five-foot temporary well screens were installed in each respective boring location, and water quality parameters were collected prior to sampling as described in Appendix B. Groundwater sample details and associated COI analyses are provided in Table 3-1. Groundwater water quality parameters are provided in Table 3-2.

3.2.2 Seep Water and Stormwater

An opportunistic seep sample was collected from the pocket beach area location shown on Figure 2-1 during low tide as described in Appendix B. The seep sample was submitted to the laboratory for analysis for the COIs listed in Table 3-1. Water quality parameters were collected prior to sample collection (see Table 3-2).

One stormwater sample was collected in the pocket beach area in 2016 (STORM-01). Collection conditions for this sample (i.e.., conditions of runoff, drain location, and whether before or after drains were cleaned) are unknown and will be assessed during RI activities.

3.2.3 Sediment

Surface (0 to 0.33 feet bml) and subsurface sediment samples were collected in multiple areas within the leased Property according to methods described in Appendix B. Surface sediment locations were typically accessed during low tide when the sediment was exposed to characterize sediment conditions at the SMS-defined point of compliance (i.e., 0 to 10 centimeters [cm] bml or, equivalently, 0 to 0.33 feet bml). Subsurface sediment samples were collected to delineate the vertical and lateral extent of impacts observed previously in the Former Mill Area. Borings were advanced systematically along transects or in defined areas of interest in order to fully characterize extent of visual impacts, focusing specifically on the presence of woodwaste in sediment. If woodwaste was observed in a certain boring location, additional cores were advanced along transects (oriented either parallel or perpendicular to the shoreline) to delineate the extent of visual impacts (i.e., until woodwaste impacts were not observed at a location). Surface and shallow subsurface sediment samples were also typically collected for chemical analysis at the locations where woodwaste impacts were not observed to evaluate whether chemical impacts extended beyond visually observed impacts.

A summary of sample locations, date collected, sediment lithological descriptions, and associated COI analyses is presented in Table 3-3. The following sediment samples were collected, grouped by area of interest, with locations shown in Figure 2-1:

- **Pocket Beach (Former Mill Area):** Four borings (CR-11, 12, 13, and 14) were advanced in the pocket beach portion of the Former Mill Area. These cores were advanced, using a GeoProbe drill rig, to visually unimpacted sediment underlying the visual impacts. Visually

unimpacted sediment was present at depths ranging between 10 and 22 feet bml. Samples were collected from the respective areas of visually unimpacted sediment underlying visual impacts from each boring location and submitted to the laboratory for analysis. In addition, a sediment sample was collected from within the visual impacts from each core; this sample was then homogenized into one composite sample and sent to the laboratory in order to characterize the visually impacted material for possible future disposal. Sheen and associated nonaqueous-phase liquids (NAPL) were observed at borings CR-11, CR-12, and CR-14, within woodwaste accumulations.

- **CR-15 Transect (Former Mill Area):** Cores were stepped out along the CR-15 transect perpendicular to the shoreline until no visual impacts were observed in the sediment cores. Four borings in total were advanced along the CR-15 transect (CR-15A, B, C, and D). Non-visually-impacted sediment was observed only at the northernmost boring location, CR-15C. Note that although four borings were advanced along this transect, CR-15C is in fact the northernmost location. One surface and one subsurface sample from this core were collected and submitted to the laboratory for analysis as the CR-15 transect "clean" confirmation sample. Because of poor surface sediment recovery with the GeoProbe drill rig, surface sediment was collected using a manual PONAR sediment sampler at the same core location. Samples from all other cores in this transect were collected in approximately 5-foot intervals for archiving.

- **CR-16 Transect (Former Mill Area):** Cores were stepped out along the CR-16 transect perpendicular to the shoreline until no visual impacts were observed in the sediment cores. Three borings in total were advanced along the CR-16 transect (CR-16A, B, and C). However, cores consisted primarily of woodwaste at all of the locations along this transect. No additional borings were advanced to the north along this transect, as non-visually-impacted sediment was encountered along the CR-15, CR-17, and CR-18 transects (CR-17 and CR-18 are described below). The CR-15, CR-17, and CR-18 transects are expected to be representative of the northernmost extent of woodwaste impacts north of the pocket beach, and the surface and subsurface samples collected from the CR-16A location were submitted to the laboratory for archive. Because of poor surface sediment recovery with the GeoProbe drill rig, surface sediment was collected using a manual PONAR sediment sampler at the same core location. A slight sheen was observed at CR-16B.

- **CR-17 Transect (Former Mill Area and Chehalis River):** Cores were stepped out along the CR-17 transect perpendicular to the river shoreline until no visual impacts were observed in the sediment cores. Two borings in total were advanced along the CR-17 transect (CR-17C and D). Non-visually-impacted sediment was observed at the northernmost boring location, CR-17D. Note that, since boring locations CR-17A and CR-17B were not attempted during this investigation because boring CR-17C was the first location drilled along the transect and visual impacts were observed, cores along this transect were subsequently stepped out to the north to location CR-17D. One surface and one subsurface sample from CR-17D were collected and submitted to the laboratory for analysis. Samples from all other cores in this transect were collected in approximately 5-foot intervals for archiving. Because of poor surface sediment recovery with the GeoProbe

drill rig, surface sediment was collected using a manual PONAR sediment sampler at the same core location.

- **CR-18 Transect (Former Mill Area):** Cores were stepped out along the CR-18 transect perpendicular to the shoreline until no visual impacts were observed in the sediment cores. Two borings in total were advanced along the CR-18 transect (CR-18A and B). Non-visually-impacted sediment was observed at the northernmost boring location, CR-18B. One surface and one subsurface sample from CR-18B were collected and submitted to the laboratory for analysis. Samples from all other cores in this transect were collected in approximately 5-foot intervals for archiving. Because of poor surface sediment recovery with the GeoProbe drill rig, surface sediment was collected using a manual PONAR sediment sampler at the same core location.

- **CR-19 Transect (Former Mill Area and Chehalis River):** Cores were stepped out east along the CR-19 transect parallel to the river shoreline until no visual impacts were observed in the sediment cores. Cores were then stepped out perpendicular to the shore to delineate extent of visual impacts to the north. Ten borings in total were advanced along the CR-19 transect (CR-19A, B, C, D, E, F, G, H, I, and J). Non-visually-impacted sediment was observed at only two locations:

  - The easternmost boring location CR-19F, thus delineating the easternmost extent of visual impacts
  - The northeasternmost boring CR-19I, thus delineating the northeasternmost extent of visual impacts

  One surface and one subsurface sediment sample from CR-19F was collected and submitted to the laboratory for analysis. Samples from some other cores in this transect were collected in approximately 5-foot intervals for archiving. Because of poor surface sediment recovery with the GeoProbe drill rig, surface sediment was collected using a manual PONAR sediment sampler at the same core location.

- **Lumber Shed / OF-2:** Two composite surface samples were collected in the vicinity of the former lumber storage shed area (CR-07 and CR24). In addition, the CR-24 sublocations were in the direct discharge area of a Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site outfall (OF-2). Each sampling area consisted of four discrete sublocations, samples from which were field composited and submitted to the laboratory for analysis. Discrete surface material from each sublocation was archived. Trace amounts of woodwaste were observed at locations LS-02 and LS-03 (within the CR-07 sample group).

- **Wharf Area:** Cores were advanced along the northern edge of the existing over-water wharf to delineate visual impacts west of the Former Mill Area. Only non-visually-impacted sediment was encountered at both locations explored (CR-25 and CR-26); woodwaste was not observed. Cores could not be advanced farther east along the wharf because a large dredge barge, *The Patriot,* was continuously docked at the wharf during the 2015 investigation. Therefore, a confirmation surface and subsurface sample was collected from the easternmost location (CR-26) and the subsurface sample was submitted to the

laboratory for analysis. Because of poor surface sediment recovery with the GeoProbe drill rig, surface sediment was collected using a manual PONAR sediment sampler at the same core location.

- **Former Boiler Area:** Two composite surface samples were collected in the vicinity of the Former Boiler (CR-08A and CR08-B). Each composite area consisted of four discrete sublocations, samples from which were field composited and submitted to the laboratory for analysis. As these sample locations were not in an area exposed under any tidal conditions, surface samples were collected via PONAR grab sampler (methodology described in Appendix B). Discrete surface material from each sublocation was archived. Two borings were advanced in the former boiler area (CR08A-FB04 and CR08B-FB05). Woodwaste impacts were observed in subsurface sediment from both locations, with only trace amounts of surface woodwaste observed at FB-05 and FB-06 (within the CR-08B sample group). Samples were collected in the non-visually-impacted sediment beneath visual impacts at each location and submitted to the laboratory for analysis.
- **Beach Area:** Two composite surface samples were collected along the beach area east of the pocket beach (CR-09A and CR-09B). Each composite area consisted of four discrete sublocations, samples from which were field composited and submitted to the laboratory for analysis. Discrete surface material from each sublocation was archived. In addition, near surface material from 0.33 to 1 foot bml as well as 1 to 2 feet bml was collected from each sublocation and archived. Woodwaste was observed at all eight sublocations between the surface and 2 feet bml.
- **Shannon Slough:** One composite surface sample was collected in the intertidal area where Shannon Slough enters the Chehalis River. Sublocations were located along a north-south transect. This composite area consisted of four sublocations, samples from which were field composited and submitted to the laboratory for analysis. Discrete material from each sublocation was archived. Woodwaste was observed at all four sublocations between the surface and 0.33 feet bml.

4 LEASED PROPERTY CONDITIONS

Leased Property conditions, including topography; geology and hydrogeology; stormwater pathways; aquatic environment; and beneficial water and land uses are described below.

4.1 Topography and Bathymetry

Figure 4-1 shows the Leased Property and vicinity topography and bathymetry. According to the U.S. Geological Survey Aberdeen, Washington, 7.5-minute series topographic map, the leased Property is located at elevations near sea level along the shoreline up to approximately 20 feet above mean sea level. The topography northeast of Aberdeen gradually slopes upward toward the foothills and peaks of the Olympic Mountains. The topography to the east, southeast, and south consists of rolling hills.

Surface water bodies in the vicinity of the leased Property include the Chehalis River; the Wishkah River; one small, unnamed drainage channel that enters the Chehalis River beyond the east end of the Property; and Shannon Slough, which enters the Chehalis River at an embayment located in the middle of the leased Property. The Chehalis River is tidally influenced, and some areas of the leased Property are periodically submerged at high tide. All surface water drainages in the area ultimately discharge to the Chehalis River.

4.2 Geology and Hydrogeology

The Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is located in the alluvial meander plain of the Chehalis River on the northwestern margins of the Willapa Hills physiographic region of southwestern Washington. The topography of the Willapa Hills is generally characterized by gentle rolling hills with straight, moderate slopes descending to wide valley floors.

The Chehalis River valley is filled with variable thicknesses of recent alluvium consisting of river-deposited gravels, sands, and silts. Near the ocean, the thicknesses of these alluvial deposits can be significant (more than 100 feet) because of valley filling as rising sea levels decrease the river's ability to transport sediments downstream. Well logs from resource protection wells in the vicinity of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site indicate that alluvium in the area of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is at least 60 feet thick and consists of sands, silts, and clayey silts. Logs from borings located along State Highway 12 to the north indicate that the bedrock encountered below the alluvium is silt/sandstone.

Cross sections from a 1951 map of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site provided by Weyerhaeuser indicate that much of the area of the main mill facilities was tideland prior to, and during, the early development of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site in the late 1800s and early 1900s. Most of the early Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site structures were constructed on wood-piling support platforms.

The four upland soil borings advanced upgradient of the pocket beach area in 2015 indicate that silts and silty sands are present at depths of 8 to 9 feet bgs in upland areas (Table 3-1). The silts and silty sands were overlain by woodwaste (up to 80 percent by volume of primarily wood and bark chips) of varying thicknesses—occasionally woodwaste layers were over 5 feet thick. Woodwaste typically occurred around 4.5 to 5 feet bgs surrounding the pocket beach. This layer of woodwaste was overlain primarily by gravelly sands, comprising the layer to the ground surface.

On the shoreline where SAIC advanced borings on behalf of DNR in 2011, dark brown, sandy sawdust was observed at approximately 4 to 5 feet bgs, overlain by light brown sawdust and woodchips, with crushed gravel at the surface (SAIC, 2011).

Depth to groundwater in the upland areas of the leased Property is approximately 4 to 5 feet bgs. Based on geologic logs from previous environmental investigations, groundwater flow in the area is generally to the northwest; however, flow direction and gradient may be tidally affected. Groundwater likely discharges to the Chehalis River. A previous study determined that water originating from seeps in the pocket beach area had a different chemical signature than Chehalis River water, suggesting that the seeps do not represent bank storage of river water inundated during high tide (Floyd|Snider,

2010). An opportunistic seep sample was collected from an active seep along the western edge of the pocket beach area during the 2015 investigation. Water quality parameters, including conductivity and pH, collected for both the seep sample and nearby reconnaissance groundwater samples are similar to each other (see Table 3-2), and are all different from levels measured in Chehalis River pore water (locations CR-01 through CR-03, approximately 16,000 microsiemens/cm [MFA, 2015]), suggesting that the seep water is more similar to groundwater.

4.3 Aquatic Environment and Bottom Substrate

The Chehalis River offshore of the leased Property is a tidal river that is frequented by commercial and recreational fisherman and provides habitat to multiple fish species including Chinook, coho, and chum salmon and steelhead and bull trout (which is listed under the federal Endangered Species Act as threatened). Following removal of the mill, pilings, and debris in the Former Mill Area, the pocket beach area was colonized by vegetation characteristic of wetland environments, such as cattail and rushes. Whether saltwater species are present is unknown, but this will be evaluated as part of the RI. This section of the river has been observed to be a depositional area, with debris including loose pilings and household appliances floating downstream and becoming lodged against the wharf. The apparent depositional nature of this section of river is further discussed below. Along the Chehalis River, the area between the pocket beach and the mouth of Shannon Slough consists of former tidal flats that historically were filled with unknown types and quantities of debris, including construction debris and woodwaste. Shannon Slough meanders from south to north across the property and discharges to the Chehalis River, forming a small deltaic feature. Multiple pilings are present in the mudflats along the northeastern portion of the slough.

Salinity data in 2013 Chehalis River sediment samples (e.g., samples CR-01 through CR-03) indicate that this area is estuarine according to SMS guidance. SMS suggest that estuarine environments have salinity ranging from 0.5 to 25 parts per thousand (ppt). Samples collected in this area that were analyzed for salinity had salinity values ranging from 6.9 to 11 ppt.

Bathymetry data (see Figure 4-1) indicate that the riverbank slopes steeply, with the top of the riverbank at an elevation of approximately 13 feet NAVD-88, and the slope at approximately -30 feet North American Vertical Datum of 1988 (NAVD-88). Elevations in the pocket beach area range from approximately 9 feet NAVD-88 to 6 feet NAVD-88. The Chehalis River, which flows along the northern portion of the site, is tidally connected to Grays Harbor and the Pacific Ocean, resulting in a mixed semidiurnal tidal regime (i.e., two different high, and two different low tides per lunar day). During site visits in 2013 and 2015, MFA observed that the pocket beach and other beach features in the leased Property were fully inundated at high tide and exposed at low tide.

Selected sediment samples collected in 2013 and 2015 were analyzed for grain size distribution. Percentages of fines (silt and clay) were consistent within the pocket beach (CR-04 through CR-06), ranging from 29.7 percent in surface to 42.1 percent in subsurface sediment. Similarly, percent gravel was consistent and ranged from 20.2 percent to 23.6 percent. Surface sediment at CR-19D near the beach area showed higher percent fines (77.8 percent). In general, the presence of fines indicates areas of deposition, where surface water velocities may be lower, allowing fine particles to settle. Total fines data indicate that the beach area experiences more deposition than the pocket beach.

Sediment samples collected in 2013 and 2015 were analyzed for TOC. TOC concentrations at the Lumber Shed and Former Boiler areas ranged from 1.09 percent to 3.08 percent. Percent TOC was similar in the 2013 Chehalis River samples (CR-01 through CR-03) and the eastern portion of the leased Property (beach area and Shannon Slough), ranging from 2.06 to 4.39 percent. In contrast, percent TOC was substantially higher in the three samples (CR-04 through -06) collected in 2013 in the Former Mill Area, ranging from 13.6 percent to 49.5 percent in surface and subsurface sediments. These TOC concentrations are well above the range considered normal (0.5 to 3.5 percent) (Ecology, 2015). TOC concentrations in Former Mill Area samples collected in 2015 beyond the extent of visual impacts (e.g., woodwaste) ranged from 0.415 percent to 3.99 percent, with an average (2.47 percent) well within the range considered normal.

Sediment characteristics observed in borings are provided in Table 3-3 for locations throughout the leased Property.

Additional work to further characterize the depositional regime, as well as evaluation of the flooding regime, will be conducted as part of the RI.

4.3.1 Woodwaste

Woodwaste in large volumes can overwhelm the assimilative capacity of sediment and affect the aquatic environment physically, chemically, and biologically. Woodwaste impacts can result from: the physical presence of woodwaste, which prevents biota from thriving and recruiting in and on native, healthy substrate; decreased dissolved oxygen due to microbial decomposition, which can create an unhealthy or toxic environment for biota; and decomposition by-products such as sulfides, ammonia, and phenols, which can cause or contribute to toxicity. As a result, woodwaste can be considered a deleterious substance in the environment that is subject to cleanup, consistent with MTCA and SMS rules.

Significant accumulations of woodwaste (>25 percent) were observed in the Former Boiler Area and extend eastward from the Former Mill Area to and including the beach area (see Table 3-3). During the 2015 investigation, wood debris or other debris would in some cases obstruct the core liner and an additional boring was advanced nearby (typically within 5 to 10 feet) until a sample was obtained (see Appendix B for sampling methodology). In the recovered samples the material was generally compressed into the bottom of the liner, and therefore Table 3-3 often indicates "no recovery" of the first couple feet of sediment. However, visual observation confirmed that the upper material recovered within the liner is likely surface material because the material coloration was characteristic of surface sediment and the observations matched surface materials retrieved in the same location with a PONAR grab sampler. These observations helped inform the estimated extents of woodwaste at locations with significant accumulations. Figures 4-2, 4-3, and 4-4, respectively, show the estimated woodwaste thickness; the estimated surface sediment thickness overlying woodwaste; and a cross section showing woodwaste and overlying sediment thicknesses. These figures demonstrate that woodwaste extends from near the surface to significant depths (more than 10 feet) and that with distance from shore, the woodwaste thickness decreases and the sediment layer overlying the woodwaste increases.

4.4 Beneficial Water and Land Uses

Providing protection for the highest beneficial use (i.e., the use requiring the highest quality in the resource) of water will generally also provide protection for other existing and future beneficial uses of water. Based on hydrogeological conditions observed on the Site and on regional topography, the following surface water and shallow groundwater conditions are present in the area:

- Surface water in the region discharges to the Pacific Ocean.
- Shallow groundwater in the area appears to flow toward the Chehalis River.

There is no known beneficial use of groundwater at the leased Property. One water well within a 1-mile search radius of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site was identified in the regulatory agency database search conducted by Environmental Data Resources, Inc., as part of the Level I environmental site assessment (PES, 2010). This well is a public water supply well operated by the City of Aberdeen. The well is located northwest of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site, across the Chehalis River. Currently, there are no potable water wells on the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site, let alone the leased Property area. Groundwater monitoring wells installed in the past as part of previous investigations are still present, although in unknown condition. The condition of these monitoring wells will be addressed during the RI. According to Weyerhaeuser, all of the monitoring wells previously installed at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site have been decommissioned. Groundwater under and near the leased Property is likely to remain unused for the indefinite future and the City of Aberdeen will continue to provide public water.

Shallow groundwater under and near the Property likely discharges to the Chehalis River, and current and reasonably likely future uses of the river include recreation, fishing, and fish and wildlife habitat. Grays Harbor provides habitat for a number of shellfish species, including clams, mussels, and Dungeness crab. There is limited information on the potential presence of shellfish in the Chehalis River upstream of the SR 101 bridge. Recent field investigation conducted as part of the environmental impact statement for the SR 520 Pontoon Construction facility, located approximately 1 mile downstream of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property, found softshell clams (*Mya arenaria*) in the lower intertidal zone.

As described above, the QIN tribal fishing operations, including both drift gillnetting and setnetting methods, are conducted directly offshore of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property and within the leased Property. It is unknown whether the QIN presently use the river for shellfish. This data gap will be addressed during the RI.

The Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property is currently used by the GHHSA as their headquarters. The future-use plan for the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site is to develop a maritime heritage center with education, public access, tourism, and commercial uses. The leased Property is currently zoned by the City of Aberdeen for industrial use, but a land use and zoning change to waterfront mixed-use is in process. According to the DNR lease, the leased Property's permitted uses include moorage of vessels, public access, and education activities.

5 CONCEPTUAL SITE MODEL

The primary purpose of the conceptual site model (CSM) is to identify potential contaminant sources, evaluate contaminant fate and transport mechanisms, identify potential receptor groups, and describe pathways by which those receptors may be exposed to leased-Property-related chemicals in the environment.

Potential source areas and chemical release and transport mechanisms that can allow chemicals to migrate to potential receptors are summarized for the leased Property. In addition, a discussion of significant exposure points, pathways, and potential receptors for the leased Property is presented separately in individual sections. The human health and ecological CSM depicting exposure pathways and potential receptors is shown in Figure 5-1. Note that CSMs are dynamic, and the CSM will be reevaluated and updated as part of the forthcoming RI as additional information is obtained.

5.1 Source Characterization

Suspected historical sources of sediment impacts at the leased Property include releases from the overwater mill and upland operations related to wood processing. Potential historical sources are discussed in Section2.4, and include:

- Spills from the overwater sawmill hydraulic equipment previously located in the leased Property.
- Releases to sediment from overwater structures currently and formerly located in the leased Property.
- Releases from upland historical site operations that migrated to the leased aquatic land via stormwater or groundwater transport. Petroleum products, antifreeze, various oils and lubricants, boiler treatment chemicals, anti-sapstain mixtures (which contained PCP until approximately 1986), inks, red end paint (until the early 1990s), and paints and solvents were used and/or stored during historical sawmill operations. A trough is present in the planer/wood treatment building. It is unknown how this feature functioned. This data gap will be addressed during the RI.
- Wood-fired boilers and two wood-refuse burners identified at the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. Operation of this equipment is associated with dioxin formation; the historical disposition of boiler ash at the site is unknown (PES, 2010).
- Historically, PCB-containing equipment supporting site operations was present. Note all PCB-containing transformers and light ballasts were removed from the site between 1990 and 2001, and USEPA identified no other PCB-containing equipment at the site in 2006 (PES, 2010).

- Background sources (further described below), including stormwater discharge to Shannon Slough.
- Accumulations of woodwaste from historical sawmill operations, including the chip loader and various processes in the Former Mill Area. Impacts from woodwaste include the physical presence of the woodwaste, decreased dissolved oxygen concentrations in sediment, and increased concentrations of woodwaste decomposition products, such as sulfides, ammonia, and phenols, that can cause or contribute to toxicity.

5.2 Background Sources

In addition to former mill-related sources, upstream or ubiquitous sources of chemicals and deleterious substances have the potential to impact the aquatic leased Property. The Chehalis River has a long history of industrial activity that could result in the release of contaminants and wood debris similar to what has been observed at the leased Property. Shannon Slough, which discharges to the Chehalis River, receives considerable stormwater input from roads and neighborhoods upgradient of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. Further, persistent organic pollutants such as dioxins, PCBs, and PAHs are known to be widespread in the environment.

Dioxins and PAHs can result from both natural and anthropogenic sources. The area around the leased Property is an urban environment where industrial activity has been conducted and a city has been established for over 100 years. In urban areas vehicle emissions, back-yard trash burning, structure fires, stormwater runoff, and other common events and activities can generate these chemicals (USEPA, 2006). Therefore, low levels are commonly present in sediment because of natural and/or non-point anthropogenic activities.

PCBs are a class of persistent, bioaccumulative, and toxic compounds that historically had a wide range of uses, including electrical transformers, hydraulic systems, lubricants, surface coatings, adhesives, plasticizers, inks, insulating materials, pesticides, and consumer products (Ecology, 2014b). In the Puget Sound, surface runoff is the largest pathway to aquatic environments, followed by wastewater treatment plants and air deposition. PCBs are ubiquitous throughout the natural environment, including sediment, and are found in animal tissue throughout the food chain.

Metals, including mercury, are naturally occurring elements in the environment, and can be concentrated by human activities. The distribution of naturally occurring metals is controlled by geologic processes that occur across different physiographic regions. Metals are commonly transferred to the marine environment from sewage treatment facilities, atmospheric deposition, and continental weathering.

5.3 Fate and Transport of Contaminants

The primary potential contaminant transport mechanisms operating at the leased Property are deposition to sediment from former facility operations, outfall discharge to sediments, stormwater runoff to sediments, atmospheric deposition to sediments, sediment erosion caused by waves, erosion of sediment caused by propeller wash, water current sediment erosion, and food chain transfer originating from impacted media.

Former facility operations are described in Section 2.4. Potential mechanisms of contaminant transport to the leased Property include stormwater flow from uplands (i.e., in the Former Mill upland area surrounding the pocket beach) to surface water and sediment. Stormwater discharges to leased Property sediments have the potential to transfer contaminants to areas adjacent to stormwater outfalls at the pocket beach and Shannon Slough, as well as through overland flow. Upstream runoff from residential, highway, and other properties may be impacting Shannon Slough.

Groundwater in the leased Property likely discharges to leased Property sediment and the Chehalis River (see Section 4.2). Groundwater discharge to surface water is therefore considered a complete transport pathway.

In sediments, physical transport of contaminants can be upward (advection/diffusion, ebullition), downward (advection/diffusion, burial), or lateral (resuspension/deposition); bioturbation caused by benthic organisms can further displace or mix contaminants. In water, contaminants can move by the same advective and diffusive forces operating in the sediment, by sorption to/from sediments resuspended by currents or scour events, or via bioturbation (e.g., releases from sediment to the water column). The relative importance of the above processes will vary, depending on the chemical and physical properties of a released contaminant. The properties of sediment and the dynamics of groundwater flow also shape contaminant fate and transport. The most significant site-specific transport mechanisms are discussed further below.

A number of processes, including water flow, wave erosion, and propeller wash, have the potential to impact sediment transport in the Chehalis River. Since this reach of the Chehalis River is tidally influenced, some sediment resuspension likely occurs during the ebb and flood of the tides. While wind waves may be a mechanism for erosion in the Chehalis River, these waves are likely to be a less significant transport mechanism than the larger wakes from passing vessels. Portions of the leased property in the Chehalis River are potentially vulnerable to erosion from propeller wash where vessels may operate now or in the future. Sediment resuspension and redistribution due to river and wave energy inputs is not expected to be a significant transport mechanism closer to shore in the pocket beach and beach areas, where presence of fines indicates a depositional environment.

5.4 Potential Human Health Exposure Scenarios

The primary purpose of the human health CSM is to identify potential receptor groups and to describe pathways by which those populations may be exposed to Property-related chemicals in the environment (USEPA, 1989). Populations that may be exposed to contaminants at a site and pathways by which these populations may come into contact with contaminants are identified. A complete pathway requires:

- A source and mechanism for release of constituents
- A transport or retention medium
- A potential environmental contact (exposure point) with the affected medium
- An exposure route at the exposure point

The CSM presented below shows potentially significant pathways and receptors under current and reasonable future leased Property scenarios. The evaluation of the leased Property focuses on the most important factors that may cause possible exposures.

The GHHSA staff currently occupies the office building and use other structures remaining on Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. Public use and access to the leased Property upland portion are currently limited. The leased Property upland portion is proposed for future use as the homeport for the *Lady Washington* and *Hawaiian Chieftain* tall ships as part of a new maritime heritage facility called Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. Users would include the public and staff who work at the facility. The Chehalis River is frequented by industrial marine users, fishers, and recreationists.

The principal human receptors who have the potential to contact leased Property media are further described below. As noted above, the CSM will be refined as part of RI activities as additional information regarding river uses is obtained.

Property users—Current and future users of the upland areas, occupational workers and public visitors, may come into contact with the leased Property soils. Occupational workers may come into contact with the Chehalis River while maintaining the area. Future visitors may come into contact with the leased Property soils while touring and exploring the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. While these groups may also come into direct contact with leased Property sediment and surface water, the exposure is anticipated to be occasional and incidental. However, because development plans for the leased Property will evolve over time and the exposure of leased Property users to nearshore sediment and surface water may change over time, the exposure scenarios are considered potentially complete.

Recreationists—The water recreation scenario includes assorted beach and water activities, including activities related to operation of personal watercraft. Individuals may come into contact with sediment and surface water while operating vessels; however, adult exposure is expected to be generally limited to contact with sediment and surface water while entering and exiting the water. Swimming is not a common activity in the area, given boat traffic and dangerous currents; any limited swimming that does occur likely is significantly limited in duration and frequency, given Aberdeen weather conditions. Because of the strongly hydrophobic nature of the COIs, exposure via surface water is not expected to be a significant pathway. However, children may be exposed to sediment through direct contact if playing in nearshore beach areas. Current and reasonably likely future recreational use is not expected to change significantly in the foreseeable future.

Fishers—Areas directly offshore of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site property and within the leased Property are in the QIN's usual and accustomed tribal fishing area. Fishers generally angle near the leased Property by boat, using hook and line and/or large nets. The shoreline is not conducive to shore fishing. Fishers may include adults and children. Fish are caught for personal consumption by sport fishermen and tribes during permitted times of the year. Because of the strongly hydrophobic nature of the COIs, exposure to fishers via surface water is not expected to be a significant pathway. The primary exposure pathway for potential fishers is consumption of aquatic biota. Other exposure pathways relevant to fishers could include contact with sediment during net fishing or harvesting shellfish.

Further coordination with the QIN is needed and additional information on current fishing and harvesting uses will be obtained as part of the RI.

5.5 Potential Ecological Receptors

Water-dependent ecological receptors, including plants, benthic invertebrates, fish (piscivorous, omnivorous, and benthivorous), piscivorous mammals, and piscivorous raptors are the primary potential ecological receptors.

Relevant exposure media for ecological receptors include sediment and fish tissue (for receptors at higher trophic levels). Plants, benthic invertebrates, fish, birds, and mammals may all be exposed to chemicals present in sediment. Specifically, plants and benthic invertebrates may be exposed to chemicals through direct contact with and uptake from sediment; fish may be exposed to chemicals through direct contact with sediment and ingestion of food that has accumulated contaminants. Birds and mammals may be exposed to chemicals through incidental ingestion of sediment and consumption of food that has accumulated contaminants. Although birds and mammals may have some dermal exposure to chemicals in sediment, this exposure route is considered insignificant because of external protection such as fur and feathers.

5.6 Terrestrial Ecological Evaluation

A terrestrial ecological evaluation (TEE) was conducted to characterize potential risks to terrestrial ecological receptors that may be present in the leased Property uplands. The results of the TEE are provided in Appendix D. These results will be further evaluated in the context of any upland soil remedy proposed, to ensure that a selected remedy is protective of ecological receptors as well as of human health.

6 SCREENING LEVELS

Soil, groundwater, surface water, and sediment screening levels protective of human health and ecological receptors are described in the following sections.

6.1 Soil

Soil concentrations are evaluated relative to MTCA Method A and B soil CULs. Method A CULs rely on various endpoints described in WAC 173-340-900 Table 740-1 and are applicable for simple sites undergoing routine cleanup actions, or sites with relatively few hazardous substances. Method B CULs have been applied in cases where Method A CULs are unavailable. Method B CULs are applicable to all sites; generic default assumptions are used to calculate risk-based screening levels protective against direct contact via ingestion or dermal contact by humans, with target risk levels set at the MTCA acceptable risk level. In cases where cancer and noncancer effects values are available for a chemical,

the lower value is applied. Finally, metals concentrations are compared with natural background values.

6.2 Groundwater Seep Water, and Stormwater

As discussed in Section 4.2, groundwater likely discharges to the Chehalis River. Groundwater, seep water, and stormwater concentrations are therefore compared with surface water screening levels protective of human health and aquatic receptors. Specifically, water chemistry data are compared to the most stringent USEPA freshwater[2] National Recommended Water Quality Criteria (WQC) for the protection of aquatic life and human health in surface water (USEPA, 2019). Where WQC were not available, water data were compared to MTCA Method B screening surface water CULs. In cases where cancer and noncancer effects Method B CULs are available for a chemical, the lower value is applied. For TPH, the Method A CUL for groundwater was used. Note that groundwater is not used for drinking at the leased Property.

The seep sample results likely represent groundwater as it discharges to surface water and are also evaluated against the surface water screening levels.

6.3 Sediment

Sediment screening levels protective of ecological receptors and human health are described in the following sections. Sediment background conditions reflecting natural and/or regional sources are considered in the screening level development, consistent with recommendations and guidance provided in Ecology (2017).

6.3.1 Risk-based Benthic Criteria

Washington SMS marine benthic criteria are appropriate for marine and low-salinity sediments and were developed from regional databases that included a broad suite of metals and organics concentrations, as well as toxicity data for a variety of different tests and endpoints. The marine criteria were developed using the Apparent Effects Threshold (AET) approach. AETs were calculated separately based on biological testing toxicity and associated endpoints, with the lowest AET informing the SCO criteria representing a no-adverse-effects level for benthic communities, including no acute or chronic adverse direct toxicity effects. The second-lowest AET informs the CSL criteria representing a minimum-adverse-effects level for benthic communities.

The SMS marine SCO and CSL values are based on dry weight (dw) AETs for metals and polar organics and on AETs normalized to TOC for nonpolar organics (WAC 173-204-562). At sample locations where the TOC content is outside the range considered normal (i.e., 0.5 to 3.5 percent) it is recommended that nonpolar organics not be organic carbon-normalized (OC). It is recommended instead that the sample dw concentrations be compared with the dw AETs for nonpolar organics, as provided in Ecology (2017).

[2] According to Ecology's "Water Quality Atlas" application, waters in the vicinity of the site are considered to be fresh for the purposes of water quality criteria (Ecology, 2016).

Consistent with the above, the leased Property sediment data are compared with the applicable SCO and CSL (dw or OC) values to determine the potential for adverse effects to benthic receptors.

6.3.2 Background Concentrations

Developing site-specific risk-based CULs for human fish consumption, or ecological bioaccumulation risk pathways for bioaccumulative chemicals, requires site-specific sediment and tissue data to calculate a biota-sediment accumulation factor. No such data are available for the site. Even when site-specific data are available, risk-based screening levels for fish consumption are often below natural or regional background levels, or below laboratory practical quantitation limits, regardless of the exposure assumptions. In these situations, Ecology recommends using regional or natural background sediment concentrations for CULs of bioaccumulative chemicals for these pathways (Ecology, 2017).

To evaluate nearby concentrations of these compounds, existing Chehalis River sediment data collected within 1 mile of the leased Property were queried from Ecology's EIM database; 33 samples were identified, at 27 locations (see Table 6-1 and Figure 6-1). Minimum, maximum, and average concentrations are summarized below. Note that data from the nearby Chehalis River sediment are used for comparison purposes only, and the evaluation below is not considered a robust assessment of natural background or ambient concentrations:

- Twenty-five of the samples were analyzed for PCB Aroclors. These were not detected in any of the samples evaluated; however, many reporting limits were elevated compared to those currently achievable and attained for leased Property samples. Reporting limits ranged from 0.64 ug/kg to 69 ug/kg, with an average reporting limit of 21.5 ug/kg.
- Fourteen of the samples were analyzed for dioxins. Dioxin TEQs were calculated for the EIM data, resulting in a minimum TEQ of 0.35 pg/g, a maximum TEQ of 13 pg/g, and an average TEQ of 3.72 pg/g.
- Thirty-three of the samples were analyzed for mercury. Mercury concentrations ranged from not detected at a reporting limit of 0.02 milligram per kilogram (mg/kg) to a maximum concentration of 0.14 mg/kg. The average mercury concentration detected was 0.05 mg/kg.
- Thirty of the samples were analyzed for PAHs. PAHs were not detected in six samples. Three samples had anomalously high concentrations (more than 500 ug/kg) and were removed from consideration as background samples. Carcinogenic PAH (cPAH) TEQs were calculated, resulting in a minimum TEQ of 3 ug/kg and a maximum of 74 ug/kg. The average concentration of detections was 29.2 ug/kg.

This evaluation shows that diffuse background sources, such as atmospheric deposition or stormwater, may affect leased Property sediments. Therefore, risk-based fish ingestion screening levels and ecological screening levels for bioaccumulatives are not developed. However, human sediment direct contact and incidental ingestion screening levels for bioaccumulatives are often above background levels, and these are described in the following section. The need for additional risk-based criteria will be evaluated as part of the RI.

6.3.3 Sediment Direct Contact and Incidental Ingestion

This section describes the development of screening levels protective of a hypothetical recreationist exposed to sediments via direct contact and incidental ingestion. While exposure to sediments under current and future scenarios is anticipated to be occasional and incidental (see Section 5.4), development plans for the leased Property may evolve over time, and the exposure scenario is considered potentially complete. Specifically, the current evaluation accounts for a child's exposure to sediment while playing on the beach. Potential exposure to fishers through incidental ingestion or through direct contact while harvesting fish or shellfish is not evaluated at this time.

Sediment direct contact and incidental ingestion screening levels are developed for widespread bioaccumulative chemicals (PCBs, dioxins, mercury, and cPAHs) that are typically above natural background (Ecology, 2017) and are listed as persistent bioaccumulative toxins (WAC-173-333-310). Bioaccumulative chemicals have the potential to result in adverse effects as a result of repeated, long-term exposure. Models for deriving screening levels were developed for these chemical classes, using chemical-specific model parameters; results are provided in Appendix E. The screening levels protective of the child beach play scenario for cancer effects were calculated consistent with WAC 173-340-740 equation 740-5 and Equation 9-1 in Ecology (2017), using exposure parameters from Table 9-1 from Ecology (2017). Most of the screening levels were developed using the approach presented in SCUM II; screening levels for PCBs[3] were developed using toxicity values from the CLARC database.

$$SL_C = \frac{ARLc * BW * AT}{EF * ED[(IR * AB * SFo)/10^6\ mg/kg) + (SA * AF * ABS * SFd)/10^6\ mg/kg)]}$$

where:

SL_C is the sediment screening level for recreationists (mg/kg);

ARL_C is the acceptable risk level for individual carcinogens (unitless, $1*10^{-6}$);

BW is the body weight over the exposure duration (16 kg);

AT is the averaging time (75 years, or equivalently 23,375 days);

EF is the exposure frequency (41 days);

ED is the exposure duration (six years);

IR is the sediment ingestion rate (200 mg/day);

AB is the gastrointestinal absorption factor (unitless, chemical-specific);

SFo is the oral cancer potency factor ($[mg/kg\text{-}day]^{-1}$, chemical-specific);

GI is the gastrointestinal absorption conversion factor (unitless, chemical-specific);

SA is the dermal surface area (2,200 square centimeters [cm^2]);

[3] Ecology (2017) evaluates PCBs as congeners. Congener data are unavailable for the site, and the toxicity factor for PCBs as Aroclors from the CLARC database was applied.

AF is the adherence factor (0.2 mg/cm^2/day);

ABS is the dermal absorption fraction (unitless, chemical-specific); and

SFd is the dermal cancer potency factor ([mg/kg-day]$^{-1}$, derived as SFo/GI).

The resulting screening levels are 3,100 ug/kg for total PCBs, 100 pg/g for dioxin TEQ, and 850 ug/kg cPAH TEQ, protective against cancer effects. In addition, Ecology (2015) provides a screening level of 64 mg/kg for mercury (as methylmercury), based on noncancer effects.

Note that for PCBs, dioxins, and cPAHs, the noncancer-effects screening levels are higher (i.e., are less protective) than the cancer-effects screening levels (Ecology, 2015). The values derived above are therefore protective against both the cancer and noncancer endpoints. There is some uncertainty associated with several model parameters, including the exposure frequency and duration, the sediment ingestion rate, and the adherence factor. However, all model parameters are based on Ecology (2015) recommendations, and the screening levels are expected to be protective for a reasonable maximum exposure scenario of child beach play. Note that comparing a total mercury concentration to a methylmercury screening level will err on the side of being overly protective; this comparison assumes that 100 percent of the total mercury measured is in the form of methyl mercury, which is typically not the case.

6.3.4 Woodwaste Scoring

Three samples collected in 2013 containing more than 25 percent woodwaste by volume (Birkland, 1999) were analyzed for conventional sediment parameters, including total solids, total volatile solids, and TOC. The percent woodwaste volume was determined in the field by a geologist, based on visual observations, consistent with Unified Soil Classification System procedures. These parameters, along with other chemical analytes, including phenol, ammonia, and sulfide, are used to score each location according to Table A-3 of the draft DNR guidance (Integral, 2011). In addition, a surface (0 to 0.33 foot bml) sample was collected in 2015 (CR19D-SSD-CONV) for conventional parameters to inform whether buried woodwaste has the potential to significantly affect overlying surface sediments; significant woodwaste was observed in the subsurface beginning at approximately 4.2 feet bgs at this location. Woodwaste scores are tallied based on sediment parameter values and can result in determinations ranging from "Low Concern" to "High Concern."

7 ANALYTICAL RESULTS

Laboratory analyses of the 2015 investigation samples were performed by Analytical Resources, Inc. (ARI) in Tukwila, Washington, and NVL Laboratories in Seattle, Washington. Laboratory analytical reports are provided as Appendix F. 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 (USEPA, 2014a,b,c) and appropriate laboratory and method-specific guidelines (ARI, 2014; USEPA, 1986). The data validation memoranda summarizing data evaluation procedures, data usability, and deviations from specific field

and/or laboratory methods for the August 2015 investigation data are included as Appendix G. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

Data collected between 2011 and 2015 are evaluated below. Table 7-1 summarizes the samples collected, locations, depths, and analyses performed.

7.1 Soil

Soil borings were advanced to approximately 5 feet bgs in the area immediately upgradient of the pocket beach and tidelands area (sample locations CR 20 through 23 and SB 1 through 6; see Figure 2-1). Since woodwaste was observed at all boring locations, one subsurface soil sample from each location was analyzed for COIs (see Table 3-1). Metals, PCBs, SVOCS, TPH, and dioxins/furans were detected in one or more samples. Soil analytical results and screening levels summarized in Table 7-2 are as follows:

- Except for chromium, metals are below the soil screening levels at all locations; however, concentrations are below Washington state-wide natural background conditions of 42 mg/kg (Ecology, 1994).
- Total PCBs were detected at CR-20 and CR-21. CR-20 (2,170 ug/kg) exceeds the soil screening level between 3.3 and 5 feet bgs, whereas CR-21 (163 ug/kg) between 3.5 and 5 feet bgs is well below the screening level of 1,000 ug/kg. PCBs were not detected at CR-22 and CR-23.
- SVOCs were generally not detected or are well below the screening levels, with the following exceptions: benzo(a)pyrene and cPAH TEQ exceedances at CR-20 and CR-21 between approximately 3.5 and 5 feet bgs. The results are less than an order of magnitude above the screening levels. Note that cPAH TEQs were not calculated for soil locations SB4, SB5, and SB6 because PAH reporting limits were significantly elevated.
- Soil concentrations for lube-oil-range TPH exceed the screening level at CR-20 and CR-21 between approximately 3.5 and 5 feet bgs, and at SB6 between 1.5 and 5 feet bgs. Note that SB6 is outside the leased Property boundary.
- Low-level dioxins lower than the screening level were detected at CR-21 and CR-23 (from 3.5 to 5 feet bgs and 1.5 to 3 feet bgs, respectively) and in composites from locations SB1 through SB6. Dioxin TEQs at CR-20 (90 pg/g) between 3.3 and 5 feet bgs and at CR-22 (35.8 pg/g) between 3 and 4.5 bgs are above the soil screening level of 13 pg/g.

Subsurface impacts associated with multiple COIs were observed at CR-20 and CR-21, located immediately south of the pocket beach inlet and within the Former Mill Area footprint. CR-22 and CR-23 are located northeast of the Former Mill Area footprint, in a former tidal flat area that has been filled. With the exception of low-level dioxins at CR-22, no impacts were observed at these locations.

Note that outside the leased Property boundary, at SB6, TPH exceeded CULs, and chemicals typically associated with TPH, such as PAHs, were not detected at elevated reporting limits.

7.2 Groundwater, Seep Water, and Stormwater

Reconnaissance groundwater samples were collected from four boring locations (CR-20, CR-21, CR-22, and CR23) to evaluate potential upgradient sources to the pocket beach. Five-foot temporary well screens were installed in each boring location. An opportunistic seep sample was also collected from the pocket beach area to assess whether discharge is representative of groundwater. One stormwater sample was collected (STORM-01). Collection conditions for this sample (i.e., conditions of runoff, drain location, and whether before or after drains were cleaned) will be determined during RI activities.

Groundwater data will be compared to groundwater screening levels as part of the upland RI. Based on the potential for discharge to the river, groundwater, seep water, and stormwater results were compared to surface water screening levels (see Section 6.2 for screening level discussion). The analytical data, associated screening levels, and results of the screening are summarized in Table 7-3 for groundwater, seep water, and stormwater. Summarized results of the screening are as follows:

- Groundwater and seep water:
  - Dissolved metals were not detected in groundwater or seep water. Total mercury was detected below the screening level at CR-21 and CR-22. Total chromium was detected at all groundwater locations except CR-20, at concentrations below the surface water screening level.
  - Total PCBs were non-detect at all locations.
  - SVOCs were not detected above the screening levels.
  - Diesel-range and/or lube-oil-range TPH concentrations exceed the screening levels at all locations for groundwater. Diesel-range and/or lube-oil-range TPH concentrations were detected in seep water. During future[upcoming?] investigations, the chromatograms will be requested from the laboratory to ensure that there are no biogenic interferences from woodwaste.
  - Dioxins/furans were not detected in any of the groundwater or seep water samples.
- Stormwater:
  - Dissolved chromium and zinc were detected below screening levels in stormwater. Total arsenic, chromium, copper, lead, mercury, and zinc were detected in the stormwater sample. The total arsenic level was above the human health WQC for surface water.
  - Total PCBs were non-detect at all locations.
  - SVOCs were not detected.
  - Diesel-range and/or lube-oil-range TPH concentrations were not detected in stormwater.

- Dioxins/furans were detected in the stormwater sample. The dioxin TEQ for the stormwater sample exceeded the human health WQC for 2,3,7,8-TCDD; however, it is noted that the result is well below the USEPA maximum contaminant level of 30 micrograms per liter.

COI concentrations in groundwater are generally non-detect or below the surface water screening levels, with the exception of total chromium, 1-methylnaphthalene, and TPH. Groundwater at the leased Property is not used for drinking water and therefore no associated risks are expected; groundwater potability will be evaluated as part of the upland RI work.

The results show that certain COIs detected in soil do not appear to leach to groundwater in appreciable amounts, e.g., PCBs and benzo(a)pyrene exceeded soil screening levels and were not detected in groundwater. In contrast, TPH was detected in both media, and groundwater discharge may constitute an ongoing source to the pocket beach river area. TPH was also detected in seep water; however, the seep concentrations are an order of magnitude lower than in groundwater (see Table 7-3), and may reflect some attenuation of groundwater before it reaches surface water and sediments.

7.3 Sediment

Surface and subsurface sediment samples were collected in multiple areas of interest within the leased Property and were analyzed for COIs. Sediment results were compared to the applicable SMS criteria (SCOs and CSLs), as well as background conditions (see Section 6.3.2) and direct-contact and incidental-ingestion screening levels (see Section 6.3.3). In some cases, conventional sediment parameters were analyzed to determine potential toxicity effects associated with woodwaste (see Section 6.3.4). Sediment analytical results are shown in Table 7-4 (dw basis as reported by the laboratory). Table 7-5 shows the data screening; data are presented as dw or OC, as dictated by the associated TOC content and SMS criteria (see Section 6.3.1). Sediment chemical exceedances are shown on Figure 7-1. The results are described in the following subsections by area of interest.

7.3.1 Former Mill Area/Pocket Beach

Surface and subsurface sediment samples were collected at multiple locations in the Former Mill Area/pocket beach (CR-04 through CR-06 and CR-11 through CR-14), as well as along transects (transects CR-15, -17, -18, and -19) that extend north and east of this area (see Figure 2-1). CR-04 through CR-06 samples were collected within the pocket beach fill. CR-04 was collected at three depths (0 to 0.33 foot, 1 to 2.5 feet, and 2.5 to 5 feet). CR-05 was collected at two depths (0 to 0.33 foot and 0.33 to 2.5 feet), and CR-06 was collected at two depths (0 to 0.33 foot and 1 to 2.5 feet). To determine if the substrate is clean, CR-11 through CR-14 were collected below the fill material, at depths ranging from 11 to 23 feet. CR-15 through CR-19 are transects taken in the shallow fill north of the pocket beach, each collected at two depths (0 to 0.33 foot and 0.5 to 1 foot). Woodwaste accumulation was observed at multiple locations (see Table 3-3 and Figure 4-2). Surface sediments are the point of compliance under the SMS; however, for discussion purposes, subsurface results are also compared with screening levels. Metals, PCBs, SVOCS, TPH, and dioxins were detected. Sediment analytical results and screening levels, summarized in Table 7-5, are as follows:

- Total metals are non-detect or are below the benthic sediment screening levels in surface and subsurface sediment samples impacted by woodwaste (locations CR-04, CR-05, and CR-06), with the following exceptions:
  - Mercury at CR-04 and CR-06. Mercury marginally exceeds the SCO (0.41 mg/kg dw), but not the CSL (0.59 mg/kg dw) in surface sediment at CR-06, whereas both criteria are exceeded in surface sediment at CR-04 (6.2 mg/kg dw). Mercury was also previously found to exceed SCO levels in 2011 in this area in sample locations SSFM2 and SSFM3 in the surface and subsurface.
  - Zinc exceeded the SCO, but not the CSL, in one sample collected in 2011 at location SCFM2 between 0 and 2.7 feet bml. Zinc concentrations did not exceed screening levels in the more recent, 2013 and 2015, sampling events.

  Total metals are non-detect or are below the SCO and CSL in subsurface samples collected just beyond the vertical extent of woodwaste impacts observed (e.g., CR-14) and in samples collected beyond the lateral extent of impacts (e.g., CR-18B).

  Mercury is well below the beach direct-contact screening level of 64 mg/kg dw in all sediment samples.

- In surface samples collected from locations impacted by woodwaste (CR-04 CR-05, and SCFM3A), total PCBs exceed the SCO (evaluated on a dw basis because of elevated TOC) but are below the CSL. Concentrations generally increase with depth (as observed in samples taken up to approximately 2.5 feet bml) in these samples.

  Total PCBs were not detected or were detected at concentrations below the SCO and the CSL in surface and subsurface sediment samples collected beyond the vertical or lateral extent of woodwaste impacts.

  Total PCBs are below the beach direct-contact screening level of 3,100 ug/kg dw in all sediment samples.

- Several SVOCs, including PAHs in some cases, exceeded the SCO and/or CSL in surface sediment at locations impacted by woodwaste (CR-04, CR-05, SSFM2 and SCFM3). SVOCs were not analyzed in surface sediment at CR-06 where woodwaste impacts were observed; SCO and CSL exceedances were observed at 1 to 2.5 feet bml at CR-06. Concentrations generally increase with depth (to approximately 2.5 feet bml) in these samples.

  SVOCs and PAHs are non-detect or are below the sediment screening levels in surface and subsurface sediment in all other samples collected beyond the vertical or lateral extent of woodwaste impacts, with the exception of 4-methyphenol at CR-12 at 15 feet bml.

  The cPAH TEQs are below the beach direct-contact screening level of 850 ug/kg dw in all surface sediment samples.

- The average dioxin TEQ concentration of 46.1 pg/g dioxin TEQ in surface locations impacted by woodwaste (i.e., at CR-04 through CR-06) is consistent with dioxin TEQs previously reported for this area (68 pg/g in 2011). Concentrations increase with depth (to approximately 2.5 feet bml, the maximum depth analyzed) at CR-04 but not at CR-06.

Surface sediment concentrations (average of 8.55 pg/g dioxin TEQ) are low level in surface samples collected beyond the lateral extent of woodwaste impacts (e.g., to the north and east of the Former Mill Area at CR-15C, CR-17D, CR-18B, and CR-19F). Similarly, the sample collected beyond the vertical extent of impacts at CR-11 (23 feet bml) is low level (2.38 pg/g).

Surface sediment concentrations are well below the beach direct-contact screening level of 100 pg/g dioxin TEQ.

- TPH was detected in the diesel- and motor-oil range in all samples collected at locations impacted by woodwaste (CR-04 and CR-06). All surface sediment locations except CR-05 were above the MTCA A soil residual saturation screening level (i.e., 2,000 mg/kg) and the diesel-range SMS freshwater sediment CSL (i.e., 510 mg/kg). Note that sheen, petroleum-hydrocarbon-like odor, and dark-colored water or water-NAPL mixtures were observed below approximately 1 foot bml at all these locations during the 2013 investigation, and concentrations typically increase with depth (to approximately 2.5 feet bml). During the 2015 investigation, sheen and associated NAPL were observed in subsurface (9 to 12 feet bml) woodwaste accumulations at borings CR-11, CR-12, and CR-14. The shallow NAPL impacts described during the 2013 investigation were not observed in the pocket beach area during the 2015 investigation, likely because of poor surface sediment recovery by the GeoProbe drill rig.

  TPH concentrations observed during the 2015 investigation in locations not impacted by woodwaste are well below the freshwater sediment CSL (510 mg/kg) in the sample collected beyond the vertical extent of impacts (CR-11, 23 feet bml) and are non-detect or are well below the freshwater CSL in surface samples collected beyond the lateral extent of woodwaste impacts (i.e., at CR-15C, CR-17D, CR-18B, and CR-19F, located north and east of the Former Mill Area). No NAPL was observed at these locations.

As a whole, the results show that sediment concentrations (for mercury, PCBs, and/or SVOCs including PAHs) generally exceed SCOs or CSLs and appear to correlate with areas impacted by significant woodwaste accumulation. However, further evaluation will be needed to determine to what extent sediment and woodwaste impacts correlate spatially. Concentrations of mercury, PCBs, cPAH TEQ, and dioxin TEQ are elevated relative to nearby Chehalis River samples (found in the EIM database) that may represent background condition (see Section 6.3.2). TPH is also elevated, and water-NAPL mixtures were observed. Surface sediment concentrations are below the human health beach direct-contact screening levels, and unacceptable risks via this pathway are not expected.

Samples were also collected for analysis at locations where woodwaste was not observed, including subsurface samples beyond the vertical extent of woodwaste impacts and surface sediment samples beyond the lateral extent of woodwaste accumulations. Chemical concentrations are typically below the SMS criteria in the subsurface samples where sediment with no woodwaste was encountered (i.e., samples CR-11 through CR-14). The lateral extent sample locations (CR-15C, CR-17D, CR-18B, and CR-19F) are north and east of the Former Mill Area, and the results show no exceedances of the SMS criteria or direct-contact screening levels in all samples (surface and near surface). In addition, PCBs were generally non-detect and cPAH and dioxin TEQs (average of 47 ug/kg and 8.55 pg/g, respectively) are similar to concentrations observed in other parts of the river (average TEQ of 29.2

ug/kg and 3.72 pg/g, respectively). These results therefore help delineate the northern lateral extent (also see the Wharf Area results discussed below) as well as the eastern lateral extent (also see the Tidelands/Beach Area and Shannon Slough results below) of chemical impacts (see Figure 7-1).

There is a need to profile the pocket beach area to inform waste disposal options. Specifically, toxicity characteristic leaching procedure evaluation of mercury and lead in sediments will be needed. In addition, the northern extent of elevated contaminant concentrations is not well-defined. Samples collected farthest north were analyzed and are below screening levels; however, additional sampling to the south (near the inner pocket beach) is needed to refine the extent. This will be evaluated as part of RI activities.

7.3.2 Lumber Shed Area

Two surface composite samples were collected in the lumber shed area (CR-07 and CR-24; see Figure 2-1). Metals, PCBs, SVOCS, and TPH were detected. Woodwaste is absent or was observed in trace amounts at all locations (see Table 3-3). Analytical results and screening levels, summarized in Table 7-5, are as follows.

- Total metals are non-detect or are below the benthic and beach direct-contact sediment screening levels.
- Total PCBs were detected at CR-24 (54 ug/kg dw; 3,462 ug/kg OC) at concentrations well below the OC SMS criteria and the direct-contact screening level (3,100 ug/kg dw). PCBs were not detected at CR-07.
- SVOCs were not detected or are well below the sediment screening levels, including the cPAH TEQ beach direct-contact screening level of 850 ug/kg dw.
- TPH was detected in the diesel- and motor-oil range in both samples at concentrations below the MTCA A soil residual saturation screening level (i.e., 2,000 mg/kg) and the freshwater sediment CSL (510 mg/kg).

The results show that sediment concentrations are below the benthic and beach direct-contact screening levels in this area. The PCB detection is consistent with the range of reporting limits (0.64 ug/kg to 69 ug/kg) for Chehalis River samples in the vicinity (see Section 6.3.2) and is somewhat higher than other investigation areas where PCBs were not detected. Similarly, the cPAH TEQ concentrations (average of 119 ug/kg) are somewhat elevated relative to nearby river concentrations (average TEQ of 29.2 ug/kg).

7.3.3 Wharf Area

A subsurface (0.5 to 1 foot bml) sample was collected at CR-26 in the wharf area in 2015 (see Figure 2-1), while several composites were collected in surface sediment in 2011 below the Wharf (DNR-SSDD-COMP, DNR-SSDF-COMP, DNR-SSDU-COMP, and DNR-SSD-SUPCOMP samples [the last sample is a composite of the original three samples]). Woodwaste was not observed in this area (see Table 3-3). Surface sediments are the point of compliance under the SMS; subsurface

concentrations are evaluated relative to SMS criteria for context only. Metals and SVOCS were detected. Analytical results and screening levels are summarized in Table 7-5 and are as follows.

- Total metals were non-detect or are below the benthic and beach direct-contact sediment screening levels.
- PCBs were not detected.
- SVOCs were not detected or are well below the sediment benthic screening levels, with the exception of benzyl alcohol and butyl benzyl phthalate. The concentration of benzyl alcohol (64 ug/kg dw) marginally exceeds the SMS SCO (57 ug/kg dw) and is below the SMS CSL (73 ug/kg dw). The butyl benzyl phthalate concentration (5,000 ug/kg-OC) marginally exceeds the SCO of 4,900 ug/kg-OC and is well below the CSL of 64,000 mg/kg-OC. The cPAH TEQ (17 ug/kg) is below the direct-contact screening level of 850 ug/kg dw.

The results show that sediment concentrations are generally below screening levels in this area, with the exception of butyl benzyl phthalate and benzyl alcohol, which marginally exceed the SMS SCO. The cPAH TEQ concentration is low level and similar to nearby river concentrations (average TEQ of 29.2 ug/kg).

7.3.4 Former Boiler Area

Surface and subsurface composite samples were collected at two locations in the Former Boiler area (see Figure 2-1)—specifically, two surface composites (CR08A and CR08B), and one core sample from below the visible woodwaste in each composite sample area. Significant woodwaste accumulation was observed to 18 feet deep in the core from CR-08A and to 7 feet deep in the core from CR-08B (see Table 3-3). Metals, PCBs, SVOCS, TPH, and dioxins were detected. Analytical results and screening levels, summarized in Table 7-5, are as follows:

- Total metals are non-detect or are below the benthic and beach direct-contact sediment levels in surface and subsurface sediment.
- Total PCBs were detected in surface sediment at CR-08B (14 ug/kg dw; 683 ug/kg OC) at concentrations well below the OC SMS criteria and the beach direct-contact screening level. PCBs were not detected in the subsurface or in surface sediment at CR-08A.
- SVOCs were not detected or are well below the sediment screening levels, with the exception of butyl benzyl phthalate in surface sediment at CR-08B. The concentration exceeds the SMS SCO and is below the SMS CSL. The cPAH TEQs (range: 56 to 106 ug/kg) are below the beach direct-contact screening level of 850 ug/kg dw.
- Dioxin TEQs ranged from 17.6 pg/g to 30.4 pg/g in surface sediment; subsurface concentrations are lower (approximately 5 pg/g). The concentrations are well below the direct-contact screening level of 100 pg/g dioxin TEQ.
- TPH was detected in the diesel- and motor-oil range in surface and subsurface samples at concentrations (ranging from 26 to 320 mg/kg dw) below the MTCA A soil residual

saturation screening level (i.e., 2,000 mg/kg) and the freshwater sediment SCO (340 mg/kg).

The results show that surface sediment concentrations are generally below screening levels in this area, with the exception of butyl benzyl phthalate, which exceeds the SMS SCO at CR-08B. The PCB detection is low level and consistent with the range of reporting limits (0.64 ug/kg to 69 ug/kg) reported for Chehalis River samples in the vicinity (see Section 6.3.2), whereas surface sediment cPAH and dioxin TEQ concentrations are slightly elevated when compared to nearby river concentrations (average TEQ of 29.2 ug/kg and 3.72 pg/g, respectively).

7.3.5 Tidelands and Beach Area

Two surface composite samples were collected in this area (CR-09A and CR-09B; see Figure 2-1). Significant woodwaste accumulation was observed to the full depth of the 2-foot cores at CR-09A, and to a lesser extent in the 2-foot cores at CR0-9B (see Table 3-3). Metals, SVOCS, and dioxins were detected. Analytical results and screening levels are summarized in Table 7-5 and are as follows:

- Total metals are non-detect or are below the benthic and beach direct-contact sediment levels at all locations.
- Total PCBs were not detected.
- SVOCs were not detected or are well below the sediment benthic screening levels, with the exception of benzyl alcohol in surface sediment at CR-09B. The concentration (58 ug/kg dw) marginally exceeds the SMS SCO (57 ug/kg dw) and is below the SMS CSL (73 ug/kg dw). The cPAH TEQs (average of 16 ug/kg) are below the beach direct-contact screening level of 850 ug/kg dw.
- Dioxin TEQs ranged from 6.10 pg/g to 7.92 pg/g in surface sediment. The concentrations are well below the beach direct-contact screening level of 100 pg/g dioxin TEQ.

The results show that sediment concentrations are generally below screening levels in this area, with the exception of benzyl alcohol, which exceeds the SMS SCO at CR-09B. Surface sediment cPAH and dioxin TEQ concentrations are low level and are similar to nearby river concentrations (average TEQ of 29.2 ug/kg and 3.72 pg/g, respectively).

7.3.6 Shannon Slough

A composite surface sample (CR-10) was collected in the mouth of the slough (see Figure 2-1). Approximately 15 percent woodwaste (an amount not considered significant) was observed in all four composite points (see Table 3-3). Metals and SVOCS were detected. Analytical results and screening levels are summarized in Table 7-5 and are as follows:

- Total metals are non-detect or are below the benthic and beach direct-contact sediment screening levels.
- Total PCBs were not detected.

- SVOCs were not detected or are well below the benthic and beach direct-contact sediment screening levels.

The results show that sediment concentrations are below benthic and beach direct-contact screening levels in this area. The surface sediment cPAH TEQ concentration of 51 ug/kg is low level but slightly higher than nearby river concentrations (average TEQ of 29.2 ug/kg); samples from this area were not analyzed for dioxins.

7.3.7 Chehalis River (2013)

Three surface samples (CR-01 through CR-03) were collected in deeper water in the river in 2013 (see Figure 2-1). Woodwaste was not observed (in surface sediment) at these locations (see Table 3-3). Metals, PCBs, SVOCS, and dioxins were detected. Analytical results and screening levels are summarized in Table 7-5 and are as follows:

- Total metals are non-detect or are below the benthic and beach sediment screening levels at all locations.
- Total PCBs were not detected in CR-01 and CR-03. Total PCBs were detected in surface sediment at CR-02 (12 ug/kg dw; 374 ug/kg OC) at concentrations well below the OC SMS criteria and the beach direct-contact screening level.
- SVOCs were not detected or are well below the sediment screening levels, with the exception of 4-methylphenol in CR-02. The concentration (730 ug/kg dw) is marginally above the SMS SCO and CSL (670 ug/kg dw for both criteria). The cPAH TEQs (average of 19 ug/kg) are well below the beach direct-contact screening level of 850 ug/kg dw.
- Dioxin TEQs ranged from 12.2 pg/g to 15.6 pg/g in surface sediment. The concentrations are well below the beach direct-contact screening level of 100 pg/g dioxin TEQ.

The results show that sediment concentrations are generally below screening levels in this area, with the exception of 4-methylphenol at CR-02. Surface sediment cPAH TEQ concentrations (average of 19 ug/kg) are low level and are similar to nearby river concentrations (average TEQ of 29.2 ug/kg). Surface sediment dioxin TEQ is slightly elevated compared to nearby river concentrations (3.72 pg/g).

7.3.8 Woodwaste Scoring Results

The samples collected in 2013 in the Former Mill Area contained more than 25 percent woodwaste by volume and were scored for woodwaste impacts. Woodwaste was consistently observed under offshore of the GHHSA beneath sediment. The thickest layers of woodwaste beneath sediment were observed in the Former Boiler Area and in the pocket beach area of the Former Mill Area (see Figure 4-2). These areas both contain layers of woodwaste that are over 12 feet thick, buried beneath less than 5 feet of sediment. Farther from shore, both the woodwaste layer and the layer of overlying sediment generally become thinner.

Woodwaste scores, shown in Table 7-6, range from "Medium Concern" to "High Concern" at the Former Mill Area locations (CR-04 through CR-06). These results show potential for aquatic toxicity

associated with woodwaste in the Former Mill Area. In addition, a surface (0 to 0.33 foot bml) sample collected in 2015 (CR19D-SSD-CONV) was evaluated to inform whether buried woodwaste has the potential to significantly affect overlying surface sediments (see Section 6.3.4). Conventional parameters such as TOC and total volatile solids (TVS) are significantly lower at CR-19D, and this location scored as "Low Concern." The limited woodwaste-related data from the area to the east indicates that woodwaste-related toxicity in that area may not be of concern. The results also show that in areas where woodwaste is buried (in the case of CR-19D, woodwaste was observed approximately 4 feet bml), parameters associated with woodwaste and with potential for toxicity (i.e., ammonia and sulfides) may be found at concentrations similar to those measured in the Former Mill Area. Further, higher concentrations of chemicals associated with woodwaste (e.g., benzoic acid, phenols, benzyl alcohol, PAHs) are correlated with areas where more woodwaste was observed. Outside the Former Mill Area/pocket beach area, exceedances of these woodwaste-related chemicals in sediment were infrequent.

Additional woodwaste delineation efforts, and potential for associated toxicity, will be addressed as part of RI activities. Potential data gap areas include the area north of transect CR-19 and the area near the chip loader (chip area blower building vicinity). In addition, prior sampling focused on delineating the bottom extent of woodwaste, and additional data (and sampling approaches specific to that objective) refining the top of woodwaste extent may be needed. Specific approaches, including additional woodwaste physical extent sampling, bioassays, pore water sampling, and sediment chemistry, will be considered in addressing remaining data gaps.

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 3-1
Soil, Groundwater, and Seep Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Lithologic Description (bgs)	PID Reading (ppm)	Sample ID	Matrix	Depth (bgs)	Notes	Depth to Water (feet bgs)	Analytical Suite (Soil)	Analytical Suite (Water)
CR-20	**0.0 to 3.0 feet:** No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	3.0 to 3.3 feet: Clayey sand; dark brown; 40% fines, high plasticity; 40% sand; 20% gravel; trace organic material; moist.	NA	NA	NA	NA	NA	NA	NA	NA
	3.3 to 7.0 feet: Sandy gravel; brownish gray; 30% sand, fine to coarse; 70% gravel, medium to coarse, subangular. **@ 4.0 feet:** Clay lens; reddish brown. **@ 5.0 to 5.3 feet:** Wood waste; 80% wood waste, primarily large woodchips; 20% black silty sand.	NA	CR20-S-5.0 CR20-GW-5.0	S GW	3.3 to 5.0 feet 5.0 feet	Composited soil from 3.3 to 5.0 feet (above the wood waste) in order to obtain enough sample volume. PID instrument did not function for this boring because of rain. Temporary screen set from 3.0 to 8.0 feet.	4	Total Metals TPH PAHs Phenol PCBs Dioxins/Furans SVOC	Total Metals Dissolved Metals PCBs SVOC Mercury TPH
	7.0 to 7.5 feet: Concrete.	NA	NA	NA	NA	NA	NA	NA	NA
	7.5 to 10.0 feet: No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
CR-21	**0.0 to 3.0 feet:** No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	3.0 to 4.8 feet: Gravelly sand; brown; 10% fines, nonplastic; 40% sand, fine to medium; 50% gravel, subangular (rock fragments), medium to large; moist. **4.8 to 5.0 feet:** Wood waste; 80% wood waste, primarily large woodchips; 20% black silty sand.	102.9 at 4.0 feet bgs	CR21-S-5.0 CR21-GW-10.0	S GW	3.5 to 5.0 feet 10.0 feet	Composited soil from 3.5 to 5.0 feet (above the wood waste) in order to obtain enough sample volume. Temporary screen set from 5.0 to 10.0 feet.	4.8	Total Metals TPH PAHs Phenol PCBs Dioxins/Furans SVOC	Total Metals Dissolved Metals PCBs SVOC Mercury TPH
	5.0 to 8.5 feet: No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	8.5 to 10.0 feet: Silty sand; blackish brown; 30% fines, nonplastic to medium plasticity; 50% sand, fine to medium; 20% gravel, medium, subrounded; wet.	53.5 at 8.5 feet bgs	NA	NA	NA	NA	NA	NA	NA

Table 3-1
Soil, Groundwater, and Seep Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Lithologic Description (bgs)	PID Reading (ppm)	Sample ID	Matrix	Depth (bgs)	Notes	Depth to Water (feet bgs)	Analytical Suite (Soil)	Analytical Suite (Water)
CR-22	**0.0 to 2.0 feet:** No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	2.0 to 3.0 feet: Well graded sand; brown; 20% fines, nonplastic; 60% sand, fine to coarse; 20% gravel, subangular; rock shards, some organic material.	NA	NA	NA	NA	NA	NA	NA	NA
	3.0 to 4.5 feet: Silty sand; reddish brown; 40% fines, medium plasticity; 60% sand, coarse; trace gravel. **4.5 to 4.8 feet:** Wood waste lens, primarily bark chips and large wood chips.	2.0 at 3.0 feet bgs	CR22-S-3.0 CR22-GW-9.0	S GW	3.0 to 4.5 feet 9.0 feet	Composited material from 1.5 to 3.0 feet to obtain sufficient sample volume for soil sample. Temporary screen set from 4.0 to 9.0 feet bgs.	4.7	Total Metals Phenol PAHs PCBs SVOC Mercury TPH Dioxins/Furans	Total Metals Dissolved Metals PCBs SVOC Mercury TPH
	4.8 to 5.0 feet: Poorly graded sand; gray; 10% fines; 90% sand, medium, poorly graded; saturated (FILL).	NA	NA	NA	NA	NA	NA	NA	NA
	5.0 to 7.0 feet: No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	7.0 to 8.0 feet: Poorly graded sand; gray; 10% fines; 90% sand, medium, poorly graded; saturated (FILL).	NA	NA	NA	NA	NA	NA	NA	NA
	8.0 to 9.0 feet: Wood waste.	NA	NA	NA	NA	NA	NA	NA	NA
	9.0 to 10.0 feet: Silt w/ wood waste; grayish brown; 70% fines, nonplastic; 30% wood waste, primarily bark chips.	8.8 at 10.0 feet bgs	NA	NA	NA	NA	NA	NA	NA
CR-23	**0.0 to 1.0 feet:** No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	1.0 to 1.5 feet: Gravelly silt; brown; 40% fines, high plasticity; 10% sand; 25% gravel, subrounded, large; 25% wood waste, primarily large woodchips and bark pieces.	NA	NA	NA	NA	NA	NA	NA	NA
	1.5 to 2.5 feet: Gravelly sand; grayish brown; 20% fines; 50% sand; 30% gravel, fine to medium, subrounded to subangular.	NA	CR23-S-3.0 CR23-GW-6.0	S GW	1.5 to 3.0 feet 6.0 feet	Composited material from 1.5 to 3.0 feet to obtain sufficient sample volume. Temporary screen set from 1.0 to 6.0 feet bgs.	4.8	Total Metals Phenol PAHs PCBs SVOC Mercury TPH Dioxins/Furans	Total Metals Dissolved Metals PCBs SVOC Mercury TPH
	2.5 to 3.0 feet: Gravel w/ sand; 10% fines, 20% sand; 70% gravel, fine to large.	30.8 at 2.5 feet bgs							
	3.0 to 4.0 feet: Poorly graded sand; gray; 20% fines; 70% sand, poorly graded, medium; 10% gravel (FILL).	57.7 at 4.0 feet bgs	NA	NA	NA	NA	NA	NA	NA

Table 3-1
Soil, Groundwater, and Seep Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Lithologic Description (bgs)	PID Reading (ppm)	Sample ID	Matrix	Depth (bgs)	Notes	Depth to Water (feet bgs)	Analytical Suite (Soil)	Analytical Suite (Water)
CR-23	**4.0 to 5.0 feet:** Wood waste; 80% wood waste; 20% gray sandy silt.	NA	NA	NA	NA	NA	NA	NA	NA
	5.0 to 7.5 feet: No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
	7.5 to 9.0 feet: Wood waste; 80% wood waste; 20% gray sandy silt.	NA	NA	NA	NA	NA	NA	NA	NA
	9.0 to 10.0 feet: Silt w/ wood waste; dark brown; 70% fines, medium plasticity; 30% wood waste, primarily bark chips.	NA	NA	NA	NA	NA	NA	NA	NA
SEEP-01	NA	NA	NA	Seep Water	NA	NA	NA	NA	PCBs SVOC Mercury TPH

NOTES:
bgs = below ground surface.
GW = groundwater.
ID = identification.
NA = not applicable.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyls.
PID = photoionization detector.
ppm = parts per million.
SVOC = semivolatile organic compound.
TPH = total petroleum hydrocrabons.

Table 3-2
Groundwater and Seep Water Field Parameters
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	CR-20	CR-21	CR-22	CR-23	SEEP-01
Sample Name:	CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	Seep-01
Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	10/12/2015
Collection Depth (temporary well screen midpoint, ft bgs):	5.5	7.5	6.5	3.5	0
Field Parameters					
Conductivity (uS/cm)	805	539	741	887	587
pH	6.82	5.75	5.99	6.10	6.52
Temperature (°C)	17.6	16.9	17.2	17.6	16.6
Turbidity (NTU)	20.3	107	118	196	5.51

NOTES:
°C = degrees Celsius.
ft bgs = feet below ground surface.
NTU = nephelometric turbidity units.
uS/cm = microsiemens per centimeter.

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
Lumber Shed							
CR-07	LS-01	**0.0 to 0.3 feet:** Sand w/ gravel; grayish brown; 60% sand, well graded but mostly coarse; 40% gravel, large, subrounded.	NA	LS01	0-0.33 feet bml	NA	***Archive***
	LS-02	**0.0 to 0.3 feet:** Silt; grayish brown; 80% fines, medium plasticity; 10% sand, 10% gravel, large, subrounded; trace wood waste.	NA	LS02	0-0.33 feet bml	NA	***Archive***
	LS-03	**0.0 to 0.3 feet:** Silt; grayish brown; 80% fines, medium plasticity; 10% sand, 10% gravel, large, subrounded; trace wood waste.	NA	LS03	0-0.33 feet bml	NA	***Archive***
	LS-04	**0.0 to 0.3 feet:** Sand w/ gravel; grayish brown; 60% sand, well graded but mostly coarse; 40% gravel, large, subrounded.	NA	LS04	0-0.33 feet bml	NA	***Archive***
	CR-07-SSD-COMP	NA	NA	LS04	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals TOC PAHs PCBs SVOC Mercury TPH ***Archive***
CR-24	LS-05	**0.0 to 0.1 feet:** Sand w/ cobbles; reddish brown.	NA	NA	NA	NA	NA
		0.1 to 0.3 feet: Sand; gray; 10% fines, 80% sand, poorly graded, medium; 10% cobbles, subrounded.	NA	LS05	0-0.33 feet bml	NA	***Archive***
	LS-06	**0.0 to 0.3 feet:** Silty clay; black; 80% fines, high plasticity; 10% sand, poorly graded, medium; 10% cobbles, subrounded.	NA	LS06	0-0.33 feet bml	NA	***Archive***
	LS-07	**0.0 to 0.3 feet:** Silty clay; grayish brown; 80% fines, high plasticity; 10% sand, poorly graded, medium; 10% cobbles, subrounded.	NA	LS07	0-0.33 feet bml	NA	***Archive***
	LS-08	**0.0 to 0.3 feet:** Silty clay; grayish brown; 80% fines, high plasticity; 10% sand, poorly graded, medium; 10% cobbles, subrounded.	NA	LS08	0-0.33 feet bml	NA	***Archive***
	CR-24-SSD-COMP	NA	NA	CR-24-SSD-COMP	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals TOC PAHs PCBs +J7+A8:J26+J7+A8:J26+J7+A8:J26+ A8:J26

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
Former Boiler							
	FB-01	**0.0 to 0.3 feet:** Silt; brownish black; 80% fines, 20% gravel, subrounded; trace organic and biological material, trace algae on surface sediment.	NA	FB01	0-0.33 feet bml	NA	***Archive***
	FB-02	**0.0 to 0.3 feet:** Silt; brownish black; 80% fines, 20% gravel, subrounded; trace organic and biological material.	NA	FB02	0-0.33 feet bml	NA	***Archive***
	FB-03	**0.0 to 0.3 feet:** Gravelly sand; reddish brown; 10% fines; 50% sand, medium to coarse; 40% gravel, fine to large, subrounded.	NA	FB03	0-0.33 feet bml	NA	***Archive***
	FB-04	**0.0 to 0.3 feet:** Silt w/ gravel; brown to black; 80% fines; 20% gravel, subrounded, medium to large. **@ 3 cm:** Thin, red-orange layer of iron staining.	NA	FB04	0-0.33 feet bml	NA	***Archive***
CR-08A	CR08A-SSD-COMP	NA	NA	CR08A-SSD-COMP	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Asbestos TPH Dioxins/Furans Archive
	CR08A-FB04	**0.0 to 3.0 feet:** No recovery.	NA	NA	NA	NA	NA
		3.0 to 5.0 feet: Sawdust; 80% sawdust, reddish brownish black; 20% sand, medium to coarse.	NA	NA	NA	NA	NA
		5.0 to 9.5 feet: No recovery.	NA	NA	NA	NA	NA
		9.5 to 15.0 feet: Sawdust; 80% sawdust, reddish brownish black; 20% sand, medium to coarse.	NA	NA	NA	NA	NA
		15.0 to 17.0 feet: No recovery.	NA	NA	NA	NA	NA
		17.0 to 18.3 feet: Sawdust; 80% sawdust, reddish brownish black; 20% sand, medium to coarse. **@ 17.0 to 17.2 feet:** Occasional brick shards.	NA	NA	NA	NA	NA

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-08A	CR08A-FB04	**18.3 to 20.0 feet:** Silty sand; gray; 40% fines, medium plasticity; 60% sand, fine to medium.	NA	CR08A-SBSD	18.3 -20.0 feet bml	Composited material from 18.3 to 20.0 feet in order to obtain sufficient sample volume	Total Metals TOC Phenol PAHs PCBs SVOC Mercury TPH Dioxins/Furans Archive
CR-08B	FB-05	**0.0 to 0.3 feet:** Silty sand; dark grayish brown; 40% fines, medium plasticity; 50% sand; 10% gravel; trace woody debris.	NA	FB05	0-0.33 feet bml	NA	***Archive***
	FB-06	**0.0 to 0.3 feet:** Silty sand; gray; 40% fines, medium plasticity; 60% sand; trace woody debris.	NA	FB06	0-0.33 feet bml	NA	***Archive***
	FB-07	**0.0 to 0.3 feet:** Silty sand; grayish brown; 40% fines, medium plasticity; 60% sand; trace gravel.	NA	FB07	0-0.33 feet bml	NA	***Archive***
	FB-08	**0.0 to 0.3 feet:** Silty sand; grayish brown; 40% fines, medium plasticity; 60% sand; trace gravel.	NA	FB08	0-0.33 feet bml	NA	***Archive***
	CR08B-SSD-COMP	NA	NA	CR08B-SSD-COMP	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Asbestos TPH Dioxins/Furans Archive
	CR08B-FB05	**0.0 to 3.5 feet:** No recovery.	NA	NA	NA	NA	NA
		3.5 to 7.0 feet: Sandy silt; gray; 50% fines; 30% sand, very fine; 20% wood waste, primarily sawdust and wood chips. **@ 4.5 to 4.6 feet:** Sawdust; 80% sawdust, 20% sandy silt.	NA	NA	NA	NA	NA

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-08B	CR08B-FB05	**7.0 to 10.0 feet:** Sandy silt; gray; 60% fines; 40% sand, very fine.	NA	CR08B-SBSD	8.0 feet bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury TPH Dioxins/Furans Archive
Chehalis River							
CR-01 (2013 Sample)	CR-01	**0.0 to 0.33 feet:** Gray silty sand (SM);, loose, trace organic debris.	NA	CR01-10cm	0-0.33 feet bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Dioxins/Furans
CR-02 (2013 Sample)	CR-02	**0.0 to 0.33 feet:** Gray to tan silty sand (SM);, loose, trace organic debris;, tan mottles.	NA	CR02-10cm	0-0.33 feet bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Dioxins/Furans
CR-03 (2013 Sample)	CR-03	**0.0 to 0.33 feet:** Gray silty sand (SM);, loose, trace organic debris.	NA	CR03-10cm	0-0.33 feet bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Dioxins/Furans

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
Beach Area							
CR-09A	BA-01	**0.0 to 2.0 feet:** 30% gravel, angular; 40% wood waste, sawdust, and bark; 30% silty sand, gray on top and reddish tan towards 2.0 feet.	NA	BA01-0-10cm BA01-10cm-1 BA01-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	BA-02	**0.0 to 2.0 feet:** 20% gravel, angular; 50% wood waste, sawdust, and bark; 30% silty sand, gray.	NA	BA02-0-10cm BA02-10cm-1 BA02-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	BA-03	**0.0 to 2.0 feet:** 20% gravel, angular; 50% wood waste, sawdust, and bark; 30% silty sand, gray.	NA	BA03-0-10cm BA03-10cm-1 BA03-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	BA-04	**0.0 to 2.0 feet:** 30% gravel, angular; 20% wood waste, sawdust and bark; 50% silty sand, gray.	NA	BA04-0-10cm BA04-10cm-1 BA04-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	CR09A-SSD-COMP	NA	NA	CR09A-SSD-COMP	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals TOC PAHs PCBs SVOC Mercury Dioxins/Furans Archive
CR-09B	BA-05	**0.0 to 2.0 feet:** 30% gravel, angular; 20% wood waste, sawdust, and bark; 50% silty sand, gray.	NA	BA05-0-10cm BA05-10cm-1 BA05-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	BA-06	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	BA06-0-10cm BA06-10cm-1 BA06-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	BA-07	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	BA07-0-10cm BA07-10cm-1 BA07-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	BA-08	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	BA08-0-10cm BA08-10cm-1 BA08-1-2	0-0.33 feet bml 0.33-1 ft bml 1-2 ft bml	NA	***Archive***
	CR09B-SSD-COMP	NA	NA	CR09B-SSD-COMP	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals TOC PAHs PCBs SVOC Mercury Dioxins/Furans Archive

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
Shannon Slough							
CR-10	SM-01	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	SM-01	0-0.33 feet bml	NA	***Archive***
	SM-02	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	SM-02	0-0.33 feet bml	NA	***Archive***
	SM-03	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	SM-03	0-0.33 feet bml	NA	***Archive***
	SM-04	**0.0 to 2.0 feet:** 30% gravel, angular; 15% wood waste, sawdust, and bark; 55% silty sand, gray.	NA	SM-04	0-0.33 feet bml	NA	***Archive***
	CR10-SSD-COMP	NA	NA	CR10-SSD-COMP	0-0.33 feet bml	Composite sample from all four sublocations	Total Metals Phenol TOC PAHs PCBs SVOC Mercury Archive
Former Mill Area and Chehalis River							
CR-04 (2013 Sample)	CR-04	**0.0 to 5.0 feet:** Tan sandy silt (ML) with 50% to 75% wood waste;, wet, medium density; pockets of dark-colored water/product mixture at 2.5 feet bml. Angular lumber and construction debris.	NA	CR04-10cm CR04-2.5 CR04-2.5-5	0-0.33 feet bml 1-2.5 ft bml 2.5-5 ft bml	Only conventionals analyzed at CR-04-2.5-5	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Dioxins/Furans TPH Conventionals
CR-05 (2013 Sample)	CR-05	**0.0 to 3.5 feet:** Tan silty sand (ML) with 10% to 80% wood waste under 4 mm; wet, medium density; pockets of black-colored water/product mixture. Angular lumber and construction debris.	NA	CR05-10cm CR05-2.5	0-0.33 feet bml 0.33-2.5 ft bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Dioxins/Furans TPH Conventionals

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-06 (2013 Sample)	CR-06	**0.0 to 5.0 feet:** Tan silty sand (ML) with 70% wood waste under 4 mm; wet, medium density; pockets of black-colored water/product mixture; angular lumber and construction debris.	NA	CR-06-10cm CR06-2.5	0-0.33 feet bml 1-2.5 ft bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Dioxins/Furans TPH Conventionals
CR-11	CR-11	**0.0 to 2.8 feet:** No recovery.	NA	NA	NA	NA	NA
		2.8 to 5.0 feet: Wood waste; tan to black; hydrocarbon-like odor.	NA	NA	NA	NA	NA
		5.0 to 5.8 feet: No recovery.	NA	NA	NA	NA	NA
		5.8 to 6.4 feet: Sand; gray; 100% sand, medium.	NA	NA	NA	NA	NA
		6.4 feet to 9.4 feet: Sandy silt; gray; 50% fines, plastic; 30% sand; 20% woody debris. **@ 8.8 feet:** Sand lens.	NA	NA	NA	NA	NA
		9.4 to 10.0 feet: Wood waste; 80% woodwaste; 20% gray sandy silt.	NA	NA	NA	NA	NA
		10.0 to 11.2 feet: No recovery.	NA	NA	NA	NA	NA
	CR-11	**11.2 to 22.5 feet:** Wood waste; 80% woodwaste; 20% gray sandy silt; wet. **@12.0 feet:** Sheen.	17.2 at 12.0 feet bgs	NA	NA	NA	NA
	CR-11	**22.5 to 25.0 feet:** Sandy silt; plastic fines.	6.4 at 25.0 feet bgs	CR11-SBSD-23	23	NA	Total Metals TOC PAHs PCBs SVOC Mercury TPH-Dx Dioxins/Furans Archive

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-12	CR-12	**0.0 to 2.8 feet:** No recovery.	NA	NA	NA	NA	NA
		2.8 to 5.0 feet: Wood waste; sawdust, lumber, some silt; sulfur odor; wet.	NA	NA	NA	NA	NA
		5.0 to 7.0 feet: No recovery.	NA	NA	NA	NA	NA
		7.0 to 10.0 feet: Wood waste; sawdust, lumber, some silt; sulfur odor; wet.	NA	NA	NA	NA	NA
		10.0 to 11.9 feet: No recovery.	NA	NA	NA	NA	NA
		11.9 to 12.3 feet: Wood waste; sawdust, lumber, some silt; sheen; sulfur odor; wet.	98.7 at 12.0 feet bgs	NA	NA	NA	NA
		12.3 to 13.8 feet: 80% silty sand; 20% wood waste.	NA	NA	NA	NA	NA
		13.8 to 15.0 feet: Sandy silt; gray; 60% fines, plastic; 40% sand, fine, micaceous.	10.1 at 15.0 feet bgs	CR12-SBSD-15	15	NA	Total Metals TOC PAHs PCBs SVOC Mercury Archive
CR-13	CR-13	**0.0 to 2.5 feet:** No recovery.	NA	NA	NA	NA	NA
		2.5 to 5.0 feet: Wood waste (lumber); slight sulfur odor; wet.	NA	NA	NA	NA	NA
		5.0 to 6.8 feet: No recovery.	NA	NA	NA	NA	NA
		6.8 to 8.7 feet: Wood waste (lumber); slight sulfur odor; wet.	NA	NA	NA	NA	NA
		8.7 to 10.0 feet: Sandy silt; gray; 60% fines, plastic; 40% sand, fine, micaceous.	2.0 at 8.0 feet bgs	NA	NA	NA	NA
		10.0 to 11.1 feet: No recovery.	NA	NA	NA	NA	NA
		11.1 to 15.0 feet: Sandy silt; gray; 60% fines, plastic; 40% sand, fine, micaceous.	1.7 at 11.0 feet bgs	CR13-SBSD-11	11	NA	Total Metals TOC PAHs PCBs SVOC Mercury Archive

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-14	CR-14	**0.0 to 1.5 feet:** No recovery.	NA	NA	NA	NA	NA
		1.5 to 5.0 feet: Tan sawdust; sulfur odor; wet.	NA	NA	NA	NA	NA
		5.0 to 7.2 feet: No recovery.	NA	NA	NA	NA	NA
		7.2 to 9.3 feet: Tan sawdust; sulfur odor; sheen and hydrocarbon product at bottom; wet.	102 at 8.0 feet bgs	NA	NA	NA	NA
		9.3 to 10.0 feet: Sandy silt; gray; 70% fines, plastic; 30% sand, fine; slight sulfur odor; slightly micaceous.	NA	NA	NA	NA	NA
		10.0 to 12.0 feet: No recovery.	NA	NA	NA	NA	NA
		12.0 to 15.0 feet: Sandy silt; gray; 70% fines, plastic; 30% sand, fine, micaceous.	0.0 at 14.0 feet bgs	CR14-SBSD-12	12	NA	Total Metals TOC PAHs PCBs SVOC Mercury Archive
NA	CR11-14-SBSD-COMP	NA	NA	CR11-14-SBSD-COMP	NA	Composite sample from CR11-14 sampled from within visual impacts.	TCLP Lead and Mercury ***Archive***
CR-15A	CR-15A	**0.0 to 4.5 feet:** No recovery.	NA	NA	NA	NA	NA
		4.5 to 5.0 feet: Sawdust.	NA	CR15A-5	5	NA	***Archive***
		5.0 to 7.0 feet: No recovery.	NA	NA	NA	NA	NA
		7.0 to 9.2 feet: Wood waste. 70% wood waste, primarily woodchips and sawdust; 30% blackish brown sandy silt.	NA	NA	NA	NA	NA
		9.2 to 9.5 feet: Sandy silt lens.	NA	NA	NA	NA	NA
		9.5 to 11.0 feet: Wood waste. 70% wood waste, primarily woodchips and sawdust; 30% blackish brown sandy silt.	NA	CR15A-11	11	NA	***Archive***
CR-15B	CR-15B	**0.0 to 3.5 feet**: No recovery.	NA	NA	NA	NA	NA
		3.5 to 5.0 feet: Wood waste. 70% wood waste, primarily woodchips; 30% brownish black sandy silt.	NA	CR15B-0-10cm CR15b-5	0-0.33 feet bml 5.0 feet bml	Could not drill through wood encountered at 5.0 feet bml. Likely wood boards.	***Archive***

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-15C	CR-15C	**0.0 to 0.3 feet:** No recovery.	NA	NA	NA	NA	NA
		0.3 to 5.0 feet: Silty sand; blackish gray; 30% fines, fine, medium plasticity; 70% sand, fine.	NA	CR15C-SSD CR15C-SBSD CR15C-5.0	0-0.33 feet bml 0.5-1.0 feet bml 5.0??	Sample from 5.0 is purely an archive sample.	Total Metals TOC PAHs PCBs SVOC Mercury TPH Dioxins/Furans Archive
CR-15D	CR-15D	**0.0 to 7.0 feet:** No recovery.	NA	NA	NA	NA	NA
		7.0 to 8.1 feet: Wood waste; 80% wood waste; 20% gray sandy silt.	NA	NA	NA	NA	NA
		8.1 to 10.0 feet: Sandy silt; grayish brown; 70% fines, medium to high plasticity; 30% sand, fine; some wood waste and other organic material.	NA	NA	NA	NA	NA
CR-16A	CR-16A	**0.0 to 1.5 feet:** No recovery.	NA	NA	NA	NA	NA
		1.5 to 5.0 feet: Sawdust; 80% sawdust with reddish brown wood waste; 20% sandy silt.	NA	CR16A-0-10cm CR16A-5	0-0.33 feet bml 5.0 feet bml	NA	***Archive***
		5.0 to 8.5 feet: No recovery.	NA	NA	NA	NA	NA
		8.5 to 9.5 feet: Sawdust; 80% sawdust with reddish brown wood waste; 20% sandy silt.	NA	NA	NA	NA	NA
		9.5 to 10.0 feet: Sandy silt; dark gray; 50% fines, high plasticity; 35% sand, poorly graded, fine; 15% wood waste and organic debris.	NA	NA	NA	NA	NA
	CR-16A	**10.0 to 12.0 feet:** No recovery.	NA	NA	NA	NA	NA
		12.0 to 15.0 feet: Sandy silt; gray; 70% fines, plastic; 30% sand, fine.	NA	CR16A-14	14.0 feet bml	NA	***Archive***

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-16B	CR-16B	**0.0 to 4.2 feet:** No recovery.	NA	NA	NA	NA	NA
		4.2 to 5.0 feet: Sawdust; reddish brown; 70% sawdust and some wood debris; 30% sandy silt.	NA	CR16B-0-10cm	0-0.33 feet bml	NA	***Archive***
		5.0 to 6.5 feet: No recovery.	NA	NA	NA	NA	NA
		6.5 to 10.0 feet: Sawdust; reddish brown; 70% sawdust and wood waste; 30% sandy silt; slight sheen.	NA	CR16B-10.0	10	NA	***Archive***
		10.0 to 11.0 feet: No recovery.	NA	NA	NA	NA	NA
		11.0 to 12.0 feet: Sawdust; reddish brown; 70% sawdust and wood waste; 30% sandy silt; slight sheen.	NA	NA	NA	NA	NA
		12.0 to 15.0 feet: Fine sand w/ silt; gray; 20% fines, medium to high plasticity; 80% sand, fine to medium.	NA	CR16B-13.0	13	NA	***Archive***
CR-16C	CR-16C	**0.0 to 4.0 feet:** No recovery.	NA	NA	NA	NA	NA
		4.0 to 5.0 feet: Wood waste; 80% wood waste; 20% gray sandy silt.	NA	NA	NA	NA	NA
		5.0 to 8.5 feet: No recovery.	NA	NA	NA	NA	NA
		8.5 to 9.8 feet: Wood waste; 80% wood waste; 20% gray sandy silt.	NA	NA	NA	NA	NA
		9.8 to 10.0 feet: Fine sand w/ silt; gray; 20% fines, medium plasticity to high plasticity; 80% sand, fine to medium.	NA	NA	NA	NA	NA
		10.0 to 13.0 feet: No recovery.	NA	NA	NA	NA	NA
		13.0 to 15.0 feet: Wood waste; 80% wood waste; 20% gray sandy silt.	NA	NA	NA	Material was likely sloughing; therefore, this segment may not be representative of the subsurface.	NA
		15.0 to 20.0 feet: Little recovery.	NA	NA	NA	Virtually no recovery. Intense sloughing.	NA

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-17C	CR-17C	**0.0 to 2.5 feet:** No recovery.	NA	NA	NA	NA	NA
		2.5 to 4.5 feet: Sandy silt; grayish brown; 60% fines, 40% sand, very fine. **@ 4.0 to 4.5 feet:** Large chunks of wood chips and bark pieces.	NA	CR17C-0-10cm	0-0.33 feet bml	NA	***Archive***
		4.5 to 5.0 feet: Silty sand; grayish brown; 40% fines, high plasticity; 60% sand, very fine; trace wood waste.	NA	NA	NA	NA	NA
		5.0 to 8.0 feet: No recovery.	NA	NA	NA	NA	NA
		8.0 to 10.0 feet: Silty sand; grayish brown; 40% fines, high plasticity; 60% sand, very fine; trace wood waste.	NA	CR17C-9.5	9.5 feet bml	NA	***Archive***
CR-17D	CR-17D	**0.0 to 2.0 feet:** No recovery.	NA	NA	NA	NA	NA
		2.0 to 5.0 feet: Silty sand; grayish brown; 40% fines, high plasticity; 60% sand, very fine.	NA	CR17D-SSD CR17D-SBSD	0-0.33 feet bml 0.5-1.0 feet bml	Obtained extra sample volume for CR17D-SSD via ponar grab.	Total Metals TOC PAHs PCBs SVOC Mercury TPH Dioxins/Furans Archive
CR-18A	CR-18A	**0.0 to 4.5 feet:** No recovery.	NA	NA	NA	NA	NA
		4.5 to 5.0 feet: 100% wood waste, primarily wood chips and bark.	NA	NA	NA	NA	NA
		5.0 to 7.8 feet: No recovery.	NA	NA	NA	NA	NA
		7.8 to 8.7 feet: Wood waste; 80% wood waste, 20% silty sand.	NA	NA	NA	NA	NA
		8.7 to 9.5 feet: Sandy silt; grayish black; 60% fines, plastic; 40% sand, fine.	NA	CR18A-9.0	9.0 feet bml	NA	***Archive***
		9.5 to 10.0 feet: Wood waste; 80% wood waste, 20% silty sand.	NA	NA	NA	NA	NA
CR-18B	CR-18B	**0.0 to 3.0 feet:** No recovery.	NA	NA	NA	NA	NA
		3.0 to 12.0 feet: Silty sand; blackish brownish gray; 40% fines; 60% sand, very fine.	NA	CR18B-SSD CR18B-SBSD	0-0.33 feet bml 0.5-1.0 feet bml	Unable to collect archive samples because there were no other sample containers.	Total Metals TOC Phenol PAHs PCBs SVOC Mercury TPH Dioxins/Furans

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-19A	CR-19A	**0.0 to 3.0 feet:** No recovery.	NA	NA	NA	NA	NA
		3.0 to 3.7 feet: Sandy silt w/ wood waste; gray; 40% fines, loose; 30% sand; 30% wood waste.	NA	NA	NA	NA	NA
		3.7 to 4.0 feet: Sandy silt; grayish brown; 60% fines, 40% sand, very fine.	NA	NA	NA	Did not collect archive sample from this location as it did not provide any new information.	NA
		4.0 to 5.0 feet: Sawdust; 80% sawdust; 20% sandy silt.	NA	NA	NA	NA	NA
		5.0 to 8.0 feet: No recovery.	NA	NA	NA	NA	NA
		8.0 to 9.0 feet: Wood waste; 70% wood waste; 30% gray sandy silt.	NA	NA	NA	NA	NA
		9.0 to 10.0 feet: Silty Sand w/ wood waste; 80% gray silty sand, 20% wood waste.	NA	NA	NA	NA	NA
CR-19B	CR-19B	**0.0 to 2.0 feet**: No recovery.	NA	NA	NA	NA	NA
		2.0 to 4.5 feet: Silty sand; grayish brown; 40% fines, high plasticity; 60% sand, very fine, loose from 2.0 to 3.0 feet, then becomes denser; occasional chunks of wood waste.	NA	CR19B-0-10cm	0-0.33 feet bml	NA	***Archive***
		4.5 to 5.0 feet: Sawdust; 80% sawdust; 20% silty sand.	NA	NA	NA	NA	NA
		5.0 to 7.5 feet: No recovery.	NA	NA	NA	NA	NA
		7.5 to 8.7 feet: Sawdust; 80% sawdust; 20% silty sand.	NA	NA	NA	NA	NA
		8.7 to 10.0 feet: Sandy silt; grayish black; 50% fines, plastic; 35% sand, fine; 15% wood waste, primarily large chunks.	NA	CR19B-10	10	NA	***Archive***
CR-19C	CR-19C	**0.0 to 2.4 feet:** No recovery.	NA	NA	NA	NA	NA
		2.4 to 5.0 feet: Silty sand; blackish brown; 40% fines, high plasticity; 60% sand, very fine. **@ 4.0 to 4.1 feet:** Large chunks of woodchips and wood waste. **@ 4.5 to 4.6 feet:** Large chunks of woodchips and wood waste.	NA	NA	NA	It is uncertain whether this woodwaste is associated with former mill activities.	NA

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-19D	CR-19D	**0.0 to 1.0 feet**: No recovery.	NA	NA	NA	NA	NA
		1.0 to 4.2 feet: Silty sand; blackish gray; 40% fines, high plasticity; 60% sand, very fine, loose from 1.0 to 2.0 feet, then becomes denser.	NA	CR19D-0-10cm CR19D-SSD-CONV	0-0.33 feet bml	Both samples were collected from 0-10cm bml. Additional sample volume was obtained via ponar.	***Archive*** Conventionals
		4.2 to 5.0 feet: Sawdust; tannish brown; 80% sawdust and some wood debris; 20% sandy silt.	NA	NA	NA	NA	NA
		5.0 to 7.5 feet: No recovery.	NA	NA	NA	NA	NA
		7.5 to 8.5 feet: Sawdust; tannish brown; 80% sawdust and some wood debris; 20% sandy silt.	NA	NA	NA	NA	NA
		8.5 to 10.0 feet: Silty sand; grayish black; 40% fines, high plasticity; 60% sand, very fine; trace wood waste.	NA	CR19D-9.0	9.0 feet bml	NA	***Archive***
CR-19E	CR-19E	**0.0 to 3.2 feet:** No recovery.	NA	NA	NA	NA	NA
		3.2 to 5.0 feet: Silty sand w/ wood waste; brownish black; 60% wood waste, 40% silty sand.	NA	NA	NA	NA	NA
		5.0 to 7.7 feet: No recovery.	NA	NA	NA	NA	NA
		7.7 to 8.5 feet: Silty sand w/ wood waste; brownish black; 60% wood waste, 40% silty sand.	NA	NA	NA	NA	NA
		8.5 to 9.5 feet: Wood waste; 80% wood waste, 20% silty sand.	NA	NA	NA	NA	NA
		9.5 to 10.0 feet: Silty sand w/ wood waste; brownish black; 60% wood waste, 40% silty sand.	NA	NA	NA	Did not collect archive sample from this location as it did not provide any new information.	NA
CR-19F	CR-19F	**0.0 to 2.5 feet:** No recovery.	NA	NA	NA	NA	NA
		2.5 to 10.0 feet: Silty sand; grayish brown; 40% fines; 60% sand; loose from approximately 2.5 to 3.5 feet, then becomes denser.	NA	CR19F-SSD CR19F-SBSD CR19F-SBSD-DUP CR19F-5 CR19F-9.0	0-0.33 feet bml 0.5-1.0 feet bml 5.0 feet bml 9.0 feet bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury TPH Dioxins/Furans Archive

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Sample Location	Boring / Surface Sample Sublocation	Lithologic Description (bgs/bml)	PID Reading (ppm)	Sample ID	Depth (bgs/bml)	Notes	Analytical Suite
CR-19G	CR-19G	**0.0 to 2.5 feet:** No recovery.	NA	NA	NA	NA	NA
		2.5 to 7.5 feet: Silty sand; grayish brown; 35% fines; 50% sand; 15% wood chips. **@ 4.0 to 7.5 feet:** Wood chips increase to approximately 40%. Individual chips are up to 2 inches long.	NA	CR19G-0-10cm	0-0.33 feet bml	NA	***Archive***
		7.5 to 10.0 feet: Silty sand; grayish brown; 40% fines; 60% sand; dense.	NA	NA	NA	NA	NA
CR-19H	CR-19H	**0.0 to 5.0 feet:** No recovery.	NA	NA	NA	No recovery. Did not log or sample.	NA
CR-19I	CR-19I	**0.0 to 1.0 feet:** No recovery.	NA	NA	NA	NA	NA
		1.0 to 10.0 feet: Silty sand; grayish brown; 40% fines, medium plasticity; 60% sand, very fine to fine; loose to 3.0 feet, then becomes denser.	NA	NA	NA	Did not collect sample because already obtained clean confirmation samples to the east.	NA
CR-19J	CR-19J	**0.0 to 4.0 feet:** No recovery.	NA	NA	NA	NA	NA
		4.0 to 5.0 feet: 60% silty sand, gray; 40% wood waste, primarily large chips.	NA	NA	NA	NA	NA
		5.0 to 8.7 feet: No recovery.	NA	NA	NA	NA	NA
		8.7 to 10.0 feet: Wood waste; 70% wood waste, 30% silty sand, brownish black.	NA	NA	NA	NA	NA
Wharf Area							
CR-25	CR-25	**0.0 to 1.0 feet:** No recovery.	NA	NA	NA	NA	NA
		1.0 to 5.0 feet: Silty sand; blackish gray; 20% fines; 80% sand, very fine to fine.		CR25-0-10cm CR25-5	0-0.33 feet bml 5.0 feet bml	NA	***Archive***
CR-26	CR-26	**0.0 to 1.0 feet:** No recovery.	NA	NA	NA	NA	NA
		1.0 to 5.0 feet: Silty sand; blackish gray; 30% fines, high plasticity; 70% sand, very fine to fine.	NA	CR26-SSD CR26-SBSD	0-0.33 feet bml 0.5 -1.0 feet bml	NA	Total Metals TOC Phenol PAHs PCBs SVOC Mercury Archive

Table 3-3
Sediment Sample Descriptions and Analyses
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Notes:

bgs = below ground surface.

bml = below mudline.

cm = centimeter.

ID = identification.

NA = not applicable.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

PID = photoionization detector.

ppm = parts per million.

SVOC = semivolatile organic compound.

TCLP = Toxicity Characteristic Leaching Procedure.

TOC = total organic carbon.

TPH = total petroleum hydrocarbon.

Table 6-1
Background Chehalis River Sediment Concentrations
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	2S	8S	11S	12S	13S	AB7	GRAYS00C9	GRAYS00C10	GRAYS00C11	GRAYS0199-C6	GRAYS0199-C7	GRAYS0199-C8	GRAYS0199-C9
Sample Name:	98148242	98148248	98148252	98148253	98148254	56-S	C9	C10	C11	C6	C7	C8	C9
Sample Replicate:	--	--	--	--	--	--	--	--	--	--	--	--	--
Collection Date:	3/31/1998	3/31/1998	3/31/1998	3/31/1998	3/31/1998	7/7/2008	7/19/2000	7/20/2000	7/20/2000	6/9/2004	6/9/2004	6/9/2004	6/7/2004
Collection Depth (ft bgs):	0.3	0.3	0.3	0.3	0.3	0.8	0.3	0.3	0.3	0.5	0.5	0.5	0.5
Total Metals (mg/kg)													
Mercury	0.074	0.096	0.139	0.06	0.035	0.025	0.05 U	0.07 U	0.06 U	0.03	0.02	0.01 B	0.01 B
PCBs (ug/kg)													
Total PCBs	--	--	--	--	--	5.5 U	36 U	37 U	38 U	9.9 U	20 U	20 U	9.8 U
Dioxin/Furans (pg/g)													
Dioxin TEQ	--	--	--	--	--	0.42	--	--	--	--	--	--	--
cPAHs (ug/kg)													
cPAH TEQ	43 J	62 J	1068	588	3341	7.0 [b] J	19 U	30 J	16 J	9.9 U	7.0 J	8.3 J	16 J

Table 6-1
Background Chehalis River Sediment Concentrations
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	GRAYS0199-C10	GRAYS0199-C11	GRAYS0319-C2	GRAYS0319-C3	GRAYS0319-C14	GRAYS0319-C15	GRAYS0319-C16	GRAYS0319-C17	GRAYS0319-C18	PGHO&M9642	PGHO&M9642
Sample Name:	C10	C11	AB22	AB23	SA24	SA25	SA26	SA27	SA28	C1/1[a]	C1/1[a]
Sample Replicate:	--	--	--	--	--	--	--	--	--	1	2
Collection Date:	6/7/2004	6/7/2004	11/8/2011	11/8/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	2/2/1996	2/2/1996
Collection Depth (ft bgs):	0.5	1.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5
Total Metals (mg/kg)											
Mercury	0.02	0.01 B	0.03 U	0.03 U	0.03 U	0.02 U	0.06	0.03 U	0.03 U	0.04 U	0.03 U
PCBs (ug/kg)											
Total PCBs	20 U	20 U	9.5 U	9.5 U	9.6 U	9.6 U	9.9 U	9.8 U	9.6 U	53 U	--
Dioxin/Furans (pg/g)											
Dioxin TEQ	--	--	1.6	0.84	1.4	1.4	7.8	1.2	1.3	--	--
cPAHs (ug/kg)											
cPAH TEQ	10 U	9.9 U□	19 U	20 U	19 U	19 U	19 U	19 U	19 U	26 U	--

Table 6-1
Background Chehalis River Sediment Concentrations
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	SA8	SA9	SA9-R	SA9-R	WBCGH0257-C1	WBCGH0257-C1	WEYER92C1	WEYER92C1	WEYER93C1
Sample Name:	64-S	72-S	72-R	72-S	DMMU 1[a]	DMMU 1[a]	C1[a]	C1[a]	C1
Sample Replicate:	--	--	--	--	1	2	1	2	--
Collection Date:	7/7/2008	7/7/2008	1/26/2009	1/26/2009	4/25/2008	4/25/2008	3/2/1992	3/2/1992	1/9/1993
Collection Depth (ft bgs):	0.3	0.3	0.3	0.3	0.3	0.3	1.7	1.7	2.9
Total Metals (mg/kg)									
Mercury	0.008 T	0.046	0.032	0.032	0.08	0.08	0.08	0.1	0.12
PCBs (ug/kg)									
Total PCBs	5.7 U	5.7 U	--	0.64 U	25 U	--	69 U	69 U	26 U
Dioxin/Furans (pg/g)									
Dioxin TEQ	0.35	1.6	--	--	4.2	--	13	10	6.4
cPAHs (ug/kg)									
cPAH TEQ	25	12 J	--	2.9 J	47 J	--	55	74	34 J

Table 6-1
Background Chehalis River Sediment Concentrations
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

NOTES:

-- = not analyzed or not available.

cPAH = carcinogenic PAH.

ft bgs = feet below ground surface.

J = result is estimated.

mg/kg = milligrams per kilogram.

PAH = polycyclic aromatic hydrocarbon.

pg/g = picograms per gram (parts per trillion).

T = calculated result.

TEQ = toxicity equivalence.

ug/kg = micrograms per kilogram.

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

[a]Samples C1 from location WEYER92C1 (upriver location), DMMU 1, and C1/1 have two sets of results identified as lab replicate 1 and lab replicate 2. Results associated with lab replicate 1 are assumed to be for the primary field sample, and results associated with lab replicate 2 are assumed to be for a replicate sample (either a field or laboratory replicate). TEQ is the highest reporting limit value when all carcinogenic contituents are non-detect.

[b]Sample GH08-AB7-49-56-S from location AB cPAH TEQ was calculated with benzo(b)fluoranthene but not benzo(k)fluoranthene or total benzofluoranthenes, because only benzo(b)fluoranthene was available.

Table 7-1
Sample Summary
Seaport Landing Aquatic Lands Lease
Aberdeen, Washington

Sample Location	Sample ID	Sample Type	Collection Depth	Composite Sample ID	Composite Analysis	Analysis	X Coordinate (Easting)	Y Coordinate (Northing)
2011 Sediment Sampling - Dock Area (SAIC)								
DNR-SSDF	DF-comp-g1	Surface Grab	0-10 cm bml	DNR-SSDF-COMP[a]	Composite samples DNR-SSDF-COMP, DNR-SSD-COMP, and DNR-SSDU-COMP analyzed for SMS, TOC, Dioxins/Furans. Composite sample DNR-SSD-SUPCOMP analyzed only for Dioxins/Furans.	*Archive*	816535.4	615382.8
	DF-comp-g2	Surface Grab	0-10 cm bml			*Archive*	816587.3	615399.6
	DF-comp-g3	Surface Grab	0-10 cm bml			*Archive*	816654.7	615426.7
	DF-comp-g4	Surface Grab	0-10 cm bml			*Archive*	816702.7	615452.1
DNR-SSDD	DD-comp-g2	Surface Grab	0-10 cm bml	DNR-SSDD-COMP[a]		*Archive*	816597.4	615384.2
	DD-comp-g1	Surface Grab	0-10 cm bml			*Archive*	816540.4	615365.5
DNR-SSDU	DU-comp-g1	Surface Grab	0-10 cm bml	DNR-SSDU-COMP[a]		*Archive*	816661.1	615412.6
	DU-comp-g2	Surface Grab	0-10 cm bml			*Archive*	816710.1	615432.5
2011 Sediment Sampling - Former Mill Area (SAIC)								
SSFM1/SCFM1	DNR-SSFM1	Surface Grab	0-10 cm bml	DNR-SSFM1-COMP	Composite sample DNR-SSFM1-COMP analyzed only for Dioxins/Furans.	SMS, TOC, Dioxins/Furans	816927.6	615411.7
	DNR-SCFM1A	Sediment Core	0-2.5 ft bml			SMS, TOC, Dioxins/Furans		
	DNR-SCFM1B	Sediment Core	2.5-5 ft bml			*Archive*		
SSFM2/SCFM2	DNR-SSFM2	Surface Grab	0-10 cm bml			SMS, TOC, Dioxins/Furans	816917.7	615341.3
	DNR-SCFM2A	Sediment Core	0-2.7 ft bml			SMS, TOC, Dioxins/Furans		
	DNR-SCFM2B	Sediment Core	2.7-4.6 ft bml			SMS, TOC, Dioxins/Furans		
SSFM3/SCFM3	DNR-SSFM3	Surface Grab	0-10 cm bml			SMS, TOC, Dioxins/Furans	816993.8	615375.3
	DNR-SCFM3A	Sediment Core	0-3.0 ft bml			SMS, TOC, Dioxins/Furans		
	DNR-SCFM3B	Sediment Core	3.0-4.2 ft bml			*Archive*		
2011 Soil Boring - Filled Tidelands (SAIC)								
SB1	DNR-SB1A	Soil Boring	4.25-5 ft bgs	DNR-SB123B-COMP	Composite sample DNR-SB123B-COMP analyzed only for Dioxins/Furans.	SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs	817396.8	615547.2
	DNR-SB1B	Soil Boring	0-4.25 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
SB2	DNR-SB2A	Soil Boring	0-3.75 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs	817607.5	615592.4
	DNR-SB2B	Soil Boring	3.75-5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
SB3	DNR-SB3A	Soil Boring	0-3.5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs	817746.2	615611.4
	DNR-SB3B	Soil Boring	3.5-4.25 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
	DNR-SB3C	Soil Boring	4.25-5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
SB4	DNR-SB4A	Soil Boring	0-2.75 ft bgs	DNR-SB456B-COMP	Composite sample DNR-SB456B-COMP analyzed only for Dioxins/Furans.	SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs	818211.3	615863.9
	DNR-SB4B	Soil Boring	2.75-5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
SB5	DNR-SB5A	Soil Boring	4-5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs	818463.1	615892.4
	DNR-SB5B	Soil Boring	0-4 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
SB6	DNR-SB6A	Soil Boring	1.5-3 ft bgs			SMS (with no chlorobenzenes), Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs	818653.1	615950.9
	DNR-SB6B	Soil Boring	0-1.5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
	DNR-SB6C	Soil Boring	3-5 ft bgs			SMS, Sb, Se, Pesticides, SVOCs, TPH-Dx/Gx, VOCs		
1998 Chehalis River								
7S (Weyerhaeuser Sawmill)	98148247	Surface Grab	0-0.33 ft bml			Metals, SVOCs, TOC, Grain Size	816725.3	615520.4
14S (Chip Facility Ditch)	98148255	Surface Grab	0-0.33 ft bml			Metals, SVOCs, TOC, Grain Size	817787.0	615810.5
2013 Chehalis River								
CR-01	CR01-10cm	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TOC, Pore water conductivity/salinity	817108.7	615592.3
CR-02	CR02-10cm	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TOC, Pore water conductivity/salinity	817677.5	615747.8
CR-03	CR03-10cm	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TOC, Pore water conductivity/salinity	818247.9	615977.6

Table 7-1
Sample Summary
Seaport Landing Aquatic Lands Lease
Aberdeen, Washington

Sample Location	Sample ID	Sample Type	Collection Depth	Composite Sample ID	Composite Analysis	Analysis	X Coordinate (Easting)	Y Coordinate (Northing)
Lumber Shed								
CR-07	LS01	Surface Grab	0-0.33 ft bml	CR-07-SSD-COMP	Composite sample analyzed for Hg, As, Cd, Cr, Pb, PCB Aroclors, TPH-Dx, SVOCs, TOC.	*Archive*	816410.3	615268.1
	LS02	Surface Grab	0-0.33 ft bml			*Archive*	816434.0	615275.5
	LS03	Surface Grab	0-0.33 ft bml			*Archive*	816415.9	615251.6
	LS04	Surface Grab	0-0.33 ft bml			*Archive*	816439.6	615259.0
CR-24	LS05	Surface Grab	0-0.33 ft bml	CR-24-SSD-COMP	Composite sample analyzed for SMS, TPH-Dx, TOC.	*Archive*	816430.0	615206.7
	LS06	Surface Grab	0-0.33 ft bml			*Archive*	816455.3	615214.3
	LS07	Surface Grab	0-0.33 ft bml			*Archive*	816441.3	615169.4
	LS08	Surface Grab	0-0.33 ft bml			*Archive*	816465.9	615176.6
Former Boiler								
CR-08A	FB01	Surface Grab	0-0.33 ft bml	CR08A-SSD-COMP	Composite sample analyzed for SMS, Dioxins/Furans, TOC.	*Archive*	816763.5	615451.3
	FB02	Surface Grab	0-0.33 ft bml			*Archive*	816774.1	615431.8
	FB03	Surface Grab	0-0.33 ft bml			*Archive*	816780.9	615409.3
	FB04	Surface Grab	0-0.33 ft bml			*Archive*	816788.2	615462.2
	CR08A-FB04	Soil Boring	18.3-20.0 ft bml	CR08A-SBSD		SMS, Dioxins/Furans, TPH-Dx, TOC		
CR-08B	FB05	Surface Grab	0-0.33 ft bml	CR08B-SSD-COMP	Composite sample analyzed for SMS, Dioxins/Furans, TPH-Dx, TOC.	*Archive*	816743.6	615502.0
	FB06	Surface Grab	0-0.33 ft bml			*Archive*	816761.6	615510.0
	FB07	Surface Grab	0-0.33 ft bml			*Archive*	816752.8	615481.8
	FB08	Surface Grab	0-0.33 ft bml			*Archive*	816770.8	615489.8
	CR08B-FB05	Soil Boring	8.0 ft bml	CR08B-SBSD		SMS, Dioxins/Furans, TPH-Dx		
Beach Area								
CR-09A	BA01-0-10cm	Surface Grab	0-0.33 ft bml	CR09A-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC	*Archive*	817246.5	615567.5
	BA01-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA01-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
	BA02-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817284.9	615574.7
	BA02-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA02-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
	BA03-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817324.9	615582.8
	BA03-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA03-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
	BA04-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817363.2	615590.1
	BA04-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA04-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
CR-09B	BA05-0-10cm	Surface Grab	0-0.33 ft bml	CR09B-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC	*Archive*	817419.8	615601.7
	BA05-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA05-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
	BA06-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817455.9	615609.0
	BA06-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA06-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
	BA07-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817494.3	615616.3
	BA07-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA07-1-2	Subsurface Grab	1-2 ft bml			*Archive*		
	BA08-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817530.6	615622.1
	BA08-10cm-1	Subsurface Grab	0.33-1 ft bml			*Archive*		
	BA08-1-2	Subsurface Grab	1-2 ft bml			*Archive*		

Table 7-1
Sample Summary
Seaport Landing Aquatic Lands Lease
Aberdeen, Washington

Sample Location	Sample ID	Sample Type	Collection Depth	Composite Sample ID	Composite Analysis	Analysis	X Coordinate (Easting)	Y Coordinate (Northing)
Shannon Slough								
CR-10	SM-01	Surface Grab	0-0.33 ft bml	CR10-SSD-COMP	Composite sample analyzed for SMS, TOC	*Archive*	817850.5	615752.9
	SM-02	Surface Grab	0-0.33 ft bml			*Archive*	817862.7	615733.0
	SM-03	Surface Grab	0-0.33 ft bml			*Archive*	817874.9	615712.5
	SM-04	Surface Grab	0-0.33 ft bml			*Archive*	817887.9	615691.9
Former Mill Area and Chehalis River								
CR-04	CR04-10cm	Sediment Core	0-0.33 ft bml			Hg, PCB Aroclors, Dioxin/Furans, SVOCs, TPH-Dx, Ammonia-N, Sulfide, TOC, TVS, Grain Size	816947.228	615369.500
	CR04-2.5	Sediment Core	1-2.5 ft bml			Hg, PCB Aroclors, Dioxins/Furans, SVOCs, TPH-Dx		
	CR04-2.5-5	Sediment Core	2.5-5 ft bml			Phenol, Ammonia-N, Sulfide, TOC, TVS, Grain Size		
CR-05	CR05-10cm	Sediment Core	0-0.33 ft bml			Hg, PCB Aroclors, Dioxin/Furans, SVOCs, TPH-Dx, Ammonia-N, Sulfide, TOC, TVS, Grain Size	816990.438	615478.297
	CR05-2.5	Sediment Core	0.33-2.5 ft bml			Hg, PCB Aroclors, Dioxin/Furans, SVOCs, TPH-Dx		
CR-06	CR-06-10cm	Sediment Core	0-0.33 ft bml			Hg, Dioxin/Furans, Phenol, Butylbenzylphthalate, PCP, Ammonia-N, Sulfide, TOC, TVS, Grain Size	817048.694	615391.877
	CR06-2.5	Sediment Core	1-2.5 ft bml			SMS, Dioxin/Furans, TPH-Dx, Ammonia-N, Sulfide, TOC, TVS		
CR-11	CR11-SBSD-23	Sediment Core	23.0 ft bml	CR11-14-SBSD-COMP (composited from sediment core samples CR11-SBSD-23, CR12-SBSD-15, CR13-SBSD-11, and CR14-SBSD-12)	Composite sample analyzed for TCLP Hg and Pb	SMS, Dioxins/Furans, TPH-Dx, TOC	816991.9	615315.6
CR-12	CR12-SBSD-15	Sediment Core	15.0 ft bml			SMS, TOC	816912.0	615368.0
CR-13	CR13-SBSD-11	Sediment Core	11.0 ft bml			SMS, TOC	816971.4	615392.6
CR-14	CR14-SBSD-12	Sediment Core	12.0 ft bml			SMS, TOC	816903.9	615401.5
CR-15A	CR15A-5	Sediment Core	5.0 ft bml			*Archive*	816889.4	615491.3
	CR15A-11	Sediment Core	11.0 ft bml			*Archive*		
CR-15B	CR15B-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	816876.6	615511.6
	CR15b-5	Sediment Core	5.0 ft bml			*Archive*		
CR-15C	CR15C-SSD	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TPH-Dx, TOC	816844.6	615562.5
	CR15C-SBSD	Sediment Core	0.5-1.0 ft bml			SMS, TOC		
	CR15C-5.0	Sediment Core	5.0 ft bml			*Archive*		
CR-15D	NA	Sediment Core	NA			Visual observation only	816875.2	615544.1
CR-16A	CR16A-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	816925.0	615448.6
	CR16A-5	Sediment Core	5.0 ft bml			*Archive*		
	CR16A-14	Sediment Core	14.0 ft bml			*Archive*		
CR-16B	CR16B-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	816906.2	615470.1
	CR16B-10.0	Sediment Core	10.0 ft bml			*Archive*		
	CR16B-13.0	Sediment Core	13.0 ft bml			*Archive*		
CR-16C	NA	Sediment Core	NA			Visual observation only	816894.7	615487.4
CR-17C	CR17C-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	816953.1	615568.1
	CR17C-9.5	Sediment Core	9.5 ft bml			*Archive*		
CR-17D	CR17D-SSD	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TPH-Dx, TOC	816931.9	615579.0
	CR17D-SBSD	Sediment Core	0.5-1.0 ft bml			SMS, TOC		
CR-18A	CR18A-9.0	Sediment Core	9.0 ft bml			*Archive*	816840.1	615504.3
CR-18B	CR18B-SSD	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TPH-Dx, TOC	816818.6	615556.8
	CR18B-SBSD	Sediment Core	0.5-1.0 ft bml			SMS, TOC		
CR-19A	NA	Sediment Core	NA			Visual observation only	817044.9	615580.1
CR-19B	CR19B-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817160.8	615606.2
	CR19B-10	Sediment Core	10.0 ft bml			*Archive*		

Table 7-1
Sample Summary
Seaport Landing Aquatic Lands Lease
Aberdeen, Washington

Sample Location	Sample ID	Sample Type	Collection Depth	Composite Sample ID	Composite Analysis	Analysis	X Coordinate (Easting)	Y Coordinate (Northing)
CR-19C	NA	Sediment Core	NA			Visual observation only	817110.6	615622.2
CR-19D	CR19D-0-10cm	Surface Grab	0-0.33 ft bml		Both samples were collected from 0-10cm bml. Additional sample volume was obtained via ponar.	*Archive*	817263.7	615628.3
	CR19D-SSD-CONV	Surface Grab				Ammonia-N, Sulfide, TOC, Fixed Solids, TVS		
	CR19D-9.0	Sediment Core	9.0 ft bml			*Archive*		
CR-19E	NA	Sediment Core	NA			Visual observation only	817191.5	615653.0
CR-19F	CR19F-SSD	Surface Grab	0-0.33 ft bml			SMS, Dioxins/Furans, TPH-Dx, TOC	817438.3	615694.3
	CR19F-SBSD	Sediment Core	0.5-1.0 ft bml			SMS, TOC		
	CR19F-SBSD-DUP	Sediment Core	0.5-1.0 ft bml			SMS, TOC		
	CR19F-5	Sediment Core	5.0 ft bml			*Archive*		
	CR19F-9.0	Sediment Core	9.0 ft bml			*Archive*		
CR-19G	CR19G-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	817365.8	615647.6
CR-19H	NA	Sediment Core	NA			Visual observation only	817306.1	615651.0
CR-19I	NA	Sediment Core	NA			Visual observation only	817290.7	615683.1
CR-19J	NA	Sediment Core	NA			Visual observation only	817030.8	615599.6
Wharf Area								
CR-25	CR25-0-10cm	Surface Grab	0-0.33 ft bml			*Archive*	816572.5	615481.4
	CR25-5	Sediment Core	5.0 ft bml			*Archive*		
CR-26	CR26-SSD	Surface Grab	0-0.33 ft bml			*Archive*	816624.6	615498.9
	CR26-SBSD	Sediment Core	0.5 -1.0 ft bml			SMS		
2015 - Upland								
CR-20	CR20-S-5.0	Soil Boring	3.3-5.0 ft bgs			Hg, As, Cd, Cr, Pb, Dioxins/Furans, PCB Aroclors, TPH-Dx, SVOCs	816940.8	615297.8
	CR20-GW-5.0	Groundwater Boring	5.0 ft bgs			Hg, As, Cd, Cr, Pb, PCB Aroclors, TPH-Dx, SVOCs		
CR-21	CR21-S-5.0	Soil Boring	3.5-5.0 ft bgs			Hg, As, Cd, Cr, Pb, Dioxins/Furans, PCB Aroclors, TPH-Dx, SVOCs	817042.3	615341.0
	CR21-GW-10.0	Groundwater Boring	10.0 ft bgs			Hg, As, Cd, Cr, Pb, PCB Aroclors, TPH-Dx, SVOCs		
CR-22	CR22-S-3.0	Soil Boring	3.0-4.5 ft bgs			Hg, As, Cd, Cr, Pb, Dioxins/Furans, PCB Aroclors, TPH-Dx, SVOCs	817044.4	615423.7
	CR22-GW-9.0	Groundwater Boring	9.0 ft bgs			Hg, As, Cd, Cr, Pb, PCB Aroclors, TPH-Dx, SVOCs		
CR-23	CR23-S-3.0	Soil Boring	1.5-3.0 ft bgs			Hg, As, Cd, Cr, Pb, Dioxins/Furans, PCB Aroclors, TPH-Dx, SVOCs	817073.4	615401.6
	CR23-GW-6.0	Groundwater Boring	6.0 ft bgs			Hg, As, Cd, Cr, Pb, PCB Aroclors, TPH-Dx, SVOCs		
SEEP-01	SEEP-01	Surface Water	NA			Hg, PCB Aroclors, TPH-Dx, SVOCs	816918.5	615313.4
Storm-01	Storm-01	Stormwater	NA			SMS, Dioxins/Furans, TPH-Dx	816931.4	615330.4
2015 - Upland - Outside DNR Lease Area								
B01	B01-S-4.5	Soil Boring	4.5 ft bgs			Hg, As, Cd, Cr, Pb, HCID, SVOCs, VOCs	817175.8	615194.5
	B01-GW-10.0	Groundwater Boring	10.0 ft bgs			Hg, As, Cd, Cr, Pb, HCID, SVOCs, VOCs		
B02	B02-S-5.0	Soil Boring	5.0 ft bgs			Hg, As, Cd, Cr, Pb, HCID, TPH-Dx, SVOCs, VOCs	817111.2	615305.6
	B02-GW-6	Groundwater Boring	6.0 ft bgs			Hg, As, Cd, Cr, Pb, HCID, TPH-Dx, SVOCs, VOCs		
B03	B03-S-5.0	Soil Boring	5.0 ft bgs			Hg, As, Cd, Cr, Pb, HCID, TPH-Dx, SVOCs, VOCs	817070.2	615137.7
	B03-GW-10	Groundwater Boring	10.0 ft bgs			Hg, As, Cd, Cr, Pb, HCID, TPH-Dx, SVOCs, VOCs		

NOTES:

Composite sample DNR-SSFM1-COMP analyzed only for Dioxins/Furans.

Coordinates are Washington State Plane South, NAD83 feet.

Ammonia-N = ammonia as nitrogen.

As = arsenic.

Cd = cadmium.

cm bml = centimeters below mudline.

Cr = chromium.

DNR = Department of Natural Resources.

ft bgs = feet below ground surface.

ft bml = feet below mudline.

ID = identification.

HCID = hydrocarbon identification.

Hg = mercury.

NA = not applicable.

Pb = lead.

PCB = polychlorinated biphenyls.

PCP = pentachlorophenol.

Sb = antimony.

Se = selenium.

SMS = sediment management standards.

SVOCs = semivolatile organic compounds.

TCLP = Toxicity Characteristic Leaching Procedure.

TOC = total organic carbon.

TPH-Dx = diesel- and lube oil-range total petroleum hydrocarbons.

TPH-Gx = gasoline-range total petroleum hydrocarbons.

TVS = total volatile solids.

VOCs = volatile organic compounds.

[a]DNR-SSDF-COM, DNR-SSDD-COMP, and DNR-SSDU-COMP were further composited as sample DNR-SSD-SUPCOMP.

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	CR-20	CR-21	CR-22	CR-23	SB1		SB2		SB3		
		Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C
		Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0	0 - 4.25	4.25 - 5	0 - 3.75	3.57 - 5	0 - 3.5	3.5 - 4.25	4.25 - 5
	MTCA A Soil CUL	MTCA B Soil CUL											
Total Metals (mg/kg)													
Antimony	NV	3200	--	--	--	--	3.3 U	5.2 U	3.2 U	4.9 U	5 U	3.5 U	3.2 U
Arsenic	20	0.67	10 U	10 U	10 U	6 U	3.3 U	5.2 U	3.2 U	4.9 U	5 U	3.5 U	3.2 U
Cadmium	2	80	0.6 U	0.5 U	0.6 U	0.2 U	0.55 UL	0.87 UL	0.54 UL	0.82 UL	0.83 UL	0.58 UL	0.53 UL
Chromium	19/2000[a]	240/120000[a]	**71 J**	**32 J**	**37**	**35.5**	**3.5**	**3.8**	**4**	**7.3**	6.6	**19**	**5.3**
Copper	NV	3200	--	--	--	--	**11**	**8.1**	**11**	**12**	14	**26**	**10**
Lead	250	NV	--	--	--	--	**2.6**	**3.3**	**2.8**	**5.9**	5.2	**5.4**	**4.8**
Mercury	2	NV	0.03 U	**0.02**	**0.09**	0.02 U	**0.023**	**0.043**	**0.04**	0.026 U	0.041	**0.021**	**0.046**
Selenium	NV	400	--	--	--	--	5.5 U	8.7 U	5.4 U	8.2 U	8.3 U	5.8 U	5.3 U
Silver	NV	400	--	--	--	--	**1.6**	1.7 U	**1.1**	**1.6**	**1.8**	**2.3**	**1.2**
Zinc	NV	24000	--	--	--	--	**32**	**30**	**25**	**54**	**45**	**43**	**25**
PCBs (ug/kg)													
Aroclor 1016	NV	5600	19 U	17 U	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1221	NV	NV	19 U	17 U	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1232	NV	NV	19 U	17 U	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1242	NV	NV	19 U	17 U	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1248	NV	NV	**530**	**34**	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1254	NV	500	**710 J**	**73 J**	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1260	NV	500	**930**	**56**	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Aroclor 1268	NV	NV	19 U	17 U	19 U	17 U	--	--	--	--	--	--	--
Total PCBs	1000	500	**2170 J**	**163 J**	19 U	17 U	11 U	21 U	13 U	17 U	19 U	12 U	14 U
SVOCs (ug/kg)													
1,2,4-Trichlorobenzene	NV	34000	280 U	92 U	38 U	19 U	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
1,2-Dichlorobenzene	NV	7200000	280 U	92 U	38 U	19 U	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
1,3-Dichlorobenzene	NV	NV	280 U	92 U	38 U	19 U	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
1,4-Dichlorobenzene	NV	190000	280 U	92 U	38 U	19 U	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
1-Methylnaphthalene	NV	34000	280 U	92 U	38 U	19 U	35 U	64 U	42 U	53 U	56 U	37 U	43 U
2,4,5-Trichlorophenol	NV	8000000	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2,4,6-Trichlorophenol	NV	80000	1400 U	460 U	190 U	93 U	170 U	320 U	210 U	270 U	280 U	180 U	220 U
2,4-Dichlorophenol	NV	240000	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2,4-Dimethylphenol	NV	1600000	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2,4-Dinitrophenol	NV	160000	2800 U	920 U	380 U	190 U	1200 U	2100 U	1400 U	1800 U	1900 U	1200 U	1400 U
2,4-Dinitrotoluene	NV	3200	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2,6-Dinitrotoluene	NV	670	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2-Chloronaphthalene	NV	6400000	280 U	92 U	38 U	19 U	23 U	43 U	28 U	35 U	37 U	24 U	29 U
2-Chlorophenol	NV	400000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	CR-20	CR-21	CR-22	CR-23	SB1		SB2		SB3		
		Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C
		Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0	0 - 4.25	4.25 - 5	0 - 3.75	3.57 - 5	0 - 3.5	3.5 - 4.25	4.25 - 5
	MTCA A Soil CUL	MTCA B Soil CUL											
2-Methylnaphthalene	NV	320000	280 U	**46 J**	**26 J**	19 U	23 U	43 U	28 U	35 U	37 U	24 U	**59**
2-Methylphenol	NV	NV	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2-Nitroaniline	NV	800000	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
2-Nitrophenol	NV	NV	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
3,3-Dichlorobenzidine	NV	2200	1400 R	460 R	190 R	93 R	230 U	430 U	280 U	350 U	370 U	240 U	290 U
3,4-Methylphenol	NV	80000	--	--	--	--	230 U	430 U	280 U	350 U	370 U	240 U	**680**
3-Nitroaniline	NV	NV	1400 R	460 R	190 R	93 R	120 U	210 U	140 U	180 U	190 U	120 U	140 U
4,6-Dinitro-2-methylphenol	NV	NV	2800 U	920 U	380 U	190 U	1200 U	2100 U	1400 U	1800 U	1900 U	1200 U	1400 U
4-Bromophenylphenyl ether	NV	NV	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
4-Chloro-3-methylphenol	NV	NV	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
4-Chloroaniline	NV	5000	1400 R	460 R	190 R	93 R	120 U	210 U	140 U	180 U	190 U	120 U	140 U
4-Chlorophenylphenyl ether	NV	NV	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
4-Methylphenol	NV	NV	280 U	**92**	38 U	19 U	--	--	--	--	--	--	--
4-Nitroaniline	NV	NV	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
4-Nitrophenol	NV	NV	1400 U	460 U	190 U	93 U	1200 U	2100 U	1400 U	1800 U	1900 U	1200 U	1400 U
Acenaphthene	NV	4800000	**140 J**	**420**	38 U	19 U	23 U	43 U	28 U	35 U	37 U	24 U	29 U
Acenaphthylene	NV	NV	280 U	92 U	38 U	19 U	23 U	43 U	28 U	35 U	37 U	24 U	29 U
Anthracene	NV	24000000	280 U	**150**	38 U	19 U	23 U	43 U	28 U	35 U	37 U	24 U	29 U
Benzo(a)anthracene	NV	1400	**140 J**	**210**	**21 J**	19 U	29 U	53 U	**48**	44 U	46 U	31 U	36 U
Benzo(a)pyrene	100	140	**160 J**	**180**	**28 J**	19 U	**46**	64 U	**58**	53 U	56 U	37 U	43 U
Benzo(b)fluoranthene	NV	1370	--	--	--	--	**95**	43 U	**110**	35 U	37 U	24 U	29 U
Benzo(ghi)perylene	NV	NV	280 U	92 U	**32 J**	19 U	**52**	53 U	35 U	44 U	46 U	31 U	36 U
Benzo(k)fluoranthene	NV	13700	--	--	--	--	29 U	53 U	35 U	44 U	46 U	31 U	36 U
Benzoic acid	NV	320000000	2800 U	920 U	380 U	190 U	2900 U	5300 U	3500 U	4400 U	4600 U	3100 U	3600 U
Benzyl alcohol	NV	8000000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Bis(2-chloro-1-methylethyl)ether	NV	14000	280 U	92 U	38 U	19 U	170 U	320 U	210 U	270 U	280 U	180 U	220 U
Bis(2-chloroethoxy)methane	NV	NV	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Bis(2-chloroethyl)ether	NV	910	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Bis(2-ethylhexyl)phthalate	NV	71000	**570 J**	230 U	**3100**	47 U	1700 U	3200 U	2100 U	2700 U	2800 U	1800 U	2200 U
Butylbenzylphthalate	NV	530000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Carbazole	NV	NV	280 UJ	92 UJ	38 UJ	19 UJ	170 U	320 U	210 U	270 U	280 U	180 U	220 U
Chrysene	NV	140000	**470**	**480**	**75**	19 U	**49**	53 U	**170**	44 U	46 U	**49**	36 U
Dibenzo(a,h)anthracene	NV	140	280 U	92 U	38 U	19 U	46 U	86 U	56 U	71 U	74 U	49 U	58 U
Dibenzofuran	NV	80000	280 U	**100**	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Diethyl phthalate	NV	64000000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Dimethyl phthalate	NV	NV	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	CR-20	CR-21	CR-22	CR-23	SB1		SB2		SB3		
		Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C
		Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0	0 - 4.25	4.25 - 5	0 - 3.75	3.57 - 5	0 - 3.5	3.5 - 4.25	4.25 - 5
	MTCA A Soil CUL	MTCA B Soil CUL											
Di-n-butyl phthalate	NV	8000000	280 U	92 U	38 U	19 U	230 U	430 U	280 U	350 U	370 U	240 U	290 U
Di-n-octyl phthalate	NV	800000	280 U	92 U	38 U	19 U	230 U	430 U	280 U	350 U	370 U	240 U	290 U
Fluoranthene	NV	3200000	**600**	**640**	**28 J**	**11 J**	**35**	43 U	**71**	35 U	37 U	**200**	**42**
Fluorene	NV	3200000	**160 J**	**300**	38 U	19 U	23 U	43 U	28 U	35 U	37 U	24 U	29 U
Hexachlorobenzene	NV	630	280 U	92 U	38 U	19 U	58 U	110 U	69 U	88 U	93 U	61 U	72 U
Hexachlorobutadiene	NV	13000	280 U	92 U	38 U	19 U	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
Hexachlorocyclopentadiene	NV	480000	1400 U	460 U	190 U	93 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Hexachloroethane	NV	25000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Indeno(1,2,3-cd)pyrene	NV	1400	280 U	92 U	38 U	19 U	46 U	86 U	56 U	71 U	74 U	49 U	58 U
Isophorone	NV	1100000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Naphthalene	5000	1600000	280 U	**65 J**	**270**	19 U	4.8 UH	22 U*	14 U*	13 U*	15 U*	8.2 U	**63**
Nitrobenzene	NV	160000	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
N-Nitrosodiphenylamine	NV	200000	280 U	92 U	38 U	19 U	58 U	110 U	69 U	88 U	93 U	61 U	72 U
N-Nitrosodipropylamine	NV	140	280 U	92 U	38 U	19 U	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Pentachlorophenol	NV	2500	1400 U	460 U	190 U	93 U	230 U	430 U	280 U	350 U	370 U	240 U	290 U
Phenanthrene	NV	NV	**510**	**920**	**23 J**	**11 J**	23 U	43 U	**62**	35 U	37 U	24 U	**100**
Phenol	NV	24000000	280 UJ	92 UJ	38 UJ	19 UJ	120 U	210 U	140 U	180 U	190 U	120 U	140 U
Pyrene	NV	2400000	**530**	**610**	**30 J**	**11 J**	**38**	43 U	**85**	35 U	37 U	**140**	**81**
Total Benzofluoranthenes	NV	1400[b]	**300 J**	**320**	**62 J**	37 U	--	--	--	--	--	--	--
cPAH TEQ	190[d]	NV	**240 J**	**250**	**41 J**	37 U	**63.5**	**48.3**	**82.9**	**40.0**	**42.1**	**28.2**	**32.5**
Dioxins and Furans (pg/g)													
1,2,3,4,6,7,8-HpCDD	NV	NV	**2650**	**373**	**1260**	**26**	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	**653**	**37.9**	**188**	**2.97**	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	**32**	**1.48**	12.5 U	0.221 U	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	**36.1**	**3.49**	**8.65**	0.193 U	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	**17**	**2.11**	**4.09 J**	**0.114 J**	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	**184**	**23.6**	**38.2**	**1.54**	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	**9.97**	**1.55**	**4.2 J**	0.153 U	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	**16.7**	**8.09**	**12.1**	**2.35**	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	**8.52**	**1.3**	**1.82 J**	0.155 U	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	**10.8**	**1.97**	**3.14 J**	**1.31**	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	4.85 U	**0.859 J**	**1.08 J**	0.0558 U	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	**40**	**1.58**	**7.81**	0.133 U	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	**5.51**	0.727 U	**0.807 J**	0.0598 U	--	--	--	--	--	--	--
2,3,7,8-TCDD	NV	13	**6.42**	0.467 U	1.41 U	**1.68**	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	**5.07**	0.657 U	**0.552 J**	0.0538 U	--	--	--	--	--	--	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	CR-20	CR-21	CR-22	CR-23	SB1		SB2		SB3		
		Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C
		Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0	0 - 4.25	4.25 - 5	0 - 3.75	3.57 - 5	0 - 3.5	3.5 - 4.25	4.25 - 5
	MTCA A Soil CUL	MTCA B Soil CUL											
OCDD	NV	NV	**18400**	**2480**	**30800 J**	**298**	--	--	--	--	--	--	--
OCDF	NV	NV	**1490**	**42.8**	**412**	**4.82**	--	--	--	--	--	--	--
Total HpCDDs	NV	NV	**4760**	**708**	**2900**	**52.5**	--	--	--	--	--	--	--
Total HpCDFs	NV	NV	3080 U	**114**	695 U	10.2 U	--	--	--	--	--	--	--
Total HxCDDs	NV	NV	843 U	**117**	**205**	27.3 U	--	--	--	--	--	--	--
Total HxCDFs	NV	NV	1340 U	95.5 U	**243**	5.78 U	--	--	--	--	--	--	--
Total PeCDDs	NV	NV	**140**	14.9 U	**18.2**	**13.3**	--	--	--	--	--	--	--
Total PeCDFs	NV	NV	316 U	36.3 U	48.6 U	**0.846**	--	--	--	--	--	--	--
Total TCDDs	NV	NV	79.6 U	4.89 U	13.6 U	11.4 U	--	--	--	--	--	--	--
Total TCDFs	NV	NV	50.9 U	7.08 U	5.25 U	0.103 U	--	--	--	--	--	--	--
Dioxin TEQ	13	NV	**90.0**	**11.4 J**	**35.8 J**	**3.82 J**	--	--	--	--	--	--	--
TPH (mg/kg)													
Gasoline-rRange Hydrocarbons	30/100	NV	--	--	--	--	4.7 U	11 U	5.6 U	7.1 U	11 U	7.3 U	**8.1**
Diesel-rRange Hydrocarbons	2000	NV	**480**	**620**	**120**	**21**	**61 Y**	**1100 Z**	**83 Y**	**230 Z**	**270 Z**	**67 Z**	**440 Z**
Lube Oil-rRange Hydrocarbons	2000	NV	**2600**	**3600**	**980**	**51**	**540**	**1000 Y**	**940**	**700 Y**	**780 Y**	**190 Y**	**630 Y**
Pesticides (ug/kg)													
Aldrin	NV	59	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Alpha-BHC	NV	160	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Beta-BHC	NV	556	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Delta-BHC	NV	NV	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Lindane	10	910	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
cis-Chlordane	NV	NV	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Gamma-Chlordane	NV	NV	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Chlordane	NV	2900	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
4,4'-DDD	NV	4200	--	--	--	--	2.3 U	4.2 U	2.7 U^	3.5 U^	3.8 U^	2.4 U^	2.8 U^
4,4'-DDE	NV	2900	--	--	--	--	2.3 U^	4.2 U	2.7 U^	3.5 U	3.8 U	2.4 U	2.8 U
4,4'-DDT	3000	2900	--	--	--	--	2.3 U^	4.2 U^	2.7 U^	3.5 U^	3.8 U^	2.4 U^	2.8 U^
Total DDTs	NV	NV	--	--	--	--	2.3 U	4.2 U	2.7 U	3.5 U	3.8 U	2.4 U	2.8 U
Dieldrin	NV	63	--	--	--	--	2.3 U^	4.2 U	2.7 U^	3.5 U	3.8 U	2.4 U	2.8 U
Endosulfan I	NV	480000	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Endosulfan II	NV	480000	--	--	--	--	2.3 U^	4.2 U	2.7 U^	3.5 U	3.8 U	2.4 U	2.8 U
Endosulfan Sulfate	NV	NV	--	--	--	--	2.3 U	4.2 U	2.7 U	3.5 U	3.8 U	2.4 U	2.8 U
Endrin	NV	24000	--	--	--	--	2.3 U	4.2 U	2.7 U	3.5 U	3.8 U	2.4 U	2.8 U
Endrin Aldehyde	NV	NV	--	--	--	--	2.3 U	4.2 U	2.7 U	3.5 U	3.8 U	2.4 U	2.8 U
Endrin Ketone	NV	NV	--	--	--	--	2.3 U	4.2 U	2.7 U	3.5 U	3.8 U	2.4 U	2.8 U
Heptachlor	NV	220	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	CR-20	CR-21	CR-22	CR-23	SB1		SB2		SB3		
		Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C
		Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0	0 - 4.25	4.25 - 5	0 - 3.75	3.57 - 5	0 - 3.5	3.5 - 4.25	4.25 - 5
	MTCA A Soil CUL	MTCA B Soil CUL											
Heptachlor Epoxide	NV	110	--	--	--	--	1.1 U	2.1 U	1.3 U	1.7 U	1.9 U	1.2 U	1.4 U
Methoxychlor	NV	400000	--	--	--	--	11 U	21 U	13 U	17 U	19 U	12 U	14 U
Toxaphene	NV	910	--	--	--	--	110 U^	210 U^	130 U^	170 U^	190 U^	120 U^	140 U^
VOCs (ug/kg)													
1,1,1,2-Tetrachloroethane	NV	39000	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
1,1,1-Trichloroethane	2000	160000000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
1,1,2,2-Tetrachloroethane	NV	5000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
1,1,2-Trichloroethane	NV	18000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
1,1-Dichloroethane	NV	180000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
1,1-Dichloroethene	NV	4000000	--	--	--	--	4.8 UH	22 U	14 U	13 U	15 U	8.2 U	22 U
1,1-Dichloropropene	NV	NV	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
1,2,3-Trichlorobenzene	NV	NV	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
1,2,3-Trichloropropane	NV	33	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
1,2,4-Trimethylbenzene	NV	NV	--	--	--	--	**3.2**	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
1,2-Dibromo-3-chloropropane	NV	1250	--	--	--	--	1.9 UJH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
1,2-Dichloroethane	NV	11000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
1,2-Dichloropropane	NV	28000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
1,3,5-Trimethylbenzene	NV	800000	--	--	--	--	4.8 UH	22 U*	14 U*	13 U*	15 U*	8.2 U	22 U*
1,3-Dichloropropane	NV	NV	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
2,2-Dichloropropane	NV	NV	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
2-Chlorotoluene	NV	1600000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
4-Chlorotoluene	NV	NV	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
Benzene	30	18200	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Bromobenzene	NV	NV	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
Bromochloromethane	NV	NV	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Bromoform	NV	130000	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
Bromomethane	NV	110000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Carbon Tetrachloride	NV	14000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Chlorobenzene	NV	1600000	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
Chlorodibromomethane	NV	12000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Chloroethane	NV	NV	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Chloroform	NV	32000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Chloromethane	NV	NV	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
cis-1,2-Dichloroethene	NV	160000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
cis-1,3-Dichloropropene	NV	10000[c]	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Cumene	NV	800000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	**8.3 ***	6 U*	3.3 U	8.8 U*

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	CR-20	CR-21	CR-22	CR-23	SB1		SB2		SB3		
		Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0	DNR-SB1B	DNR-SB1A	DNR-SB2A	DNR-SB2B	DNR-SB3A	DNR-SB3B	DNR-SB3C
		Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0	0 - 4.25	4.25 - 5	0 - 3.75	3.57 - 5	0 - 3.5	3.5 - 4.25	4.25 - 5
	MTCA A Soil CUL	MTCA B Soil CUL											
Dibromomethane	NV	800000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Dichlorobromomethane	NV	16000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Dichlorodifluoromethane (CFC-12)	NV	16000000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Ethylbenzene	6000	8000000	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
Ethylene Dibromide	5	500	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Methyl t-butyl ether	100	556000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Methylene Chloride	20	500000	--	--	--	--	14 UH	67 U	41 U	40 U	45 U	25 U	66 U
m, p-Xylene	NV	16000000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
n-Butylbenzene	NV	4000000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
n-Propylbenzene	NV	8000000	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
o-Xylene	NV	16000000	--	--	--	--	0.96 UH	4.4 U*	2.7 U*	2.6 U*	3 U*	1.6 U	4.4 U*
p-Isopropyltoluene	NV	NV	--	--	--	--	**50**	**25 ***	5.5 U*	**70 ***	6 U*	3.3 U	**23 ***
sec-Butylbenzene	NV	8000000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
Styrene	NV	16000000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
tert-Butylbenzene	NV	8000000	--	--	--	--	1.9 UH	8.9 U*	5.5 U*	5.3 U*	6 U*	3.3 U	8.8 U*
Tetrachloroethene	50	480000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Toluene	7000	6400000	--	--	--	--	1.9 UH	8.9 U	5.5 U	**9.1**	6 U	3.3 U	8.8 U
trans-1,2-Dichloroethene	NV	1600000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
trans-1,3-Dichloropropene	NV	10000[c]	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Trichloroethene	30	12000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Trichlorofluoromethane (CFC-11)	NV	24000000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Vinyl Chloride	NV	240000	--	--	--	--	0.96 UH	4.4 U	2.7 U	2.6 U	3 U	1.6 U	4.4 U
Total Xylenes	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	SB1, SB2, SB3	SB4		SB5		SB6			SB4, SB5, SB6
		Sample Name:	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A	DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP
		Collection Date:	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	NA	0 - 2.7	2.75 - 5	0 - 4	4 - 5	0 - 1.5	1.5 - 3	3 - 5	NA
	MTCA A Soil CUL	MTCA B Soil CUL									
Total Metals (mg/kg)											
Antimony	NV	3200	--	12 U	8.2 U	11 U	15 U	8.2 U	5.4 U	14 U	--
Arsenic	20	0.67	--	12 U	8.2 U	11 U	15 U	8.2 U	5.4 U	14 U	--
Cadmium	2	80	--	1.9 U	1.4 U	1.8 U	2.5 U	1.4 UL	0.89 U	2.4 U	--
Chromium	19/2000[a]	240/120000[a]	--	5 U	3.6 U	4.6 U	6.6 U	**11**	**3.5**	6.1 U	--
Copper	NV	3200	--	**12**	**5**	3.5 U	**5.7**	**35**	**8.3**	**5.2**	--
Lead	250	NV	--	5.8 U	4.1 U	5.3 U	7.6 U	**12**	2.7 U	7.1 U	--
Mercury	2	NV	--	0.073 U	0.053 U	0.054 U	0.061 U	0.049 U	**0.041**	0.068 U	--
Selenium	NV	400	--	19 U	14 U	18 U	25 U	14 U	8.9 U	24 U	--
Silver	NV	400	--	3.9 U	2.7 U	3.5 U	5 U	**7.1**	1.8 U	4.7 U	--
Zinc	NV	24000	--	**29**	**9.7**	**10**	**18**	**120**	**30**	**18**	--
PCBs (ug/kg)											
Aroclor 1016	NV	5600	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1221	NV	NV	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1232	NV	NV	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1242	NV	NV	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1248	NV	NV	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1254	NV	500	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1260	NV	500	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Aroclor 1268	NV	NV	--	--	--	--	--	--	--	--	--
Total PCBs	1000	500	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
SVOCs (ug/kg)											
1,2,4-Trichlorobenzene	NV	34000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	--	10 U*	--
1,2-Dichlorobenzene	NV	7200000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	--	5.2 U*	--
1,3-Dichlorobenzene	NV	NV	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	--	5.2 U*	--
1,4-Dichlorobenzene	NV	190000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	--	5.2 U*	--
1-Methylnaphthalene	NV	34000	--	280 U	210 U	230 U	340 U	100 U	140 U	300 U	--
2,4,5-Trichlorophenol	NV	8000000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2,4,6-Trichlorophenol	NV	80000	--	1400 U	1000 U	1100 U	1700 U	520 U	720 U	1500 U	--
2,4-Dichlorophenol	NV	240000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2,4-Dimethylphenol	NV	1600000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2,4-Dinitrophenol	NV	160000	--	9300 U	6900 U	7500 U	11000 U	3500 U	4800 U	9900 U	--
2,4-Dinitrotoluene	NV	3200	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2,6-Dinitrotoluene	NV	670	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2-Chloronaphthalene	NV	6400000	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
2-Chlorophenol	NV	400000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	SB1, SB2, SB3	SB4		SB5		SB6			SB4, SB5, SB6
		Sample Name:	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A	DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP
		Collection Date:	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	NA	0 - 2.7	2.75 - 5	0 - 4	4 - 5	0 - 1.5	1.5 - 3	3 - 5	NA
	MTCA A Soil CUL	MTCA B Soil CUL									
2-Methylnaphthalene	NV	320000	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
2-Methylphenol	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2-Nitroaniline	NV	800000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
2-Nitrophenol	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
3,3-Dichlorobenzidine	NV	2200	--	1900 U	1400 U	1500 U	2200 U	690 U	950 U	2000 U	--
3,4-Methylphenol	NV	80000	--	1900 U	1400 U	1500 U	2200 U	690 U	950 U	2000 U	--
3-Nitroaniline	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
4,6-Dinitro-2-methylphenol	NV	NV	--	9300 U	6900 U	7500 U	11000 U	3500 U	4800 U	9900 U	--
4-Bromophenylphenyl ether	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
4-Chloro-3-methylphenol	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
4-Chloroaniline	NV	5000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
4-Chlorophenylphenyl ether	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
4-Methylphenol	NV	NV	--	--	--	--	--	--	--	--	--
4-Nitroaniline	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
4-Nitrophenol	NV	NV	--	9300 U	6900 U	7500 U	11000 U	3500 U	4800 U	9900 U	--
Acenaphthene	NV	4800000	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
Acenaphthylene	NV	NV	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
Anthracene	NV	24000000	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
Benzo(a)anthracene	NV	1400	--	230 U	170 U	190 U	280 U	86 U	120 U	250 U	--
Benzo(a)pyrene	100	140	--	280 U	210 U	230 U	340 U	100 U	140 U	300 U	--
Benzo(b)fluoranthene	NV	1370	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
Benzo(ghi)perylene	NV	NV	--	230 U	170 U	190 U	280 U	86 U	120 U	250 U	--
Benzo(k)fluoranthene	NV	13700	--	230 U	170 U	190 U	280 U	86 U	120 U	250 U	--
Benzoic acid	NV	320000000	--	23000 U	17000 U	19000 U	28000 U	8600 U	12000 U	25000 U	--
Benzyl alcohol	NV	8000000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Bis(2-chloro-1-methylethyl)ether	NV	14000	--	1400 U	1000 U	1100 U	1700 U	520 U	720 U	1500 U	--
Bis(2-chloroethoxy)methane	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Bis(2-chloroethyl)ether	NV	910	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Bis(2-ethylhexyl)phthalate	NV	71000	--	14000 U	10000 U	11000 U	17000 U	5200 U	7200 U	15000 U	--
Butylbenzylphthalate	NV	530000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Carbazole	NV	NV	--	1400 U	1000 U	1100 U	1700 U	520 U	720 U	1500 U	--
Chrysene	NV	140000	--	230 U	170 U	190 U	280 U	86 U	120 U	250 U	--
Dibenzo(a,h)anthracene	NV	140	--	370 U	280 U	300 U	450 U	140 U	190 U	400 U	--
Dibenzofuran	NV	80000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Diethyl phthalate	NV	64000000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Dimethyl phthalate	NV	NV	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	SB1, SB2, SB3	SB4		SB5		SB6			SB4, SB5, SB6
		Sample Name:	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A	DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP
		Collection Date:	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	NA	0 - 2.7	2.75 - 5	0 - 4	4 - 5	0 - 1.5	1.5 - 3	3 - 5	NA
	MTCA A Soil CUL	MTCA B Soil CUL									
Di-n-butyl phthalate	NV	8000000	--	1900 U	1400 U	1500 U	2200 U	690 U	950 U	2000 U	--
Di-n-octyl phthalate	NV	800000	--	1900 U	1400 U	1500 U	2200 U	690 U	950 U	2000 U	--
Fluoranthene	NV	3200000	--	190 U	140 U	150 U	220 U	69 U	**140**	200 U	--
Fluorene	NV	3200000	--	190 U	140 U	150 U	220 U	69 U	95 U	200 U	--
Hexachlorobenzene	NV	630	--	460 U	340 U	380 U	560 U	170 U	240 U	500 U	--
Hexachlorobutadiene	NV	13000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	--	5.2 U*	--
Hexachlorocyclopentadiene	NV	480000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Hexachloroethane	NV	25000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Indeno(1,2,3-cd)pyrene	NV	1400	--	370 U	280 U	300 U	450 U	140 U	190 U	400 U	--
Isophorone	NV	1100000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Naphthalene	5000	1600000	--	59 U*	19 U*	41 U	64 U*	16 U	25 U*	26 U*	--
Nitrobenzene	NV	160000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
N-Nitrosodiphenylamine	NV	200000	--	460 U	340 U	380 U	560 U	170 U	240 U	500 U	--
N-Nitrosodipropylamine	NV	140	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Pentachlorophenol	NV	2500	--	1900 U	1400 U	1500 U	2200 U	690 U	950 U	2000 U	--
Phenanthrene	NV	NV	--	190 U	140 U	150 U	220 U	69 U	**170**	200 U	--
Phenol	NV	24000000	--	930 U	690 U	750 U	1100 U	350 U	480 U	990 U	--
Pyrene	NV	2400000	--	190 U	140 U	150 U	220 U	69 U	**120**	200 U	--
Total Benzofluoranthenes	NV	1400[b]	--	--	--	--	--	--	--	--	--
cPAH TEQ	190[d]	NV	--	NC	NC	NC	NC	NC	NC	NC	--
Dioxins and Furans (pg/g)											
1,2,3,4,6,7,8-HpCDD	NV	NV	**600**	--	--	--	--	--	--	--	**55**
1,2,3,4,6,7,8-HpCDF	NV	NV	**32**	--	--	--	--	--	--	--	7.3 U
1,2,3,4,7,8,9-HpCDF	NV	NV	6.7 U	--	--	--	--	--	--	--	0.92 U
1,2,3,4,7,8-HxCDD	NV	NV	**4.4 J**	--	--	--	--	--	--	--	1.6 U
1,2,3,4,7,8-HxCDF	NV	NV	**4.6 J**	--	--	--	--	--	--	--	0.75 U
1,2,3,6,7,8-HxCDD	NV	NV	**19**	--	--	--	--	--	--	--	2.1 U
1,2,3,6,7,8-HxCDF	NV	NV	1.7 U	--	--	--	--	--	--	--	0.57 U
1,2,3,7,8,9-HxCDD	NV	NV	**7.8**	--	--	--	--	--	--	--	1.3 U
1,2,3,7,8,9-HxCDF	NV	NV	1.1 U	--	--	--	--	--	--	--	0.74 U
1,2,3,7,8-PeCDD	NV	NV	2.1 U	--	--	--	--	--	--	--	1 U
1,2,3,7,8-PeCDF	NV	NV	0.89 U	--	--	--	--	--	--	--	0.9 U
2,3,4,6,7,8-HxCDF	NV	NV	1.5 U	--	--	--	--	--	--	--	0.55 U
2,3,4,7,8-PeCDF	NV	NV	1.1 U	--	--	--	--	--	--	--	0.95 U
2,3,7,8-TCDD	NV	13	0.49 U	--	--	--	--	--	--	--	0.94 U
2,3,7,8-TCDF	NV	NV	1.5 U	--	--	--	--	--	--	--	1.9 U

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	SB1, SB2, SB3	SB4		SB5		SB6			SB4, SB5, SB6
		Sample Name:	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A	DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP
		Collection Date:	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	NA	0 - 2.7	2.75 - 5	0 - 4	4 - 5	0 - 1.5	1.5 - 3	3 - 5	NA
	MTCA A Soil CUL	MTCA B Soil CUL									
OCDD	NV	NV	**5900**	--	--	--	--	--	--	--	**570**
OCDF	NV	NV	**74**	--	--	--	--	--	--	--	**23 J**
Total HpCDDs	NV	NV	**1500**	--	--	--	--	--	--	--	**100**
Total HpCDFs	NV	NV	**110**	--	--	--	--	--	--	--	**16**
Total HxCDDs	NV	NV	**120**	--	--	--	--	--	--	--	4.6 U
Total HxCDFs	NV	NV	**73**	--	--	--	--	--	--	--	4.3 U
Total PeCDDs	NV	NV	2.1 U	--	--	--	--	--	--	--	1 U
Total PeCDFs	NV	NV	**7.5**	--	--	--	--	--	--	--	1.5 U
Total TCDDs	NV	NV	0.49 U	--	--	--	--	--	--	--	1.1 U
Total TCDFs	NV	NV	1.5 U	--	--	--	--	--	--	--	1.9 U
Dioxin TEQ	13	NV	**13**	--	--	--	--	--	--	--	**2.4**
TPH (mg/kg)											
Gasoline-rRange Hydrocarbons	30/100	NV	--	31 U	14 U	15 U	31 U	15 U	19 U	20 U	--
Diesel-rRange Hydrocarbons	2000	NV	--	220 U	180 U	180 U	260 U	85 U	**610 Y**	**320 Y**	--
Lube Oil-rRange Hydrocarbons	2000	NV	--	440 U	**1700**	**560**	530 U^	**220**	**2200**	**2300**	--
Pesticides (ug/kg)											
Aldrin	NV	59	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Alpha-BHC	NV	160	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Beta-BHC	NV	556	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Delta-BHC	NV	NV	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Lindane	10	910	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
cis-Chlordane	NV	NV	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Gamma-Chlordane	NV	NV	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Chlordane	NV	2900	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
4,4'-DDD	NV	4200	--	9 U^	6.8 U^	7.4 U^	11 U^	7 U^	4.9 U^	10 U^	--
4,4'-DDE	NV	2900	--	9 U	6.8 U	7.4 U	11 U	7 U	4.9 U	10 U	--
4,4'-DDT	3000	2900	--	9 U^	6.8 U^	7.4 U^	11 U^	7 U^	4.9 U^	10 U^	--
Total DDTs	NV	NV	--	9 U	6.8 U	7.4 U	11 U	7 U	4.9 U	10 U	--
Dieldrin	NV	63	--	9 U	6.8 U	7.4 U	11 U	7 U^	4.9 U	10 U	--
Endosulfan I	NV	480000	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Endosulfan II	NV	480000	--	9 U	6.8 U	7.4 U	11 U	7 U^	4.9 U	10 U	--
Endosulfan Sulfate	NV	NV	--	9 U	6.8 U	7.4 U	11 U	7 U	4.9 U	10 U	--
Endrin	NV	24000	--	9 U	6.8 U	7.4 U	11 U	7 U	4.9 U	10 U	--
Endrin Aldehyde	NV	NV	--	9 U	6.8 U	7.4 U	11 U	7 U	4.9 U	10 U	--
Endrin Ketone	NV	NV	--	9 U	6.8 U	7.4 U	11 U	7 U	4.9 U	10 U	--
Heptachlor	NV	220	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	SB1, SB2, SB3	SB4		SB5		SB6			SB4, SB5, SB6
		Sample Name:	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A	DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP
		Collection Date:	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	NA	0 - 2.7	2.75 - 5	0 - 4	4 - 5	0 - 1.5	1.5 - 3	3 - 5	NA
	MTCA A Soil CUL	MTCA B Soil CUL									
Heptachlor Epoxide	NV	110	--	4.5 U	3.4 U	3.7 U	5.5 U	3.5 U	2.4 U	5 U	--
Methoxychlor	NV	400000	--	45 U	34 U	37 U	55 U	35 U	24 U	50 U	--
Toxaphene	NV	910	--	450 U^	340 U^	370 U	550 U^	350 U^	240 U	500 U	--
VOCs (ug/kg)											
1,1,1,2-Tetrachloroethane	NV	39000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	5 U*	5.2 U*	--
1,1,1-Trichloroethane	2000	160000000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
1,1,2,2-Tetrachloroethane	NV	5000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
1,1,2-Trichloroethane	NV	18000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
1,1-Dichloroethane	NV	180000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
1,1-Dichloroethene	NV	4000000	--	59 U	19 U	41 U	64 U	16 U	25 U	26 U	--
1,1-Dichloropropene	NV	NV	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
1,2,3-Trichlorobenzene	NV	NV	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
1,2,3-Trichloropropane	NV	33	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	5 U*	5.2 U*	--
1,2,4-Trimethylbenzene	NV	NV	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
1,2-Dibromo-3-chloropropane	NV	1250	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 UJ*	10 U*	--
1,2-Dichloroethane	NV	11000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
1,2-Dichloropropane	NV	28000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
1,3,5-Trimethylbenzene	NV	800000	--	59 U*	19 U*	41 U	64 U*	16 U	25 U*	26 U*	--
1,3-Dichloropropane	NV	NV	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
2,2-Dichloropropane	NV	NV	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
2-Chlorotoluene	NV	1600000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
4-Chlorotoluene	NV	NV	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
Benzene	30	18200	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Bromobenzene	NV	NV	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
Bromochloromethane	NV	NV	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Bromoform	NV	130000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	5 U*	5.2 U*	--
Bromomethane	NV	110000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Carbon Tetrachloride	NV	14000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Chlorobenzene	NV	1600000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	5 U*	5.2 U*	--
Chlorodibromomethane	NV	12000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Chloroethane	NV	NV	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Chloroform	NV	32000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Chloromethane	NV	NV	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
cis-1,2-Dichloroethene	NV	160000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
cis-1,3-Dichloropropene	NV	10000[c]	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Cumene	NV	800000	--	24 U*	**9.6 ***	17 U	26 U*	6.4 U	10 U*	**19 ***	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

		Location:	SB1, SB2, SB3	SB4		SB5		SB6			SB4, SB5, SB6
		Sample Name:	DNR-SB123B-COMP	DNR-SB4A	DNR-SB4B	DNR-SB5B	DNR-SB5A	DNR-SB6B	DNR-SB6A	DNR-SB6C	DNR-SB456B-COMP
		Collection Date:	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011	April-2011
		Collection Depth (ft bgs):	NA	0 - 2.7	2.75 - 5	0 - 4	4 - 5	0 - 1.5	1.5 - 3	3 - 5	NA
	MTCA A Soil CUL	MTCA B Soil CUL									
Dibromomethane	NV	800000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Dichlorobromomethane	NV	16000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Dichlorodifluoromethane (CFC-12)	NV	16000000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Ethylbenzene	6000	8000000	--	12 U*	7.6 *	8.3 U	13 U*	3.2 U	5 U*	**35 ***	--
Ethylene Dibromide	5	500	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Methyl t-butyl ether	100	556000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Methylene Chloride	20	500000	--	180 U	58 U	120 U	190 U	48 U	76 U	78 U	--
m, p-Xylene	NV	16000000	--	24 U*	**14 ***	17 U	26 U*	6.4 U	10 U*	**15 ***	--
n-Butylbenzene	NV	4000000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
n-Propylbenzene	NV	8000000	--	12 U*	3.9 U*	8.3 U	13 U*	3.2 U	5 U*	5.2 U*	--
o-Xylene	NV	16000000	--	12 U*	**5 ***	8.3 U	13 U*	3.2 U	5 U*	5.2 U*	--
p-Isopropyltoluene	NV	NV	--	24 U*	**42 ***	17 U	26 U*	6.4 U	79 *	120 *	--
sec-Butylbenzene	NV	8000000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
Styrene	NV	16000000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
tert-Butylbenzene	NV	8000000	--	24 U*	7.8 U*	17 U	26 U*	6.4 U	10 U*	10 U*	--
Tetrachloroethene	50	480000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Toluene	7000	6400000	--	24 U	**68**	17 U	26 U	6.4 U	**11**	**19**	--
trans-1,2-Dichloroethene	NV	1600000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
trans-1,3-Dichloropropene	NV	10000[c]	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Trichloroethene	30	12000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Trichlorofluoromethane (CFC-11)	NV	24000000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Vinyl Chloride	NV	240000	--	12 U	3.9 U	8.3 U	13 U	3.2 U	5 U	5.2 U	--
Total Xylenes	--	--	--	-- ~~U~~	**19**	17 U	26 U	6.4 U	10 U	**15**	--

Table 7-2
Soil Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

NOTES:

Detections are in **bold** font.

Results that exceed MTCA CULs are shaded except for arsenic and chromium because concentrations of these metals are below natural background conditions. Non-detect results are not evaluated against ~~cleanup levels~~ CULs.

-- = not analyzed.

^ = data qualifier as shown in 2011 SAIC Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling Data Report. Data qualifier definition unavailable.

* = internal standard or LCS/LCSD exceeds control limits.

cPAH = carcinogenic PAHs.

CUL - cleanup level.

ft bgs = feet below ground surface.

J = result is an estimated value.

LCS = laboratory control sample.

LCSD = LCS duplicate.

mg/kg = milligrams per kilogram (parts per million).

MTCA = Model Toxics Control Act

MTCA A = MTCA Method A soil, unrestricted land use.

MTCA B = MTCA Method B soil, lower of available direct contact cancer or non-cancer value.

NC = not calculated due to significantly elevated reporting limits.

NV = no value.

PAH = polycyclic aromatic hydrocarbons.

PAH TEQ = PAH toxicity equivalence, based on benzo(a)pyrene.

PCBs = polychlorinated biphenyls.

pg/g = picograms per gram.

R = result is rejected.

SAIC = Science Applications International Corporation.

SVOCs = semivolatile organic compounds

TEQ = toxicity equivalence quotient.

TPH = total petroleum hydrocarbon.

U = result is non-detect.

ug/kg = micrograms per kilogram.

UH = the result is non-detect and was prepared or analyzed beyond the specified holding time.

UL = data qualifier as shown in 2011 SAIC Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling Data Report. Data qualifier definition unavailable.

VOCs = volatile organic compounds.

Y = the chromatographic response resembles a typical fuel pattern (from a general Test America lab report qualifier definition page).

Z = data qualifier as shown in 2011 SAIC Weyerhaeuser Aquatic Lands Lease Confirmatory Sampling Data Report. Data qualifier definition unavailable.

[a]Value is for hexavalent chromium/trivalent chromium.

[b]Value is for benzo(b)fluoranthene.

[c]Value is for 1,3-dichloropropene.

[d]Value was updated from 100 ug/kg based on personal communication with the Washington Department of Ecology in 2019.

Table 7-3
Groundwater, Seep, and Stormwater Analytical Results and In-Water Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	Surface Water SLV[a]	SLV Source	CR-20	CR-21	CR-22	CR-23	SEEP-01	STORM-01
Sample Name:			CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	Seep-01	Storm-01
Collection Date:			10/12/2015	10/12/2015	10/13/2015	10/13/2015	10/12/2015	1/12/2016
Collection Depth (well screen midpoint, ft bgs):			5.5	7.5	6.5	3.5	0	NA
Dissolved Metals (ug/L)								
Arsenic	150[b]	EPA AQ CCC	50 U	50 U	50 U	50 U	--	0.2 U
Cadmium	0.72[b]	EPA AQ CCC	2 U	2 U	2 U	2 U	--	0.1 U
Chromium	74[b,c]	EPA AQ CCC	5 U	5 U	5 U	5 U	--	**1**
Copper	11[b,d]	EPA AQ BLM[c]	--	--	--	--	--	0.5 U
Lead	3.2[b]	EPA AQ CCC	--	--	--	--	--	0.1 U
Mercury	0.77[b]	EPA AQ CCC	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Silver	26000	MTCA B SW	--	--	--	--	--	0.2 U
Zinc	17000	MTCA B SW	--	--	--	--	--	**37**
Total Metals (ug/L)								
Arsenic	0.018	EPA HH WO	50 U	50 U	50 U	50 U	--	**0.6**
Cadmium	41[e]	MTCA B SW	2 U	2 U	2 U	2 U	--	0.1 U
Chromium	240000[c]	MTCA B SW	5 U	**66**	**13**	**11**	--	**1.2**
Copper	1300	EPA HH WO	--	--	--	--	--	**4.3**
Lead	NV	NV	20 U	20 U	20 U	20 U	--	**2**
Mercury	NV	NV	0.1 U	**0.1**	**0.1**	0.1 U	0.1 U	**0.2**
Silver	3.2	EPA AQ CMC	--	--	--	--	--	0.2 U
Zinc	120	EPA AQ CCC/CMC	--	--	--	--	--	**60**
PCBs (ug/L)								
Aroclor 1016	0.0030	MTCA B SW	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1221	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1232	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1242	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1248	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1254	0.00010	MTCA B SW	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1260	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1268	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U
Total PCBs	0.000064	EPA HH WO/O	1 U	1 U	1 U	1 U	1 U	1 U
SVOCs (ug/L)								
1,2,4-Trichlorobenzene	0.071	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
1,2-Dichlorobenzene	1000	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
1,3-Dichlorobenzene	7	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
1,4-Dichlorobenzene	300	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
1-Methylnaphthalene	NV	NV	1 U	1 U	**1.7**	**2**	1 U	--
2,4,5-Trichlorophenol	300	EPA HH WO	5 U	5 U	5 U	5 U	5 U	--
2,4,6-Trichlorophenol	1.5	EPA HH WO	3 U	3 U	3 U	3 U	3 U	--
2,4-Dichlorophenol	10	EPA HH WO	3 U	3 U	3 U	3 U	3 U	--
2,4-Dimethylphenol	100	EPA HH WO	3 U	3 U	3 U	3 U	3 U	3.3 U

Table 7-3
Groundwater, Seep, and Stormwater Analytical Results and In-Water Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	Surface Water SLV[a]	SLV Source	CR-20	CR-21	CR-22	CR-23	SEEP-01	STORM-01
Sample Name:			CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	Seep-01	Storm-01
Collection Date:			10/12/2015	10/12/2015	10/13/2015	10/13/2015	10/12/2015	1/12/2016
Collection Depth (well screen midpoint, ft bgs):			5.5	7.5	6.5	3.5	0	NA
2,4-Dinitrophenol	10	EPA HH WO	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	--
2,4-Dinitrotoluene	0.049	EPA HH WO	3 U	3 U	3 U	3 U	3 U	--
2,6-Dinitrotoluene	NV	NV	3 U	3 U	3 U	3 U	3 U	--
2-Chloronaphthalene	800	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
2-Chlorophenol	30	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
2-Methylnaphthalene	NV	NV	1 U	1 U	**1.7**	**2**	1 U	1.1 U
2-Methylphenol	NV	NV	1 U	1 U	1 U	1 U	1 U	1.1 U
2-Nitroaniline	NV	NV	3 U	3 U	3 U	3 U	3 U	--
2-Nitrophenol	NV	NV	3 U	3 U	3 U	3 U	3 U	--
3,3-Dichlorobenzidine	0.049	EPA HH WO	5 U	5 U	5 U	5 U	5 U	--
3-Nitroaniline	NV	NV	3 U	3 U	3 U	3 U	3 U	--
4,6-Dinitro-2-methylphenol	2	EPA HH WO	10 U	10 U	10 U	10 U	10 U	--
4-Bromophenylphenyl ether	NV	NV	1 U	1 U	1 U	1 U	1 U	--
4-Chloro-3-methylphenol	500	EPA HH WO	3 U	3 U	3 U	3 U	3 U	--
4-Chloroaniline	NV	NV	5 U	5 U	5 U	5 U	5 U	--
4-Chlorophenylphenyl ether	NV	NV	1 U	1 U	1 U	1 U	1 U	--
4-Methylphenol	NV	NV	2 U	2 U	2 U	**1.4 J**	2 U	2.2 U
4-Nitroaniline	NV	NV	3 U	3 U	3 U	3 U	3 U	--
4-Nitrophenol	NV	NV	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	--
Acenaphthene	70	EPA HH WO	1 U	1 U	**4.1**	**0.8 J**	1 U	1.1 U
Acenaphthylene	NV	NV	1 U	1 U	1 U	1 U	1 U	1.1 U
Anthracene	300	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(a)anthracene	0.0012	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(a)pyrene	0.00012	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(ghi)perylene	NV	NV	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzoic acid	NV	NV	20 UJ	20 UJ	20 UJ	**14 J**	20 UJ	22 U
Benzyl alcohol	NV	NV	2 U	2 U	2 U	2 U	2 U	2.2 U
Bis(2-chloro-1-methylethyl)ether	200	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
Bis(2-chloroethoxy)methane	NV	NV	1 U	1 U	1 U	1 U	1 U	--
Bis(2-chloroethyl)ether	0.03	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
Bis(2-ethylhexyl)phthalate	0.32	EPA HH WO	3 U	3 U	3 U	3 U	3 U	3.3 U
Butylbenzylphthalate	0.10	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Carbazole	NV	NV	1 U	1 U	**0.7 J**	1 U	1 U	--
Chrysene	0.12	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Dibenzo(a,h)anthracene	0.00012	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Dibenzofuran	NV	NV	1 U	1 U	**1.4**	1 U	1 U	1.1 U
Diethyl phthalate	600	EPA HH WO/O	1 U	1 U	1 U	1 U	1 U	1.1 U
Dimethyl phthalate	2000	EPA HH WO/O	1 U	1 U	1 U	1 U	1 U	1.1 U
Di-n-butyl phthalate	20	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U

Table 7-3
Groundwater, Seep, and Stormwater Analytical Results and In-Water Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	Surface Water SLV[a]	SLV Source	CR-20	CR-21	CR-22	CR-23	SEEP-01	STORM-01
Sample Name:			CR20-GW-5.0	CR21-GW-10	CR22-GW-9.0	CR23-GW-6.0	Seep-01	Storm-01
Collection Date:			10/12/2015	10/12/2015	10/13/2015	10/13/2015	10/12/2015	1/12/2016
Collection Depth (well screen midpoint, ft bgs):			5.5	7.5	6.5	3.5	0	NA
Di-n-octyl phthalate	NV	NV	1 U	1 U	1 U	1 U	1 U	1.1 U
Fluoranthene	20	EPA HH WO/O	1 U	1 U	**0.7 J**	1 U	1 U	1.1 U
Fluorene	50	EPA HH WO	1 U	1 U	**2**	1 U	1 U	1.1 U
Hexachlorobenzene	0.000079	EPA HH WO/O	1 U	1 U	1 U	1 U	1 U	1.1 U
Hexachlorobutadiene	0.01	EPA HH WO/O	3 U	3 U	3 U	3 U	3 U	3.3 U
Hexachlorocyclopentadiene	4	EPA HH WO/O	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	--
Hexachloroethane	0.1	EPA HH WO/O	2 U	2 U	2 U	2 U	2 U	--
Indeno(1,2,3-cd)pyrene	0.0012	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Isophorone	34	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
Naphthalene	4700	MTCA B SW	1 U	1 U	**13**	**5.5**	1 U	1.1 U
Nitrobenzene	10	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
N-Nitrosodiphenylamine	3.3	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
N-Nitrosodipropylamine	0.005	EPA HH WO	1 U	1 U	1 U	1 U	1 U	--
Pentachlorophenol	0.03	EPA HH WO	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 U
Phenanthrene	NV	NV	1 U	1 U	**1.7**	**0.6 J**	1 U	1.1 U
Phenol	4000	EPA HH WO	1 U	1 U	1 U	1 U	1 U	1.1 U
Pyrene	20	EPA HH WO	1 U	1 U	**0.5 J**	1 U	1 U	1.1 U
Total Benzofluoranthenes	0.0012[e]	EPA HH WO	2 U	2 U	2 U	2 U	2 U	2.2 U
TPH (ug/L)								
Diesel-range Hydrocarbons	500	MTCA A GW	**1000**	**720**	**450**	**3400 J**	**220**	100 U
Lube Oil-range Hydrocarbons	500	MTCA A GW	**1600**	**3100**	**960**	**3200 J**	**330**	200 U
Dioxins/Furans (pg/L)								
Dioxin/Furan TEQ	0.005[f]	EPA HH WO	--	--	--	--	--	**7.25 J**

Table 7-3
Groundwater, Seep, and Stormwater Analytical Results and In-Water Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

NOTES:
Detections are in **bold** font.
Results that exceed screening levels are shaded. Non-detect results are not evaluated against screening levels.
BLM = biotic ligand model.
CUL = cleanup level.
EPA AQ BLM = USEPA national recommended water quality criteria for freshwater aquatic life, biotic ligand model.
EPA AQ CCC = USEPA national recommended water quality criteria for freshwater aquatic life, criterion continuous concentration.
EPA AQ CCC/CMC = USEPA national recommended water quality criteria for freshwater aquatic life. The criterion continuous concentration and criterion maximum concentrations are equivalent.
EPA AQ CMC = USEPA national recommended water quality criteria for freshwater aquatic life, criterion maximum concentration.
EPA HH WO = USEPA national recommended water quality criteria for human health, consumption of water and organism.
EPA HH WO/O = USEPA national recommended water quality criteria for human health. The consumption of water and organism and consumption of water criteria are equivalent.
ft bgs = feet below ground surface.
J = result is an estimated value.
MTCA = Model Toxics Control Act.
MTCA A GW = MTCA Method A CUL for groundwater.
MTCA B SW = MTCA Method B, lower of available cancer or non-cancer CUL for surface water.
NA = not applicable.
NV = no value.
PCB = polychlorinated biphenyl.
pg/L = picogram per liter.
SLV = screening level value.
SVOC = semivolatile organic compound.
TEQ = toxicity equivalence quotient.
Total PCBs = sum of PCB Aroclors. The highest non-detect value is used when all constituents are non-detect.
TPH = total petroleum hydrocarbon.
U = result is non-detect at method reporting limit.
ug/L = micrograms per liter.
UJ = result is non-detect at or above method reporting limit. Reported value is estimated.
USEPA = U.S. Environmental Protection Agency.

[a]SLV is lower of available USEPA national recommended water quality criteria for freshwater aquatic life or human health. MTCA B SW CUL is provided when USEPA criteria are not available. MTCA A GW CUL provided for TPH.

[b]Freshwater criterion is expressed in terms of the dissolved metal in the water column.

[c]Value is for trivalent chromium.

[d]Freshwater chronic ambient water quality criteria generated using the BLM. Water quality parameters used as inputs to the BLM were measured by the Washington Department of Ecology in Longfellow Creek in 2012 and are reported here: https://fortress.wa.gov/ecy/publications/documents/1303041.pdf.

[e]Value is for MTCA B nonpotable surface water.

[e]Value is for benzo(b)fluoranthene, as a value for total benzofluoranthenes is not available.

[f]Value is for 2,3,7,8-TCDD.

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Lumber Shed		Former Boiler				Beach Area		Shannon Slough
Location:	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10
Sample Name:	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP
Collection Date:	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015	10/13/2015	10/13/2015	10/14/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	18.3-20.0	0-0.33	8.0	0-0.33	0-0.33	0-0.33
Dioxins/Furans (pg/g)									
1,2,3,4,6,7,8-HpCDD	--	--	**583**	**14.5**	**955**	12.5	**95.4**	**107**	--
1,2,3,4,6,7,8-HpCDF	--	--	**33.1**	**1.26**	**75.8**	0.295 U	**14.6**	**23.9**	--
1,2,3,4,7,8,9-HpCDF	--	--	2.1 U	0.25 U	**3.72**	0.0959 J	**0.908 J**	**1.15**	--
1,2,3,4,7,8-HxCDD	--	--	**2.33**	0.583 U	**2.96**	0.589 J	**1.32**	**1.57**	--
1,2,3,4,7,8-HxCDF	--	--	**1.42**	**0.217 J**	**4.39**	0.111 J	0.991 U	1.16 U	--
1,2,3,6,7,8-HxCDD	--	--	**10.7**	**1.3**	**22.3**	1.71	**5.25**	**6.27**	--
1,2,3,6,7,8-HxCDF	--	--	**0.798 J**	**0.178 J**	**2.13**	0.14 J	**0.626 J**	**0.924 J**	--
1,2,3,7,8,9-HxCDD	--	--	**8.01**	**5.31**	**13.9**	7.04	**5.49**	**7.96**	--
1,2,3,7,8,9-HxCDF	--	--	0.0933 U	0.258 U	**1.62**	0.146 U	**0.395 J**	**0.42 J**	--
1,2,3,7,8-PeCDD	--	--	**2.87**	**1.76**	**4.81**	2.68	**1.99**	**3.16**	--
1,2,3,7,8-PeCDF	--	--	0.483 U	**0.141 J**	**0.978 J**	0.288 U	0.383 U	**0.394 J**	--
2,3,4,6,7,8-HxCDF	--	--	**1.46**	**0.188 J**	**3.84**	0.105 J	**0.991**	**1.36**	--
2,3,4,7,8-PeCDF	--	--	**0.506 J**	**0.0704 J**	**1.06**	0.201 J	0.379 U	0.528 U	--
2,3,7,8-TCDD	--	--	**1.71**	**1.55**	**2.79**	2.06	**1.18**	2.06 U	--
2,3,7,8-TCDF	--	--	**1.06**	**0.088 J**	**2.48**	0.529 J	**0.831 J**	**1.63**	--
OCDD	--	--	**13700 J**	**130**	**22200 J**	45.4 U	**700**	**788**	--
OCDF	--	--	**73.9**	**6.41**	**128**	0.802 U	**23.8**	**33.8**	--
Total HpCDDs	--	--	**1650**	**32.3**	**4120**	26.3	**225**	**273**	--
Total HpCDFs	--	--	126 U	3.43 U	243 U	0.643 U	**37.3**	58.9 U	--
Total HxCDDs	--	--	147 U	33.2 U	**321**	45.4 U	48.3 U	72.3 U	--
Total HxCDFs	--	--	44 U	1.27 U	119 U	0.888 U	22.2 U	30.8 U	--
Total PeCDDs	--	--	25.9 U	12.7 U	**38.2**	21.9 U	12.4 U	21 U	--
Total PeCDFs	--	--	12.8 U	0.428 U	35.9 U	2.08 U	10.6 U	16.5 U	--
Total TCDDs	--	--	23.9 U	12 U	25 U	21.4 U	8.55 U	15.4 U	--
Total TCDFs	--	--	10.9 U	0.656 U	21.7 U	10.7 U	6.42 U	12.5 U	--
Dioxin TEQ	--	--	**17.6**	**4.31**	**30.4**	**5.97**	**6.10**	**7.92**	--
Total Metals (mg/kg)									
Arsenic	20 U	20 U	**30**	**20**	**20**	20	9 U	9 U	**30**
Cadmium	0.8 U	0.9 U	0.4 U	0.7 U	0.4 U	0.7 U	0.4 U	**0.4**	0.4 U
Chromium	**43**	**49**	**52**	**39**	**42**	40	**31**	**39.9**	**42**
Copper	--	**81.5**	**134**	**57.8**	**61.1**	55.3	**40.8**	**49.2**	**54.8**
Lead	**11**	**21**	**30**	**8**	**14**	10	**8**	**10**	**11**
Mercury	**0.04**	**0.16**	**0.06**	0.03 U	**0.06**	0.07	**0.04**	**0.06**	**0.07**
Silver	--	1 U	0.6 U	1 U	0.7 U	1 U	0.5 U	0.5 U	0.6 U
Zinc	--	**107**	**134**	**71**	**90**	75	**68**	**80**	**83**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Lumber Shed		Former Boiler				Beach Area		Shannon Slough
Location:	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10
Sample Name:	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP
Collection Date:	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015	10/13/2015	10/13/2015	10/14/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	18.3-20.0	0-0.33	8.0	0-0.33	0-0.33	0-0.33
TCLP Metals (mg/L)									
Lead	--	--	--	--	--	--	--	--	--
Mercury	--	--	--	--	--	--	--	--	--
PCBs (ug/kg)									
Aroclor 1016	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Aroclor 1221	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Aroclor 1232	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Aroclor 1242	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Aroclor 1248	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Aroclor 1254	19 U	**30**	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Aroclor 1260	19 U	**24**	19 U	18 U	**14 J**	18 U	18 U	19 U	19 U
Aroclor 1268	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U
Total PCBs[a]	19 U	**54**	19 U	18 U	**14 J**	18 U	18 U	19 U	19 U
SVOCs (ug/kg)									
1,2,4-Trichlorobenzene	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	**3 J**
1,2-Dichlorobenzene	19 U	4.8 U	4.8 U	5 U	4.8 U	1.8 J	4.7 U	4.8 U	**3.3 J**
1,3-Dichlorobenzene	19 U	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	19 U	4.8 U	**2.4 J**	5 U	4.8 U	4.9 U	**4.2 J**	4.8 U	**3.7 J**
2,4-Dimethylphenol	97 U	24 U	24 U	25 U	24 U	**17 J**	24 U	24 U	25 U
2-Methylphenol	19 U	**8.4**	4.8 U	5 U	4.8 U	4.9 U	**4 J**	**7.3**	**7.7**
3,4-Methylphenol	--	--	--	--	--	--	--	--	--
4-Methylphenol	**26**	**120**	**28 J**	**190 J**	**210**	**560 J**	**26**	19 U	**160 J**
Benzoic acid	**170 J**	**680**	**180 J**	**110 J**	**330 J**	**290 J**	**230**	**380**	**210 J**
Benzyl alcohol	19 U	19 U	**27**	**17 J**	19 U	**50**	19 U	**58**	**22**
Bis(2-ethylhexyl)phthalate	**58**	**66**	48 U	50 U	48 U	49 U	**43 J**	**39 J**	50 U
Butylbenzylphthalate	19 U	4.8 U	4.8 U	5 U	**320**	4.9 U	**5.1**	4.8 U	5 U
Dibenzofuran	**45**	**47**	**25**	**14 J**	**53**	**65**	19 U	19 U	**28**
Diethylphthalate	19 U	19 U	**19**	20 U	36 U	**25**	19 U	19 U	20 U
Dimethyl phthalate	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	5 U
Di-n-butyl phthalate	19 U	**130**	19 U	20 U	19 U	20 U	19 U	19 U	20 U
Di-n-octyl phthalate	19 U	19 U	**710**	20 U	19 U	20 U	19 U	19 U	20 U
Hexachlorobenzene	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	**3.3 J**
Hexachlorobutadiene	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	**2.8 J**
N-Nitrosodiphenylamine	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	5 U
Pentachlorophenol	97 U	**86 J**	**14 J**	20 U	**11 J**	20 U	19 UJ	19 UJ	**23**
Phenol	**18 J**	**100**	**35**	**22**	**71**	**53**	**130**	**200**	**51**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Lumber Shed		Former Boiler				Beach Area		Shannon Slough
Location:	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10
Sample Name:	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP
Collection Date:	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015	10/13/2015	10/13/2015	10/14/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	18.3-20.0	0-0.33	8.0	0-0.33	0-0.33	0-0.33
PAHs (ug/kg)									
1-Methylnaphthalene	**18 J**	**16 J**	**16 J**	**13 J**	**29**	**50**	**9.5 J**	19 U	**15 J**
2-Methylnaphthalene	**40**	19 U	**23**	20 U	19 U	**79**	19 U	19 U	**26**
Acenaphthene	**35**	**25**	**16 J**	**18 J**	**51**	**75**	19 U	19 U	**24**
Acenaphthylene	**16 J**	**19**	**14 J**	**56**	**51**	**300**	19 U	19 U	**59**
Anthracene	**57**	**65**	**27**	**15 J**	**71**	**72**	19 U	**11 J**	**26**
Benzo(a)anthracene	**130**	**120**	**43**	20 U	**94**	**46**	19 U	**14 J**	**46**
Benzo(a)pyrene	**67**	**84**	**37**	20 U	**67**	**44**	19 U	**12 J**	**32**
Benzo(ghi)perylene	**57**	**56**	**28**	20 U	**54**	**44**	19 U	**14 J**	**29**
Chrysene	**180**	**160**	**74**	20 U	**130**	**73**	**10 J**	**24**	**56**
Dibenzo(a,h)anthracene	**18 J**	**19**	**9.5**	5 U	**12**	**6.4**	4.7 U	**3.9 J**	**8.5**
Fluoranthene	**450**	**380**	**110**	**44**	**280**	**290**	**22**	**52**	**180**
Fluorene	**48**	**29**	19 U	**15 J**	**52**	**66**	19 U	**14 J**	**29**
Indeno(1,2,3-cd)pyrene	**43**	**54**	**26**	20 U	**46**	**28**	19 U	**13 J**	**19 J**
Naphthalene	**88**	**120**	**110**	**180**	**170**	**800**	**45**	19 U	**200**
Phenanthrene	**190**	**160**	**92**	**60**	**220**	**430**	**26**	**52**	**110**
Pyrene	**360**	**300**	**84**	**41**	**250**	**300**	**17 J**	**40**	**150**
Total Benzofluoranthenes	**230**	**230**	**100**	40 U	**220**	**92**	**12 J**	**34 J**	**110**
Total HPAHs	**1535 J**	**1403**	**512**	**85**	**1153**	**923**	**61 J**	**207 J**	**631 J**
Total LPAHs	**434 J**	**418**	**259 J**	**344 J**	**615**	**1743**	**71**	**96 J**	**448**
cPAH TEQ	**111 J**	**128**	**56**	ND	**106**	**62**	**13 J**	**19 J**	**51 J**
Petroleum Hydrocarbons (mg/kg)									
Gasoline	--	--	--	--	--	--	--	--	--
Diesel	**180**	**370**	--	**26**	**130**	**170**	--	--	--
Motor-Oil Range	**520**	**850**	--	**74**	**320**	**280**	--	--	--
Conventionals									
Ammonia (as N) (mg N/kg)	--	--	--	--	--	--	--	--	--
Sulfide (mg/kg)	--	--	--	--	--	--	--	--	--
Total Organic Carbon (%)	**1.09**	**1.56**	**1.92**	**1.29**	**2.05**	**3.08**	**4.39**	**2.99**	**2.94**
Total Volatile Solids (%)	--	--	--	--	--	--	--	--	--
Fixed Solids (%)	--	--	--	--	--	--	--	--	--
Total Solids (%)	**67.22**	**54.35**	**47.46**	**63.97**	**44.38**	**55.76**	**55.6**	**59.33**	**45.44**
Grain Size (%)									
Gravel	--	--	--	--	--	--	--	--	--
Very coarse sand	--	--	--	--	--	--	--	--	--
Coarse sand	--	--	--	--	--	--	--	--	--
Medium sand	--	--	--	--	--	--	--	--	--
Fine sand	--	--	--	--	--	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Lumber Shed		Former Boiler				Beach Area		Shannon Slough
Location:	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10
Sample Name:	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP
Collection Date:	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015	10/13/2015	10/13/2015	10/14/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	18.3-20.0	0-0.33	8.0	0-0.33	0-0.33	0-0.33
Very fine sand	--	--	--	--	--	--	--	--	--
Coarse silt	--	--	--	--	--	--	--	--	--
Medium silt	--	--	--	--	--	--	--	--	--
Fine silt	--	--	--	--	--	--	--	--	--
Very fine silt	--	--	--	--	--	--	--	--	--
Coarse clay	--	--	--	--	--	--	--	--	--
Medium clay	--	--	--	--	--	--	--	--	--
Fine clay	--	--	--	--	--	--	--	--	--
Total fines	--	--	--	--	--	--	--	--	--
Asbestos (%)									
Asbestos	--	--	<1	<1	<1	<1	--	--	--
Pore Water Analysis									
Conductivity (uS/cm)	--	--	--	--	--	--	--	--	--
Salinity (ppt)	--	--	--	--	--	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Chehalis River (2013)			Former Mill Area and Chehalis River						
Location:	CR-01	CR-02	CR-03	CR-04			CR-05		CR-06	
Sample Name:	CR01-10cm	CR02-10cm	CR03-10cm	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5
Collection Date:	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5
Dioxins/Furans (pg/g)										
1,2,3,4,6,7,8-HpCDD	**211**	**201**	**66.1**	**817**	**4070**	--	**1820**	**12200**	**1080**	**1090**
1,2,3,4,6,7,8-HpCDF	**31.9**	**113**	**24.7**	**165**	**919**	--	**437**	**1170**	**258**	**276**
1,2,3,4,7,8,9-HpCDF	**1.59**	**4.94**	**0.894 J**	7.55 U	**42.8**	--	**19.8**	**81.3**	**13.2**	**15.5**
1,2,3,4,7,8-HxCDD	**1.76**	**1.96**	**1.42**	**4.26**	**32.5**	--	**11.2**	**24.5**	**12.7**	**8.21**
1,2,3,4,7,8-HxCDF	**2.77**	**4.6**	**1.02**	**7.26**	**35.9**	--	**15.3**	**115**	**18.1**	**21.7**
1,2,3,6,7,8-HxCDD	**9.98**	**10.4**	**4.81**	**54.5**	**350**	--	**136**	**1020**	**63.8**	**72.8**
1,2,3,6,7,8-HxCDF	**1.19**	**3.22**	**0.862 J**	**3.38**	**18.9**	--	**10.9**	**51.7**	**8.9**	**8.35**
1,2,3,7,8,9-HxCDD	**11.1**	**12.4**	**12.9**	**10.2**	**48.1**	--	**29.9**	**98.1**	**16.5**	**15.4**
1,2,3,7,8,9-HxCDF	0.778 U	**0.886 J**	**0.268 J**	**2.45**	**14.6**	--	**6.11**	**62.9**	**4.79**	**4.66**
1,2,3,7,8-PeCDD	**3.93**	**4.53**	**5.08**	**4.34**	**18.8**	--	**13.9**	**34.1**	**9.35**	**8.27**
1,2,3,7,8-PeCDF	**0.683 J**	**0.804 J**	**0.508 J**	**2.06**	**12.4**	--	**4.73**	**41.4**	**3.28**	**3.24**
2,3,4,6,7,8-HxCDF	**1.8**	**5.58**	**0.785 J**	**5.09**	**22.2**	--	**11.1**	**69.3**	**16.9**	**16.3**
2,3,4,7,8-PeCDF	**0.814 J**	**1.13**	**0.594 J**	**3.43**	**15.7**	--	**5.82**	**43.5**	**5.96**	**5.87**
2,3,7,8-TCDD	**2.62**	**2.89**	**3.56**	1.14 U	**3.97**	--	**3**	**5.26**	**2.09**	**2.11**
2,3,7,8-TCDF	**1.96**	**2.18**	**1.34**	**3.53**	**16**	--	**6.3**	**54.3**	**4.87**	**4.95**
OCDD	**1690**	**1550**	**489**	**5340 J**	**23500 J**	--	**10300 J**	**68300 J**	**7830 J**	**6810 J**
OCDF	**51**	**211**	**36.4**	**476**	**1900**	--	**863**	**3100**	**680**	**652**
Total HpCDDs	**485**	**433**	**167**	**1530**	**7520**	--	**3750**	**21300**	**2480**	**2050**
Total HpCDFs	87.1 U	**310**	**55.9**	678 U	**3910**	--	**1560**	5060 U	**950**	1120 U
Total HxCDDs	**97**	**114**	80.8 U	350 U	1540 U	--	1010 U	**4840**	742 U	783 U
Total HxCDFs	52.5 U	**125**	24.4 U	301 U	**2130**	--	**853**	6030 U	463 U	518 U
Total PeCDDs	**25.8**	**34.9**	**30.6**	68.7 U	133 U	--	334 U	862 U	**88.7**	67 U
Total PeCDFs	18 U	47.6 U	13.2 U	101 U	658 U	--	281 U	2660 U	203 U	147 U
Total TCDDs	17.4 U	28.1 U	24.7 U	17.5 U	32.6 U	--	73.6 U	**180**	42.6 U	**28.7**
Total TCDFs	12.4 U	33 U	16.7 U	27.9 U	119 U	--	78.1 U	558 U	82.8 U	62.3 U
Dioxin TEQ	**12.9**	**15.6**	**12.2**	**26.7**	**140**	--	**67.6**	**359**	**44.0**	**43.5**
Total Metals (mg/kg)										
Arsenic	10 U	9 U	10 U	--	--	--	--	--	--	20 U
Cadmium	**0.5**	**0.4**	0.5 U	--	--	--	--	--	--	1 U
Chromium	**40 J**	**38.5 J**	**48 J**	--	--	--	--	--	--	**26** J
Copper	**58 J**	**56.3 J**	**65.4 J**	--	--	--	--	--	--	**96** J
Lead	**7**	**9**	**8**	--	--	--	--	--	--	**110**
Mercury	**0.05**	**0.1**	**0.09**	**6.2**	**0.5 J**	--	**0.16**	**0.5** J	**0.55**	**0.53**
Silver	0.7 U	0.6 U	0.8 U	--	--	--	--	--	--	1 U
Zinc	**87**	**79**	**91**	--	--	--	--	--	--	**237**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Chehalis River (2013)			Former Mill Area and Chehalis River						
Location:	CR-01	CR-02	CR-03	CR-04			CR-05		CR-06	
Sample Name:	CR01-10cm	CR02-10cm	CR03-10cm	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5
Collection Date:	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5
TCLP Metals (mg/L)										
Lead	--	--	--	--	--	--	--	--	--	--
Mercury	--	--	--	--	--	--	--	--	--	--
PCBs (ug/kg)										
Aroclor 1016	18 U	19 U	19 U	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U
Aroclor 1221	18 U	19 U	19 U	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U
Aroclor 1232	23 U	38 U	46 U	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U
Aroclor 1242	18 U	19 U	19 U	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U
Aroclor 1248	18 U	19 U	19 U	29 UJ	48 UJ	--	29 UJ	97 UJ	--	99 U
Aroclor 1254	18 U	**12 J**	19 U	97 UJ	**440 J**	--	98 UJ	**490 J**	--	200 U
Aroclor 1260	18 U	19 U	19 U	**200 J**	**730 J**	--	**180 J**	**670 J**	--	**690**
Aroclor 1268	--	--	--	--	--	--	--	--	--	--
Total PCBs[a]	23 U	**12 J**	46 U	**200 J**	**1170 J**	--	**180 J**	**1160 J**	--	**690**
SVOCs (ug/kg)										
1,2,4-Trichlorobenzene	4.8 U	4.9 U	4.8 U	100 UJ	81 UJ	--	**43 J**	**74 J**	--	70 U
1,2-Dichlorobenzene	4.8 U	4.9 U	4.8 U	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U
1,3-Dichlorobenzene	4.8 U	4.9 U	4.8 U	100 UJ	81 UJ	--	**620 J**	**280 J**	--	70 U
1,4-Dichlorobenzene	4.8 U	**19** J	4.8 U	100 UJ	81 UJ	--	**1000 J**	**540 J**	--	70 U
2,4-Dimethylphenol	24 U	24 U	24 U	530 UJ	400 UJ	--	290 UJ	440 UJ	--	350 U
2-Methylphenol	4.8 U	4.9 U	**3.3 J**	100 UJ	81 UJ	--	**44 J**	88 UJ	--	**45 J**
3,4-Methylphenol	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	**30**	**730**	**60**	420 UJ	320 UJ	--	**310 J**	**280 J**	--	**420**
Benzoic acid	190 U	**240**	**180 J**	**1700 J**	3200 UJ	--	**950 J**	3500 UJ	--	**860 J**
Benzyl alcohol	**15 J**	**43 J**	**43** J	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U
Bis(2-ethylhexyl)phthalate	**29 J**	49 U	48 U	1000 UJ	**870 J**	--	**960 J**	**9400 J**	--	**1900**
Butylbenzylphthalate	4.8 U	4.9 U	4.8 U	58 UJ	81 UJ	--	58 UJ	88 UJ	310 UJ	70 U
Dibenzofuran	**12 J**	**20**	19 U	420 UJ	**210 J**	--	**310 J**	**230 J**	--	**490**
Diethylphthalate	**56**	**20**	**36**	420 UJ	320 UJ	--	230 UJ	350 UJ	--	**270 J**
Dimethyl phthalate	4.8 U	**3.1 J**	**2.5 J**	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U
Di-n-butyl phthalate	19 U	20 U	19 U	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U
Di-n-octyl phthalate	19 U	20 U	19 U	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U
Hexachlorobenzene	4.8 U	4.9 U	4.8 U	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U
Hexachlorobutadiene	4.8 U	4.9 U	4.8 U	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U
N-Nitrosodiphenylamine	4.8 U	4.9 U	4.8 U	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U
Pentachlorophenol	19 U	20 U	19 U	**270 J**	**400 J**	--	230 UJ	350 UJ	1500 UJ	**240 J**
Phenol	**24**	**94**	**43**	**290 J**	**390 J**	**980** J	**570 J**	**530 J**	**370 J**	**240 J**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Chehalis River (2013)			Former Mill Area and Chehalis River						
Location:	CR-01	CR-02	CR-03	CR-04			CR-05		CR-06	
Sample Name:	CR01-10cm	CR02-10cm	CR03-10cm	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5
Collection Date:	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5
PAHs (ug/kg)										
1-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	19 U	**28**	19 U	420 UJ	320 UJ	--	**310**	350 UJ	--	**780**
Acenaphthene	**14 J**	**20**	19 U	420 UJ	**180 J**	--	**210**	**390 J**	--	**490**
Acenaphthylene	19 U	**68**	19 U	420 UJ	320 UJ	--	**170**	350 UJ	--	**520**
Anthracene	**14 J**	**16 J**	19 U	420 UJ	**290 J**	--	**230**	**320 J**	--	**750**
Benzo(a)anthracene	**28**	**11 J**	19 U	**250 J**	**640 J**	--	**390**	**680 J**	--	**1300**
Benzo(a)pyrene	**21**	20 U	19 U	**300 J**	**680 J**	--	**340 J**	**530 J**	--	**1200**
Benzo(ghi)perylene	**14 J**	**15 J**	19 U	**230 J**	**660 J**	--	**260 J**	**300 J**	--	**590**
Chrysene	**35**	**17 J**	19 U	**530 J**	**940 J**	--	**420 J**	**460 J**	--	**1600**
Dibenzo(a,h)anthracene	**3 J**	4.9 U	4.8 U	**120 J**	**360 J**	--	**94 J**	**190 J**	--	**150**
Fluoranthene	**100**	**63**	**25**	**590 J**	**2200 J**	--	**1300 J**	**3900 J**	--	**3200**
Fluorene	**14 J**	**15 J**	19 U	420 UJ	**180 J**	--	**260 J**	**230 J**	--	**650**
Indeno(1,2,3-cd)pyrene	19 U	20 U	19 U	420 UJ	**480 J**	--	**200 J**	**190 J**	--	**490**
Naphthalene	**25**	**280**	**23**	**420 J**	**340 J**	--	**720 J**	**440 J**	--	**1800**
Phenanthrene	**47**	**89**	**19**	**320 J**	**370 J**	--	**700 J**	**470 J**	--	**3600**
Pyrene	**110**	**61**	**21**	**700 J**	**1800 J**	--	**1300 J**	**3100 J**	--	**3600**
Total Benzofluoranthenes	**52**	**22 J**	**13 J**	**550 J**	**1700 J**	--	**660**	**810 J**	--	**2000**
Total HPAHs	**363**	**189**	**59**	**3270 J**	**9460 J**	--	**4964 J**	**10160 J**	--	**14130**
Total LPAHs	**114**	**488**	**42**	**740 J**	**1360 J**	--	**2290 J**	**1850 J**	--	**7810**
cPAH TEQ	**31**	**15**	**13**	**418 J**	**1007 J**	--	**479 J**	**722 J**	--	**1610**
Petroleum Hydrocarbons (mg/kg)										
Gasoline	--	--	--	--	--	--	--	--	--	54 UJ
Diesel	--	--	--	**2400 J**	**3200 J**	--	**1200 J**	**3200 J**	--	**20000**
Motor-Oil Range	--	--	--	**7400 J**	**10000 J**	--	**4800 J**	**13000 J**	--	**60000**
Conventionals										
Ammonia (as N) (mg N/kg)	--	--	--	0.47 U	--	**15.2**	**7.21**	--	**1.37**	**14.0**
Sulfide (mg/kg)	--	--	--	**6.46**	--	**179**	**320**	--	**906**	**2910**
Total Organic Carbon (%)	**2.06 J**	**3.21 J**	**2.91 J**	**31.4 J**	--	**16.5 J**	**13.6 J**	--	**35.6 J**	**49.5 J**
Total Volatile Solids (%)	--	--	--	**59.91**	--	**38.2**	**36.49**	--	**60.05**	**69.23**
Fixed Solids (%)	--	--	--	--	--	--	--	--	--	--
Total Solids (%)	**44.09**	**51.8**	**36.4**	**20.62**	--	**19.98**	**30.32**	--	**21.4**	**21.59**
Grain Size (%)										
Gravel	--	--	--	**22.8**	--	**23.6**	**20.2**	--	**22.7**	--
Very coarse sand	--	--	--	**13.8**	--	**13**	**11.4**	--	**13**	--
Coarse sand	--	--	--	**14.2**	--	**10.7**	**13.2**	--	**15.7**	--
Medium sand	--	--	--	**8.5**	--	**6.1**	**10.5**	--	**11.9**	--
Fine sand	--	--	--	**3.7**	--	**3.2**	**6**	--	**5.1**	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Chehalis River (2013)			Former Mill Area and Chehalis River						
Location:	CR-01	CR-02	CR-03	CR-04			CR-05		CR-06	
Sample Name:	CR01-10cm	CR02-10cm	CR03-10cm	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5
Collection Date:	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013
Collection Depth (ft bml):	0-0.33	0-0.33	0-0.33	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5
Very fine sand	--	--	--	**1.4**	--	**1.4**	**3.5**	--	**2**	--
Coarse silt	--	--	--	**7.2**	--	**1.3**	**8.1**	--	**4.1**	--
Medium silt	--	--	--	**5.9**	--	**10.6**	**7.7**	--	**5.1**	--
Fine silt	--	--	--	**6.2**	--	**8.9**	**5.1**	--	**4.5**	--
Very fine silt	--	--	--	**4.8**	--	**6.1**	**4.5**	--	**3.7**	--
Coarse clay	--	--	--	**2.9**	--	**4.3**	**2.1**	--	**2.7**	--
Medium clay	--	--	--	**2.6**	--	**3.7**	**2.4**	--	**2.1**	--
Fine clay	--	--	--	**6.1**	--	**7.2**	**5.4**	--	**7.4**	--
Total fines	--	--	--	**35.6**	--	**42.1**	**35.3**	--	**29.7**	--
Asbestos (%)										
Asbestos	--	--	--	--	--	--	--	--	--	--
Pore Water Analysis										
Conductivity (uS/cm)	**18700**	**12200**	**17500**	--	--	--	--	--	--	--
Salinity (ppt)	**11**	**6.9**	**10.2**	--	--	--	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River										
Location:	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
Sample Name:	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Collection Depth (ft bml):	23	15	11	12	11-23	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0
Dioxins/Furans (pg/g)							--				
1,2,3,4,6,7,8-HpCDD	**6.64**	--	--	--	--	100	--	**56.2**	--	**30.9**	--
1,2,3,4,6,7,8-HpCDF	0.317 U	--	--	--	--	25.3	--	**8.12**	--	**7.34**	--
1,2,3,4,7,8,9-HpCDF	0.0458 U	--	--	--	--	0.959 U	--	0.483 U	--	**0.332 J**	--
1,2,3,4,7,8-HxCDD	0.255 U	--	--	--	--	1.22	--	0.736 U	--	**0.758 J**	--
1,2,3,4,7,8-HxCDF	**0.0319 J**	--	--	--	--	1.25 U	--	**0.596 J**	--	0.424 U	--
1,2,3,6,7,8-HxCDD	0.631 U	--	--	--	--	5.48	--	**2.94**	--	**2.46**	--
1,2,3,6,7,8-HxCDF	0.0339 U	--	--	--	--	0.806 J	--	**0.37 J**	--	0.294 U	--
1,2,3,7,8,9-HxCDD	**2.76**	--	--	--	--	10	--	**6.33**	--	**8**	--
1,2,3,7,8,9-HxCDF	0.112 U	--	--	--	--	0.338 U	--	0.324 U	--	0.226 U	--
1,2,3,7,8-PeCDD	**1.02**	--	--	--	--	3.65	--	**2.49**	--	**3.28**	--
1,2,3,7,8-PeCDF	0.0398 U	--	--	--	--	0.408 J	--	0.213 U	--	0.157 U	--
2,3,4,6,7,8-HxCDF	0.0438 U	--	--	--	--	1.21 U	--	0.443 U	--	**0.469 J**	--
2,3,4,7,8-PeCDF	0.0418 U	--	--	--	--	0.505 U	--	0.239 U	--	0.183 U	--
2,3,7,8-TCDD	**0.936 J**	--	--	--	--	2.7	--	**1.85**	--	**2.36**	--
2,3,7,8-TCDF	0.0339 U	--	--	--	--	1.55	--	0.406 U	--	0.381 U	--
OCDD	**33.1**	--	--	--	--	790	--	**475**	--	**189**	--
OCDF	**1.08 J**	--	--	--	--	33.1	--	**14**	--	**10.9**	--
Total HpCDDs	**15.5**	--	--	--	--	275	--	**150**	--	**73.7**	--
Total HpCDFs	1.28 U	--	--	--	--	60.7 U	--	21.2 U	--	**17.4**	--
Total HxCDDs	18.1 U	--	--	--	--	76.1 U	--	45.8 U	--	46.9 U	--
Total HxCDFs	0.599 U	--	--	--	--	28.1 U	--	10.8 U	--	8.92 U	--
Total PeCDDs	**7.59**	--	--	--	--	26.5	--	16.7 U	--	20.5 U	--
Total PeCDFs	0.111 U	--	--	--	--	12.6 U	--	4.66 U	--	4.65 U	--
Total TCDDs	7.61 U	--	--	--	--	20.3 U	--	12.4 U	--	15.9 U	--
Total TCDFs	0.303 U	--	--	--	--	13.7 U	--	4.27 U	--	4.57 U	--
Dioxin TEQ	**2.38**	--	--	--	--	**9.99**	--	**6.29**	--	**7.35**	--
Total Metals (mg/kg)											
Arsenic	20 U	20 U	9 U	20 U	--	20	21	**21**	**30**	**30**	**20**
Cadmium	0.6 U	0.8 U	**0.4**	0.8 U	--	0.5 U	0.3 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium	**37**	**48**	**41.3**	**49**	--	40	34.5	**34.4**	**40**	**41**	**36**
Copper	**47**	**62.2**	**55.1**	**63**	--	51.9	54.7	**51.1**	**58.2**	**62.7**	**53.4**
Lead	6 U	**11**	**9**	**12**	--	11	9	**9**	**12**	**10**	**10**
Mercury	0.03 U	**0.09**	**0.07**	**0.09**	--	0.06 U	0.04	**0.04**	**0.07**	0.05 U	**0.07**
Silver	1 U	1 U	0.5 U	1 U	--	0.8 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U
Zinc	**78**	**86**	**76**	**90**	--	77	69	**70**	**79**	**76**	**73**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River										
Location:	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
Sample Name:	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Collection Depth (ft bml):	23	15	11	12	11-23	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0
TCLP Metals (mg/L)											
Lead	--	--	--	--	0.1 U	--	--	--	--	--	--
Mercury	--	--	--	--	0.0001 U	--	--	--	--	--	--
PCBs (ug/kg)											
Aroclor 1016	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1221	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1232	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1242	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1248	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1254	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	**18 J**	18 U	19 U
Aroclor 1260	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1268	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	20 U	18 U	19 U
Total PCBs[a]	17 U	20 U	20 U	20 U	--	20 U	18 U	19 U	**18 J**	18 U	19 U
SVOCs (ug/kg)											
1,2,4-Trichlorobenzene	4.7 U	4.9 U	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	**4.8 J**	5 U	5 U
1,2-Dichlorobenzene	4.7 U	4.9 U	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	**1.6 J**	5 U	5 U
1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	4.7 U	4.9 U	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
2,4-Dimethylphenol	23 U	24 U	24 U	24 U	--	24 U	24 U	24 U	24 U	25 U	25 U
2-Methylphenol	4.7 U	4.9 U	**7.2**	4.9 U	--	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
3,4-Methylphenol	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	19 U	**870 J**	**150**	**130**	--	**89**	**52**	19 UJ	**120 J**	**42**	20 U
Benzoic acid	190 U	**440**	**260**	**200**	--	**250 J**	**160 J**	**150 J**	**230 J**	**160 J**	**210 J**
Benzyl alcohol	19 U	**23**	**46**	**20**	--	20 U	20 U	**16 J**	**48**	20 U	20 U
Bis(2-ethylhexyl)phthalate	47 U	49 U	49 U	49 U	--	**29 J**	49 U	48 U	**38 J**	50 U	50 U
Butylbenzylphthalate	4.7 U	4.9 U	**7.3**	**4.7 J**	--	4.9 U	4.9 U	**3.4 J**	4.9 U	**7.2**	**2.8 J**
Dibenzofuran	19 U	**40**	20 U	**20**	--	**24**	**21**	19 U	**84**	20 U	20 U
Diethylphthalate	19 U	20 U	20 U	20 U	--	21 U	26 U	19 U	19 U	40 U	20 U
Dimethyl phthalate	4.7 U	4.9 U	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
Di-n-butyl phthalate	19 U	20 U	20 U	20 U	--	20 U	20 U	19 U	19 U	20 U	20 U
Di-n-octyl phthalate	19 U	20 U	20 U	20 U	--	20 U	20 U	19 U	19 U	20 U	20 U
Hexachlorobenzene	4.7 U	4.9 U	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
Hexachlorobutadiene	4.7 U	4.9 U	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
N-Nitrosodiphenylamine	4.7 U	4.9 UJ	4.9 U	4.9 U	--	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
Pentachlorophenol	19 UJ	20 UJ	20 UJ	20 UJ	--	20 UJ	20 UJ	19 U	**21**	20 U	20 U
Phenol	**8.4 J**	**64**	**44**	**50**	--	**50**	20 U	**16 J**	**39**	**81**	20 U

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River										
Location:	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
Sample Name:	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Collection Depth (ft bml):	23	15	11	12	11-23	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0
PAHs (ug/kg)											
1-Methylnaphthalene	19 U	**24**	**22**	**16 J**	--	**15 J**	**18 J**	19 U	**23**	20 U	20 U
2-Methylnaphthalene	19 U	**41**	20 U	**21**	--	**19 J**	**18 J**	19 U	**31**	20 U	20 U
Acenaphthene	19 U	**41**	**31**	**20**	--	**38**	**37**	19 U	**420**	20 U	**16 J**
Acenaphthylene	19 U	**110**	**110**	**61**	--	**15 J**	**15 J**	19 U	**20**	20 U	**17 J**
Anthracene	19 U	**41**	**28**	**18 J**	--	**18 J**	**20**	19 U	**110**	20 U	**24**
Benzo(a)anthracene	**11 J**	**30**	**20**	**17 J**	--	**56**	**64**	19 U	**160**	**29**	**99**
Benzo(a)pyrene	19 U	20 U	20 U	20 U	--	**31**	**35**	19 U	**81**	**12 J**	**68**
Benzo(ghi)perylene	19 U	**30**	**30**	**20**	--	**23**	**14 J**	19 U	**36**	20 U	**27**
Chrysene	**12 J**	**43**	**29**	**25**	--	**61**	**69**	**8.6 J**	**210**	**66**	**93**
Dibenzo(a,h)anthracene	4.7 U	**6.3**	**4.3 J**	**3.2 J**	--	**4 J**	**4.3 J**	**2.3 J**	**15**	5 U	**8**
Fluoranthene	**24**	**150**	**100**	**88**	--	**120**	**110**	**25**	**600**	**82**	**210**
Fluorene	19 U	**47**	**35**	**23**	--	**29**	**20**	19 U	**140**	**11 J**	**12 J**
Indeno(1,2,3-cd)pyrene	19 U	**24**	**18 J**	**15 J**	--	**18 J**	**17 J**	19 U	**41**	20 U	**27**
Naphthalene	19 U	**370**	**300**	**190**	--	**64**	**35**	**13 J**	**110**	**29**	**22**
Phenanthrene	**19**	**210**	**150**	**120**	--	**91**	**69**	**19**	**360**	**26**	**27**
Pyrene	**23**	**150**	**110**	**87**	--	**98**	**80**	**20**	**470**	**62**	**220**
Total Benzofluoranthenes	**16 J**	**61**	**40**	**39**	--	**100**	**100**	**13 J**	**240**	**39 J**	**180**
Total HPAHs	**86 J**	**494 J**	**351 J**	**294 J**	--	**511 J**	**493.3 J**	**68.9 J**	**1853**	**290 J**	**932 J**
Total LPAHs	**19**	**819**	**654**	**432 J**	--	**255 J**	**196 J**	**32 J**	**1160**	**66 J**	**118 J**
cPAH TEQ	**14 J**	**23**	**19 J**	**18 J**	--	**49 J**	**54 J**	**13 J**	**129**	**21 J**	**100**
Petroleum Hydrocarbons (mg/kg)											
Gasoline	--	--	--	--	--	--	--	--	--	--	--
Diesel	7 U	--	--	--	--	**77**	--	**24**	--	**44**	--
Motor-Oil Range	**19**	--	--	--	--	**190**	--	**46**	--	**92**	--
Conventionals											
Ammonia (as N) (mg N/kg)	--	--	--	--	--	--	--	--	--	--	--
Sulfide (mg/kg)	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (%)	**0.415**	**3.33**	**2.5**	**3.22**	--	**3.17**	**1.73**	**1.61**	**3.05**	**1.95**	**2.45**
Total Volatile Solids (%)	--	--	--	--	--	--	--	--	--	--	--
Fixed Solids (%)	--	--	--	--	--	--	--	--	--	--	--
Total Solids (%)	**72.59**	**56.65**	**57.95**	**57.04**	--	**35.1**	**57.47**	**52.1**	**48.09**	**46.44**	**47.88**
Grain Size (%)											
Gravel	--	--	--	--	--	--	--	--	--	--	--
Very coarse sand	--	--	--	--	--	--	--	--	--	--	--
Coarse sand	--	--	--	--	--	--	--	--	--	--	--
Medium sand	--	--	--	--	--	--	--	--	--	--	--
Fine sand	--	--	--	--	--	--	--	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River										
Location:	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
Sample Name:	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Collection Depth (ft bml):	23	15	11	12	11-23	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0
Very fine sand	--	--	--	--	--	--	--	--	--	--	--
Coarse silt	--	--	--	--	--	--	--	--	--	--	--
Medium silt	--	--	--	--	--	--	--	--	--	--	--
Fine silt	--	--	--	--	--	--	--	--	--	--	--
Very fine silt	--	--	--	--	--	--	--	--	--	--	--
Coarse clay	--	--	--	--	--	--	--	--	--	--	--
Medium clay	--	--	--	--	--	--	--	--	--	--	--
Fine clay	--	--	--	--	--	--	--	--	--	--	--
Total fines	--	--	--	--	--	--	--	--	--	--	--
Asbestos (%)											
Asbestos	--	--	--	--	--	--	--	--	--	--	--
Pore Water Analysis											
Conductivity (uS/cm)	--	--	--	--	--	--	--	--	--	--	--
Salinity (ppt)	--	--	--	--	--	--	--	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River				Wharf Area
Location:	CR-19D	CR-19F			CR-26
Sample Name:	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
Dioxins/Furans (pg/g)					
1,2,3,4,6,7,8-HpCDD	--	**141**	--	--	--
1,2,3,4,6,7,8-HpCDF	--	**24.3**	--	--	--
1,2,3,4,7,8,9-HpCDF	--	**1.04**	--	--	--
1,2,3,4,7,8-HxCDD	--	**1.35**	--	--	--
1,2,3,4,7,8-HxCDF	--	**1.37**	--	--	--
1,2,3,6,7,8-HxCDD	--	**9.89**	--	--	--
1,2,3,6,7,8-HxCDF	--	**1.07**	--	--	--
1,2,3,7,8,9-HxCDD	--	**8.91**	--	--	--
1,2,3,7,8,9-HxCDF	--	0.571 U	--	--	--
1,2,3,7,8-PeCDD	--	**3.01**	--	--	--
1,2,3,7,8-PeCDF	--	0.613 U	--	--	--
2,3,4,6,7,8-HxCDF	--	**1.73**	--	--	--
2,3,4,7,8-PeCDF	--	**0.557 J**	--	--	--
2,3,7,8-TCDD	--	**2.16**	--	--	--
2,3,7,8-TCDF	--	**7.75**	--	--	--
OCDD	--	**1010**	--	--	--
OCDF	--	**36.8**	--	--	--
Total HpCDDs	--	**340**	--	--	--
Total HpCDFs	--	62.7 U	--	--	--
Total HxCDDs	--	93 U	--	--	--
Total HxCDFs	--	40.2 U	--	--	--
Total PeCDDs	--	26.4 U	--	--	--
Total PeCDFs	--	23.6 U	--	--	--
Total TCDDs	--	20.6 U	--	--	--
Total TCDFs	--	25.6 U	--	--	--
Dioxin TEQ	--	**10.6**	--	--	--
Total Metals (mg/kg)					
Arsenic	--	**20**	**22**	**23**	**24**
Cadmium	--	0.4 U	0.4 U	0.3 U	0.4 U
Chromium	--	**41**	**50.5**	**51.3**	**39.3**
Copper	--	**53.1**	**60**	**53.3**	**55.9**
Lead	--	**11**	**13**	**14**	**11**
Mercury	--	**0.05**	**0.05**	**0.07**	**0.09**
Silver	--	0.6 U	0.6 U	0.5 U	0.6 U
Zinc	--	**74**	**80**	**79**	**75**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River				Wharf Area
Location:	CR-19D	CR-19F			CR-26
Sample Name:	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
TCLP Metals (mg/L)					
Lead	--	--	--	--	--
Mercury	--	--	--	--	--
PCBs (ug/kg)					
Aroclor 1016	--	18 U	19 U	20 U	19 U
Aroclor 1221	--	18 U	19 U	20 U	19 U
Aroclor 1232	--	18 U	19 U	20 U	19 U
Aroclor 1242	--	18 U	19 U	20 U	19 U
Aroclor 1248	--	18 U	19 U	20 U	19 U
Aroclor 1254	--	18 U	19 U	20 U	19 U
Aroclor 1260	--	18 U	19 U	20 U	19 U
Aroclor 1268	--	18 U	19 U	20 U	19 U
Total PCBs[a]	--	18 U	19 U	20 U	19 U
SVOCs (ug/kg)					
1,2,4-Trichlorobenzene	--	4.8 U	5 U	5 U	4.9 U
1,2-Dichlorobenzene	--	4.8 U	5 U	5 U	4.9 U
1,3-Dichlorobenzene	--	--	--	--	--
1,4-Dichlorobenzene	--	4.8 U	5 U	5 U	4.9 U
2,4-Dimethylphenol	--	24 U	25 U	25 U	24 U
2-Methylphenol	--	4.8 U	5 U	5 U	**5.4**
3,4-Methylphenol	--	--	--	--	--
4-Methylphenol	--	19 U	**230**	**320**	**45**
Benzoic acid	--	**170 J**	**240**	**370**	**440**
Benzyl alcohol	--	19 U	**27**	**28**	**64**
Bis(2-ethylhexyl)phthalate	--	48 U	50 U	**32 J**	49 U
Butylbenzylphthalate	--	**8.1**	**9.3**	**7.4**	4.9 U
Dibenzofuran	--	**15 J**	**25**	**28**	**25**
Diethylphthalate	--	22 U	24 U	38 U	20 U
Dimethyl phthalate	--	4.8 U	5 U	5 U	4.9 U
Di-n-butyl phthalate	--	19 U	20 U	20 U	20 U
Di-n-octyl phthalate	--	19 U	20 U	20 U	20 U
Hexachlorobenzene	--	4.8 U	5 U	5 U	4.9 U
Hexachlorobutadiene	--	4.8 U	5 U	5 U	4.9 U
N-Nitrosodiphenylamine	--	4.8 U	5 U	5 U	4.9 U
Pentachlorophenol	--	19 U	20 UJ	20 UJ	20 UJ
Phenol	**93 J+**	**89**	**47**	**68**	**76**

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River				Wharf Area
Location:	CR-19D	CR-19F			CR-26
Sample Name:	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
PAHs (ug/kg)					
1-Methylnaphthalene	--	19 U	20 U	**13 J**	**11 J**
2-Methylnaphthalene	--	**10 J**	**13 J**	**22**	20 U
Acenaphthene	--	**12 J**	**27**	**31**	**29**
Acenaphthylene	--	19 U	20 U	**18 J**	**9.7 J**
Anthracene	--	**15 J**	**30**	**26**	**14 J**
Benzo(a)anthracene	--	**12 J**	**21**	**37**	**18 J**
Benzo(a)pyrene	--	19 U	20 U	20 U	20 U
Benzo(ghi)perylene	--	19 U	20 U	**15 J**	**13 J**
Chrysene	--	**21**	**30**	**64**	**26**
Dibenzo(a,h)anthracene	--	4.8 U	5 U	**3.1 J**	**3.1 J**
Fluoranthene	--	**41**	**94**	**150**	**75**
Fluorene	--	**12 J**	**29**	**27**	**23**
Indeno(1,2,3-cd)pyrene	--	19 U	20 U	**14 J**	**8.8 J**
Naphthalene	--	**56**	**62**	**98**	**51**
Phenanthrene	--	**36**	**110**	**140**	**39**
Pyrene	--	**35**	**83**	**130**	**70**
Total Benzofluoranthenes	--	**19 J**	**27 J**	**60**	**36 J**
Total HPAHs	--	**128 J**	**255 J**	**493.1 J**	**249.9 J**
Total LPAHs	--	**131 J**	**258**	**340 J**	**165.7 J**
cPAH TEQ	--	**14 J**	**16 J**	**22 J**	**17 J**
Petroleum Hydrocarbons (mg/kg)					
Gasoline	--	--	--	--	--
Diesel	--	**93**	--	--	--
Motor-Oil Range	--	**240**	--	--	--
Conventionals					
Ammonia (as N) (mg N/kg)	**18.6**	--	--	--	--
Sulfide (mg/kg)	**605**	--	--	--	--
Total Organic Carbon (%)	**3.99**	**2.77**	**2.76**	**2.59**	**1.52**
Total Volatile Solids (%)	**8.58**	--	--	--	--
Fixed Solids (%)	**44.8**	--	--	--	--
Total Solids (%)	**39.38**	**49.31**	**50.3**	**51.43**	**46.69**
Grain Size (%)					
Gravel	**1**	--	--	--	--
Very coarse sand	**3.8**	--	--	--	--
Coarse sand	**1.8**	--	--	--	--
Medium sand	**2**	--	--	--	--
Fine sand	**4.6**	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	Former Mill Area and Chehalis River				Wharf Area
Location:	CR-19D	CR-19F			CR-26
Sample Name:	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Collection Depth (ft bml):	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
Very fine sand	**8.9**	--	--	--	--
Coarse silt	**16**	--	--	--	--
Medium silt	**20.1**	--	--	--	--
Fine silt	**14.6**	--	--	--	--
Very fine silt	**7.3**	--	--	--	--
Coarse clay	**5.9**	--	--	--	--
Medium clay	**3.4**	--	--	--	--
Fine clay	**10.5**	--	--	--	--
Total fines	**77.8**	--	--	--	--
Asbestos (%)					
Asbestos	--	--	--	--	--
Pore Water Analysis					
Conductivity (uS/cm)	--	--	--	--	--
Salinity (ppt)	--	--	--	--	--

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

NOTES:
Detections are in **bold** font.
-- = not analyzed.
< = less than the limit of detection.
cm = centimeter.
cPAH = carcinogenic PAH.
ft bml = feet below mudline.
HPAH = high-molecular-weight PAH.
J = result is an estimated value.
LPAH = low-molecular-weight PAH.
mg/kg = milligrams per kilogram.
mg/L = milligrams per liter.
mg N/kg = milligrams of nitrogen per kilogram.
ND = not detected.
PAH = polycyclic aromatic hydrocarbon.
PCB = polychlorinated biphenyl.
pg/g = picograms per gram (parts per trillion).
ppt = parts per thousand.
SIM = selective ion monitoring.
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 = toxicity equivalence quotient.
TCLP = toxicity characteristic leaching procedure.
Total PCBs = sum of PCB Aroclors.
U = result is non-detect at method reporting limit.
UJ = result is non-detect at or above method reporting limit. Reported value is estimated.
ug/kg = micrograms per kilogram.
uS/cm = microSiemen = (micromhos) per centimeter.
[a]Calculated value. Only detected values are summed.

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
Location:					CR-07	CR-24	CR-08A		CR-08B	
Sample Name:					CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015
Collection Depth (ft bml):					0-0.33	0-0.33	0-0.33	18.3-20.0	0-0.33	8.0
Conventionals (%)										
Total Organic Carbon	NV	NV	NV	NV	**1.09**	**1.56**	**1.92**	**1.29**	**2.05**	**3.08**
PCBs (ug/kg-OC)										
Total PCBs[b]	NA	NA	12000	65000	1743 U	**3462**	990 U	1395 U	**683 J**	584 U
SVOCs (ug/kg-OC)										
1,2,4-Trichlorobenzene	NA	NA	810	1800	1743 U	308 U	250 U	388 U	234 U	159 U
1,2-Dichlorobenzene	NA	NA	2300	2300	1743 U	308 U	250 U	388 U	234 U	**58 J**
1,4-Dichlorobenzene	NA	NA	3100	9000	1743 U	308 U	**125 J**	388 U	234 U	159 U
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	**5321**	**4231**	2500 U	3876 U	2341 U	1591 U
Butylbenzylphthalate	NA	NA	4900	64000	1743 U	308 U	250 U	388 U	**15610**	159 U
Dibenzofuran	NA	NA	15000	58000	**4128**	**3013**	**1302**	**1085 J**	**2585**	**2110**
Diethylphthalate	NA	NA	61000	110000	1743 U	1218 U	**990**	1550 U	1756 U	**812**
Dimethyl phthalate	NA	NA	53000	53000	1743 U	308 U	250 U	388 U	234 U	159 U
Di-n-butyl phthalate	NA	NA	220000	1700000	1743 U	**8333**	990 U	1550 U	927 U	649 U
Di-n-octyl phthalate	NA	NA	58000	4500000	1743 U	1218 U	**36979**	1550 U	927 U	649 U
Hexachlorobenzene	NA	NA	380	2300	1743 U	308 U	250 U	388 U	234 U	159 U
Hexachlorobutadiene	NA	NA	3900	6200	1743 U	308 U	250 U	388 U	234 U	159 U
N-Nitrosodiphenylamine	NA	NA	11000	11000	1743 U	308 U	250 U	388 U	234 U	159 U
PAHs (ug/kg-OC)										
2-Methylnaphthalene	NA	NA	38000	64000	**3670**	1218 U	**1198**	1550 U	927 U	**2565**
Acenaphthene	NA	NA	16000	57000	**3211**	**1603**	**833 J**	**1395 J**	**2488**	**2435**
Acenaphthylene	NA	NA	66000	66000	**1468 J**	**1218**	**729 J**	**4341**	**2488**	**9740**
Anthracene	NA	NA	220000	1200000	**5229**	**4167**	**1406**	**1163 J**	**3463**	**2338**
Benzo(a)anthracene	NA	NA	110000	270000	**11927**	**7692**	**2240**	1550 U	**4585**	**1494**
Benzo(a)pyrene	NA	NA	99000	210000	**6147**	**5385**	**1927**	1550 U	**3268**	**1429**
Benzo(ghi)perylene	NA	NA	31000	78000	**5229**	**3590**	**1458**	1550 U	**2634**	**1429**
Chrysene	NA	NA	110000	460000	**16514**	**10256**	**3854**	1550 U	**6341**	**2370**
Dibenzo(a,h)anthracene	NA	NA	12000	33000	**1651 J**	**1218**	**495**	388 U	**585**	**208**
Fluoranthene	NA	NA	160000	1200000	**41284**	**24359**	**5729**	**3411**	**13659**	**9416**
Fluorene	NA	NA	23000	79000	**4404**	**1859**	990 U	**1163 J**	**2537**	**2143**
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	**3945**	**3462**	**1354**	1550 U	**2244**	**909**
Naphthalene	NA	NA	99000	170000	**8073**	**7692**	**5729**	**13953**	**8293**	**25974**
Phenanthrene	NA	NA	100000	480000	**17431**	**10256**	**4792**	**4651**	**10732**	**13961**
Pyrene	NA	NA	1000000	1400000	**33028**	**19231**	**4375**	**3178**	**12195**	**9740**
Total Benzofluoranthenes	NA	NA	230000	450000	**21101**	**14744**	**5208**	3101 U	**10732**	**2987**
Total HPAHs[b]	NA	NA	960000	5300000	**140826 J**	**89936**	**26641 J**	**6589 J**	**56244**	**29981**
Total LPAHs[b]	NA	NA	370000	780000	**39817 J**	**26795**	**13490**	**26667**	**30000**	**56591**
PCBs—dry weight (ug/kg)										
Aroclor 1016	NV	NV	NA	NA	19 U	19 U	19 U	18 U	18 U	18 U
Aroclor 1221	NV	NV	NA	NA	19 U	19 U	19 U	18 U	18 U	18 U

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
Location:					CR-07	CR-24	CR-08A		CR-08B	
Sample Name:					CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015
Aroclor 1232	NV	NV	NA	NA	19 U	19 U	19 U	18 U	18 U	18 U
Aroclor 1242	NV	NV	NA	NA	19 U	19 U	19 U	18 U	18 U	18 U
Aroclor 1248	NV	NV	NA	NA	19 U	19 U	19 U	18 U	18 U	18 U
Aroclor 1254	NV	NV	NA	NA	19 U	**30**	19 U	18 U	18 U	18 U
Aroclor 1260	NV	NV	NA	NA	19 U	**24**	19 U	18 U	**14 J**	18 U
Aroclor 1268	NV	NV	NA	NA	19 U	19 U	19 U	18 U	18 U	18 U
Total PCBs[b]	130	1000	NA	NA	19 U	**54**	19 U	18 U	**14 J**	18 U
SVOCs—dry weight (ug/kg)										
1,2,4-Trichlorobenzene	31	51	NA	NA	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U
1,2-Dichlorobenzene	35	50	NA	NA	19 U	4.8 U	4.8 U	5 U	4.8 U	**1.8 J**
1,4-Dichlorobenzene	110	110	NA	NA	19 U	4.8 U	**2.4 J**	5 U	4.8 U	4.9 U
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	**58**	**66**	48 U	50 U	48 U	49 U
Butylbenzylphthalate	63	900	NA	NA	19 U	4.8 U	4.8 U	5 U	**320**	4.9 U
Dibenzofuran	540	540	NA	NA	**45**	**47**	**25**	**14 J**	**53**	**65**
Diethylphthalate	200	>1200	NA	NA	19 U	19 U	**19**	20 U	36 U	**25**
Dimethyl phthalate	71	160	NA	NA	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U
Di-n-butyl phthalate	1400	1400	NA	NA	19 U	**130**	19 U	20 U	19 U	20 U
Di-n-octyl phthalate	6200	6200	NA	NA	19 U	19 U	**710**	20 U	19 U	20 U
Hexachlorobenzene	22	70	NA	NA	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U
Hexachlorobutadiene	11	120	NA	NA	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U
N-Nitrosodiphenylamine	28	40	NA	NA	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U
PAHs—dry weight (ug/kg)										
2-Methylnaphthalene	670	670	NA	NA	**40**	19 U	**23**	20 U	19 U	**79**
Acenaphthene	500	500	NA	NA	**35**	**25**	**16 J**	**18 J**	**51**	**75**
Acenaphthylene	1300	1300	NA	NA	**16 J**	**19**	**14 J**	**56**	**51**	**300**
Anthracene	960	960	NA	NA	**57**	**65**	**27**	**15 J**	**71**	**72**
Benzo(a)anthracene	1300	1600	NA	NA	**130**	**120**	**43**	20 U	**94**	**46**
Benzo(a)pyrene	1600	1600	NA	NA	**67**	**84**	**37**	20 U	**67**	**44**
Benzo(ghi)perylene	670	720	NA	NA	**57**	**56**	**28**	20 U	**54**	**44**
Chrysene	1400	2800	NA	NA	**180**	**160**	**74**	20 U	**130**	**73**
Dibenzo(a,h)anthracene	230	230	NA	NA	**18 J**	**19**	**9.5**	5 U	**12**	**6.4**
Fluoranthene	1700	2500	NA	NA	**450**	**380**	**110**	**44**	**280**	**290**
Fluorene	540	540	NA	NA	**48**	**29**	19 U	**15 J**	**52**	**66**
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	**43**	**54**	**26**	20 U	**46**	**28**
Naphthalene	2100	2100	NA	NA	**88**	**120**	**110**	**180**	**170**	**800**
Phenanthrene	1500	1500	NA	NA	**190**	**160**	**92**	**60**	**220**	**430**
Pyrene	2600	3300	NA	NA	**360**	**300**	**84**	**41**	**250**	**300**
Total Benzofluoranthenes	3200	3600	NA	NA	**230**	**230**	**100**	40 U	**220**	**92**
Total HPAHs[b]	12000	17000	NA	NA	**1535 J**	**1403**	**512**	**85**	**1153**	**923**
Total LPAHs[b]	5200	5200	NA	NA	**434 J**	**418**	**259 J**	**344 J**	**615**	**1743**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
Location:					CR-07	CR-24	CR-08A		CR-08B	
Sample Name:					CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015
Total Metals—dry weight (mg/kg)										
Arsenic	57	93	NA	NA	20 U	20 U	**30**	**20**	**20**	20
Cadmium	5.1	6.7	NA	NA	0.8 U	0.9 U	0.4 U	0.7 U	0.4 U	0.7 U
Chromium	260	270	NA	NA	**43**	**49**	**52**	**39**	**42**	40
Copper	390	390	NA	NA	--	**81.5**	**134**	**57.8**	**61.1**	55.3
Lead	450	530	NA	NA	**11**	**21**	**30**	**8**	**14**	10
Mercury	0.41	0.59	NA	NA	**0.04**	**0.16**	**0.06**	0.03 U	**0.06**	0.07
Silver	6.1	6.1	NA	NA	--	1 U	0.6 U	1 U	0.7 U	1 U
Zinc	410	960	NA	NA	--	**107**	**134**	**71**	**90**	75
SVOCs—dry weight (ug/kg)										
1,3-Dichlorobenzene	NA	NA	NA	NA	19 U	--	--	--	--	--
2,4-Dimethylphenol	29	29	NA	NA	97 U	24 U	24 U	25 U	24 U	**17 J**
2-Methylphenol	63	63	NA	NA	19 U	**8.4**	4.8 U	5 U	4.8 U	4.9 U
3,4-Methylphenol	NA	NA	NA	NA	--	--	--	--	--	--
4-Methylphenol	670	670	NA	NA	**26**	**120**	**28 J**	**190 J**	**210**	**560 J**
Benzoic acid	650	650	NA	NA	**170 J**	**680**	**180 J**	**110 J**	**330 J**	**290 J**
Benzyl alcohol	57	73	NA	NA	19 U	19 U	**27**	**17 J**	19 U	**50**
Pentachlorophenol	360	690	NA	NA	97 U	**86 J**	**14 J**	20 U	**11 J**	20 U
Phenol	420	1200	NA	NA	**18 J**	**100**	**35**	**22**	**71**	**53**
PAHs—dry weight (ug/kg)										
1-Methylnaphthalene	NV	NV	NA	NA	**18 J**	**16 J**	**16 J**	**13 J**	**29**	**50**
TCLP Metals (mg/L)										
Lead	NA	NA	NA	NA	--	--	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--	--	--
Dioxins/Furans—dry weight (pg/g)										
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	--	--	**583**	**14.5**	**955**	12.5
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	--	--	**33.1**	**1.26**	**75.8**	0.295 U
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	--	--	2.1 U	0.25 U	**3.72**	0.0959 J
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	--	--	**2.33**	0.583 U	**2.96**	0.589 J
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	--	--	**1.42**	**0.217 J**	**4.39**	0.111 J
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	--	--	**10.7**	**1.3**	**22.3**	1.71
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	--	--	**0.798 J**	**0.178 J**	**2.13**	0.14 J
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	--	--	**8.01**	**5.31**	**13.9**	7.04
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	--	--	0.0933 U	0.258 U	**1.62**	0.146 U
1,2,3,7,8-PeCDD	NV	NV	NA	NA	--	--	**2.87**	**1.76**	**4.81**	2.68
1,2,3,7,8-PeCDF	NV	NV	NA	NA	--	--	0.483 U	**0.141 J**	**0.978 J**	0.288 U
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	--	--	**1.46**	**0.188 J**	**3.84**	0.105 J
2,3,4,7,8-PeCDF	NV	NV	NA	NA	--	--	**0.506 J**	**0.0704 J**	**1.06**	0.201 J
2,3,7,8-TCDD	NV	NV	NA	NA	--	--	**1.71**	**1.55**	**2.79**	2.06
2,3,7,8-TCDF	NV	NV	NA	NA	--	--	**1.06**	**0.088 J**	**2.48**	0.529 J
OCDD	NV	NV	NA	NA	--	--	**13700 J**	**130**	**22200 J**	45.4 U

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
Location:					CR-07	CR-24	CR-08A		CR-08B	
Sample Name:					CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015
OCDF	NV	NV	NA	NA	--	--	**73.9**	**6.41**	**128**	0.802 U
Total HpCDDs	NV	NV	NA	NA	--	--	**1650**	**32.3**	**4120**	26.3
Total HpCDFs	NV	NV	NA	NA	--	--	126 U	3.43 U	243 U	0.643 U
Total HxCDDs	NV	NV	NA	NA	--	--	147 U	33.2 U	**321**	45.4 U
Total HxCDFs	NV	NV	NA	NA	--	--	44 U	1.27 U	119 U	0.888 U
Total PeCDDs	NV	NV	NA	NA	--	--	25.9 U	12.7 U	**38.2**	21.9 U
Total PeCDFs	NV	NV	NA	NA	--	--	12.8 U	0.428 U	35.9 U	2.08 U
Total TCDDs	NV	NV	NA	NA	--	--	23.9 U	12 U	25 U	21.4 U
Total TCDFs	NV	NV	NA	NA	--	--	10.9 U	0.656 U	21.7 U	10.7 U
Dioxin TEQ	NV	NV	NA	NA	--	--	**17.6**	**4.31**	**30.4**	**5.97**
Petroleum Hydrocarbons—dry weight (mg/kg)										
Gasoline	NV	NV	NV	NV	--	--	--	--	--	--
Diesel	NV	NV	NV	NV	**180**	**370**	--	**26**	**130**	**170**
Motor-Oil Range	NV	NV	NV	NV	**520**	**850**	--	**74**	**320**	**280**
Conventionals										
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	--	--	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	NV	--	--	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**67.22**	**54.35**	**47.46**	**63.97**	**44.38**	**55.76**
Grain Size (%)										
Gravel	NV	NV	NV	NV	--	--	--	--	--	--
Very coarse sand	NV	NV	NV	NV	--	--	--	--	--	--
Coarse sand	NV	NV	NV	NV	--	--	--	--	--	--
Medium sand	NV	NV	NV	NV	--	--	--	--	--	--
Fine sand	NV	NV	NV	NV	--	--	--	--	--	--
Very fine sand	NV	NV	NV	NV	--	--	--	--	--	--
Coarse silt	NV	NV	NV	NV	--	--	--	--	--	--
Medium silt	NV	NV	NV	NV	--	--	--	--	--	--
Fine silt	NV	NV	NV	NV	--	--	--	--	--	--
Very fine silt	NV	NV	NV	NV	--	--	--	--	--	--
Coarse clay	NV	NV	NV	NV	--	--	--	--	--	--
Medium clay	NV	NV	NV	NV	--	--	--	--	--	--
Fine clay	NV	NV	NV	NV	--	--	--	--	--	--
Total fines	NV	NV	NV	NV	--	--	--	--	--	--
Asbestos (%)										
Asbestos	NV	NV	NV	NV	--	--	<1	<1	<1	<1
Pore Water Analysis										
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
Location:					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
Sample Name:					CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	10/13/2015	10/13/2015	10/14/2015	11/08/2013	11/08/2013	11/08/2013
Collection Depth (ft bml):					0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Conventionals (%)										
Total Organic Carbon	NV	NV	NV	NV	**4.39**	**2.99**	**2.94**	**2.06 J**	**3.21 J**	**2.91 J**
PCBs (ug/kg-OC)										
Total PCBs[b]	NA	NA	12000	65000	410 U	635 U	646 U	1117 U	**374 J**	1581 U
SVOCs (ug/kg-OC)										
1,2,4-Trichlorobenzene	NA	NA	810	1800	107 U	161 U	**102 J**	233 U	153 U	165 U
1,2-Dichlorobenzene	NA	NA	2300	2300	107 U	161 U	**112 J**	233 U	153 U	165 U
1,4-Dichlorobenzene	NA	NA	3100	9000	**96 J**	161 U	**126 J**	233 U	**592 J**	165 U
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	**979 J**	**1304 J**	1701 U	**1408 J**	1526 U	1649 U
Butylbenzylphthalate	NA	NA	4900	64000	**116**	161 U	170 U	233 U	153 U	165 U
Dibenzofuran	NA	NA	15000	58000	433 U	635 U	**952**	**583 J**	**623**	653 U
Diethylphthalate	NA	NA	61000	110000	433 U	635 U	680 U	**2718**	**623**	**1237**
Dimethyl phthalate	NA	NA	53000	53000	107 U	161 U	170 U	233 U	**97 J**	**86 J**
Di-n-butyl phthalate	NA	NA	220000	1700000	433 U	635 U	680 U	922 U	623 U	653 U
Di-n-octyl phthalate	NA	NA	58000	4500000	433 U	635 U	680 U	922 U	623 U	653 U
Hexachlorobenzene	NA	NA	380	2300	107 U	161 U	**112 J**	233 U	153 U	165 U
Hexachlorobutadiene	NA	NA	3900	6200	107 U	161 U	**95 J**	233 U	153 U	165 U
N-Nitrosodiphenylamine	NA	NA	11000	11000	107 U	161 U	170 U	233 U	153 U	165 U
PAHs (ug/kg-OC)										
2-Methylnaphthalene	NA	NA	38000	64000	433 U	635 U	**884**	922 U	**872**	653 U
Acenaphthene	NA	NA	16000	57000	433 U	635 U	**816**	**680 J**	**623**	653 U
Acenaphthylene	NA	NA	66000	66000	433 U	635 U	**2007**	922 U	**2118**	653 U
Anthracene	NA	NA	220000	1200000	433 U	**368 J**	**884**	**680 J**	**498 J**	653 U
Benzo(a)anthracene	NA	NA	110000	270000	433 U	**468 J**	**1565**	**1359**	**343 J**	653 U
Benzo(a)pyrene	NA	NA	99000	210000	433 U	**401 J**	**1088**	**1019**	623 U	653 U
Benzo(ghi)perylene	NA	NA	31000	78000	433 U	**468 J**	**986**	**680 J**	**467 J**	653 U
Chrysene	NA	NA	110000	460000	**228 J**	**803**	**1905**	**1699**	**530 J**	653 U
Dibenzo(a,h)anthracene	NA	NA	12000	33000	107 U	**130 J**	**289**	**146 J**	**153** U	165 U
Fluoranthene	NA	NA	160000	1200000	**501**	**1739**	**6122**	**4854**	**1963**	**859**
Fluorene	NA	NA	23000	79000	433 U	**468 J**	**986**	**680 J**	**467 J**	653 U
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	433 U	**435 J**	**646 J**	922 U	623 U	653 U
Naphthalene	NA	NA	99000	170000	**1025**	635 U	**6803**	**1214**	**8723**	**790**
Phenanthrene	NA	NA	100000	480000	**592**	**1739**	**3741**	**2282**	**2773**	**653**
Pyrene	NA	NA	1000000	1400000	**387 J**	**1338**	**5102**	**5340**	**1900**	**722**
Total Benzofluoranthenes	NA	NA	230000	450000	**273 J**	**1137 J**	**3741**	**2524**	**685 J**	**447 J**
Total HPAHs[b]	NA	NA	960000	5300000	**1390**	**6920 J**	**21446**	**17621**	**5888**	**2027**
Total LPAHs[b]	NA	NA	370000	780000	**1617 J**	**3211 J**	**15238 J**	**5534**	**15202**	**1443**
PCBs—dry weight (ug/kg)										
Aroclor 1016	NV	NV	NA	NA	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1221	NV	NV	NA	NA	18 U	19 U	19 U	18 U	19 U	19 U

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
Location:					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
Sample Name:					CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/13/2015	10/13/2015	10/14/2015	11/08/2013	11/08/2013	11/08/2013
Aroclor 1232	NV	NV	NA	NA	18 U	19 U	19 U	23 U	38 U	46 U
Aroclor 1242	NV	NV	NA	NA	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1248	NV	NV	NA	NA	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1254	NV	NV	NA	NA	18 U	19 U	19 U	18 U	**12 J**	19 U
Aroclor 1260	NV	NV	NA	NA	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1268	NV	NV	NA	NA	18 U	19 U	19 U	--	--	--
Total PCBs[b]	130	1000	NA	NA	18 U	19 U	19 U	23 U	**12 J**	46 U
SVOCs—dry weight (ug/kg)										
1,2,4-Trichlorobenzene	31	51	NA	NA	4.7 U	4.8 U	**3 J**	4.8 U	4.9 U	4.8 U
1,2-Dichlorobenzene	35	50	NA	NA	4.7 U	4.8 U	**3.3 J**	4.8 U	4.9 U	4.8 U
1,4-Dichlorobenzene	110	110	NA	NA	**4.2 J**	4.8 U	**3.7 J**	4.8 U	**19 J**	4.8 U
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	**43 J**	**39 J**	50 U	**29 J**	49 U	48 U
Butylbenzylphthalate	63	900	NA	NA	**5.1**	4.8 U	5 U	4.8 U	4.9 U	4.8 U
Dibenzofuran	540	540	NA	NA	19 U	19 U	**28**	**12 J**	**20**	19 U
Diethylphthalate	200	>1200	NA	NA	19 U	19 U	20 U	**56**	**20**	**36**
Dimethyl phthalate	71	160	NA	NA	4.7 U	4.8 U	5 U	4.8 U	3.1 J	**2.5 J**
Di-n-butyl phthalate	1400	1400	NA	NA	19 U	19 U	20 U	19 U	20 U	19 U
Di-n-octyl phthalate	6200	6200	NA	NA	19 U	19 U	20 U	19 U	20 U	19 U
Hexachlorobenzene	22	70	NA	NA	4.7 U	4.8 U	**3.3 J**	4.8 U	4.9 U	4.8 U
Hexachlorobutadiene	11	120	NA	NA	4.7 U	4.8 U	**2.8 J**	4.8 U	4.9 U	4.8 U
N-Nitrosodiphenylamine	28	40	NA	NA	4.7 U	4.8 U	5 U	4.8 U	4.9 U	4.8 U
PAHs—dry weight (ug/kg)										
2-Methylnaphthalene	670	670	NA	NA	19 U	19 U	**26**	19 U	**28**	19 U
Acenaphthene	500	500	NA	NA	19 U	19 U	**24**	**14 J**	**20**	19 U
Acenaphthylene	1300	1300	NA	NA	19 U	19 U	**59**	19 U	**68**	19 U
Anthracene	960	960	NA	NA	19 U	**11 J**	**26**	**14 J**	**16 J**	19 U
Benzo(a)anthracene	1300	1600	NA	NA	19 U	**14 J**	**46**	**28**	**11 J**	19 U
Benzo(a)pyrene	1600	1600	NA	NA	19 U	**12 J**	**32**	**21**	20 U	19 U
Benzo(ghi)perylene	670	720	NA	NA	19 U	**14 J**	**29**	**14 J**	**15 J**	19 U
Chrysene	1400	2800	NA	NA	**10 J**	**24**	**56**	**35**	**17 J**	19 U
Dibenzo(a,h)anthracene	230	230	NA	NA	4.7 U	**3.9 J**	**8.5**	**3 J**	4.9 U	4.8 U
Fluoranthene	1700	2500	NA	NA	**22**	**52**	**180**	**100**	**63**	**25**
Fluorene	540	540	NA	NA	19 U	**14 J**	**29**	**14 J**	**15 J**	19 U
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	19 U	**13 J**	**19 J**	19 U	20 U	19 U
Naphthalene	2100	2100	NA	NA	**45**	19 U	**200**	**25**	**280**	**23**
Phenanthrene	1500	1500	NA	NA	**26**	**52**	**110**	**47**	**89**	**19**
Pyrene	2600	3300	NA	NA	**17 J**	**40**	**150**	**110**	**61**	**21**
Total Benzofluoranthenes	3200	3600	NA	NA	**12 J**	**34 J**	**110**	**52**	**22 J**	**13 J**
Total HPAHs[b]	12000	17000	NA	NA	**61 J**	**207 J**	**631 J**	**363**	**189**	**59**
Total LPAHs[b]	5200	5200	NA	NA	**71**	**96 J**	**448**	**114**	**488**	**42**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
Location:					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
Sample Name:					CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/13/2015	10/13/2015	10/14/2015	11/08/2013	11/08/2013	11/08/2013
Total Metals—dry weight (mg/kg)										
Arsenic	57	93	NA	NA	9 U	9 U	**30**	10 U	9 U	10 U
Cadmium	5.1	6.7	NA	NA	0.4 U	**0.4**	0.4 U	**0.5**	**0.4**	0.5 U
Chromium	260	270	NA	NA	**31**	**39.9**	**42**	**40 J**	**38.5 J**	**48 J**
Copper	390	390	NA	NA	**40.8**	**49.2**	**54.8**	**58 J**	**56.3 J**	**65.4 J**
Lead	450	530	NA	NA	**8**	**10**	**11**	**7**	**9**	**8**
Mercury	0.41	0.59	NA	NA	**0.04**	**0.06**	**0.07**	**0.05**	**0.1**	**0.09**
Silver	6.1	6.1	NA	NA	0.5 U	0.5 U	0.6 U	0.7 U	0.6 U	0.8 U
Zinc	410	960	NA	NA	**68**	**80**	**83**	**87**	**79**	**91**
SVOCs—dry weight (ug/kg)										
1,3-Dichlorobenzene	NA	NA	NA	NA	--	--	--	4.8 U	4.9 U	4.8 U
2,4-Dimethylphenol	29	29	NA	NA	24 U	24 U	25 U	24 U	24 U	24 U
2-Methylphenol	63	63	NA	NA	**4 J**	**7.3**	**7.7**	4.8 U	4.9 U	**3.3 J**
3,4-Methylphenol	NA	NA	NA	NA	--	--	--	--	--	--
4-Methylphenol	670	670	NA	NA	**26**	19 U	**160 J**	**30**	**730**	**60**
Benzoic acid	650	650	NA	NA	**230**	**380**	**210 J**	190 U	**240**	**180 J**
Benzyl alcohol	57	73	NA	NA	19 U	**58**	**22**	**15 J**	**43 J**	**43 J**
Pentachlorophenol	360	690	NA	NA	19 UJ	19 UJ	**23**	19 U	20 U	19 U
Phenol	420	1200	NA	NA	**130**	**200**	**51**	**24**	**94**	**43**
PAHs—dry weight (ug/kg)										
1-Methylnaphthalene	NV	NV	NA	NA	**9.5 J**	19 U	**15 J**	--	--	--
TCLP Metals (mg/L)										
Lead	NA	NA	NA	NA	--	--	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--	--	--
Dioxins/Furans—dry weight (pg/g)										
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	**95.4**	**107**	--	**211**	**201**	**66.1**
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	**14.6**	**23.9**	--	**31.9**	**113**	**24.7**
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	**0.908 J**	**1.15**	--	**1.59**	**4.94**	**0.894 J**
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	**1.32**	**1.57**	--	**1.76**	**1.96**	**1.42**
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	0.991 U	1.16 U	--	**2.77**	**4.6**	**1.02**
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	**5.25**	**6.27**	--	**9.98**	**10.4**	**4.81**
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	**0.626 J**	**0.924 J**	--	**1.19**	**3.22**	**0.862 J**
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	**5.49**	**7.96**	--	**11.1**	**12.4**	**12.9**
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	**0.395 J**	**0.42 J**	--	0.778 U	**0.886 J**	**0.268 J**
1,2,3,7,8-PeCDD	NV	NV	NA	NA	**1.99**	**3.16**	--	**3.93**	**4.53**	**5.08**
1,2,3,7,8-PeCDF	NV	NV	NA	NA	0.383 U	**0.394 J**	--	**0.683 J**	**0.804 J**	**0.508 J**
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	**0.991**	**1.36**	--	**1.8**	**5.58**	**0.785 J**
2,3,4,7,8-PeCDF	NV	NV	NA	NA	0.379 U	0.528 U	--	**0.814 J**	**1.13**	**0.594 J**
2,3,7,8-TCDD	NV	NV	NA	NA	**1.18**	2.06 U	--	**2.62**	**2.89**	**3.56**
2,3,7,8-TCDF	NV	NV	NA	NA	**0.831 J**	**1.63**	--	**1.96**	**2.18**	**1.34**
OCDD	NV	NV	NA	NA	**700**	**788**	--	**1690**	**1550**	**489**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
Location:					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
Sample Name:					CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/13/2015	10/13/2015	10/14/2015	11/08/2013	11/08/2013	11/08/2013
OCDF	NV	NV	NA	NA	**23.8**	**33.8**	--	**51**	**211**	**36.4**
Total HpCDDs	NV	NV	NA	NA	**225**	**273**	--	**485**	**433**	**167**
Total HpCDFs	NV	NV	NA	NA	**37.3**	58.9 U	--	87.1 U	**310**	**55.9**
Total HxCDDs	NV	NV	NA	NA	48.3 U	72.3 U	--	**97**	**114**	80.8 U
Total HxCDFs	NV	NV	NA	NA	22.2 U	30.8 U	--	52.5 U	**125**	24.4 U
Total PeCDDs	NV	NV	NA	NA	12.4 U	21 U	--	**25.8**	**34.9**	**30.6**
Total PeCDFs	NV	NV	NA	NA	10.6 U	16.5 U	--	18 U	47.6 U	13.2 U
Total TCDDs	NV	NV	NA	NA	8.55 U	15.4 U	--	17.4 U	28.1 U	24.7 U
Total TCDFs	NV	NV	NA	NA	6.42 U	12.5 U	--	12.4 U	33 U	16.7 U
Dioxin TEQ	NV	NV	NA	NA	**6.10**	**7.92**	--	**12.9**	**15.6**	**12.2**
Petroleum Hydrocarbons—dry weight (mg/kg)										
Gasoline	NV	NV	NV	NV	--	--	--	--	--	--
Diesel	NV	NV	NV	NV	--	--	--	--	--	--
Motor-Oil Range	NV	NV	NV	NV	--	--	--	--	--	--
Conventionals										
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	--	--	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	NV	--	--	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**55.6**	**59.33**	**45.44**	**44.09**	**51.8**	**36.4**
Grain Size (%)										
Gravel	NV	NV	NV	NV	--	--	--	--	--	--
Very coarse sand	NV	NV	NV	NV	--	--	--	--	--	--
Coarse sand	NV	NV	NV	NV	--	--	--	--	--	--
Medium sand	NV	NV	NV	NV	--	--	--	--	--	--
Fine sand	NV	NV	NV	NV	--	--	--	--	--	--
Very fine sand	NV	NV	NV	NV	--	--	--	--	--	--
Coarse silt	NV	NV	NV	NV	--	--	--	--	--	--
Medium silt	NV	NV	NV	NV	--	--	--	--	--	--
Fine silt	NV	NV	NV	NV	--	--	--	--	--	--
Very fine silt	NV	NV	NV	NV	--	--	--	--	--	--
Coarse clay	NV	NV	NV	NV	--	--	--	--	--	--
Medium clay	NV	NV	NV	NV	--	--	--	--	--	--
Fine clay	NV	NV	NV	NV	--	--	--	--	--	--
Total fines	NV	NV	NV	NV	--	--	--	--	--	--
Asbestos (%)										
Asbestos	NV	NV	NV	NV	--	--	--	--	--	--
Pore Water Analysis										
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	**18700**	**12200**	**17500**
Salinity (ppt)	NV	NV	NV	NV	--	--	--	**11**	**6.9**	**10.2**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West
Sample Name:					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11
Collection Depth (ft bml):					0-0.33	0-2.5	0-0.33	0-0.33	0-0.33	0-2.7	2.7-4.6
Conventionals (%)											
Total Organic Carbon	NV	NV	NV	NV	**25**	**28**	--	**32**	**30**	**21**	**40**
PCBs (ug/kg-OC)											
Total PCBs[b]	NA	NA	12000	65000	160 U	**50**	--	178 U	213 U	**162 P**	16 U
SVOCs (ug/kg-OC)											
1,2,4-Trichlorobenzene	NA	NA	810	1800	84 U	82 U	--	94 U	110 U	114 U	80 U
1,2-Dichlorobenzene	NA	NA	2300	2300	84 U	82 U	--	94 U	110 U	114 U	80 U
1,4-Dichlorobenzene	NA	NA	3100	9000	84 U	82 U	--	**406**	110 U	**2000**	80 U
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	2520 U	2429 U	--	**12188**	3267 U	**4286**	2425 U
Butylbenzylphthalate	NA	NA	4900	64000	168 U	161 U		188 U	217 U	229 U	160 U
Dibenzofuran	NA	NA	15000	58000	**300**	**607**	--	**244**	**600**	**857**	160 U
Diethylphthalate	NA	NA	61000	110000	168 U	161 U	--	188 U	217 U	229 U	160 U
Dimethyl phthalate	NA	NA	53000	53000	168 U	161 U	--	188 U	217 U	229 U	160 U
Di-n-butyl phthalate	NA	NA	220000	1700000	336 U	325 U	--	375 U	433 U	**457**	325 U
Di-n-octyl phthalate	NA	NA	58000	4500000	336 U	325 U	--	375 U	**1067**	**1952**	**375**
Hexachlorobenzene	NA	NA	380	2300	84 U	82 U	--	94 U	110 U	114 U	80 U
Hexachlorobutadiene	NA	NA	3900	6200	84 U	82 U	--	94 U	110 U	114 U	80 U
N-Nitrosodiphenylamine	NA	NA	11000	11000	84 U	82 U	--	94 U	110 U	114 U	80 U
PAHs (ug/kg-OC)											
2-Methylnaphthalene	NA	NA	38000	64000	**188**	**207**	--	**66**	**467**	**1238**	**183**
Acenaphthene	NA	NA	16000	57000	**680**	**1286**	--	**81**	**533**	**1000**	**243**
Acenaphthylene	NA	NA	66000	66000	**180**	**189**	--	**116**	**500**	**857**	**128**
Anthracene	NA	NA	220000	1200000	**276**	**429**	--	**375**	**767**	**1000**	**113**
Benzo(a)anthracene	NA	NA	110000	270000	**840**	**929**	--	**875**	**1933**	**3476**	**300**
Benzo(a)pyrene	NA	NA	99000	210000	**520**	**929**	--	**531**	**1633**	**2571**	**450**
Benzo(ghi)perylene	NA	NA	31000	78000	**272**	**429**	--	**406**	**967**	**1190**	**250**
Chrysene	NA	NA	110000	460000	**920**	**1214**	--	**1313**	**2333**	**3762**	**525**
Dibenzo(a,h)anthracene	NA	NA	12000	33000	68 U	**132**	--	75 U	**277**	**410**	65 U
Fluoranthene	NA	NA	160000	1200000	**2920**	**3571**	--	**3125**	**4333**	**7143**	**800**
Fluorene	NA	NA	23000	79000	**440**	**1071**	--	**194**	**567**	**952**	**198**
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	**244**	**464**	--	**344**	**733**	**1048**	**243**
Naphthalene	NA	NA	99000	170000	**520**	**357**	--	**109**	**867**	**3857**	**525**
Phenanthrene	NA	NA	100000	480000	**680**	**3214**	--	**813**	**3667**	**4238**	**600**
Pyrene	NA	NA	1000000	1400000	**2440**	**2750**	--	**2344**	**4667**	**7143**	**1200**
Total Benzofluoranthenes	NA	NA	230000	450000	**1240**	**2143**	--	**2156**	**4000**	**7143**	65 U
Total HPAHs[b]	NA	NA	960000	5300000	**9396**	**12561**	--	**11094**	**20877**	**33886**	**3768**
Total LPAHs[b]	NA	NA	370000	780000	**2776**	**6546**	--	**1688**	**6900**	**11905**	**1805**
PCBs—dry weight (ug/kg)											
Aroclor 1016	NV	NV	NA	NA	40 U	4.5 U	--	57 U	64 U	4.7 U	6.5 U
Aroclor 1221	NV	NV	NA	NA	40 U	4.5 U	--	57 U	64 U	4.7 U	6.5 U

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West
Sample Name:					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11
Aroclor 1232	NV	NV	NA	NA	40 U	4.5 U	--	57 U	64 U	4.7 U	6.5 U
Aroclor 1242	NV	NV	NA	NA	40 U	4.5 U	--	57 U	64 U	4.7 U	6.5 U
Aroclor 1248	NV	NV	NA	NA	40 U	4.5 U	--	57 U	64 U	4.7 U	6.5 U
Aroclor 1254	NV	NV	NA	NA	40 U	4.5 U	--	57 U	64 U	4.7 U	6.5 U
Aroclor 1260	NV	NV	NA	NA	40 U	**14**	--	57 U	64 U	**34 P**	6.5 U
Aroclor 1268	NV	NV	NA	NA	--	--	--	--	--	--	--
Total PCBs[b]	130	1000	NA	NA	40 U	**14**	--	57 U	64 U	**34**	6.5 U
SVOCs—dry weight (ug/kg)											
1,2,4-Trichlorobenzene	31	51	NA	NA	21 U	23 U	--	30 U	33 U	24 U	32 U
1,2-Dichlorobenzene	35	50	NA	NA	21 U	23 U	--	30 U	33 U	24 U	32 U
1,4-Dichlorobenzene	110	110	NA	NA	21 U	23 U	--	**130**	33 U	**420**	32 U
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	630 U	680 U	--	**3900**	980 U	**900**	970 U
Butylbenzylphthalate	63	900	NA	NA	42 U	45 U		60 U	65 U	48 U	64 U
Dibenzofuran	540	540	NA	NA	**75**	**170**	--	**78**	**180**	**180**	64 U
Diethylphthalate	200	>1200	NA	NA	42 U	45 U	--	60 U	65 U	48 U	64 U
Dimethyl phthalate	71	160	NA	NA	42 U	45 U	--	60 U	65 U	48 U	64 U
Di-n-butyl phthalate	1400	1400	NA	NA	84 U	91 U	--	120 U	130 U	**96**	130 U
Di-n-octyl phthalate	6200	6200	NA	NA	84 U	91 U	--	120 U	**320**	**410**	**150**
Hexachlorobenzene	22	70	NA	NA	21 U	23 U	--	30 U	33 U	24 U	32 U
Hexachlorobutadiene	11	120	NA	NA	21 U	23 U	--	30 U	33 U	24 U	32 U
N-Nitrosodiphenylamine	28	40	NA	NA	21 U	23 U	--	30 U	33 U	24 U	32 U
PAHs—dry weight (ug/kg)											
2-Methylnaphthalene	670	670	NA	NA	**47**	**58**	--	**21**	**140**	**260**	**73**
Acenaphthene	500	500	NA	NA	**170**	**360**	--	**26**	**160**	**210**	**97**
Acenaphthylene	1300	1300	NA	NA	**45**	**53**	--	**37**	**150**	**180**	**51**
Anthracene	960	960	NA	NA	**69**	**120**	--	**120**	**230**	**210**	**45**
Benzo(a)anthracene	1300	1600	NA	NA	**210**	**260**	--	**280**	**580**	**730**	**120**
Benzo(a)pyrene	1600	1600	NA	NA	**130**	**260**	--	**170**	**490**	**540**	**180**
Benzo(ghi)perylene	670	720	NA	NA	**68**	**120**	--	**130**	**290**	**250**	**100**
Chrysene	1400	2800	NA	NA	**230**	**340**	--	**420**	**700**	**790**	**210**
Dibenzo(a,h)anthracene	230	230	NA	NA	17 U	**37**	--	24 U	**83**	**86**	26 U
Fluoranthene	1700	2500	NA	NA	**730**	**1000**	--	**1000**	**1300**	**1500**	**320**
Fluorene	540	540	NA	NA	**110**	**300**	--	**62**	**170**	**200**	**79**
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	**61**	**130**	--	**110**	**220**	**220**	**97**
Naphthalene	2100	2100	NA	NA	**130**	**100**	--	**35**	**260**	**810**	**210**
Phenanthrene	1500	1500	NA	NA	**170**	**900**	--	**260**	**1100**	**890**	**240**
Pyrene	2600	3300	NA	NA	**610**	**770**	--	**750**	**1400**	**1500**	**480**
Total Benzofluoranthenes	3200	3600	NA	NA	**310**	**600**	--	**690**	**1200**	**1500**	26 U
Total HPAHs[b]	12000	17000	NA	NA	**2349**	**3517**	--	**3550**	**6263**	**7116**	**1507**
Total LPAHs[b]	5200	5200	NA	NA	**694**	**1833**	--	**540**	**2070**	**2500**	**722**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West
Sample Name:					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11
Total Metals—dry weight (mg/kg)											
Arsenic	57	93	NA	NA	**12**	8.2 U	--	16 U	18 U	10 U	17 U
Cadmium	5.1	6.7	NA	NA	**3.3**	1.4 U	--	2.7 U	3 U	1.7 U	2.9 U
Chromium	260	270	NA	NA	**60**	**19**	--	**21**	**24**	**35**	**9.5**
Copper	390	390	NA	NA	**120**	**76**	--	**73**	**100**	**85**	**25**
Lead	450	530	NA	NA	**31**	**260**	--	**46**	**99**	**180**	**24**
Mercury	0.41	0.59	NA	NA	**0.19**	**0.18**	--	**1.2**	**0.77**	**2.5**	**2**
Silver	6.1	6.1	NA	NA	3.8 U	2.7 U	--	5.4 U	6 U	3.3 U	5.7 U
Zinc	410	960	NA	NA	**120**	**120**	--	**310**	**230**	**580**	**67**
SVOCs—dry weight (ug/kg)											
1,3-Dichlorobenzene	NA	NA	NA	NA	--	--	--	--	--	--	--
2,4-Dimethylphenol	29	29	NA	NA	42 U	45 U	--	60 U	65 U	48 U	64 U
2-Methylphenol	63	63	NA	NA	42 U	45 U	--	60 U	65 U	48 U	64 U
3,4-Methylphenol	NA	NA	NA	NA	**150**	**210**	--	120 U	**650**	**240**	**1100**
4-Methylphenol	670	670	NA	NA	--	--	--	--	--	--	--
Benzoic acid	650	650	NA	NA	1100 U	1100 U	--	1500 U	1600 U	1200 U	1600 U
Benzyl alcohol	57	73	NA	NA	42 U	45 U	--	60 U	65 U	48 U	64 U
Pentachlorophenol	360	690	NA	NA	84 U	91 U	--	120 U	130 U	**2100**	**180**
Phenol	420	1200	NA	NA	42 U	**52**	--	60 U	**77**	**130**	**230**
PAHs—dry weight (ug/kg)											
1-Methylnaphthalene	NV	NV	NA	NA	--	--	--	--	--	--	--
TCLP Metals (mg/L)											
Lead	NA	NA	NA	NA	--	--	--	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--	--	--	--
Dioxins/Furans—dry weight (pg/g)											
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	--	--	2400	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	--	--	290	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	--	--	**12 JQ**	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	--	--	**13 JQ**	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	--	--	**22 J**	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	--	--	**180**	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	--	--	9.5 U	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	--	--	**39**	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	--	--	3.9 U	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NA	NA	--	--	11 U	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NA	NA	--	--	4.5 U	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	--	--	8.9 U	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NA	NA	--	--	7.5 U	--	--	--	--
2,3,7,8-TCDD	NV	NV	NA	NA	--	--	**2.7 J**	--	--	--	--
2,3,7,8-TCDF	NV	NV	NA	NA	--	--	**5.3 CON**	--	--	--	--
OCDD	NV	NV	NA	NA	--	--	**16000**	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
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Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West
Sample Name:					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11
OCDF	NV	NV	NA	NA	--	--	**690**	--	--	--	--
Total HpCDDs	NV	NV	NA	NA	--	--	**5400**	--	--	--	--
Total HpCDFs	NV	NV	NA	NA	--	--	**1200**	--	--	--	--
Total HxCDDs	NV	NV	NA	NA	--	--	**1400**	--	--	--	--
Total HxCDFs	NV	NV	NA	NA	--	--	**630**	--	--	--	--
Total PeCDDs	NV	NV	NA	NA	--	--	**53**	--	--	--	--
Total PeCDFs	NV	NV	NA	NA	--	--	**120**	--	--	--	--
Total TCDDs	NV	NV	NA	NA	--	--	**19**	--	--	--	--
Total TCDFs	NV	NV	NA	NA	--	--	**56**	--	--	--	--
Dioxin TEQ	NV	NV	NA	NA	--	--	**68**	--	--	--	--
Petroleum Hydrocarbons—dry weight (mg/kg)											
Gasoline	NV	NV	NV	NV	--	--	--	--	--	--	--
Diesel	NV	NV	NV	NV	--	--	--	--	--	--	--
Motor-Oil Range	NV	NV	NV	NV	--	--	--	--	--	--	--
Conventionals											
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	**25**	**28**	--	**32**	**30**	**21**	**40**
Sulfide (mg/kg)	NV	NV	NV	NV	**24**	**22**	--	**17**	**15**	**21**	**15**
Total Volatile Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**24**	**22**	**21.7**	**17**	**15**	**21**	**15**
Grain Size (%)											
Gravel	NV	NV	NV	NV	--	--	--	--	--	--	--
Very coarse sand	NV	NV	NV	NV	--	--	--	--	--	--	--
Coarse sand	NV	NV	NV	NV	--	--	--	--	--	--	--
Medium sand	NV	NV	NV	NV	--	--	--	--	--	--	--
Fine sand	NV	NV	NV	NV	--	--	--	--	--	--	--
Very fine sand	NV	NV	NV	NV	--	--	--	--	--	--	--
Coarse silt	NV	NV	NV	NV	--	--	--	--	--	--	--
Medium silt	NV	NV	NV	NV	--	--	--	--	--	--	--
Fine silt	NV	NV	NV	NV	--	--	--	--	--	--	--
Very fine silt	NV	NV	NV	NV	--	--	--	--	--	--	--
Coarse clay	NV	NV	NV	NV	--	--	--	--	--	--	--
Medium clay	NV	NV	NV	NV	--	--	--	--	--	--	--
Fine clay	NV	NV	NV	NV	--	--	--	--	--	--	--
Total fines	NV	NV	NV	NV	--	--	--	--	--	--	--
Asbestos (%)											
Asbestos	NV	NV	NV	NV	--	--	--	--	--	--	--
Pore Water Analysis											
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
Sample Name:					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	Apr-11	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013
Collection Depth (ft bml):					0-3.0	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5
Conventionals (%)										
Total Organic Carbon	NV	NV	NV	NV	**31**	**31.4 J**	--	**16.5 J**	**13.6 J**	--
PCBs (ug/kg-OC)										
Total PCBs[b]	NA	NA	12000	65000	**1290**	NA	NA	--	NA	NA
SVOCs (ug/kg-OC)										
1,2,4-Trichlorobenzene	NA	NA	810	1800	**645**	NA	NA	--	NA	NA
1,2-Dichlorobenzene	NA	NA	2300	2300	419 U	NA	NA	--	NA	NA
1,4-Dichlorobenzene	NA	NA	3100	9000	419 U	NA	NA	--	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	12581 U	NA	NA	--	NA	NA
Butylbenzylphthalate	NA	NA	4900	64000	839 U	NA	NA	--	NA	NA
Dibenzofuran	NA	NA	15000	58000	**1129**	NA	NA	--	NA	NA
Diethylphthalate	NA	NA	61000	110000	839 U	NA	NA	--	NA	NA
Dimethyl phthalate	NA	NA	53000	53000	839 U	NA	NA	--	NA	NA
Di-n-butyl phthalate	NA	NA	220000	1700000	1677 U	NA	NA	--	NA	NA
Di-n-octyl phthalate	NA	NA	58000	4500000	**2871**	NA	NA	--	NA	NA
Hexachlorobenzene	NA	NA	380	2300	419 U	NA	NA	--	NA	NA
Hexachlorobutadiene	NA	NA	3900	6200	419 U	NA	NA	--	NA	NA
N-Nitrosodiphenylamine	NA	NA	11000	11000	419 U	NA	NA	--	NA	NA
PAHs (ug/kg-OC)										
2-Methylnaphthalene	NA	NA	38000	64000	**419**	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	16000	57000	**3548**	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	66000	66000	**277**	NA	NA	NA	NA	NA
Anthracene	NA	NA	220000	1200000	**1032**	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	110000	270000	**2258**	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	99000	210000	**1323**	NA	NA	NA	NA	NA
Benzo(ghi)perylene	NA	NA	31000	78000	**806**	NA	NA	NA	NA	NA
Chrysene	NA	NA	110000	460000	**2290**	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	12000	33000	323 U	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	160000	1200000	**10645**	NA	NA	NA	NA	NA
Fluorene	NA	NA	23000	79000	**1645**	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	**645**	NA	NA	NA	NA	NA
Naphthalene	NA	NA	99000	170000	**903**	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	100000	480000	**1806**	NA	NA	NA	NA	NA
Pyrene	NA	NA	1000000	1400000	**8710**	NA	NA	NA	NA	NA
Total Benzofluoranthenes	NA	NA	230000	450000	323 U	NA	NA	NA	NA	NA
Total HPAHs[b]	NA	NA	960000	5300000	**26677**	NA	NA	NA	NA	NA
Total LPAHs[b]	NA	NA	370000	780000	**9213**	NA	NA	NA	NA	NA
PCBs—dry weight (ug/kg)										
Aroclor 1016	NV	NV	NA	NA	5.3 U	20 UJ	19 UJ	--	20 UJ	19 UJ
Aroclor 1221	NV	NV	NA	NA	5.3 U	20 UJ	19 UJ	--	20 UJ	19 UJ

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
Sample Name:					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013
Aroclor 1232	NV	NV	NA	NA	5.3 U	20 UJ	19 UJ	--	20 UJ	19 UJ
Aroclor 1242	NV	NV	NA	NA	5.3 U	20 UJ	19 UJ	--	20 UJ	19 UJ
Aroclor 1248	NV	NV	NA	NA	5.3 U	29 UJ	48 UJ	--	29 UJ	97 UJ
Aroclor 1254	NV	NV	NA	NA	5.3 U	97 UJ	**440 J**	--	98 UJ	**490 J**
Aroclor 1260	NV	NV	NA	NA	**400**	**200 J**	**730 J**	--	**180 J**	**670 J**
Aroclor 1268	NV	NV	NA	NA	--	--	--	--	--	--
Total PCBs[b]	130	1000	NA	NA	**400**	**200 J**	**1170 J**	--	**180 J**	**1160 J**
SVOCs—dry weight (ug/kg)										
1,2,4-Trichlorobenzene	31	51	NA	NA	**200**	100 UJ	81 UJ	--	**43 J**	**74 J**
1,2-Dichlorobenzene	35	50	NA	NA	130 U	100 UJ	81 UJ	--	58 UJ	88 UJ
1,4-Dichlorobenzene	110	110	NA	NA	130 U	100 UJ	81 UJ	--	**1000 J**	**540 J**
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	3900 U	1000 UJ	**870 J**	--	**960 J**	**9400 J**
Butylbenzylphthalate	63	900	NA	NA	260 U	58 UJ	81 UJ	--	58 UJ	88 UJ
Dibenzofuran	540	540	NA	NA	**350**	420 UJ	**210 J**	--	**310 J**	**230 J**
Diethylphthalate	200	>1200	NA	NA	260 U	420 UJ	320 UJ	--	230 UJ	350 UJ
Dimethyl phthalate	71	160	NA	NA	260 U	100 UJ	81 UJ	--	58 UJ	88 UJ
Di-n-butyl phthalate	1400	1400	NA	NA	520 U	420 UJ	320 UJ	--	230 UJ	350 UJ
Di-n-octyl phthalate	6200	6200	NA	NA	**890**	420 UJ	320 UJ	--	230 UJ	350 UJ
Hexachlorobenzene	22	70	NA	NA	130 U	100 UJ	81 UJ	--	58 UJ	88 UJ
Hexachlorobutadiene	11	120	NA	NA	130 U	100 UJ	81 UJ	--	58 UJ	88 UJ
N-Nitrosodiphenylamine	28	40	NA	NA	130 U	100 UJ	81 UJ	--	58 UJ	88 UJ
PAHs—dry weight (ug/kg)										
2-Methylnaphthalene	670	670	NA	NA	**130**	420 UJ	320 UJ	--	**310**	350 UJ
Acenaphthene	500	500	NA	NA	**1100**	420 UJ	**180 J**	--	**210**	**390 J**
Acenaphthylene	1300	1300	NA	NA	**86**	420 UJ	320 UJ	--	**170**	350 UJ
Anthracene	960	960	NA	NA	**320**	420 UJ	**290 J**	--	**230**	**320 J**
Benzo(a)anthracene	1300	1600	NA	NA	**700**	**250 J**	**640 J**	--	**390**	**680 J**
Benzo(a)pyrene	1600	1600	NA	NA	**410**	**300 J**	**680 J**	--	**340 J**	**530 J**
Benzo(ghi)perylene	670	720	NA	NA	**250**	**230 J**	**660 J**	--	**260 J**	**300 J**
Chrysene	1400	2800	NA	NA	**710**	**530 J**	**940 J**	--	**420 J**	**460 J**
Dibenzo(a,h)anthracene	230	230	NA	NA	100 U	**120 J**	**360 J**	--	**94 J**	**190 J**
Fluoranthene	1700	2500	NA	NA	**3300**	**590 J**	**2200 J**	--	**1300 J**	**3900 J**
Fluorene	540	540	NA	NA	**510**	420 UJ	**180 J**	--	**260 J**	**230 J**
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	**200**	420 UJ	**480 J**	--	**200 J**	**190 J**
Naphthalene	2100	2100	NA	NA	**280**	**420 J**	**340 J**	--	**720 J**	**440 J**
Phenanthrene	1500	1500	NA	NA	**560**	**320 J**	**370 J**	--	**700 J**	**470 J**
Pyrene	2600	3300	NA	NA	**2700**	**700 J**	**1800 J**	--	**1300 J**	**3100 J**
Total Benzofluoranthenes	3200	3600	NA	NA	100 U	**550 J**	**1700 J**	--	**660**	**810 J**
Total HPAHs[b]	12000	17000	NA	NA	**8270**	**3270 J**	**9460 J**	--	**4964 J**	**10160 J**
Total LPAHs[b]	5200	5200	NA	NA	**2856**	**740 J**	**1360 J**	--	**2290 J**	**1850 J**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
Sample Name:					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013
Total Metals—dry weight (mg/kg)										
Arsenic	57	93	NA	NA	14 U	--	--	--	--	--
Cadmium	5.1	6.7	NA	NA	2.3 U	--	--	--	--	--
Chromium	260	270	NA	NA	**27**	--	--	--	--	--
Copper	390	390	NA	NA	**84**	--	--	--	--	--
Lead	450	530	NA	NA	**68**	--	--	--	--	--
Mercury	0.41	0.59	NA	NA	**0.54**	**6.2**	**0.5 J**	--	**0.16**	**0.5 J**
Silver	6.1	6.1	NA	NA	4.7 U	--	--	--	--	--
Zinc	410	960	NA	NA	**250**	--	--	--	--	--
SVOCs—dry weight (ug/kg)										
1,3-Dichlorobenzene	NA	NA	NA	NA	--	100 UJ	81 UJ	--	**620 J**	**280 J**
2,4-Dimethylphenol	29	29	NA	NA	260 U	530 UJ	400 UJ	--	290 UJ	440 UJ
2-Methylphenol	63	63	NA	NA	260 U	100 UJ	81 UJ	--	**44 J**	88 UJ
3,4-Methylphenol	NA	NA	NA	NA	520 U	--	--	--	--	--
4-Methylphenol	670	670	NA	NA	--	420 UJ	320 UJ	--	**310 J**	**280 J**
Benzoic acid	650	650	NA	NA	6500 U	**1700 J**	3200 UJ	--	**950 J**	3500 UJ
Benzyl alcohol	57	73	NA	NA	260 U	420 UJ	320 UJ	--	230 UJ	350 UJ
Pentachlorophenol	360	690	NA	NA	520 U	**270 J**	**400 J**	--	230 UJ	350 UJ
Phenol	420	1200	NA	NA	260 U	**290 J**	**390 J**	**980 J**	**570 J**	**530 J**
PAHs—dry weight (ug/kg)										
1-Methylnaphthalene	NV	NV	NA	NA	--	--	--	--	--	--
TCLP Metals (mg/L)										
Lead	NA	NA	NA	NA	--	--	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--	--	--
Dioxins/Furans—dry weight (pg/g)										
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	--	**817**	**4070**	--	**1820**	**12200**
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	--	**165**	**919**	--	**437**	**1170**
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	--	7.55 U	**42.8**	--	**19.8**	**81.3**
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	--	**4.26**	**32.5**	--	**11.2**	**24.5**
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	--	**7.26**	**35.9**	--	**15.3**	**115**
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	--	**54.5**	**350**	--	**136**	**1020**
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	--	**3.38**	**18.9**	--	**10.9**	**51.7**
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	--	**10.2**	**48.1**	--	**29.9**	**98.1**
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	--	**2.45**	**14.6**	--	**6.11**	**62.9**
1,2,3,7,8-PeCDD	NV	NV	NA	NA	--	**4.34**	**18.8**	--	**13.9**	**34.1**
1,2,3,7,8-PeCDF	NV	NV	NA	NA	--	**2.06**	**12.4**	--	**4.73**	**41.4**
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	--	**5.09**	**22.2**	--	**11.1**	**69.3**
2,3,4,7,8-PeCDF	NV	NV	NA	NA	--	**3.43**	**15.7**	--	**5.82**	**43.5**
2,3,7,8-TCDD	NV	NV	NA	NA	--	1.14 U	**3.97**	--	**3**	**5.26**
2,3,7,8-TCDF	NV	NV	NA	NA	--	**3.53**	**16**	--	**6.3**	**54.3**
OCDD	NV	NV	NA	NA	--	**5340 J**	**23500 J**	--	**10300 J**	**68300 J**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
Sample Name:					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013
OCDF	NV	NV	NA	NA	--	**476**	**1900**	--	**863**	**3100**
Total HpCDDs	NV	NV	NA	NA	--	**1530**	**7520**	--	**3750**	**21300**
Total HpCDFs	NV	NV	NA	NA	--	678 U	**3910**	--	**1560**	5060 U
Total HxCDDs	NV	NV	NA	NA	--	350 U	1540 U	--	1010 U	**4840**
Total HxCDFs	NV	NV	NA	NA	--	301 U	**2130**	--	**853**	6030 U
Total PeCDDs	NV	NV	NA	NA	--	68.7 U	133 U	--	334 U	862 U
Total PeCDFs	NV	NV	NA	NA	--	101 U	658 U	--	281 U	2660 U
Total TCDDs	NV	NV	NA	NA	--	17.5 U	32.6 U	--	73.6 U	**180**
Total TCDFs	NV	NV	NA	NA	--	27.9 U	119 U	--	78.1 U	558 U
Dioxin TEQ	NV	NV	NA	NA	--	**26.7**	**140**	--	**67.6**	**359**
Petroleum Hydrocarbons—dry weight (mg/kg)										
Gasoline	NV	NV	NV	NV	--	--	--	--	--	--
Diesel	NV	NV	NV	NV	--	**2400 J**	**3200 J**	**--**	**1200 J**	**3200 J**
Motor-Oil Range	NV	NV	NV	NV	--	**7400 J**	**10000 J**	**--**	**4800 J**	**13000 J**
Conventionals										
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	**31**	0.47 U	--	**15.2**	**7.21**	--
Sulfide (mg/kg)	NV	NV	NV	NV	**19**	**6.46**	--	**179**	**320**	--
Total Volatile Solids (%)	NV	NV	NV	NV	--	**59.91**	--	**38.2**	**36.49**	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**19**	**20.62**	--	**19.98**	**30.32**	--
Grain Size (%)										
Gravel	NV	NV	NV	NV	--	**22.8**	--	**23.6**	**20.2**	--
Very coarse sand	NV	NV	NV	NV	--	**13.8**	--	**13**	**11.4**	--
Coarse sand	NV	NV	NV	NV	--	**14.2**	--	**10.7**	**13.2**	--
Medium sand	NV	NV	NV	NV	--	**8.5**	--	**6.1**	**10.5**	--
Fine sand	NV	NV	NV	NV	--	**3.7**	--	**3.2**	**6**	--
Very fine sand	NV	NV	NV	NV	--	**1.4**	--	**1.4**	**3.5**	--
Coarse silt	NV	NV	NV	NV	--	**7.2**	--	**1.3**	**8.1**	--
Medium silt	NV	NV	NV	NV	--	**5.9**	--	**10.6**	**7.7**	--
Fine silt	NV	NV	NV	NV	--	**6.2**	--	**8.9**	**5.1**	--
Very fine silt	NV	NV	NV	NV	--	**4.8**	--	**6.1**	**4.5**	--
Coarse clay	NV	NV	NV	NV	--	**2.9**	--	**4.3**	**2.1**	--
Medium clay	NV	NV	NV	NV	--	**2.6**	--	**3.7**	**2.4**	--
Fine clay	NV	NV	NV	NV	--	**6.1**	--	**7.2**	**5.4**	--
Total fines	NV	NV	NV	NV	--	**35.6**	--	**42.1**	**35.3**	--
Asbestos (%)										
Asbestos	NV	NV	NV	NV	--	--	--	--	--	--
Pore Water Analysis										
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					CR-06	CR-06	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:					CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Collection Depth (ft bml):					0-0.33	1-2.5	23	15	11	12	11-23
Conventionals (%)											
Total Organic Carbon	NV	NV	NV	NV	**35.6 J**	**49.5 J**	**0.415**	**3.33**	**2.5**	**3.22**	--
PCBs (ug/kg-OC)											
Total PCBs[b]	NA	NA	12000	65000	--	NA	4096 U	601 U	800 U	621 U	--
SVOCs (ug/kg-OC)											
1,2,4-Trichlorobenzene	NA	NA	810	1800	--	NA	1133 U	147 U	196 U	152 U	--
1,2-Dichlorobenzene	NA	NA	2300	2300	--	NA	1133 U	147 U	196 U	152 U	--
1,4-Dichlorobenzene	NA	NA	3100	9000	--	NA	1133 U	147 U	196 U	152 U	--
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	--	NA	11325 U	1471 U	1960 U	1522 U	--
Butylbenzylphthalate	NA	NA	4900	64000	--	NA	1133 U	147 U	**292**	**146 J**	--
Dibenzofuran	NA	NA	15000	58000	--	NA	4578 U	**1201**	800 U	**621**	--
Diethylphthalate	NA	NA	61000	110000	--	NA	4578 U	601 U	800 U	621 U	--
Dimethyl phthalate	NA	NA	53000	53000	--	NA	1133 U	147 U	196 U	152 U	--
Di-n-butyl phthalate	NA	NA	220000	1700000	--	NA	4578 U	601 U	800 U	621 U	--
Di-n-octyl phthalate	NA	NA	58000	4500000	--	NA	4578 U	601 U	800 U	621 U	--
Hexachlorobenzene	NA	NA	380	2300	--	NA	1133 U	147 U	196 U	152 U	--
Hexachlorobutadiene	NA	NA	3900	6200	--	NA	1133 U	147 U	196 U	152 U	--
N-Nitrosodiphenylamine	NA	NA	11000	11000	--	NA	1133 U	147 UJ	196 U	152 U	--
PAHs (ug/kg-OC)											
2-Methylnaphthalene	NA	NA	38000	64000	NA	NA	4578 U	**1231**	800 U	**652**	--
Acenaphthene	NA	NA	16000	57000	NA	NA	4578 U	**1231**	**1240**	**621**	--
Acenaphthylene	NA	NA	66000	66000	NA	NA	4578 U	**3303**	**4400**	**1894**	--
Anthracene	NA	NA	220000	1200000	NA	NA	4578 U	**1231**	**1120**	**559 J**	--
Benzo(a)anthracene	NA	NA	110000	270000	NA	NA	**2651 J**	**901**	**800**	**528 J**	--
Benzo(a)pyrene	NA	NA	99000	210000	NA	NA	4578 U	601 U	800 U	621 U	--
Benzo(ghi)perylene	NA	NA	31000	78000	NA	NA	4578 U	**901**	**1200**	**621**	--
Chrysene	NA	NA	110000	460000	NA	NA	**2892 J**	**1291**	**1160**	**776**	--
Dibenzo(a,h)anthracene	NA	NA	12000	33000	NA	NA	1133 U	**189**	**172 J**	**99 J**	--
Fluoranthene	NA	NA	160000	1200000	NA	NA	**5783**	**4505**	**4000**	**2733**	--
Fluorene	NA	NA	23000	79000	NA	NA	4578 U	**1411**	**1400**	**714**	--
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	NA	NA	4578 U	**721**	**720 J**	**466 J**	--
Naphthalene	NA	NA	99000	170000	NA	NA	4578 U	**11111**	**12000**	**5901**	--
Phenanthrene	NA	NA	100000	480000	NA	NA	**4578**	**6306**	**6000**	**3727**	--
Pyrene	NA	NA	1000000	1400000	NA	NA	**5542**	**4505**	**4400**	**2702**	--
Total Benzofluoranthenes	NA	NA	230000	450000	NA	NA	**3855 J**	**1832**	**1600**	**1211**	--
Total HPAHs[b]	NA	NA	960000	5300000	NA	NA	**20723**	**14844**	**14052**	**9137 J**	--
Total LPAHs[b]	NA	NA	370000	780000	NA	NA	**4578 J**	**24595**	**26160 J**	**13416 J**	--
PCBs—dry weight (ug/kg)											
Aroclor 1016	NV	NV	NA	NA	--	20 U	17 U	20 U	20 U	20 U	--
Aroclor 1221	NV	NV	NA	NA	--	20 U	17 U	20 U	20 U	20 U	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					CR-06	CR-06	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:					CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Aroclor 1232	NV	NV	NA	NA	--	20 U	17 U	20 U	20 U	20 U	--
Aroclor 1242	NV	NV	NA	NA	--	20 U	17 U	20 U	20 U	20 U	--
Aroclor 1248	NV	NV	NA	NA	--	99 U	17 U	20 U	20 U	20 U	--
Aroclor 1254	NV	NV	NA	NA	--	200 U	17 U	20 U	20 U	20 U	--
Aroclor 1260	NV	NV	NA	NA	--	**690**	17 U	20 U	20 U	20 U	--
Aroclor 1268	NV	NV	NA	NA	--	--	17 U	20 U	20 U	20 U	--
Total PCBs[b]	130	1000	NA	NA	--	**690**	17 U	20 U	20 U	20 U	--
SVOCs—dry weight (ug/kg)											
1,2,4-Trichlorobenzene	31	51	NA	NA	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
1,2-Dichlorobenzene	35	50	NA	NA	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
1,4-Dichlorobenzene	110	110	NA	NA	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	--	**1900**	47 U	49 U	49 U	49 U	--
Butylbenzylphthalate	63	900	NA	NA	310 UJ	70 U	4.7 U	4.9 U	**7.3**	**4.7 J**	--
Dibenzofuran	540	540	NA	NA	--	**490**	19 U	**40**	20 U	**20**	--
Diethylphthalate	200	>1200	NA	NA	--	**270 J**	19 U	20 U	20 U	20 U	--
Dimethyl phthalate	71	160	NA	NA	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
Di-n-butyl phthalate	1400	1400	NA	NA	--	280 U	19 U	20 U	20 U	20 U	--
Di-n-octyl phthalate	6200	6200	NA	NA	--	280 U	19 U	20 U	20 U	20 U	--
Hexachlorobenzene	22	70	NA	NA	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
Hexachlorobutadiene	11	120	NA	NA	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
N-Nitrosodiphenylamine	28	40	NA	NA	--	70 U	4.7 U	4.9 UJ	4.9 U	4.9 U	--
PAHs—dry weight (ug/kg)											
2-Methylnaphthalene	670	670	NA	NA	--	**780**	19 U	**41**	20 U	**21**	--
Acenaphthene	500	500	NA	NA	--	**490**	19 U	**41**	**31**	**20**	--
Acenaphthylene	1300	1300	NA	NA	--	**520**	19 U	**110**	**110**	**61**	--
Anthracene	960	960	NA	NA	--	**750**	19 U	**41**	**28**	**18 J**	--
Benzo(a)anthracene	1300	1600	NA	NA	--	**1300**	**11 J**	**30**	**20**	**17 J**	--
Benzo(a)pyrene	1600	1600	NA	NA	--	**1200**	19 U	20 U	20 U	20 U	--
Benzo(ghi)perylene	670	720	NA	NA	--	**590**	19 U	**30**	**30**	**20**	--
Chrysene	1400	2800	NA	NA	--	**1600**	**12 J**	**43**	**29**	**25**	--
Dibenzo(a,h)anthracene	230	230	NA	NA	--	**150**	4.7 U	**6.3**	**4.3 J**	**3.2 J**	--
Fluoranthene	1700	2500	NA	NA	--	**3200**	**24**	**150**	**100**	**88**	--
Fluorene	540	540	NA	NA	--	**650**	19 U	**47**	**35**	**23**	--
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	--	**490**	19 U	**24**	**18 J**	**15 J**	--
Naphthalene	2100	2100	NA	NA	--	**1800**	19 U	**370**	**300**	**190**	--
Phenanthrene	1500	1500	NA	NA	--	**3600**	**19**	**210**	**150**	**120**	--
Pyrene	2600	3300	NA	NA	--	**3600**	**23**	**150**	**110**	**87**	--
Total Benzofluoranthenes	3200	3600	NA	NA	--	**2000**	**16 J**	**61**	**40**	**39**	--
Total HPAHs[b]	12000	17000	NA	NA	--	**14130**	**86 J**	**494 J**	**351 J**	**294 J**	--
Total LPAHs[b]	5200	5200	NA	NA	--	**7810**	**19**	**819**	**654**	**432 J**	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					CR-06	CR-06	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:					CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Total Metals—dry weight (mg/kg)											
Arsenic	57	93	NA	NA	--	20 U	20 U	20 U	9 U	20 U	--
Cadmium	5.1	6.7	NA	NA	--	1 U	0.6 U	0.8 U	**0.4**	0.8 U	--
Chromium	260	270	NA	NA	--	**26 J**	**37**	**48**	**41.3**	**49**	--
Copper	390	390	NA	NA	--	**96 J**	**47**	**62.2**	**55.1**	**63**	--
Lead	450	530	NA	NA	--	**110**	6 U	**11**	**9**	**12**	--
Mercury	0.41	0.59	NA	NA	**0.55**	**0.53**	0.03 U	**0.09**	**0.07**	**0.09**	--
Silver	6.1	6.1	NA	NA	--	1 U	1 U	1 U	0.5 U	1 U	--
Zinc	410	960	NA	NA	--	**237**	**78**	**86**	**76**	**90**	--
SVOCs—dry weight (ug/kg)											
1,3-Dichlorobenzene	NA	NA	NA	NA	--	70 U	--	--	--	--	--
2,4-Dimethylphenol	29	29	NA	NA	--	350 U	23 U	24 U	24 U	24 U	--
2-Methylphenol	63	63	NA	NA	--	**45 J**	4.7 U	4.9 U	**7.2**	4.9 U	--
3,4-Methylphenol	NA	NA	NA	NA	--	--	--	--	--	--	--
4-Methylphenol	670	670	NA	NA	--	**420**	19 U	**870 J**	**150**	**130**	--
Benzoic acid	650	650	NA	NA	--	**860 J**	190 U	**440**	**260**	**200**	--
Benzyl alcohol	57	73	NA	NA	--	280 U	19 U	**23**	**46**	**20**	--
Pentachlorophenol	360	690	NA	NA	1500 UJ	**240 J**	19 UJ	20 UJ	20 UJ	20 UJ	--
Phenol	420	1200	NA	NA	**370 J**	**240 J**	**8.4 J**	**64**	**44**	**50**	--
PAHs—dry weight (ug/kg)											
1-Methylnaphthalene	NV	NV	NA	NA	--	--	19 U	**24**	**22**	**16 J**	--
TCLP Metals (mg/L)											
Lead	NA	NA	NA	NA	--	--	--	--	--	--	0.1 U
Mercury	NA	NA	NA	NA	--	--	--	--	--	--	0.0001 U
Dioxins/Furans—dry weight (pg/g)											
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	**1080**	**1090**	**6.64**	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	**258**	**276**	0.317 U	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	**13.2**	**15.5**	0.0458 U	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	**12.7**	**8.21**	0.255 U	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	**18.1**	**21.7**	**0.0319 J**	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	**63.8**	**72.8**	0.631 U	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	**8.9**	**8.35**	0.0339 U	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	**16.5**	**15.4**	**2.76**	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	**4.79**	**4.66**	0.112 U	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NA	NA	**9.35**	**8.27**	**1.02**	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NA	NA	**3.28**	**3.24**	0.0398 U	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	**16.9**	**16.3**	0.0438 U	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NA	NA	**5.96**	**5.87**	0.0418 U	--	--	--	--
2,3,7,8-TCDD	NV	NV	NA	NA	**2.09**	**2.11**	**0.936 J**	--	--	--	--
2,3,7,8-TCDF	NV	NV	NA	NA	**4.87**	**4.95**	0.0339 U	--	--	--	--
OCDD	NV	NV	NA	NA	**7830 J**	**6810 J**	**33.1**	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
Location:					CR-06	CR-06	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:					CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
OCDF	NV	NV	NA	NA	**680**	**652**	**1.08 J**	--	--	--	--
Total HpCDDs	NV	NV	NA	NA	**2480**	**2050**	**15.5**	--	--	--	--
Total HpCDFs	NV	NV	NA	NA	**950**	1120 U	1.28 U	--	--	--	--
Total HxCDDs	NV	NV	NA	NA	742 U	783 U	18.1 U	--	--	--	--
Total HxCDFs	NV	NV	NA	NA	463 U	518 U	0.599 U	--	--	--	--
Total PeCDDs	NV	NV	NA	NA	**88.7**	67 U	**7.59**	--	--	--	--
Total PeCDFs	NV	NV	NA	NA	203 U	147 U	0.111 U	--	--	--	--
Total TCDDs	NV	NV	NA	NA	42.6 U	**28.7**	7.61 U	--	--	--	--
Total TCDFs	NV	NV	NA	NA	82.8 U	62.3 U	0.303 U	--	--	--	--
Dioxin TEQ	NV	NV	NA	NA	**44.0**	**43.5**	**2.38**	--	--	--	--
Petroleum Hydrocarbons—dry weight (mg/kg)											
Gasoline	NV	NV	NV	NV	--	54 UJ	--	--	--	--	--
Diesel	NV	NV	NV	NV	--	**20000**	7 U	--	--	--	--
Motor-Oil Range	NV	NV	NV	NV	--	**60000**	**19**	--	--	--	--
Conventionals											
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	**1.37**	**14.0**	--	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	NV	**906**	**2910**	--	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	NV	**60.05**	**69.23**	--	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**21.4**	**21.59**	**72.59**	**56.65**	**57.95**	**57.04**	--
Grain Size (%)											
Gravel	NV	NV	NV	NV	**22.7**	--	--	--	--	--	--
Very coarse sand	NV	NV	NV	NV	**13**	--	--	--	--	--	--
Coarse sand	NV	NV	NV	NV	**15.7**	--	--	--	--	--	--
Medium sand	NV	NV	NV	NV	**11.9**	--	--	--	--	--	--
Fine sand	NV	NV	NV	NV	**5.1**	--	--	--	--	--	--
Very fine sand	NV	NV	NV	NV	**2**	--	--	--	--	--	--
Coarse silt	NV	NV	NV	NV	**4.1**	--	--	--	--	--	--
Medium silt	NV	NV	NV	NV	**5.1**	--	--	--	--	--	--
Fine silt	NV	NV	NV	NV	**4.5**	--	--	--	--	--	--
Very fine silt	NV	NV	NV	NV	**3.7**	--	--	--	--	--	--
Coarse clay	NV	NV	NV	NV	**2.7**	--	--	--	--	--	--
Medium clay	NV	NV	NV	NV	**2.1**	--	--	--	--	--	--
Fine clay	NV	NV	NV	NV	**7.4**	--	--	--	--	--	--
Total fines	NV	NV	NV	NV	**29.7**	--	--	--	--	--	--
Asbestos (%)											
Asbestos	NV	NV	NV	NV	--	--	--	--	--	--	--
Pore Water Analysis											
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					CR-15C		CR-17D		CR-18B	
Sample Name:					CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Collection Depth (ft bml):					0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0
Conventionals (%)										
Total Organic Carbon	NV	NV	NV	NV	**3.17**	**1.73**	**1.61**	**3.05**	**1.95**	**2.45**
PCBs (ug/kg-OC)										
Total PCBs[b]	NA	NA	12000	65000	631 U	1040 U	1180 U	**590 J**	923 U	776 U
SVOCs (ug/kg-OC)										
1,2,4-Trichlorobenzene	NA	NA	810	1800	155 U	283 U	298 U	**157 J**	256 U	204 U
1,2-Dichlorobenzene	NA	NA	2300	2300	155 U	283 U	298 U	**52 J**	256 U	204 U
1,4-Dichlorobenzene	NA	NA	3100	9000	155 U	283 U	298 U	161 U	256 U	204 U
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	**915 J**	2832 U	2981 U	**1246 J**	2564 U	2041 U
Butylbenzylphthalate	NA	NA	4900	64000	155 U	283 U	**211 J**	161 U	**369**	**114 J**
Dibenzofuran	NA	NA	15000	58000	**757**	**1214**	1180 U	**2754**	1026 U	816 U
Diethylphthalate	NA	NA	61000	110000	662 U	1503 U	1180 U	623 U	2051 U	816 U
Dimethyl phthalate	NA	NA	53000	53000	155 U	283 U	298 U	161 U	256 U	204 U
Di-n-butyl phthalate	NA	NA	220000	1700000	631 U	1156 U	1180 U	623 U	1026 U	816 U
Di-n-octyl phthalate	NA	NA	58000	4500000	631 U	1156 U	1180 U	623 U	1026 U	816 U
Hexachlorobenzene	NA	NA	380	2300	155 U	283 U	298 U	161 U	256 U	204 U
Hexachlorobutadiene	NA	NA	3900	6200	155 U	283 U	298 U	161 U	256 U	204 U
N-Nitrosodiphenylamine	NA	NA	11000	11000	155 U	283 U	298 U	161 U	256 U	204 U
PAHs (ug/kg-OC)										
2-Methylnaphthalene	NA	NA	38000	64000	**599 J**	**1040 J**	1180 U	**1016**	1026 U	816 U
Acenaphthene	NA	NA	16000	57000	**1199**	**2139**	1180 U	**13770**	1026 U	**653 J**
Acenaphthylene	NA	NA	66000	66000	**473 J**	**867 J**	1180 U	**656**	1026 U	**694 J**
Anthracene	NA	NA	220000	1200000	**568 J**	**1156**	1180 U	**3607**	1026 U	**980**
Benzo(a)anthracene	NA	NA	110000	270000	**1767**	**3699**	1180 U	**5246**	**1487**	**4041**
Benzo(a)pyrene	NA	NA	99000	210000	**978**	**2023**	1180 U	**2656**	**615 J**	**2776**
Benzo(ghi)perylene	NA	NA	31000	78000	**726**	**809 J**	1180 U	**1180**	1026 U	**1102**
Chrysene	NA	NA	110000	460000	**1924**	**3988**	**534 J**	**6885**	**3385**	**3796**
Dibenzo(a,h)anthracene	NA	NA	12000	33000	**126 J**	**249 J**	**143 J**	**492**	256 U	**327**
Fluoranthene	NA	NA	160000	1200000	**3785**	**6358**	**1553**	**19672**	**4205**	**8571**
Fluorene	NA	NA	23000	79000	**915**	**1156**	1180 U	**4590**	**564 J**	**490 J**
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	**568 J**	**983 J**	1180 U	**1344**	1026 U	**1102**
Naphthalene	NA	NA	99000	170000	**2019**	**2023**	**807 J**	**3607**	**1487**	**898**
Phenanthrene	NA	NA	100000	480000	**2871**	**3988**	**1180**	**11803**	**1333**	**1102**
Pyrene	NA	NA	1000000	1400000	**3091**	**4624**	**1242**	**15410**	**3179**	**8980**
Total Benzofluoranthenes	NA	NA	230000	450000	**3155**	**5780**	**807 J**	**7869**	**2000 J**	**7347**
Total HPAHs[b]	NA	NA	960000	5300000	**16120 J**	**28514 J**	**4280 J**	**60754**	**14872 J**	**38041 J**
Total LPAHs[b]	NA	NA	370000	780000	**8044 J**	**11329 J**	**1988 J**	**38033**	**3385 J**	**4816**
PCBs—dry weight (ug/kg)										
Aroclor 1016	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1221	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					CR-15C		CR-17D		CR-18B	
Sample Name:					CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Aroclor 1232	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1242	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1248	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1254	NV	NV	NA	NA	20 U	18 U	19 U	**18 J**	18 U	19 U
Aroclor 1260	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U
Aroclor 1268	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 U	19 U
Total PCBs[b]	130	1000	NA	NA	20 U	18 U	19 U	**18 J**	18 U	19 U
SVOCs—dry weight (ug/kg)										
1,2,4-Trichlorobenzene	31	51	NA	NA	4.9 U	4.9 U	4.8 U	**4.8 J**	5 U	5 U
1,2-Dichlorobenzene	35	50	NA	NA	4.9 U	4.9 U	4.8 U	**1.6 J**	5 U	5 U
1,4-Dichlorobenzene	110	110	NA	NA	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	**29 J**	49 U	48 U	**38 J**	50 U	50 U
Butylbenzylphthalate	63	900	NA	NA	4.9 U	4.9 U	**3.4 J**	4.9 U	**7.2**	**2.8 J**
Dibenzofuran	540	540	NA	NA	**24**	**21**	19 U	**84**	20 U	20 U
Diethylphthalate	200	>1200	NA	NA	21 U	26 U	19 U	19 U	40 U	20 U
Dimethyl phthalate	71	160	NA	NA	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
Di-n-butyl phthalate	1400	1400	NA	NA	20 U	20 U	19 U	19 U	20 U	20 U
Di-n-octyl phthalate	6200	6200	NA	NA	20 U	20 U	19 U	19 U	20 U	20 U
Hexachlorobenzene	22	70	NA	NA	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
Hexachlorobutadiene	11	120	NA	NA	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
N-Nitrosodiphenylamine	28	40	NA	NA	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
PAHs—dry weight (ug/kg)										
2-Methylnaphthalene	670	670	NA	NA	**19 J**	**18 J**	19 U	**31**	20 U	20 U
Acenaphthene	500	500	NA	NA	**38**	**37**	19 U	**420**	20 U	**16 J**
Acenaphthylene	1300	1300	NA	NA	**15 J**	**15 J**	19 U	**20**	20 U	**17 J**
Anthracene	960	960	NA	NA	**18 J**	**20**	19 U	**110**	20 U	**24**
Benzo(a)anthracene	1300	1600	NA	NA	**56**	**64**	19 U	**160**	**29**	**99**
Benzo(a)pyrene	1600	1600	NA	NA	**31**	**35**	19 U	**81**	**12 J**	**68**
Benzo(ghi)perylene	670	720	NA	NA	**23**	**14 J**	19 U	**36**	20 U	**27**
Chrysene	1400	2800	NA	NA	**61**	**69**	**8.6 J**	**210**	**66**	**93**
Dibenzo(a,h)anthracene	230	230	NA	NA	**4 J**	**4.3 J**	**2.3 J**	**15**	5 U	**8**
Fluoranthene	1700	2500	NA	NA	**120**	**110**	**25**	**600**	**82**	**210**
Fluorene	540	540	NA	NA	**29**	**20**	19 U	**140**	**11 J**	**12 J**
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	**18 J**	**17 J**	19 U	**41**	20 U	**27**
Naphthalene	2100	2100	NA	NA	**64**	**35**	**13 J**	**110**	**29**	**22**
Phenanthrene	1500	1500	NA	NA	**91**	**69**	**19**	**360**	**26**	**27**
Pyrene	2600	3300	NA	NA	**98**	**80**	**20**	**470**	**62**	**220**
Total Benzofluoranthenes	3200	3600	NA	NA	**100**	**100**	**13 J**	**240**	**39 J**	**180**
Total HPAHs[b]	12000	17000	NA	NA	**511 J**	**493.3 J**	**68.9 J**	**1853**	**290 J**	**932 J**
Total LPAHs[b]	5200	5200	NA	NA	**255 J**	**196 J**	**32 J**	**1160**	**66 J**	**118 J**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					CR-15C		CR-17D		CR-18B	
Sample Name:					CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
Total Metals—dry weight (mg/kg)										
Arsenic	57	93	NA	NA	20	21	**21**	**30**	**30**	**20**
Cadmium	5.1	6.7	NA	NA	0.5 U	0.3 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium	260	270	NA	NA	40	34.5	**34.4**	**40**	**41**	**36**
Copper	390	390	NA	NA	51.9	54.7	**51.1**	**58.2**	**62.7**	**53.4**
Lead	450	530	NA	NA	11	9	**9**	**12**	**10**	**10**
Mercury	0.41	0.59	NA	NA	0.06 U	0.04	**0.04**	**0.07**	0.05 U	**0.07**
Silver	6.1	6.1	NA	NA	0.8 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U
Zinc	410	960	NA	NA	77	69	**70**	**79**	**76**	**73**
SVOCs—dry weight (ug/kg)										
1,3-Dichlorobenzene	NA	NA	NA	NA	--	--	--	--	--	--
2,4-Dimethylphenol	29	29	NA	NA	24 U	24 U	24 U	24 U	25 U	25 U
2-Methylphenol	63	63	NA	NA	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U
3,4-Methylphenol	NA	NA	NA	NA	--	--	--	--	--	--
4-Methylphenol	670	670	NA	NA	**89**	**52**	19 UJ	**120 J**	**42**	20 U
Benzoic acid	650	650	NA	NA	**250 J**	**160 J**	**150 J**	**230 J**	**160 J**	**210 J**
Benzyl alcohol	57	73	NA	NA	20 U	20 U	**16 J**	**48**	20 U	20 U
Pentachlorophenol	360	690	NA	NA	20 UJ	20 UJ	19 U	**21**	20 U	20 U
Phenol	420	1200	NA	NA	**50**	20 U	**16 J**	**39**	**81**	20 U
PAHs—dry weight (ug/kg)										
1-Methylnaphthalene	NV	NV	NA	NA	**15 J**	**18 J**	19 U	**23**	20 U	20 U
TCLP Metals (mg/L)										
Lead	NA	NA	NA	NA	--	--	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--	--	--
Dioxins/Furans—dry weight (pg/g)										
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	100	--	**56.2**	--	**30.9**	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	25.3	--	**8.12**	--	**7.34**	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	0.959 U	--	0.483 U	--	**0.332 J**	--
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	1.22	--	0.736 U	--	**0.758 J**	--
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	1.25 U	--	**0.596 J**	--	0.424 U	--
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	5.48	--	**2.94**	--	**2.46**	--
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	0.806 J	--	**0.37 J**	--	0.294 U	--
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	10	--	**6.33**	--	**8**	--
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	0.338 U	--	0.324 U	--	0.226 U	--
1,2,3,7,8-PeCDD	NV	NV	NA	NA	3.65	--	**2.49**	--	**3.28**	--
1,2,3,7,8-PeCDF	NV	NV	NA	NA	0.408 J	--	0.213 U	--	0.157 U	--
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	1.21 U	--	0.443 U	--	**0.469 J**	--
2,3,4,7,8-PeCDF	NV	NV	NA	NA	0.505 U	--	0.239 U	--	0.183 U	--
2,3,7,8-TCDD	NV	NV	NA	NA	2.7	--	**1.85**	--	**2.36**	--
2,3,7,8-TCDF	NV	NV	NA	NA	1.55	--	0.406 U	--	0.381 U	--
OCDD	NV	NV	NA	NA	790	--	**475**	--	**189**	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
Location:					CR-15C		CR-17D		CR-18B	
Sample Name:					CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015
OCDF	NV	NV	NA	NA	33.1	--	**14**	--	**10.9**	--
Total HpCDDs	NV	NV	NA	NA	275	--	**150**	--	**73.7**	--
Total HpCDFs	NV	NV	NA	NA	60.7 U	--	21.2 U	--	**17.4**	--
Total HxCDDs	NV	NV	NA	NA	76.1 U	--	45.8 U	--	46.9 U	--
Total HxCDFs	NV	NV	NA	NA	28.1 U	--	10.8 U	--	8.92 U	--
Total PeCDDs	NV	NV	NA	NA	26.5	--	16.7 U	--	20.5 U	--
Total PeCDFs	NV	NV	NA	NA	12.6 U	--	4.66 U	--	4.65 U	--
Total TCDDs	NV	NV	NA	NA	20.3 U	--	12.4 U	--	15.9 U	--
Total TCDFs	NV	NV	NA	NA	13.7 U	--	4.27 U	--	4.57 U	--
Dioxin TEQ	NV	NV	NA	NA	**9.99**	--	**6.29**	--	**7.35**	--
Petroleum Hydrocarbons—dry weight (mg/kg)										
Gasoline	NV	NV	NV	NV	--	--	--	--	--	--
Diesel	NV	NV	NV	NV	**77**	--	**24**	--	**44**	--
Motor-Oil Range	NV	NV	NV	NV	**190**	--	**46**	--	**92**	--
Conventionals										
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	--	--	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	NV	--	--	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**35.1**	**57.47**	**52.1**	**48.09**	**46.44**	**47.88**
Grain Size (%)										
Gravel	NV	NV	NV	NV	--	--	--	--	--	--
Very coarse sand	NV	NV	NV	NV	--	--	--	--	--	--
Coarse sand	NV	NV	NV	NV	--	--	--	--	--	--
Medium sand	NV	NV	NV	NV	--	--	--	--	--	--
Fine sand	NV	NV	NV	NV	--	--	--	--	--	--
Very fine sand	NV	NV	NV	NV	--	--	--	--	--	--
Coarse silt	NV	NV	NV	NV	--	--	--	--	--	--
Medium silt	NV	NV	NV	NV	--	--	--	--	--	--
Fine silt	NV	NV	NV	NV	--	--	--	--	--	--
Very fine silt	NV	NV	NV	NV	--	--	--	--	--	--
Coarse clay	NV	NV	NV	NV	--	--	--	--	--	--
Medium clay	NV	NV	NV	NV	--	--	--	--	--	--
Fine clay	NV	NV	NV	NV	--	--	--	--	--	--
Total fines	NV	NV	NV	NV	--	--	--	--	--	--
Asbestos (%)										
Asbestos	NV	NV	NV	NV	--	--	--	--	--	--
Pore Water Analysis										
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
Location:					CR-19D	CR-19F	CR-19F		CR-26
Sample Name:					CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Collection Depth (ft bml):					0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
Conventionals (%)									
Total Organic Carbon	NV	NV	NV	NV	**3.99**	**2.77**	**2.76**	**2.59**	**1.52**
PCBs (ug/kg-OC)									
Total PCBs[b]	NA	NA	12000	65000	--	650 U	688 U	772 U	1250 U
SVOCs (ug/kg-OC)									
1,2,4-Trichlorobenzene	NA	NA	810	1800	--	173 U	181 U	193 U	322 U
1,2-Dichlorobenzene	NA	NA	2300	2300	--	173 U	181 U	193 U	322 U
1,4-Dichlorobenzene	NA	NA	3100	9000	--	173 U	181 U	193 U	322 U
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	--	1733 U	1812 U	**1236 J**	3224 U
Butylbenzylphthalate	NA	NA	4900	64000	--	**292**	**337**	**286**	322 U
Dibenzofuran	NA	NA	15000	58000	--	**542 J**	**906**	**1081**	**1645**
Diethylphthalate	NA	NA	61000	110000	--	794 U	870 U	1467 U	1316 U
Dimethyl phthalate	NA	NA	53000	53000	--	173 U	181 U	193 U	322 U
Di-n-butyl phthalate	NA	NA	220000	1700000	--	686 U	725 U	772 U	1316 U
Di-n-octyl phthalate	NA	NA	58000	4500000	--	686 U	725 U	772 U	1316 U
Hexachlorobenzene	NA	NA	380	2300	--	173 U	181 U	193 U	322 U
Hexachlorobutadiene	NA	NA	3900	6200	--	173 U	181 U	193 U	322 U
N-Nitrosodiphenylamine	NA	NA	11000	11000	--	173 U	181 U	193 U	322 U
PAHs (ug/kg-OC)									
2-Methylnaphthalene	NA	NA	38000	64000	--	**361 J**	**471 J**	**849**	1316 U
Acenaphthene	NA	NA	16000	57000	--	**433 J**	**978**	**1197**	**1908**
Acenaphthylene	NA	NA	66000	66000	--	686 U	725 U	**695 J**	**638 J**
Anthracene	NA	NA	220000	1200000	--	**542 J**	**1087**	**1004**	**921 J**
Benzo(a)anthracene	NA	NA	110000	270000	--	**433 J**	**761**	**1429**	**1184 J**
Benzo(a)pyrene	NA	NA	99000	210000	--	686 U	725 U	772 U	1316 U
Benzo(ghi)perylene	NA	NA	31000	78000	--	686 U	725 U	**579 J**	**855 J**
Chrysene	NA	NA	110000	460000	--	**758**	**1087**	**2471**	**1711**
Dibenzo(a,h)anthracene	NA	NA	12000	33000	--	173 U	181 U	**120 J**	**204 J**
Fluoranthene	NA	NA	160000	1200000	--	**1480**	**3406**	**5792**	**4934**
Fluorene	NA	NA	23000	79000	--	**433 J**	**1051**	**1042**	**1513**
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	--	686 U	725 U	**541 J**	**579 J**
Naphthalene	NA	NA	99000	170000	--	**2022**	**2246**	**3784**	**3355**
Phenanthrene	NA	NA	100000	480000	--	**1300**	**3986**	**5405**	**2566**
Pyrene	NA	NA	1000000	1400000	--	**1264**	**3007**	**5019**	**4605**
Total Benzofluoranthenes	NA	NA	230000	450000	--	**686 J**	**978 J**	**2317**	**2368 J**
Total HPAHs[b]	NA	NA	960000	5300000	--	**4621 J**	**9239**	**19039 J**	**16441 J**
Total LPAHs[b]	NA	NA	370000	780000	--	**4729 J**	**9348 J**	**13127 J**	**10901 J**
PCBs—dry weight (ug/kg)									
Aroclor 1016	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Aroclor 1221	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
Location:					CR-19D	CR-19F	CR-19F		CR-26
Sample Name:					CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Aroclor 1232	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Aroclor 1242	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Aroclor 1248	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Aroclor 1254	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Aroclor 1260	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Aroclor 1268	NV	NV	NA	NA	--	18 U	19 U	20 U	19 U
Total PCBs[b]	130	1000	NA	NA	--	18 U	19 U	20 U	19 U
SVOCs—dry weight (ug/kg)									
1,2,4-Trichlorobenzene	31	51	NA	NA	--	4.8 U	5 U	5 U	4.9 U
1,2-Dichlorobenzene	35	50	NA	NA	--	4.8 U	5 U	5 U	4.9 U
1,4-Dichlorobenzene	110	110	NA	NA	--	4.8 U	5 U	5 U	4.9 U
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	--	48 U	50 U	**32 J**	49 U
Butylbenzylphthalate	63	900	NA	NA	--	**8.1**	**9.3**	**7.4**	4.9 U
Dibenzofuran	540	540	NA	NA	--	**15 J**	**25**	**28**	**25**
Diethylphthalate	200	>1200	NA	NA	--	22 U	24 U	38 U	20 U
Dimethyl phthalate	71	160	NA	NA	--	4.8 U	5 U	5 U	4.9 U
Di-n-butyl phthalate	1400	1400	NA	NA	--	19 U	20 U	20 U	20 U
Di-n-octyl phthalate	6200	6200	NA	NA	--	19 U	20 U	20 U	20 U
Hexachlorobenzene	22	70	NA	NA	--	4.8 U	5 U	5 U	4.9 U
Hexachlorobutadiene	11	120	NA	NA	--	4.8 U	5 U	5 U	4.9 U
N-Nitrosodiphenylamine	28	40	NA	NA	--	4.8 U	5 U	5 U	4.9 U
PAHs—dry weight (ug/kg)									
2-Methylnaphthalene	670	670	NA	NA	--	**10 J**	**13 J**	**22**	20 U
Acenaphthene	500	500	NA	NA	--	**12 J**	**27**	**31**	**29**
Acenaphthylene	1300	1300	NA	NA	--	19 U	20 U	**18 J**	**9.7 J**
Anthracene	960	960	NA	NA	--	**15 J**	**30**	**26**	**14 J**
Benzo(a)anthracene	1300	1600	NA	NA	--	**12 J**	**21**	**37**	**18 J**
Benzo(a)pyrene	1600	1600	NA	NA	--	19 U	20 U	20 U	20 U
Benzo(ghi)perylene	670	720	NA	NA	--	19 U	20 U	**15 J**	**13 J**
Chrysene	1400	2800	NA	NA	--	**21**	**30**	**64**	**26**
Dibenzo(a,h)anthracene	230	230	NA	NA	--	4.8 U	5 U	**3.1 J**	**3.1 J**
Fluoranthene	1700	2500	NA	NA	--	**41**	**94**	**150**	**75**
Fluorene	540	540	NA	NA	--	**12 J**	**29**	**27**	**23**
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	--	19 U	20 U	**14 J**	**8.8 J**
Naphthalene	2100	2100	NA	NA	--	**56**	**62**	**98**	**51**
Phenanthrene	1500	1500	NA	NA	--	**36**	**110**	**140**	**39**
Pyrene	2600	3300	NA	NA	--	**35**	**83**	**130**	**70**
Total Benzofluoranthenes	3200	3600	NA	NA	--	**19 J**	**27 J**	**60**	**36 J**
Total HPAHs[b]	12000	17000	NA	NA	--	**128 J**	**255 J**	**493.1 J**	**249.9 J**
Total LPAHs[b]	5200	5200	NA	NA	--	**131 J**	**258**	**340 J**	**165.7 J**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
Location:					CR-19D	CR-19F	CR-19F		CR-26
Sample Name:					CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
Total Metals—dry weight (mg/kg)									
Arsenic	57	93	NA	NA	**--**	**20**	**22**	**23**	**24**
Cadmium	5.1	6.7	NA	NA	--	0.4 U	0.4 U	0.3 U	0.4 U
Chromium	260	270	NA	NA	--	**41**	**50.5**	**51.3**	**39.3**
Copper	390	390	NA	NA	--	**53.1**	**60**	**53.3**	**55.9**
Lead	450	530	NA	NA	--	**11**	**13**	**14**	**11**
Mercury	0.41	0.59	NA	NA	--	**0.05**	**0.05**	**0.07**	**0.09**
Silver	6.1	6.1	NA	NA	--	0.6 U	0.6 U	0.5 U	0.6 U
Zinc	410	960	NA	NA	--	**74**	**80**	**79**	**75**
SVOCs—dry weight (ug/kg)									
1,3-Dichlorobenzene	NA	NA	NA	NA	--	--	--	--	--
2,4-Dimethylphenol	29	29	NA	NA	--	24 U	25 U	25 U	24 U
2-Methylphenol	63	63	NA	NA	--	4.8 U	5 U	5 U	**5.4**
3,4-Methylphenol	NA	NA	NA	NA	--	--	--	--	--
4-Methylphenol	670	670	NA	NA	--	19 U	**230**	**320**	**45**
Benzoic acid	650	650	NA	NA	--	**170 J**	**240**	**370**	**440**
Benzyl alcohol	57	73	NA	NA	--	19 U	**27**	**28**	**64**
Pentachlorophenol	360	690	NA	NA	--	19 U	20 UJ	20 UJ	20 UJ
Phenol	420	1200	NA	NA	**93 J+**	**89**	**47**	**68**	**76**
PAHs—dry weight (ug/kg)									
1-Methylnaphthalene	NV	NV	NA	NA	--	19 U	20 U	**13 J**	**11 J**
TCLP Metals (mg/L)									
Lead	NA	NA	NA	NA	--	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--	--
Dioxins/Furans—dry weight (pg/g)									
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	--	**141**	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	--	**24.3**	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	--	**1.04**	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	--	**1.35**	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	--	**1.37**	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	--	**9.89**	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	--	**1.07**	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	--	**8.91**	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	--	0.571 U	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NA	NA	--	**3.01**	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NA	NA	--	0.613 U	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	--	**1.73**	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NA	NA	--	**0.557 J**	--	--	--
2,3,7,8-TCDD	NV	NV	NA	NA	--	**2.16**	--	--	--
2,3,7,8-TCDF	NV	NV	NA	NA	--	**7.75**	--	--	--
OCDD	NV	NV	NA	NA	--	**1010**	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
Location:					CR-19D	CR-19F	CR-19F		CR-26
Sample Name:					CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
OCDF	NV	NV	NA	NA	--	**36.8**	--	--	--
Total HpCDDs	NV	NV	NA	NA	--	**340**	--	--	--
Total HpCDFs	NV	NV	NA	NA	--	62.7 U	--	--	--
Total HxCDDs	NV	NV	NA	NA	--	93 U	--	--	--
Total HxCDFs	NV	NV	NA	NA	--	40.2 U	--	--	--
Total PeCDDs	NV	NV	NA	NA	--	26.4 U	--	--	--
Total PeCDFs	NV	NV	NA	NA	--	23.6 U	--	--	--
Total TCDDs	NV	NV	NA	NA	--	20.6 U	--	--	--
Total TCDFs	NV	NV	NA	NA	--	25.6 U	--	--	--
Dioxin TEQ	NV	NV	NA	NA	--	**10.6**	--	--	--
Petroleum Hydrocarbons—dry weight (mg/kg)									
Gasoline	NV	NV	NV	NV	--	--	--	--	--
Diesel	NV	NV	NV	NV	--	**93**	--	--	--
Motor-Oil Range	NV	NV	NV	NV	--	**240**	--	--	--
Conventionals									
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	**18.6**	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	NV	**605**	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	NV	**8.58**	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	**44.8**	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**39.38**	**49.31**	**50.3**	**51.43**	**46.69**
Grain Size (%)									
Gravel	NV	NV	NV	NV	**1**	--	--	--	--
Very coarse sand	NV	NV	NV	NV	**3.8**	--	--	--	--
Coarse sand	NV	NV	NV	NV	**1.8**	--	--	--	--
Medium sand	NV	NV	NV	NV	**2**	--	--	--	--
Fine sand	NV	NV	NV	NV	**4.6**	--	--	--	--
Very fine sand	NV	NV	NV	NV	**8.9**	--	--	--	--
Coarse silt	NV	NV	NV	NV	**16**	--	--	--	--
Medium silt	NV	NV	NV	NV	**20.1**	--	--	--	--
Fine silt	NV	NV	NV	NV	**14.6**	--	--	--	--
Very fine silt	NV	NV	NV	NV	**7.3**	--	--	--	--
Coarse clay	NV	NV	NV	NV	**5.9**	--	--	--	--
Medium clay	NV	NV	NV	NV	**3.4**	--	--	--	--
Fine clay	NV	NV	NV	NV	**10.5**	--	--	--	--
Total fines	NV	NV	NV	NV	**77.8**	--	--	--	--
Asbestos (%)									
Asbestos	NV	NV	NV	NV	--	--	--	--	--
Pore Water Analysis									
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Wharf Area			
Location:					Downstream Dock	Dock Front	Upstream Dock	Composite
Sample Name:					DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP[c]
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	Apr-11	Apr-11	Apr-11	Apr-11
Collection Depth (ft bml):					0-0.33	0-0.33	0-0.33	0-0.33
Conventionals (%)								
Total Organic Carbon	NV	NV	NV	NV	**1.2**	**2.4**	**0.65**	--
PCBs (ug/kg-OC)								
Total PCBs[b]	NA	NA	12000	65000	1000 U	875 U	1846 U	--
SVOCs (ug/kg-OC)								
1,2,4-Trichlorobenzene	NA	NA	810	1800	333 U	333 U	338 U	--
1,2-Dichlorobenzene	NA	NA	2300	2300	333 U	333 U	338 U	--
1,4-Dichlorobenzene	NA	NA	3100	9000	333 U	333 U	338 U	--
Bis(2-ethylhexyl)phthalate	NA	NA	47000	78000	10000 U	10000 U	10308 U	--
Butylbenzylphthalate	NA	NA	4900	64000	667 U	**5000**	692 U	--
Dibenzofuran	NA	NA	15000	58000	**750**	**1125** H	692 U	--
Diethylphthalate	NA	NA	61000	110000	667 U	667 U	692 U	--
Dimethyl phthalate	NA	NA	53000	53000	667 U	667 U	692 U	--
Di-n-butyl phthalate	NA	NA	220000	1700000	1333 U	1333 U	1369 U	--
Di-n-octyl phthalate	NA	NA	58000	4500000	1333 U	1333 U	1369 U	--
Hexachlorobenzene	NA	NA	380	2300	333 U	333 U	338 U	--
Hexachlorobutadiene	NA	NA	3900	6200	333 U	333 U	338 U	--
N-Nitrosodiphenylamine	NA	NA	11000	11000	333 U	333 U	338 U	--
PAHs (ug/kg-OC)								
2-Methylnaphthalene	NA	NA	38000	64000	**308**	**542** H	137 U	--
Acenaphthene	NA	NA	16000	57000	**650**	**1833** H	**308**	--
Acenaphthylene	NA	NA	66000	66000	**308**	**292** H	**231**	--
Anthracene	NA	NA	220000	1200000	**4333**	**1667** H	**877**	--
Benzo(a)anthracene	NA	NA	110000	270000	**5917**	**8750** H	**3538**	--
Benzo(a)pyrene	NA	NA	99000	210000	**5083**	**8750** H	**3538**	--
Benzo(ghi)perylene	NA	NA	31000	78000	**2583**	**3167** H	**1846**	--
Chrysene	NA	NA	110000	460000	**10833**	**13333** H	**6154**	--
Dibenzo(a,h)anthracene	NA	NA	12000	33000	**917**	**1292** H	**492**	--
Fluoranthene	NA	NA	160000	1200000	**16667**	**8750** H	**4000**	--
Fluorene	NA	NA	23000	79000	**2833**	**1625** H	**415**	--
Indeno(1,2,3-cd)pyrene	NA	NA	34000	88000	**2583**	**3292** H	**1692**	--
Naphthalene	NA	NA	99000	170000	133 U	**417**	137 U	--
Phenanthrene	NA	NA	100000	480000	**9167**	**5417** H	**1692**	--
Pyrene	NA	NA	1000000	1400000	**14167**	**8750** H	**4154**	--
Total Benzofluoranthenes	NA	NA	230000	450000	**12500**	**16667** H	**7077**	--
Total HPAHs[b]	NA	NA	960000	5300000	**71250**	**72750**	**32492**	--
Total LPAHs[b]	NA	NA	370000	780000	**17292**	**11250**	**3523**	--
PCBs—dry weight (ug/kg)								
Aroclor 1016	NV	NV	NA	NA	12 U	21 U	12 U	--
Aroclor 1221	NV	NV	NA	NA	12 U	21 U	12 U	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Wharf Area			
Location:					Downstream Dock	Dock Front	Upstream Dock	Composite
Sample Name:					DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP[c]
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	Apr-11	Apr-11	Apr-11
Aroclor 1232	NV	NV	NA	NA	12 U	21 U	12 U	--
Aroclor 1242	NV	NV	NA	NA	12 U	21 U	12 U	--
Aroclor 1248	NV	NV	NA	NA	12 U	21 U	12 U	--
Aroclor 1254	NV	NV	NA	NA	12 U	21 U	12 U	--
Aroclor 1260	NV	NV	NA	NA	12 U	21 U	12 U	--
Aroclor 1268	NV	NV	NA	NA	--	--	--	--
Total PCBs[b]	130	1000	NA	NA	12 U	21 U	12 U	--
SVOCs—dry weight (ug/kg)								
1,2,4-Trichlorobenzene	31	51	NA	NA	4 U	8 U	2.2 U	--
1,2-Dichlorobenzene	35	50	NA	NA	4 U	8 U	2.2 U	--
1,4-Dichlorobenzene	110	110	NA	NA	4 U	8 U	2.2 U	--
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	120 U	240 U	67 U	--
Butylbenzylphthalate	63	900	NA	NA	8 U	120	4.5 U	
Dibenzofuran	540	540	NA	NA	**9**	**27 H**	4.5 U	--
Diethylphthalate	200	>1200	NA	NA	8 U	16 U	4.5 U	--
Dimethyl phthalate	71	160	NA	NA	8 U	16 U	4.5 U	--
Di-n-butyl phthalate	1400	1400	NA	NA	16 U	32 U	8.9 U	--
Di-n-octyl phthalate	6200	6200	NA	NA	16 U	32 U	8.9 U	--
Hexachlorobenzene	22	70	NA	NA	4 U	8 U	2.2 U	--
Hexachlorobutadiene	11	120	NA	NA	4 U	8 U	2.2 U	--
N-Nitrosodiphenylamine	28	40	NA	NA	4 U	8 U	2.2 U	--
PAHs—dry weight (ug/kg)								
2-Methylnaphthalene	670	670	NA	NA	**3.7**	**13 H**	0.89 U	--
Acenaphthene	500	500	NA	NA	**7.8**	**44 H**	**2**	--
Acenaphthylene	1300	1300	NA	NA	**3.7**	**7 H**	**1.5**	--
Anthracene	960	960	NA	NA	**52**	**40 H**	**5.7**	--
Benzo(a)anthracene	1300	1600	NA	NA	**71**	**210 H**	**23**	--
Benzo(a)pyrene	1600	1600	NA	NA	**61**	**210 H**	**23**	--
Benzo(ghi)perylene	670	720	NA	NA	**31**	**76 H**	**12**	--
Chrysene	1400	2800	NA	NA	**130**	**320 H**	**40**	--
Dibenzo(a,h)anthracene	230	230	NA	NA	**11**	**31 H**	**3.2**	--
Fluoranthene	1700	2500	NA	NA	**200**	**210 H**	**26**	--
Fluorene	540	540	NA	NA	**34**	**39 H**	**2.7**	--
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	**31**	**79 H**	**11**	--
Naphthalene	2100	2100	NA	NA	1.6 U	**10**	0.89 U	--
Phenanthrene	1500	1500	NA	NA	**110**	**130 H**	**11**	--
Pyrene	2600	3300	NA	NA	**170**	**210 H**	**27**	--
Total Benzofluoranthenes	3200	3600	NA	NA	**150**	**400 H**	**46**	--
Total HPAHs[b]	12000	17000	NA	NA	**855**	**1746 H**	**211.2**	--
Total LPAHs[b]	5200	5200	NA	NA	**207.5**	**270 H**	**22.9**	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Wharf Area			
Location:					Downstream Dock	Dock Front	Upstream Dock	Composite
Sample Name:					DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP[c]
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	Apr-11	Apr-11	Apr-11
Total Metals—dry weight (mg/kg)								
Arsenic	57	93	NA	NA	3.3 U	5.9 U	2.7 U	--
Cadmium	5.1	6.7	NA	NA	**1.7**	0.98 U	0.45 U	--
Chromium	260	270	NA	NA	**14**	**28**	**13**	--
Copper	390	390	NA	NA	**39**	**61**	**43**	--
Lead	450	530	NA	NA	**3.7**	**9.1**	**6.1**	--
Mercury	0.41	0.59	NA	NA	**0.025**	**0.074**	0.018 U	--
Silver	6.1	6.1	NA	NA	1.1 U	2 U	0.9 U	--
Zinc	410	960	NA	NA	**41**	**75**	**39**	--
SVOCs—dry weight (ug/kg)								
1,3-Dichlorobenzene	NA	NA	NA	NA	--	--	--	--
2,4-Dimethylphenol	29	29	NA	NA	8 U	16 U	4.5 U	--
2-Methylphenol	63	63	NA	NA	8 U	16 U	4.5 U	--
3,4-Methylphenol	NA	NA	NA	NA	16 U	32 U	8.9 U	--
4-Methylphenol	670	670	NA	NA	--	--	--	--
Benzoic acid	650	650	NA	NA	200 U	400 U	110 U	--
Benzyl alcohol	57	73	NA	NA	8 U	16 U	4.5 U	--
Pentachlorophenol	360	690	NA	NA	16 U	32 U	8.9 U	--
Phenol	420	1200	NA	NA	8 U	16 U	4.5 U	--
PAHs—dry weight (ug/kg)								
1-Methylnaphthalene	NV	NV	NA	NA	--	--	--	--
TCLP Metals (mg/L)								
Lead	NA	NA	NA	NA	--	--	--	--
Mercury	NA	NA	NA	NA	--	--	--	--
Dioxins/Furans—dry weight (pg/g)								
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	NA	--	--	--	250
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	NA	--	--	--	10
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	NA	--	--	--	1.5 U
1,2,3,4,7,8-HxCDD	NV	NV	NA	NA	--	--	--	1.1 U
1,2,3,4,7,8-HxCDF	NV	NV	NA	NA	--	--	--	1.5 U
1,2,3,6,7,8-HxCDD	NV	NV	NA	NA	--	--	--	**5.5 J**
1,2,3,6,7,8-HxCDF	NV	NV	NA	NA	--	--	--	0.43 U
1,2,3,7,8,9-HxCDD	NV	NV	NA	NA	--	--	--	**3.7 J**
1,2,3,7,8,9-HxCDF	NV	NV	NA	NA	--	--	--	0.59 U
1,2,3,7,8-PeCDD	NV	NV	NA	NA	--	--	--	0.75 U
1,2,3,7,8-PeCDF	NV	NV	NA	NA	--	--	--	0.49 U
2,3,4,6,7,8-HxCDF	NV	NV	NA	NA	--	--	--	0.43 U
2,3,4,7,8-PeCDF	NV	NV	NA	NA	--	--	--	0.53 U
2,3,7,8-TCDD	NV	NV	NA	NA	--	--	--	**0.65 J**
2,3,7,8-TCDF	NV	NV	NA	NA	--	--	--	0.43 U
OCDD	NV	NV	NA	NA	--	--	--	**1700**

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area:	SMS Marine Cleanup Screening Levels				Wharf Area			
Location:					Downstream Dock	Dock Front	Upstream Dock	Composite
Sample Name:					DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP[c]
Collection Date:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	Apr-11	Apr-11	Apr-11	Apr-11
OCDF	NV	NV	NA	NA	--	--	--	**19**
Total HpCDDs	NV	NV	NA	NA	--	--	--	**1300**
Total HpCDFs	NV	NV	NA	NA	--	--	--	**40**
Total HxCDDs	NV	NV	NA	NA	--	--	--	**93**
Total HxCDFs	NV	NV	NA	NA	--	--	--	**21**
Total PeCDDs	NV	NV	NA	NA	--	--	--	1.7 U
Total PeCDFs	NV	NV	NA	NA	--	--	--	**1.5** U
Total TCDDs	NV	NV	NA	NA	--	--	--	**1.5**
Total TCDFs	NV	NV	NA	NA	--	--	--	0.43 U
Dioxin TEQ	NV	NV	NA	NA	--	--	--	**5.4**
Petroleum Hydrocarbons—dry weight (mg/kg)								
Gasoline	NV	NV	NV	NV	--	--	--	--
Diesel	NV	NV	NV	NV	--	--	--	--
Motor-Oil Range	NV	NV	NV	NV	--	--	--	--
Conventionals								
Ammonia (as N) (mg N/kg)	NV	NV	NV	NV	**1.2**	**2.4**	**0.65**	--
Sulfide (mg/kg)	NV	NV	NV	NV	**84**	**45**	**80**	--
Total Volatile Solids (%)	NV	NV	NV	NV	--	--	--	--
Fixed Solids (%)	NV	NV	NV	NV	--	--	--	--
Total solids (%)	NV	NV	NV	NV	**84**	**45**	**80**	**79.1**
Grain Size (%)								
Gravel	NV	NV	NV	NV	--	--	--	--
Very coarse sand	NV	NV	NV	NV	--	--	--	--
Coarse sand	NV	NV	NV	NV	--	--	--	--
Medium sand	NV	NV	NV	NV	--	--	--	--
Fine sand	NV	NV	NV	NV	--	--	--	--
Very fine sand	NV	NV	NV	NV	--	--	--	--
Coarse silt	NV	NV	NV	NV	--	--	--	--
Medium silt	NV	NV	NV	NV	--	--	--	--
Fine silt	NV	NV	NV	NV	--	--	--	--
Very fine silt	NV	NV	NV	NV	--	--	--	--
Coarse clay	NV	NV	NV	NV	--	--	--	--
Medium clay	NV	NV	NV	NV	--	--	--	--
Fine clay	NV	NV	NV	NV	--	--	--	--
Total fines	NV	NV	NV	NV	--	--	--	--
Asbestos (%)								
Asbestos	NV	NV	NV	NV	--	--	--	--
Pore Water Analysis								
Conductivity (uS/cm)	NV	NV	NV	NV	--	--	--	--
Salinity (ppt)	NV	NV	NV	NV	--	--	--	--

Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

NOTES:

Detections are in **bold** font.

Detections that exceed marine benthic criteria are shaded gray. Non-detect results are not screened against criteria.

-- = not analyzed.

< = less than the limit of detection.

CSL = cleanup screening level.

ft bml = feet below mudline.

HPAH = high-molecular-weight PAH.

J = result is an estimated value.

LPAH = low-molecular-weight PAH.

mg N/kg = milligrams of nitrogen per kilogram.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NA = not applicable.

NV = no value.

OC =organic carbon.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram (parts per trillion).

ppt = parts per thousand.

SIM = selective ion monitoring.

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 = toxicity equivalence quotient.

TCLP = toxicity characteristic leaching procedure.

Total PCBs = sum of PCB Aroclors.

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

ug/kg = micrograms per kilogram.

UJ = result is non-detect at or above method reporting limit. Reported value is estimated.

uS/cm = microSiemen =(micromhos) per centimeter.

WAC = Washington Administrative Code.

[a]Dry weight AET values are used when TOC results are outside the range of 0.5 to 3.5%.

[b]Calculated value. Only detected values are summed.

[c]DNR-SSD-SUPCOMP is a composite sample of DNR-SSDD, DNR-SSDF, and DNR-SSDU composites.

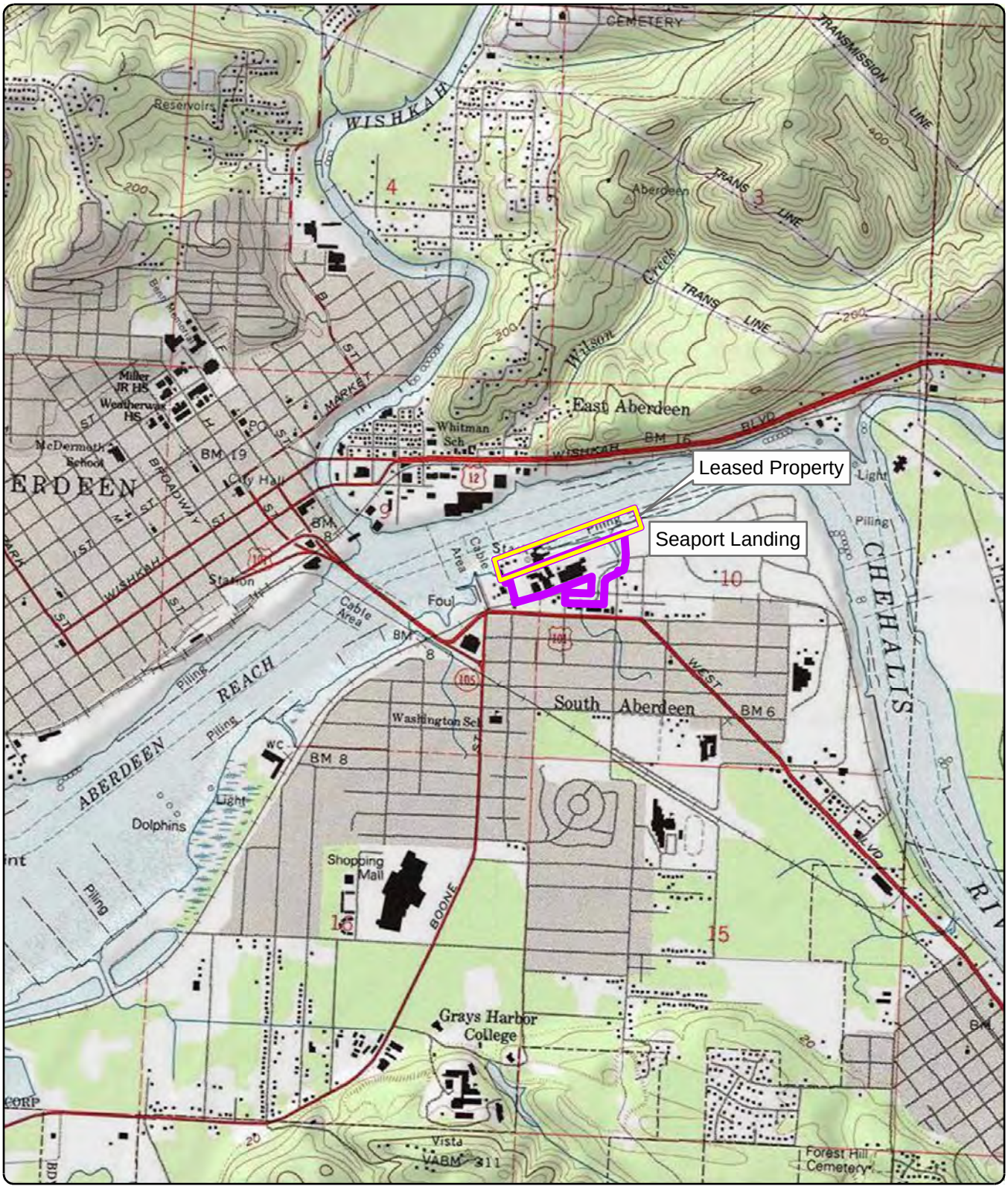
Table 7-6
Woodwaste Toxicity Scoring
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

	Location:		CR-04		CR-04		CR-05		CR-06		CR-06		CR-19D	
	Sample Name:		CR04-10cm		CR04-5		CR05-10cm		CR06-10cm		CR06-2.5		CR-19D-SSD-CONV	
	Collection Date:		11/07/2013		11/08/2013		11/08/2013		11/07/2013		11/07/2013		10/16/2015	
	Collection Depth (ft bgs):		0-0.33		4-5		0-0.33		0-0.33		1-2.5		0-0.33	
	Woodwaste Scoring Criteria (DNR, 2011)													
	Score Criteria Level 1	Score Criteria Level 2		Points		Points		Points		Points		Points		Points
Phenol	420	1,200	290 J	0	980 J	1	570 J	1	370 J	0	240 J	0	93 J	0
Ammonia (as N) (mg N/kg)	≥30<40	≥40	0.47 U	0	15.2	0	7.21	0	1.37	0	14.0	0	18.6	0
Sulfide (mg/kg)	≥200<300	≥300	6.46	0	179	0	320	2	906	2	2910	2	605	2
Total Organic Carbon (%)	≥5<10	≥10	31.4 J	2	16.5 J	2	13.6 J	2	35.6 J	2	49.5 J	2	3.99	0
Total Volatile Solids (%)	≥10<15	>15	59.91	2	38.2	2	36.49	2	60.05	2	69.23	2	8.58	0
Total Solids (%)	≤50≥40	<40	20.62	2	19.98	2	30.32	2	21.4	2	21.59	2	39.38	2
Total Score														
				6		7		9		8		8		4

NOTES:
<5 = low concern.
≥5 < 6 = low medium concern.
≥6 < 7 = medium concern.
>7 = high concern.
ft bgs = feet below ground surface.
J = result is an estimated value.
mg N/kg = milligrams of nitrogen per kilogram.
mg/kg = milligrams per kilogram.
U = result is non-detect at method reporting limit.

FIGURES





Site Address: 500 North Custer Street, Aberdeen, Washington
Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Aberdeen
Section 9 & 10, Township 17 North, Range 9 West

Approximate Aquatic Lease Area

Seaport Authority Property



Figure 1-1
Property Location
Aberdeen, Washington

0 1,000 2,000
Feet

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Project: 0863.01.05 Produced By: mjosef Approved By: M. Novak Print Date: 1/4/2017
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Path: X:\0863.01 Harbor Architects\002\Fig. Aberdeen South Waterfront Tideland Aquatic Lease Areas w Lease Numbers.mxd
Print Date: 8/17/2015
Approved By: mstringer
Produced By: jmiller
Project: 0863.01.01-02



Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads obtained from Grays Harbor County; harbor lines obtained from Washington Dept. of Natural Resources.

Produced by Maul Foster & Alongi, Inc.

GRAYS HARBOR HISTORICAL SEAPORT

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Legend

Approximate Aquatic Lease Areas (with Lease Number)

- *Pakonen Boatyard*
- *Seaport Authority*

- Inner Harbor Line
- Outer Harbor Line

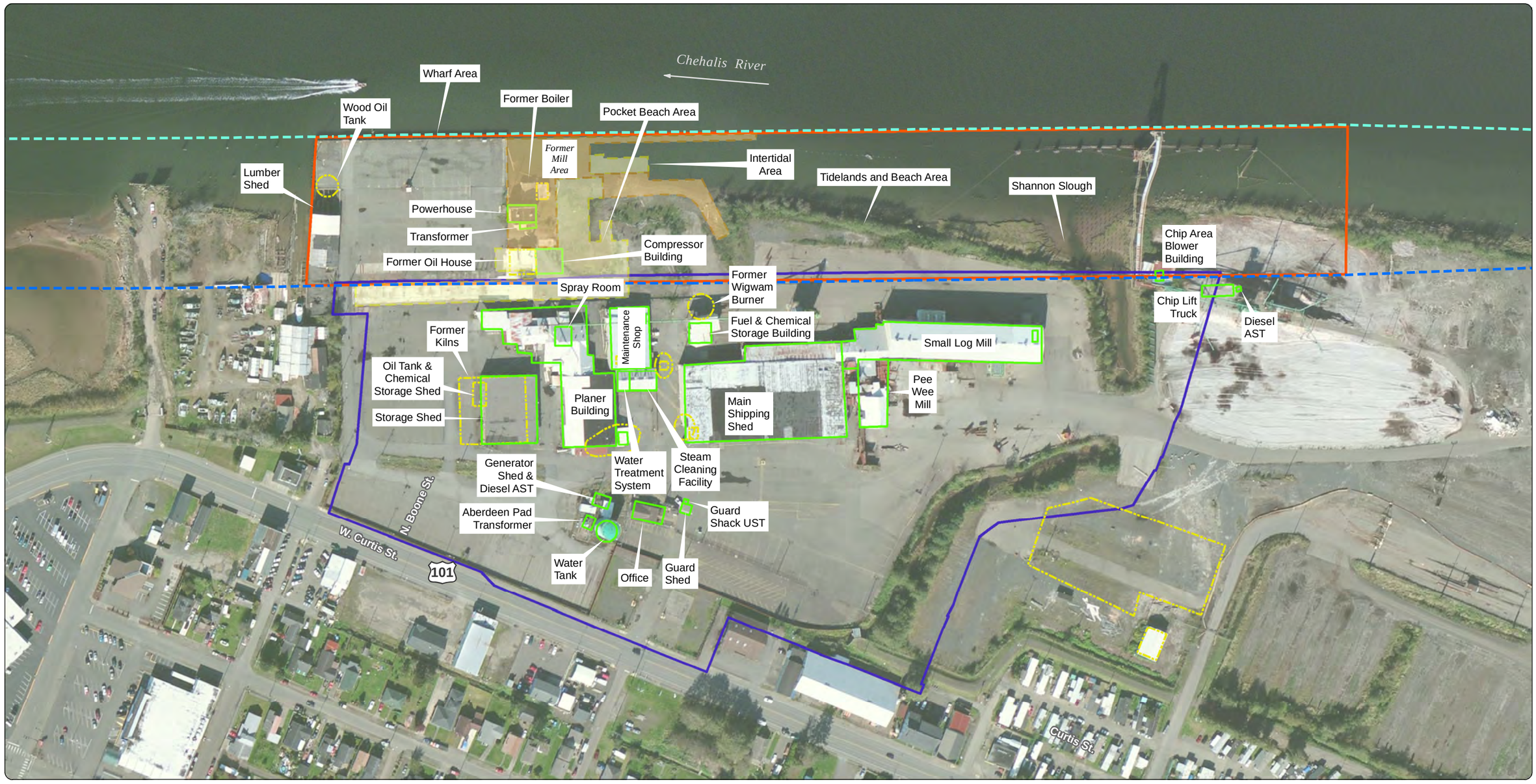
Notes:

1. Areas of property ownership have been generalized based on taxlot information obtained from the County and a purchase sale agreement for the Seaport Authority property, and should be considered approximate.
2. Aquatic lease areas were digitized from print maps of the Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.

Figure 1-2
Property Vicinity

Aberdeen, Washington

0 100 200
Feet



Source:
Aerial photograph obtained from Esri ArcGIS Online.
Parcels and roads obtained from Grays Harbor County.
Harbor lines obtained from Washington Dept. of Natural Resources.
Former features from Level I Environmental Site Assessment,
PES Environmental; August 13, 2010.

Legend

- Former Mill
- Former Wharf Extension
- Existing Buildings/Features
- Former Buildings/Features
- Inner Harbor Line
- Outer Harbor Line
- Seaport Authority Property
- Leased Property Area

Figure 1-3
Historical and Current Property Features
Aberdeen, Washington

0 100 200
Feet

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Print Date: 1/4/2017
Approved By: mstringer
Produced By: rroberts
Project: 0863.01.01-02

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Print Date: 5/22/2019
Approved By: mstringer
Produced By: aguse
Project: 0963.01.01-02



Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads obtained from Grays Harbor County; harbor lines obtained from Washington Dept. of Natural Resources.

- Approximate Aquatic Lease Area
- Seaport Authority Property
- Former Mill
- Former Wharf Extension
- Catch Basin
- Oil/Water Separator
- Outfall
- Drain Pipe (with flow direction)

Study

- 1998 Sediment Samples
- 2011 Sediment Samples
- 2013 Sediment Samples
- 2015 Upland Samples
- 2015 Sediment Samples

Notes:
1. GHHSA = Grays Harbor Historical Seaport Authority.
2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.

Figure 2-1
Sample Locations

Aberdeen, Washington

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0 100 200
Feet

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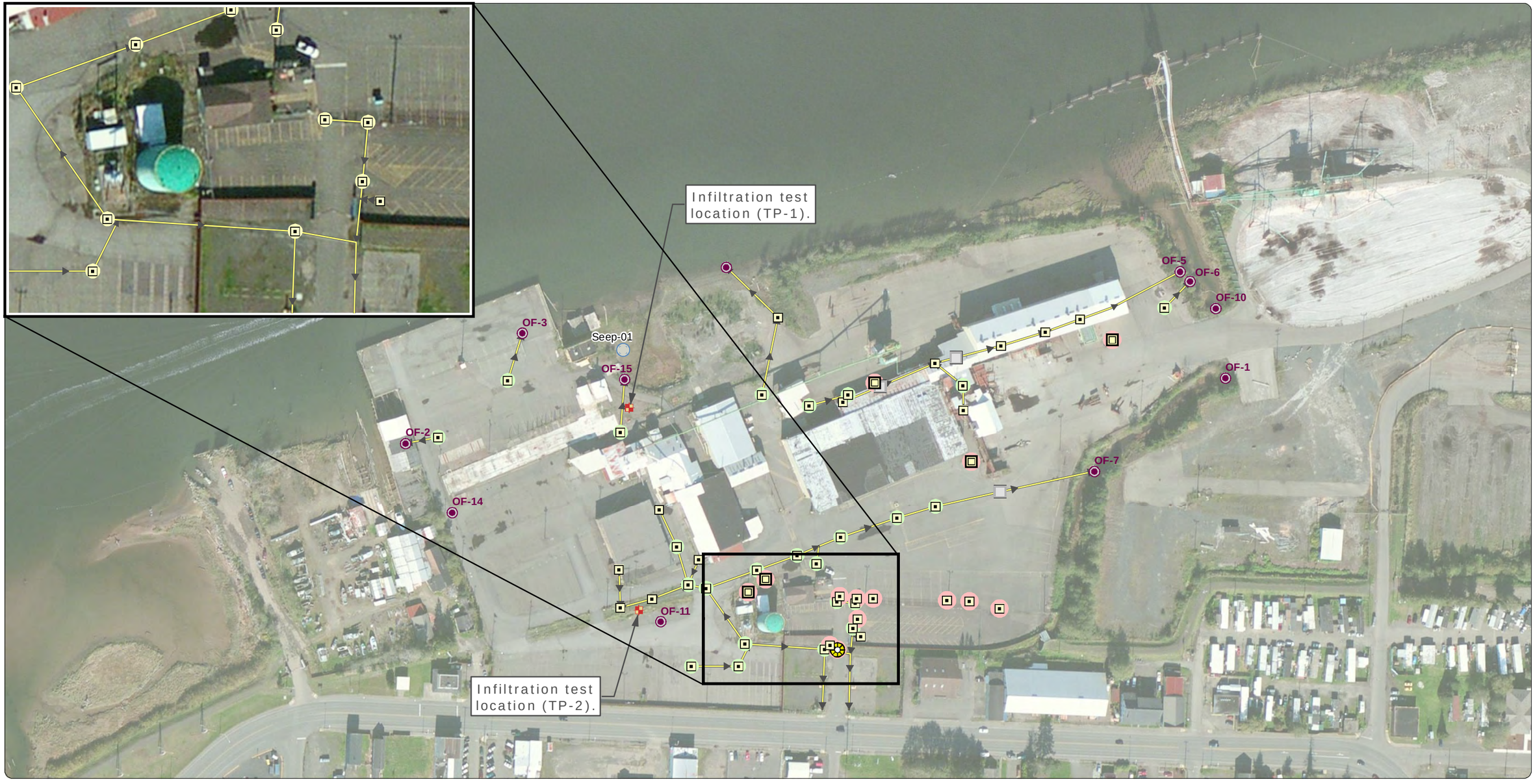
Print Date: 02/17/2016
Approved By: mnovak
Produced By: jmiller
Project: 1044.02.02-01



Source: Aerial photograph obtained from Esri ArcGIS Online; 1993 stormwater features digitized from Level I Environmental Site Assessment report, Appendix A-2 (PES Environmental, Inc., 2010); 2000 stormwater features digitized from plan set of existing storm drainage system and grading and drainage plan prepared by Berglund, Schmidt, and Assoc., Inc.

Legend

- Catch Basin
- Electrical Vault
- Sanitary Manhole
- Drain Pipe (with flow direction)
- Infiltration Test Location (10/27/15)
- Oil/Water Separator
- Outfall (field verified)
- Verified
- GPS located

Note: All features are approximate.

Figure 2-2
Surface Drainage Features
Aberdeen, Washington

0 100 200
Feet

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Chehalis River

Intertidal Area

Lumber Shed

Powerhouse

Beach Area

Shannon Slough

Storage Shed

Source:
Bathymetric survey performed in 2016.
LiDAR survey performed in 2009.
Aerial photograph obtained from Esri ArcGIS Online.
Parcels and roads obtained from Grays Harbor County.
Shorelines boundaries are approximate and derived from Sanborn maps.
Harbor lines obtained from Washington Dept. of Natural Resources.
Former features from Level I Environmental Site Assessment,
PES Environmental; August 13, 2010.

Legend

- Inner Harbor Line
- Outer Harbor Line
- Approximate Aquatic Lease Area
- One Foot Contour Bathymetry (NAVD88)
- One Foot Contour LiDAR (NAVD88)

Figure 4-1
Bathymetry and Topography

Aberdeen, Washington

0 100 200
Feet

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Project: 0863.01.01-02 Produced By: estrandhagen Approved By: mstringer Print Date: 4/5/2017

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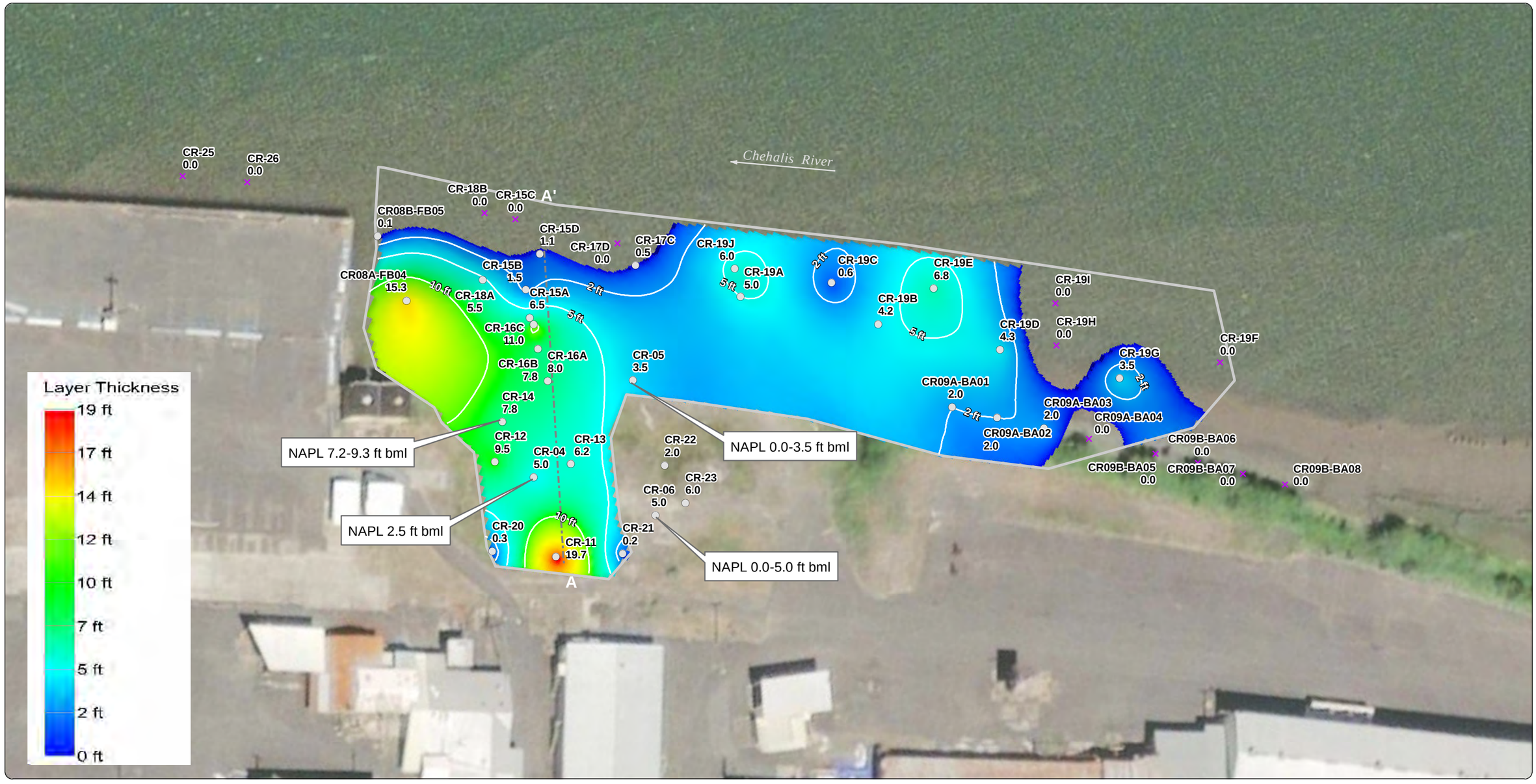
Produced By: estrandhagen Approved By: mstringer Print Date: 5/7/2019
Project: 0863.01.01-02



Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads obtained from Grays Harbor County; harbor lines obtained from Washington Dept. of Natural Resources.

Sample Location

- Woodwaste Thickness (Feet)
- Cross Section Profile (Figure 4-4)
- No significant woodwaste accumulation observed
- Model Domain

Notes:
1. GHHSA = Grays Harbor Historical Seaport Authority.
2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
3. Signficant is defined as greater than 25% woodwaste by volume.
4. Intervals of no recovery in the first core drilled at a location were assumed to be sediment.

Figure 4-2
Estimated Woodwaste Thickness

Aberdeen, Washington

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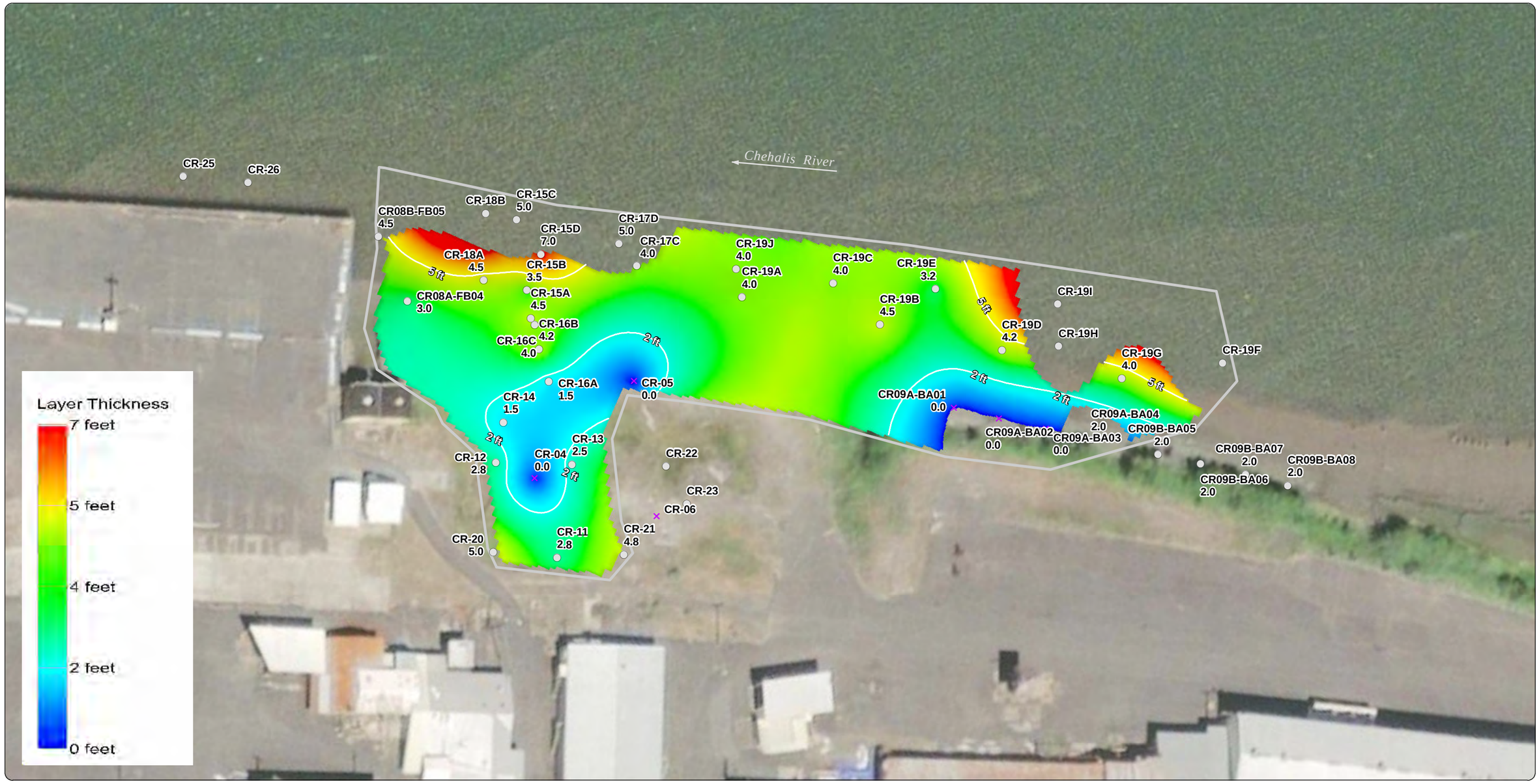
GRAYS HARBOR HISTORICAL SEAPORT

0 75 150
Feet

Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\EVS_Model\Fig4_3_sed_thickness_ww_domain.mxd
Print Date: 5/7/2019
Produced By: estrandhagen Approved By: mstringer
Project: 0863.01.01-02



Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads obtained from Grays Harbor County; harbor lines obtained from Washington Dept. of Natural Resources.

Sample Location

- Sediment Thickness (Feet)
- Model Domain
- × No Sediment Accumulation Observed

Notes:

1. GHHSA = Grays Harbor Historical Seaport Authority.
2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
3. Signficant is defined as greater than 25% woodwaste by volume.
4. Intervals of no recovery in the first core drilled at a location were assumed to be sediment.
5. See Figure 4-2 for extent of woodwaste.

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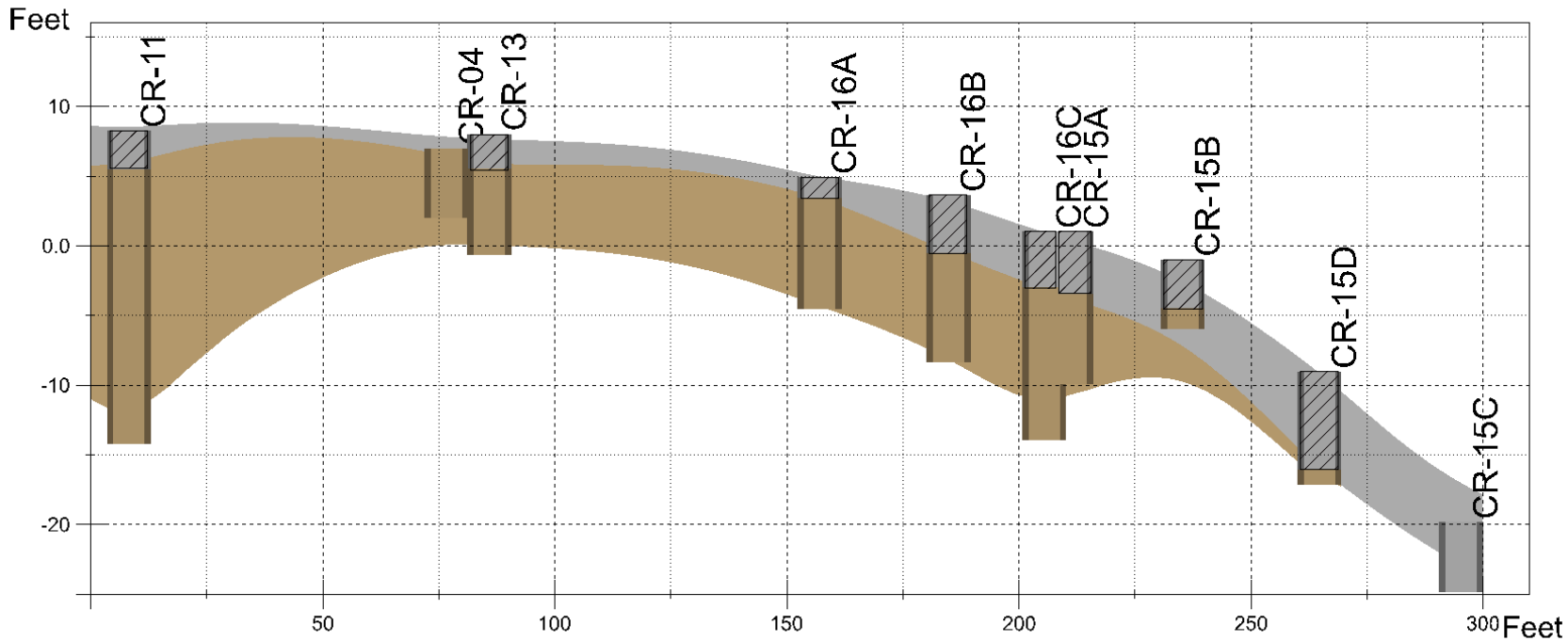
Figure 4-3
Estimated Sediment Thickness Overlying Woodwaste

Aberdeen, Washington

GRAYS HARBOR HISTORICAL SEAPORT

0 75 150
Feet



Legend

- Wood Debris
- Sediment
- No Recovery

Figure 4-4
Woodwaste and Overlying Sediment Cross-Section

Aberdeen, Washington

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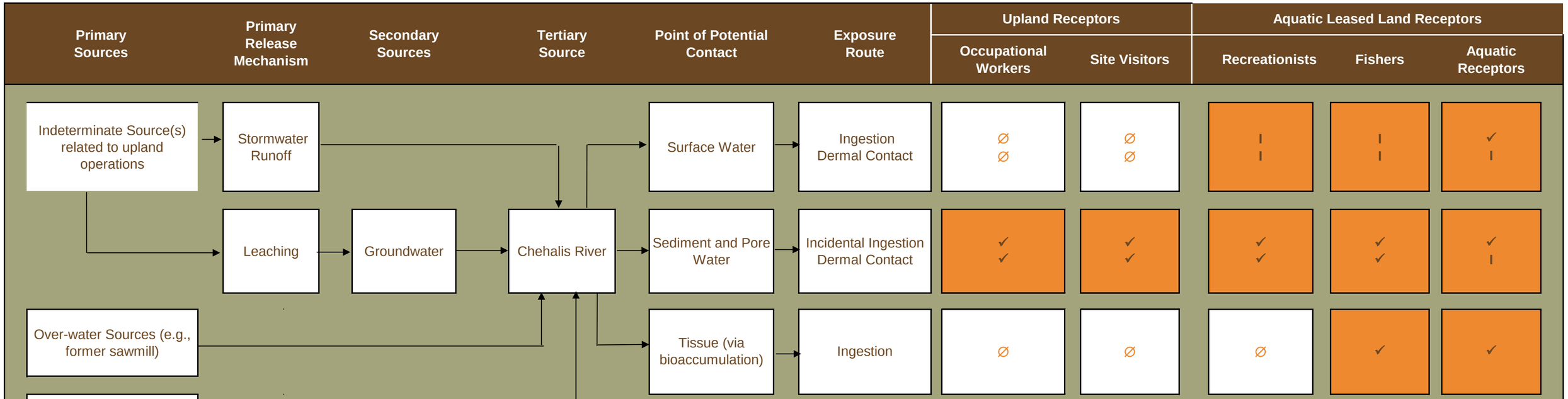
GRAYS HARBOR HISTORICAL SEAPORT

0 225 450
Feet

Project: 1044.01 Produced By: estrandhagen Approved By: mnovak Print Date: 4/4/2017 Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\EVS_Model\Fig4-4_Woodwaste and Overlying Sediment Cross-Section.ai

Figure 5-1
Conceptual Site Model
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

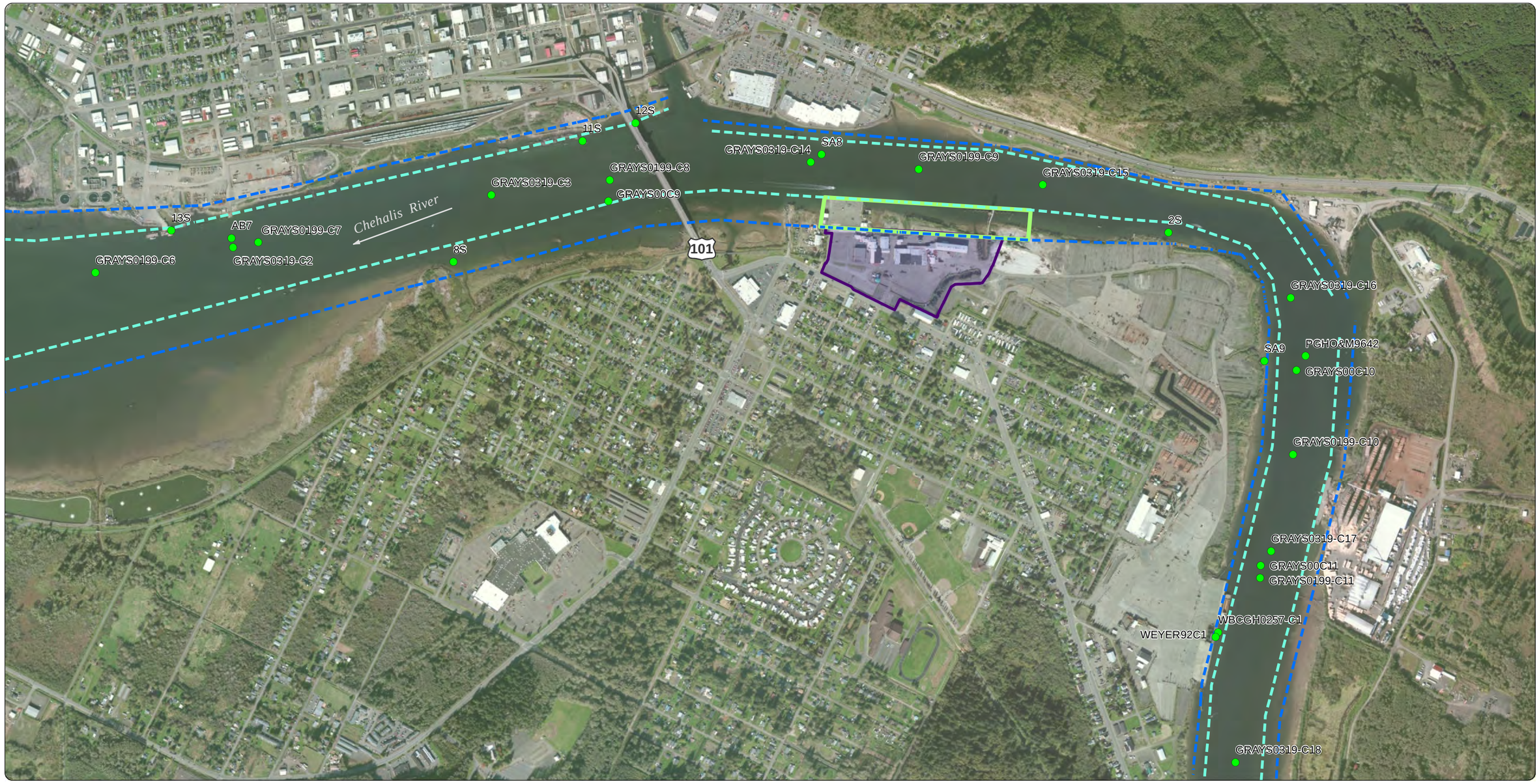


Notes:

Primary pathway →
Potentially Complete exposure route ✓
Incomplete exposure route ∅
Insignificant exposure route I

Aquatic receptors include aquatic plants, benthic invertebrates, fish, and piscivorous birds and mammals.

Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_RI_FS\Fig6-1_BackgroundLocationsLabeled_01.mxd
Print Date: 5/22/2019
Approved By: mstringer
Produced By: aguse
Project: 0863.01.01-02



Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads obtained from Grays Harbor County; harbor lines obtained from Washington Dept. of Natural Resources.

Approximate Aquatic Lease Area
Background Sediment Samples
Seaport Authority
Inner Harbor Line
Outer Harbor Line

Figure 6-1
Background Sample Locations

Aberdeen, Washington

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Notes:
1. GHHSA = Grays Harbor Historical Seaport Authority.
2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.

GRAYS HARBOR HISTORICAL SEAPORT

0 500 1,000
Feet



Notes:
1. GHHSA = Grays Harbor Historical Seaport Authority.
2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
3. TPH exceedance is of Model Toxics Control Act Method A Cleanup Level.
4. Surface is sediment collected in the top 10 centimeters (0 to 0.33 feet below the mudeline).
5. TEQ = toxicity equivalence quotient
6. pg/g-dw = picograms per gram - dry weight

Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads obtained from Grays Harbor County; harbor lines obtained from Washington Dept. of Natural Resources.

- Appoximate Aquatic Lease Area
- Seaport Authority Property
- Former Mill
- Former Wharf Extension
- Historical Surface Sample Location (PES Phase II, April 2011)
- Composite Surface Sample

Surface Sediment Sample Locations

- No Exceedances
- No Exceedances - Not Analyzed for TPH
- SCO Exceedance
- SCO and CSL Exceedance

Composite Surface Sediment Sample Locations

- No Exceedances - Not Analyzed for TPH
- No Exceedances - Not Analyzed for Dioxin TEQ
- No Exceedances - Not Analyzed for Dioxin TEQ or TPH
- SCO Exceedance

Figure 7-1
Sediment Management Standard Exceedances

Aberdeen, Washington

0 75 150
Feet

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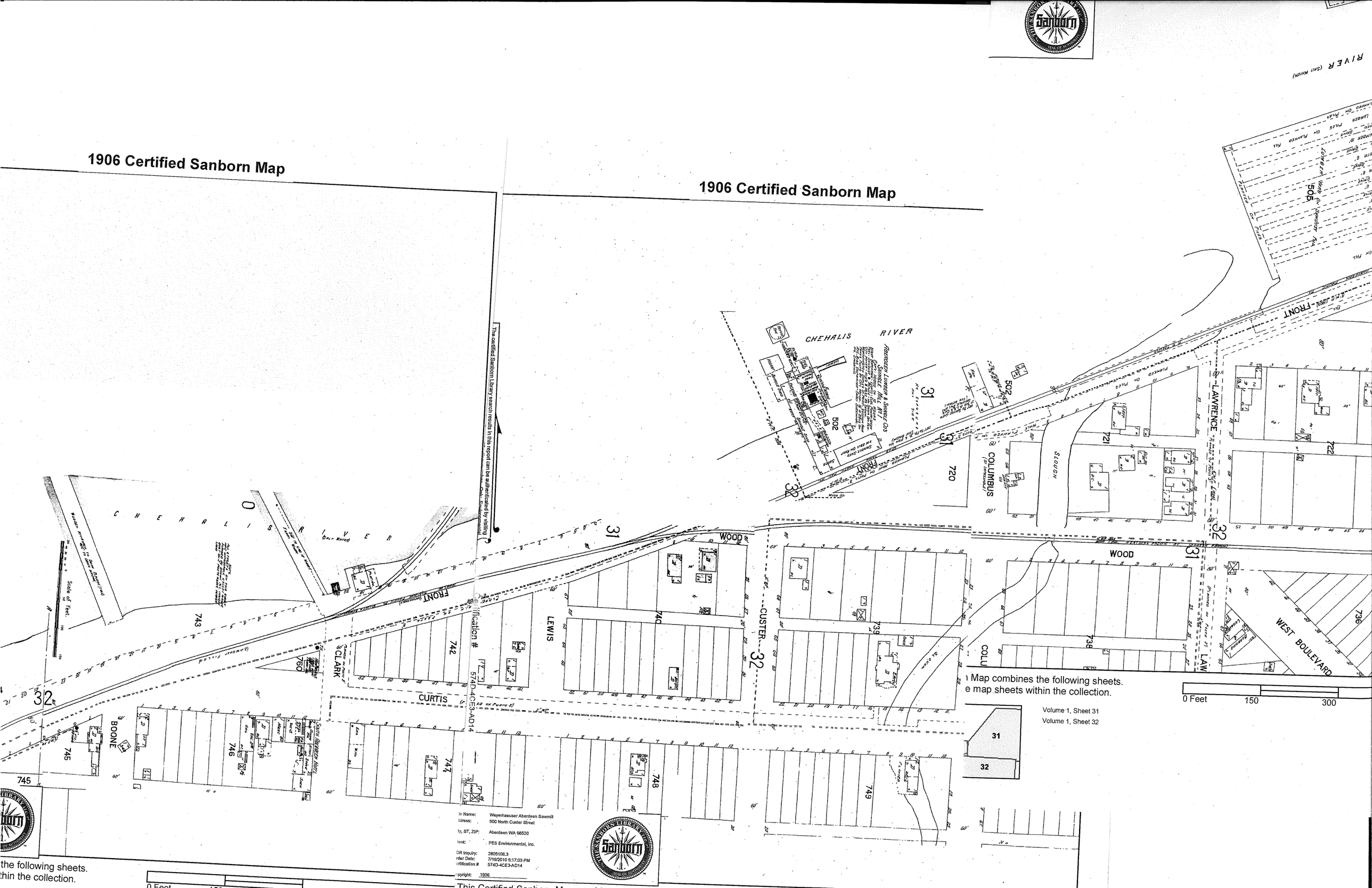
Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_RI_FS\Fig7-1 Sediment Management Standard Exceedances_v4.mxd
Print Date: 5/22/2019
Approved By: mstringer
Produced By: aguse
Project: 1044.02.01-05

APPENDIX A

SANBORN MAPS

1906 Certified Sanborn Map

1906 Certified Sanborn Map



The certified Sanborn Library search results in this report can be authenticated by visiting www.sanborn.com/authenticate.

Name: Weyerhaeuser Aberdeen Sawmill
Address: 500 North Custer Street
City, ST, ZIP: Aberdeen WA 98520
Client: PES Environmental, Inc.
SDR Inquiry: 2805106.3
Order Date: 7/16/2010 5:17:03 PM
Certification # 574D-4CE3-AD14
Copyright: 1906

Map combines the following sheets.
e map sheets within the collection.

Volume 1, Sheet 31
Volume 1, Sheet 32

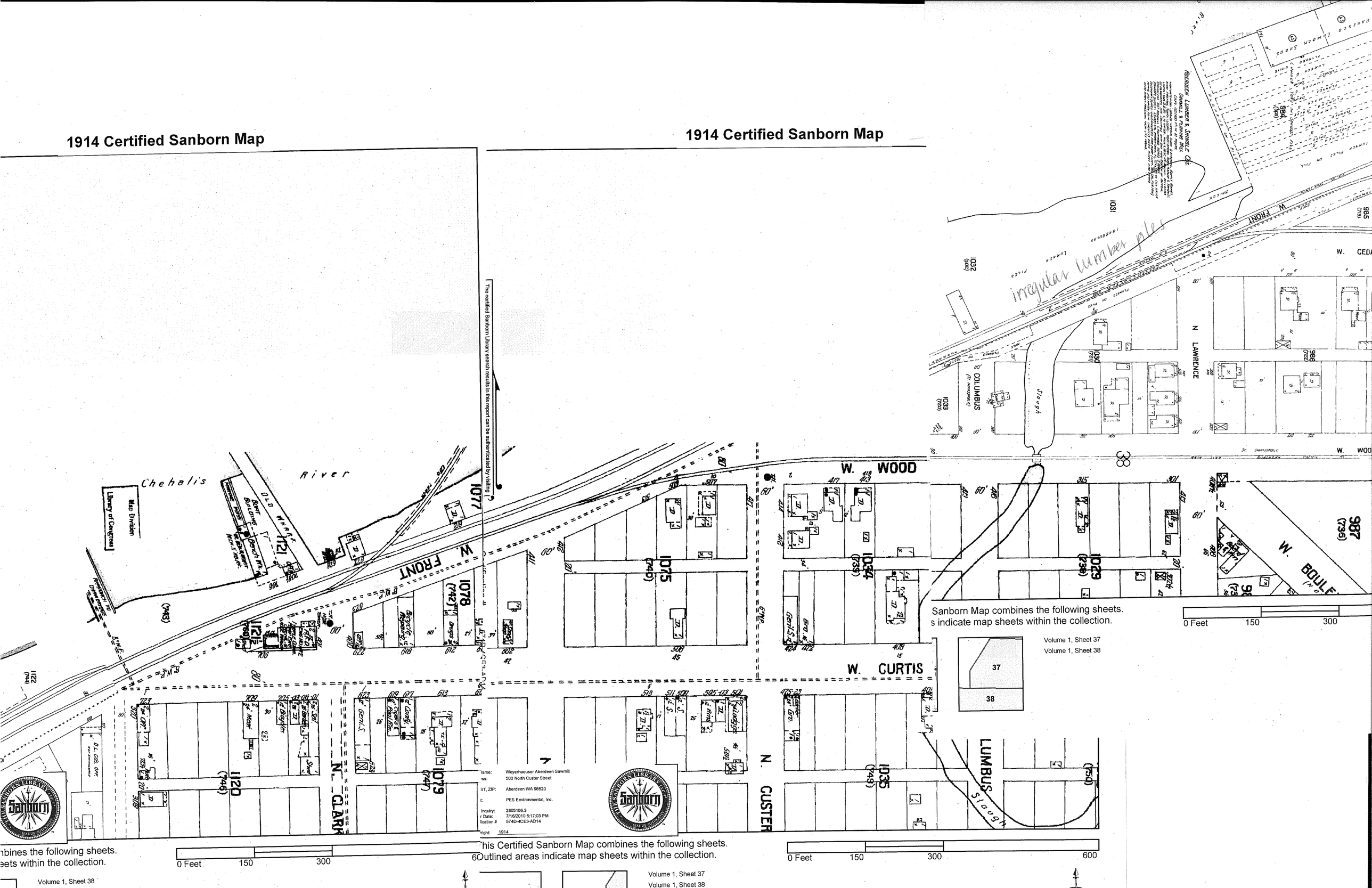
0 Feet 150 300

the following sheets.
hin the collection.

This Certified Sanborn Map

1914 Certified Sanborn Map

The certified Sanborn Library search results in this report can be authenticated by visiting



This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

Volume 1, Sheet 37
Volume 1, Sheet 38

Sanborn Map combines the following sheets.
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Volume 1, Sheet 37
Volume 1, Sheet 38

1914 Certified Sanborn Map

nbines the following sheets.
eets within the collection.

Volume 1, Sheet 38

1928 Certified Sanborn Map

Site Name:	Aquatic Lands Enhancement
Address:	500 North Custer Street
City, ST, ZIP:	Aberdeen WA 98520
Client:	PES Environmental, Inc.
EDR Inquiry:	2798202.3
Order Date:	6/22/2010 11:57:39 AM
Certification #	0D28-4C72-80D8
Copyright:	1928

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Sanborn Map combines the following sheets.
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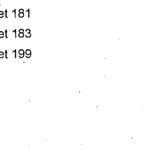
Volume 1, Sheet 181
Volume 1, Sheet 198
Volume 1, Sheet 199

Sanborn Map combines the following sheets.
s indicate map sheets within the collection.



Volume 1, Sheet 181
Volume 1, Sheet 183
Volume 1, Sheet 199

0 Feet 150 300

0 Feet 150

1948 Certified Sanborn Map

1948 Certified Sanborn Map

1948 Certified Sanborn Map

Site Name: Aquatic Lands Lease
Address: 500 North Custer Street
City, ST, ZIP: Aberdeen WA 98520
Client: PES Environmental, Inc.
EDR Inquiry: 2798202.3
Order Date: 6/22/2010 11:57:39 AM
Certification #: 0D28-4C72-80D8
Copyright: 1948

Site Name: Aquatic Lands Lease
Address: 500 North Custer Street
City, ST, ZIP: Aberdeen WA 98520
Client: PES Environmental, Inc.
EDR Inquiry: 2798202.3
Order Date: 6/22/2010 11:57:39 AM
Certification #: 0D28-4C72-80D8
Copyright: 1948

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Volume 1, Sheet 199

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Volume 1, Sheet 181
Volume 1, Sheet 198

0 Feet 150 300 600

0 Feet 150 300

1989 Certified Sanborn Map

1989 Certified Sanborn Map

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Certification # 574D-4CE3-AD14

Site Name: Weyerhaeuser Aberdeen Sawmill
Address: 500 North Custer Street
City, ST, ZIP: Aberdeen WA 98520
Client: PES Environmental, Inc.
EDR Inquiry: 2805106.3
Order Date: 7/16/2010 5:17:03 PM
Certification #: 574D-4CE3-AD14
Copyright: 1989

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APPENDIX B

FIELD METHODS



SEAPORT LANDING LEASED PROPERTY RI/FS FIELD METHODS

This document describes the methods employed for soil, groundwater, sediment, and seep sampling during the leased in-water property of the Seaport Landing site field effort in October 2015.

All sampling procedures and quality assurance and quality control protocols were conducted consistent with the sampling and analysis plan, and were consistent with the Model Toxics Control Act stipulated in Washington Administrative Code (WAC) 173-340 and with Sediment Management Standards in WAC 173-204-550.

1 SOIL SAMPLING

Public and private utility-location services were used to identify locatable utilities in the subsurface sampling area before initiation of field-sampling activities. Upland borings were advanced with a GeoProbe® 7822DT Heavy Duty drilling rig operated by Cascade Drilling, LP, using industry-standard drilling techniques.

Soil samples were field screened, collected, and documented at each boring location, as described in the subsections below.

1.1 Field Screening

Soil was field-screened through visual observation and a photoionization detector (PID). Small amounts of soil from selected depths were placed in individual food-grade ziplock bags. The bags were labeled according to their boring location and depth, sealed, and were left in the sun for at least ten minutes to release potential volatile constituents into the sealed bag. The tip of the PID was then placed in each bag to take a reading. All PID readings were recorded in the field notebook.

Soil that had noticeable staining and/or a PID reading above the background level was considered contaminated. Selected soil samples with elevated field-screening results were submitted to the laboratory to be analyzed for contaminants of interest.

1.2 Soil Sampling

Soil samples were collected for lithologic description, field screening, and chemical analyses, as described below. Selected soil samples were containerized and submitted for laboratory analysis. Samples were prepared, handled, and documented as follows:

- All non-disposable equipment used for soil sampling was made of stainless steel and was decontaminated before its use at each sampling location.

- At each boring location, continutous soil cores were collected and observed in the field to document soil lithology, color, moisture content, and sensory evidence of impairment.
- Freshly exposed soil for volatile organic compound (VOC) analysis was transferred directly into laboratory-supplied containers, using the appropriate U.S. Environmental Protection Agency 5035A sampling procedures, preservatives, and containers.
- Soil that was analyzed for nonvolatile constituents was transferred directly from the sampling device into the appropriate laboratory-supplied glass jars, using new, uncontaminated-gloved hands or decontaminated, stainless steel spoons, trowels, or knives.
- Large particles (i.e., larger than 0.25 inch) were removed before the samples were placed in their appropriate laboratory-supplied containers, which were then placed into coolers filled with ice.

Soil sampling information was documented in field notes and is integrated in boring logs.

2 GROUNDWATER SAMPLING

Reconnaissance groundwater samples were collected from four exploratory borings. Water level measurements included measuring the depth to water to the nearest 0.01 foot below ground surface using an electronic water level meter.

At each of the four soil boring locations, temporary wells were installed using the GeoProbe® direct-push drill rig described above. This consisted of placing a five foot long 0.010-inch machine slot polyvinyl chloride screen and riser into the boring. Screened intervals for each temporary well depended on the depth to water observed during drilling in each particular boring. The system was allowed to rest until the water level stabilized. Groundwater samples were collected from each temporary well, using a peristaltic pump with new, disposable, polyethylene tubing. Prior to sampling, one set of groundwater parameters were collected at each well using a multiparameter handheld meter including temperature, pH, specific conductance, and turbidity. Groundwater was pumped directly into laboratory-supplied containers specific to the analysis required, and placed into coolers filled with ice.

For samples that were analyzed for dissolved metals, single-use disposable 0.47 micron filters were used to field filter groundwater directly into laboratory-supplied sample containers containing a nitric acid preservative. All groundwater field parameters and field observations were logged in the field notebook.

3 SEDIMENT SAMPLING

3.1 Surface Sediment Samples

Surface sediment sampling methodology depended on whether the sampling locations were exposed during low tide, or if they were in portions of the Chehalis River which were constantly underwater.

Low Tide-Exposed Surface Sediment Sampling Locations

Surface sediment samples in locations exposed at low tide were collected manually using decontaminated equipment including stainless steel scoops, trowels, or knives. Sample stations were field located using a Trimble GeoXH differential global positioning unit (DGPS). In sample locations where only the top 10 cm of sediment was sampled, surface sediment to 10 cm bml was recovered with a decontaminated stainless steel spoon. Sediments that were composited were placed into a decontaminated stainless steel bowl, the samples were homogenized, placed into laboratory-supplied sampling containers, and placed into coolers filled with ice.

Sample stations exposed at low tide that included sediment collection for depths to two feet (such as CR-09B and CR-09A) were collected from holes dug out using decontaminated stainless steel shovels and measured with a tape measure to ensure proper depth. Sediment from the proper depths were collected from within the holes using a decontaminated stainless steel spoon.

Underwater Surface Sediment Sampling

Surface sediments were collected in underwater areas using a Ponar (a surface-deployed grab sampler), or from the appropriate depth in the sediment cores advanced by the GeoProbe® drill rig referenced above. Sampling methodology involving the drill rig is described in Section 3.2.

Surface sediment samples retrieved using a Ponar were deployed without the use of winches from a support vessel. The Ponar device was equipped with self-releasing pinch-pins with heavy duty hinges to scoop up surficial sediment when the device contacts the surface. The speed of the grab sampler's descent was controlled to minimize disturbing the sediment. The speed of ascent was also controlled to minimize loss of sediment from washout. Sediment samples were inspected upon retrieval to ensure that the grab sampler was completely closed and that it retained all sediment, including surficial fines.

Upon retrieval of an acceptable sediment sample, excess water was decanted from the Ponar, and the upper 0 to 10 centimeters of sediment below mudline was collected, placed in a decontaminated stainless steel bowl, and composited using a decontaminated stainless steel spoon. Sediment that was in contact with the sides of the sampler was not collected. Once composited, sediment was placed in the laboratory-provided containers, and placed into coolers filled with ice. Equipment was decontaminated between sampling locations.

Sediment samples were described in the field notebook following sample collection.

3.2 Subsurface Sediment Sampling

Subsurface sediment sampling was conducted using a GeoProbe® direct-push drill rig, which allowed for recovery of a continuous sediment profile, using the GeoProbe® Macro Core sampling system containing a 2.25 inch diameter acetate liner. Drive depths and recovery depths were recorded in the field notebook.

The direct-push rig was placed on a work barge to allow positioning over submerged sediment sample locations. The barge was maneuvered to the proposed sample stations using a tug boat. Spuds were used as necessary to hold the barge in place temporarily during drilling. A new acetate liner was secured to the drill rig tooling and deployed from the vessel for each boring location. A lead line was used to confirm water depth at each location, and the GeoProbe® rig advanced tooling up to 20 feet bml (or to refusal). Once back on the support vessel, the acetate liner was separated from the tooling.

In some cases, wood or other debris would clog up the acetate core liner and the boring would be rejected. The barge was shifted slightly and a replacement boring was advanced nearby (typically within five to ten feet). Following retrieval of an acceptable core, excess water was removed from the top of the acetate core liner and the core was placed horizontally on a flat work table. The acetate liner was then cut open longitudinally with a utility knife exposing the continuous sediment core. The cores were divided longitudinally and described, noting features such as sheen, percentage and type of woody debris, and biological features, and then photographed. Sediment was sampled from the appropriate depth, with care being taken not to sample material in contact with the acetate liner.

Laboratory-supplied sampling containers were filled at each sample location, and placed into coolers filled with ice. The size and quantity of sampling containers were specified by the analytical laboratory.

4 SEEP SAMPLING

One opportunistic seep sample was collected in the pocket beach area during low tide. The sample was taken from a location close to an observed emergence point i.e., a pool. Photos, written descriptions, and GPS coordinates of the identified seep were collected. Water was decanted directly into laboratory supplied sampling containers by placing the container in a depression directly downstream of the seep outlet. The sample containers were then placed into coolers filled with ice.

APPENDIX C

BORING LOGS

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-08A**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/14/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**20.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 3.0 feet: No recovery.
2									
3									
4									3.0 to 5.0 feet: Woodwaste; reddish brownish black; 80% woodwaste; 20% sand, medium to coarse.
5									
6									5.0 to 9.5 feet: No recovery.
7									
8									
9									
10									9.5 to 15.0 feet: Woodwaste; reddish brownish black; 80% woodwaste; 20% sand, medium to coarse.
11									
12									
13									
14									
15									15.0 to 17.0 feet: No recovery.
16									
17									17.0 to 18.3 feet: Woodwaste; reddish brownish black; 80% woodwaste; 20% sand, medium to coarse.
18									@ 17.1 feet: brick.
19				**GP**		**CR08A-SBSD**			18.3 to 20.0 feet: SILTY SAND (SM); gray; 40% fines, medium plasticity; 60% sand, fine to medium.
20									

NOTES:

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-08B**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/14/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 3.5: No recovery.
2									
3									
4									3.5 to 7.0 feet: SANDY SILT (MLS); gray; 50% fines; 30% sand, fine; 20% woodwaste.
5									@ 4.5 to 4.6 feet: Woodwaste; 80% woodwaste; 20% sandy silt.
6									
7									7.0 to 10.0 feet: SANDY SILT (MLS); gray; 60% fines; 40% sand, fine.
8				**GP**		**CR08B-SBSD**			
9									
10									

NOTES:

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-11**	**1 of 2**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/13/2015 to 10/13/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**25.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 2.8 feet: No recovery.
2									
3									2.8 to 5.0 feet: Woodwaste; tan to black; hydrocarbon-like odor.
4									
5									5.0 to 5.8 feet: No recovery.
6									5.8 to 6.4 feet: SAND (SP); gray; 100% sand, medium.
7									6.4 to 9.4 feet: SANDY SILT (MLS); gray; 50% fines, plastic; 30% sand; 20% woodwaste.
8									
9									@ 8.8 feet: Sand lens.
10									9.4 to 10.0 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
11									10.0 to 11.2 feet: No recovery.
12									11.2 to 22.5 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
13						**PID = 17.2 ppm**			@ 12.0 feet: Sheen.
14									
15									
16									
17									
18									
19									
20									

NOTES:

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-11**	**2 of 2**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Sample Data: Percent Recovery	Sample Data: Collection Method	Sample Data: Number	Sample Data: Name (Type)	Sample Data: Blows/6"	Lithologic Column	Soil Description
21									
22									
23				GRAB		CR11-SBSD-23			22.5 to 25.0 feet: SANDY SILT (MLS); plastic.
24									
25						PID = 6.4 ppm			

NOTES:

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-12**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/13/2015 to 10/13/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**15.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 2.8 feet: No recovery.
2									
3									2.8 to 5.0 feet: Woodwaste; trace silt; wet.
4									
5									5.0 to 7.0 feet: No recovery.
6									
7									7.0 to 10.0 feet: Woodwaste; trace silt; sulfer odor; wet.
8									
9									
10									10.0 to 11.9 feet: No recovery.
11									
12						**PID = 98.7 ppm**			11.9 to 12.3 feet: Woodwaste; trace silt; sulfur odor; wet.
13									12.3 to 13.8; SILTY SAND (SM); 80% silty sand; 20% woodwaste.
14						**PID = 10.1 ppm**			13.8 to 15.0 feet: SANDY SILT (MLS); gray; 60% fines, plastic; 40% sand, fine, micaceous.
15				**GP**		**CR12-SBSD-15**			

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-13**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/13/2015 to 10/13/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**15.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 2.5 feet: No recovery.
2									
3									2.5 to 5.0 feet: Woodwaste; slight sulfur odor; wet.
4									
5									5.0 to 6.8 feet: No recovery.
6									
7									6.8 to 8.7 feet: Woodwaste; slight sulfur odor; wet.
8					**PID = 2.0 ppm**				
9									8.7 to 10.0 feet: SANDY SILT (MLS)
10									10.0 to 11.1 feet: No recovery.
11					**PID = 1.7 ppm**				11.1 to 15.0 feet: SANDY SILT (MLS); gray; 60% fines, plastic; 40% sand, fine, micaceous.
12				**GP**	**CR13-SBSD-11**				
13									
14									
15									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-14**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/13/2015 to 10/13/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**15.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 1.5 feet: No recovery.
2									1.5 to 5.0 feet: Woodwaste; sulfur odor; wet.
3									
4									
5									
6									5.0 to 7.2 feet: No recovery.
7									
8						**PID = 102 ppm**			7.2 to 9.3 feet: Woodwaste; tan; sulfur odor; sheen; hydrocarbon product; wet.
9									
10									9.3 to 10.0 feet: SANDY SILT (MLS); gray; 70% fines, plastic; 30% sand, fine; slight sulfur odor; micaceous.
11									10.0 to 12.0 feet: No recovery.
12				**GP**		**CR14-SBSD-12**			12.0 to 15.0 feet: SANDY SILT (MLS); gray; 70% fines, plastic; 30% sand, fine, micaceous.
13									
14						**PID = 0.0 ppm**			
15									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-15A**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/14/2015 to 10/14/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**11.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 4.5 feet: No recovery.
2									
3									
4									
5									4.5 to 5.0 feet: Woodwaste.
				GP		**CR15A-5**			5.0 to 7.0 feet: No recovery.
6									
7									7.0 to 9.2 feet: Woodwaste; 70% woodwaste; 30% sandy silt, blackish brown.
8									
9									
10									9.2 to 9.5 feet: SANDY SILT (MLS)
									9.5 to 11.0 feet: Woodwaste; 70% woodwaste; 30% sandy silt, blackish brown.
11				**GP**		**CR15A-11**			

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-15B**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/14/2015 to 10/14/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**5.0-feet**
Sample Method	**GeoProbe**	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				**GP**		**CR15B-0-10cm**			*0.0 to 3.5 feet: No recovery.*
2									
3									
4									*3.5 to 5.0 feet: Woodwaste; 70% woodwaste; 30% sandy silt, blackish brown.*
5				**GP**		**CR15B-5**			

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-15C**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/14/2015 to 10/14/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**5.0-feet**
Sample Method	**GeoProbe**	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				GP		CR15C-SSD			0.0 to 0.3 feet: No recovery.
				GP		CR15C-SBSD			0.3 to 5.0 feet: SILTY SAND (MLS); blackish gray; 30% fines, fine, medium plasticity; 70% sand, fine.
2									
3									
4									
5				GP		CR15C-5.0			

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-15D**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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
1–10									0.0 to 7.0 feet: No recovery.
7									7.0 to 8.1 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
8–10									8.1 to 10.0 feet: SANDY SILT (MLS); grayish brown; 70% fines, medium to high plasticity; 30% sand, fine; trace woodwaste; trace organic material.

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-16A**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**15.0-feet**
Sample Method	**GeoProbe**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Sample Data: Percent Recovery	Sample Data: Collection Method	Sample Data: Number	Sample Data: Name (Type)	Sample Data: Blows/6"	Lithologic Column	Soil Description
1				**CS**		**CR16A-0-10cm**			*0.0 to 1.5 feet: No recovery.*
2									*1.5 to 5.0 feet: Woodwaste; 80% woodwaste, reddish brown; 20% sandy silt.*
3									
4									
5				**GP**		**CR16A-5**			*5.0 to 8.5 feet: No Recovery.*
6									
7									
8									
9									*8.5 to 9.5 feet: Woodwaste; 80% woodwaste, reddish brown; 20% sandy silt.*
10									*9.5 to 10.0 feet: SANDY SILT (MLS); dark gray; 50% fines, high plasticity; 35% sand, poorly graded, fine; 15% woodwaste and organic debris.*
11									*10.0 to 12.0 feet: No recovery.*
12									*12.0 to 15.0 feet: SANDY SILT (MLS); gray; 70% fines, plastic; 30% sand, fine.*
13									
14				**GP**		**CR16A-14**			
15									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-16B**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**15.0-feet**
Sample Method	**GeoProbe**	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				**CS**		**CR16B-0-10cm**			*0.0 to 4.2 feet: No recovery.*
2									
3									
4									
5									*4.2 to 5.0 feet: Woodwaste; reddish brown; 70% woodwaste; 30% sandy silt.*
6									*5.0 to 6.5 feet: No recovery.*
7									*6.5 to 10.0 feet: Woodwaste; reddish brown; 80% woodwaste; 20% sandy silt; slight sheen.*
8									
9									
10				**GP**		**CR16B-10.0**			*10.0 to 11.0 feet: No recovery.*
11									*11.0 to 12.0 feet: Woodwaste; reddish brown; 80% woodwaste; 20% sandy silt; slight sheen.*
12									*12.0 to 15.0 feet: SILTY SAND (SM); gray; 20% fines, medium to high plasticity; 80% sand, fine to medium.*
13				**GP**		**CR16B-13.0**			
14									
15									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-16C**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**15.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 4.0 feet: No recovery.
2									
3									
4									
5									4.0 to 5.0 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
6									5.0 to 8.5 feet: No recovery.
7									
8									
9									8.5 to 9.8 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
10									9.8 to 10.0 feet: SILTY SAND (SM); gray; 20% fines, medium to high plasticity; 80% sand, fine to medium.
11									10.0 to 13.0 feet: No recovery.
12									
13									
14									13.0 to 15.0 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
15									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-17C**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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				**CS**		**CR17C-0-10cm**			*0.0 to 2.5 feet: No recovery.*
2									
3									*2.5 to 4.0 feet: SANDY SILT (MLS); grayish brown; 60% fines; 40% sand, fine.*
4									*4.0 to 4.5 feet: Woodwaste.*
5									*4.5 to 5.0 feet: SILTY SAND (SM); grayish brown; 40% fines, high plasticity; 60% sand; fine, trace woodwaste.*
6									*5.0 to 8.0 feet: No recovery.*
7									
8									*8.0 to 10.0 feet: SILTY SAND (SM); grayish brown; 40% fines, high plasticity; 60% sand; fine, trace woodwaste.*
9									
10				**GP**		**CR17C-9.5**			

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-17D**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**5.0-feet**
Sample Method	**GeoProbe**	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				**CS**		**CR17D-SSD**			*0.0 to 2.0 feet: No recovery.*
				CS		**CR17D-SBSD**			
2									*2.0 to 5.0 feet: SILTY SAND (SM); grayish brown; 40% fines, high plasticity; 60% sand, fine.*
3									
4									
5									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-18A**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 4.5 feet: No recovery.
2									
3									
4									
5									4.5 to 5.0 feet: Woodwaste; 100% woodwaste.
									5.0 to 7.8 feet: No recovery.
6									
7									
8									7.8 to 8.7 feet: Woodwaste; 80% woodwaste; 20% silty sand.
9				**GP**		**CR18A-9.0**			8.7 to 9.5 feet: SANDY SILT (MLS); grayish black; 60% fines, plastic; 40% sand, fine.
10									9.5 to 10.0 feet: Woodwaste; 80% woodwaste; 20% silty sand.

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-18B**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**12.0-feet**
Sample Method	**GeoProbe**	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				CS		CR18B-SSD			0.0 to 3.0 feet: No recovery.
				CS		CR18B-SBSD			
2									
3									
4									3.0 to 12.0 feet: SILTY SAND (SM); blackish brownish gray; 40% fines; 60% sand, fine.
5									
6									
7									
8									
9									
10									
11									
12									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19A**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 3.0 feet: No recovery.
2									
3									
4									3.0 to 3.7 feet: SANDY SILT with woodwaste (MLS); gray; 40% fine, loose; 30% sand; 30% woodwaste.
									3.7 to 4.0 feet: SANDY SILT (MLS); grayish brown; 60% fines; 40% sand, fine.
5									4.0 to 5.0 feet: Woodwaste; 80% woodwaste; 20% sandy silt.
6									5.0 to 8.0 feet: No recovery.
7									
8									
9									8.0 to 9.0 feet: Woodwaste; 70% woodwaste; 30% sandy silt, gray.
10									9.0 to 10.0 feet: SILTY SAND with woodwaste (SM); gray; 80% silty sand; 20% woodwaste.

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19B**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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				**CS**		**CR19B-0-10cm**			*0.0 to 2.0 feet: No recovery.*
2									
3									*2.0 to 4.5 feet: SILTY SAND (SM); grayish brown; 40% fines, high plasticity; 60% sand; fine, loose from 2.0 to 3.0 feet; trace woodwaste.*
4									
5									*4.5 to 5.0 feet: Woodwaste; 80% woodwaste; 20% silty sand.*
6									*5.0 to 7.5 feet: No recovery.*
7									
8									*7.5 to 8.7 feet: Woodwaste; 80% woodwaste; 20% silty sand.*
9									*8.7 to 10.0 feet: SANDY SILT (MLS); grayish black; 50% fines, plastic; 35% sand, fine; 15% woodwaste, coarse chucks.*
10				**GP**		**CR19B-10**			

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19C**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**5.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 2.4 feet: No recovery.
2									
3									2.4 to 5.0 feet: SILTY SAND (SM); blackish brown; 40% fines, high plasticity; 60% sand, fine; trace woodwaste.
4									@ 4.0 to 4.1 feet: Woodwaste.
5									@ 4.5 to 4.6 feet: Woodwaste.

NOTES:

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19D**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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					**CR19D-0-10cm and CR19D-SSD-CONV**				*0.0 to 1.0 feet: No recovery.*
2									*1.0 to 4.2 feet: SILTY SAND (SM); blackish gray; 40% fines, high plasticity; 60% sand, fine; loose from 1.0 to 2.0 feet.*
3									
4									
5									*4.2 to 5.0 feet: Woodwaste; tannish brown; 80% woodwaste; 20% sandy silt.*
6									*5.0 to 7.5 feet: No recovery.*
7									
8									*7.5 to 8.5 feet: Woodwaste; tannish brown; 80% woodwaste; 20% sandy silt.*
9				**GP**		**CR19D-9.0**			*8.5 to 10.0 feet: SILT SAND (SM); grayish black; 40% fines, high plasticity;*
10									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19E**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 3.2 feet: No recovery.
2									
3									
4									3.2 to 5.0 feet: Woodwaste with SILTY SAND; 60% woodwaste; 40% silty sand.
5									5.0 to 7.7 feet: No recovery.
6									
7									
8									7.7 to 8.5 feet: Woodwaste with SILTY SAND; brownish black; 60% woodwaste; 40% silty sand.
9									8.5 to 9.5 feet: Woodwaste; 80% woodwaste; 20% silty sand.
10									9.5 to 10.0 feet: Woodwaste with SILTY SAND; brownish black; 60% woodwaste; 40% silty sand.

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19F**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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				CS		CR19F-SSD			0.0 to 2.5 feet: No recovery.
				CS		CR19F-SBSD			
						CR19F-SBSD-DUP			
2									
3									2.5 feet: to 10.0 feet: SILTY SAND (SM); grayish brown; 40% fines; 60% sand, loose from 2.5 to 3.5 feet then becomes dense.
4									
5				GP		CR19F-5			
6									
7									
8									
9				GP		CR19F-9.0			
10									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19G**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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				**CS**		**CR19G-0-10cm**			*0.0 to 2.5 feet: No recovery.*
2									
3									*2.5 to 4.5 feet: SILTY SAND (SM); grayish brown; 35% fines; 50% sand; 15% woodwaste.*
4									
5									*4.5 to 7.5 feet: SILTY SAND with Woodwaste (SM); grayish brown; 60% silty sand; 40% woodwaste.*
6									
7									
8									*7.5 to 10.0 feet: SILTY SAND (SM); grayish brown; 40% fines; 60% sand, dense.*
9									
10									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19I**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 1.0 feet: No recovery.
2									1.0 to 10.0 feet: SILTY SAND (SM); grayish brown; 40% fines, medium plasticity; 60% sand, fine; dense. @ 1.0 to 3.0 feet: loose.
3									
4									
5									
6									
7									
8									
9									
10									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-19J**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/16/2015 to 10/16/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 4.0 feet: No recovery.
2									
3									
4									
5									4.0 to 5.0 feet: SILTY SAND with Woodwaste (SM); 60% silty sand; 40% woodwaste.
6									5.0 to 8.7 feet: No recovery.
7									
8									
9									8.7 to 10.0 feet: Woodwaste; 30% silty sand, borwnish black; 70% woodwaste.
10									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-20**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/12/2015 to 10/12/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 3.0 feet: No recovery.
2									
3									
4				GP		CR20-S-5.0			3.0 to 3.3 feet: CLAYEY SAND (SC); dark brown; 40% fines, high plasticity; 40% sand; 20% gravel; trace organic material; moist. 3.3 to 7.0 feet: SANDY GRAVEL (GWS); brownish gray; 30% sand, fine to coarse; 70% gravel, medium to coarse, subangular. @ 4.0 feet: Clay lens; reddish brown.
5				GP		CR20-GW-5.0			@ 5.0 to 5.3 feet: Woodwaste; 80% woodwaste, primarily large woodchips; 20% black silty sand.
6									
7									7.0 to 7.5 feret: CONCRETE.
8									7.5 to 10.0 feet: No recovery.
9									
10									

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-21**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/12/2015 to 10/12/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 3.0 feet: No recovery.
2									
3									
4				GP		CR21-S-5.0 PID = 102.9 ppm			3.0 to 4.8 feet: GRAVELLY SAND (SPG); brown; 10% fines, nonplastic; 40% sand, fine to medium; 50% gravel, subangular (rock fragments), medium to large; moist.
5									@ 4.8 to 5.0 feet: Woodwaste; 80% woodwaste, primarily large woodchips; 20% black silty sand.
6									5.0 to 8.5 feet: No recovery.
7									
8									
9						PID = 53.5 ppm			8.5 to 10.0 feet: SILTY SAND (SM); blackish brown; 30% fines, nonplastic to medium plasticity; 50% sand, fine to medium; 20% gravel, medium, subrounded; wet.
10				GP		CR21-GW-10.0			

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-22**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/13/2015 to 10/13/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 2.0 feet: No recovery.
2									
3				GP		CR22-S-3.0 PID = 2.0 ppm			2.0 to 3.0 feet: WELL GRADED SAND (SW); brown; 20% fines, nonplastic; 60% sand, fine to coarse; 20% gravel, subangular; rock shards, some organic material.
4									3.0 to 4.5 feet: SILTY SAND (SM); reddish brown, 40% fines, medium plasticity; 60% sand, coarse; trace gravel.
5									@ 4.5 to 4.8 feet: Woodwaste lens, primarily bark chips and large wood chips.
6									4.8 to 5.0 feet: POORLY GRADED SAND (SP); gray; 10% fines, 90% sand, medium, poorly graded; saturated. (FILL) 5.0 to 7.0 feet: No recovery.
7									
8									7.0 to 8.0 feet: POORLY GRADED SAND (SP); gray; 10% fines, 90% sand, medium, poorly graded; saturated. (FILL)
9									8.0 to 9.0 feet: Woodwaste.
10				GP		PID = 8.8 ppm			9.0 to 10.0 feet: SILT w/ WOODWASTE (ML); grayish brown; 70% fines, nonplastic; 30% woodwaste, primarily bark chips .

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-23**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/13/2015 to 10/13/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**GeoProbe**	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									0.0 to 1.0 feet: No recovery.
2				GP		CR23-S-3.0 PID = 30.8 ppm			1.0 to 1.5 feet: GRAVELLY SILT (MLG); brown; 40% fines, high plasticity; 10% sand; 25% gravel, subrounded, large; 25% woodwaste, primarily large woodchips and bark pieces.
3									1.5 to 2.5 feet: GRAVELLY SAND (SPG); grayish brown; 20% fines; 50% sand; 30% gravel, fine to medium, subrounded to subangular.
4						PID = 57.7 ppm			2.5 to 3.0 feet: GRAVEL w/ SAND (GW); 10% fines, 20% sand; 70% gravel, fine to large. 3.0 to 4.0 feet: POORLY GRADED SAND (SP); gray; 20% fines; 70% sand, poorly graded, medium; 10% gravel. (FILL)
5									4.0 to 5.0 feet: Woodwaste; 80% woodwaste; 20% gray sandy silt.
6									5.0 to 7.5 feet: No recovery.
7									
8									7.5 to 9.0 feet: Woodwaste; 80% woodwaste; 20% gray sandy silt.
9									
10									9.0 to 10.0 feet: SILT w/ WOODWASTE (ML); dark brown; 70% fines, medium plasticity; 30% woodwaste, primarily bark chips.

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-25**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**5.0-feet**
Sample Method	**GeoProbe**	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				**CS**		**CR25-0-10cm**			*0.0 to 1.0 feet: No recovery.*
2									*1.0 to 5.0 feet: SILTY SAND (SM): blackish gray; 20% fines; 80% sand, fine.*
3									
4									
5				**GP**		**CR25-5**			

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01	**CR-26**	**1 of 1**

Project Name	**Seaport Landing**	TOC Elevation (feet)	**Mudline**
Project Location	**500 North Custer Street, Aberdeen, WA**	Surface Elevation (feet)	
Start/End Date	**10/15/2015 to 10/15/2015**	Northing	
Driller/Equipment	**Cascade Drilling, LP/GeoProbe Track rig**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**5.0-feet**
Sample Method	**GeoProbe**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Sample Data: Percent Recovery	Sample Data: Collection Method	Sample Data: Number	Sample Data: Name (Type)	Sample Data: Blows/6"	Lithologic Column	Soil Description
1				CS		CR26-SSD			0.0 to 1.0 feet: No recovery.
				CS		CR26-SBSD			1.0 to 5.0 feet: SILTY SAND (SM); blackish gray; 30% fines, high plasticity; 70% sand, fine.
2									
3									
4									
5									

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APPENDIX D

TERRESTRIAL ECOLOGICAL EVALUATION

TERRESTRIAL ECOLOGICAL EVALUATION

The terrestrial ecological evaluation (TEE) process is required at all Model Toxics Control Act sites where there has been a release or threatened release of a hazardous substance that may pose a threat to human health or the environment. The TEE procedure is structured with the intent to protect terrestrial wildlife at industrial and commercial sites, and terrestrial plants, soil biota, and terrestrial wildlife at other sites, as provided under Washington Administrative Code (WAC) 173-340-7490(3)(b).

A TEE for the upland portion of the Seaport Landing site's approximately 16.9 acre leased property (the Property) was conducted following the procedures outlined in WAC 173-340-7490 through 173-340-7493. The purpose of this TEE is to (1) present sufficient information to characterize risks to terrestrial ecological receptors, and (2) evaluate the ecological protectiveness of the remedial alternatives being assessed for the leased Property (see WAC 173-340-7490(1)(b)).

UPLAND SITE DESCRIPTION

The Seaport Landing site is located in the alluvial meander plain of the Chehalis River in the northwestern margins of the Willapa Hills of southwest Washington. Located at 500 North Custer Street in Aberdeen, the site is approximately 2 miles upriver from Grays Harbor. The City of Aberdeen is situated in southwestern Washington, approximately 15 miles from the Pacific Ocean and approximately 70 air miles west-southwest of Tacoma, Washington. US Highway 101 and US Highway 105 are located less than 0.25 mile south of the site.

The upland portion of the Property is being leased from the Washington State Department of Natural Resources by Weyerhaeuser under Lease No. 22-092275. The Grays Harbor Historical Seaport Authority (GHHSA) has entered into a sublease agreement with Weyerhaeuser for the state-owned aquatic lands. Historically, the Seaport Landing site was used by Weyerhaeuser and other wood products companies. The Property is proposed for future use as the homeport for the Lady Washington and Hawaiian Chieftain tall ships as part of a new maritime heritage facility called Seaport Landing.

The upland portion of the Property consists of former tidal flats that historically were filled with unknown types and quantities of debris, including construction debris and woodwaste. The area is a highly disturbed, low-quality habitat and is immediately surrounded by industrial and commercial developments and roads. However, the uplands likely provide some habitat functions for terrestrial receptors that also utilize the adjacent Chehalis River. Following removal of the mill, pilings, and debris in the former mill area, the pocket beach near the river has been colonized by vegetation characteristic of wetland environments, such as cattails and rushes. This section of the river has been observed to be a depositional area with debris including loose pilings and household appliances floating downstream and becoming lodged against the wharf. The river supports threatened bull trout, waterbirds such as the great blue heron, and aquatic mammals such as the river otter.

Based on Washington State Department of Fish and Wildlife information,[1] threatened or endangered and priority species and habitats are not present at the Property. Priority fish (salmonids and bull trout) species are identified for the adjacent Chehalis River, and priority forested/shrub wetlands are present in surrounding areas more than 500 feet south of the leased the Property (see the attached Species of Concern Report).

TEE APPROACH

An initial step in the TEE process is to determine whether a site qualifies for a TEE exclusion. If a site meets at least one of the four exclusionary criteria described in WAC 173-340-7491, then no further evaluation of ecological risk is necessary. The four exclusionary criteria are: (1) contamination is present only below the point of compliance (i.e., more than 15 feet below ground surface [bgs], provided institutional controls to limit exposure to zero to 6 feet bgs are not in place or planned), (2) incomplete exposure pathway (i.e., all soil will be covered by physical barriers), (3) type of contamination and proximity to ecological receptors (i.e., the site is located on or near a limited amount of undeveloped land), and (4) all concentrations are below background levels.

The leased Property does not meet exclusionary criterias 2 and 3, as the Property may be redeveloped into a heritage maritime facility with public access areas along the shore line and, as such, may leave potential areas of exposure uncovered and/or undeveloped. Hazardous substances in soil at the point of compliance were identified during evaluation of potential human health exposure (see the main text), and exclusionary criteria 1 and 4 are not definitively met. Since the Property cannot be definitively excluded from the TEE process, a simplified or site-specific TEE is required.

The simplified TEE applies to sites that do not have substantial potential for posing a threat of significant adverse effects to terrestrial ecological receptors and may be removed from further ecological consideration during the remedial investigation and cleanup process (WAC 173-340-7492). A simplified TEE is appropriate for a site, provided (1) it is not known to be located on or directly adjacent to an area where land use plans maintain or restore native or semi-native vegetation; (2) it is not utilized by vulnerable species; (3) less than 10 acres of native vegetation are present; and (4) there is no risk to significant wildlife populations, as determined by the Washington State Department of Ecology (Ecology) (WAC 173-340-7491). A simplified TEE is appropriate because the Property is immediately surrounded by industrial/commercial developments and roads, and no species of concern are identified in the Property's uplands (see the attached Species of Concern Report).

WAC 173-340-7492(2) provides the steps necessary for conducting the simplified TEE. The simplified TEE can be ended if any of three analyses (exposure analysis, pathway analysis, or contaminant analysis) meet their criteria. As further described below, the contaminant analysis was conducted to determine if chemical concentrations meet or will meet (following remediation conducted to protect human health) WAC Table 749-2 TEE criteria protective of ecological receptors for industrial or commercial sites (current conditions). In addition,

[1] The WDFW PHS system was accessed to assess priority species and habitat occurrence. Priority species include endangered, threatened, sensitive, and candidate species as well as animal aggregations (e.g., heron colonies, bat colonies) considered vulnerable; priority habitats are habitat types or elements with unique or significant value to a diverse assemblage of species.

the Table 749-2 TEE criteria for unrestricted land use was evaluated to account for the potential future conditions.

TEE CONTAMINANT ANALYSIS

An ecological screening evaluation was performed to identify whether any chemicals evaluated in the soil are found at concentrations greater than the TEE criteria. The attached table provides the results of the screening evaluation.

All soil samples were collected at depths of up to five feet below ground surface i.e. within the point of compliance. All concentrations in soils are below TEE criteria for commercial/industrial use, with the exception of total PCBs, dioxin toxicity equivalent (TEQ), and furan TEQ.[2] The same analytes, as well as chromium and diesel-range TPH, exceed the TEE criteria for unrestricted land use in one or more sample locations. Consistent with Model Toxics Control Act procedures, these analytes are further discussed in the context of statistical evaluations to evaluate both the area-wide conditions to which receptors may be exposed and the natural background concentrations:

- **Chromium.** The maximum detected value (71 mg/kg; see the attached table) is below the natural background concentration of 78.46 mg/kg. Chromium is therefore not considered further.
- **Total PCBs.** Because the sample size is less than eight samples, a 95th UCL cannot be calculated. All but one location (CR-20) are well below the TEE criterion, and the average concentration (590 ug/kg) is well below the TEE criterion of 2,000 ug/kg. However, total PCBs are carried forward for further evaluation.
- **Diesel-range TPH.** Because the sample size is less than eight samples, a 95th UCL cannot be calculated. CR-20 and CR-21 marginally exceed the TEE criterion for unrestricted land use, and all samples are below the criteria for commercial/industrial properties. The average concentration (310 mg/kg) is well below the lowest TEE criterion of 480 mg/kg. However, diesel-range TPH is carried forward for further evaluation.
- **Dioxin and Furan TEQ.** Because the sample size was less than eight samples, a 95th UCL could not be calculated. The dioxin TEQ criterion of 5 pg/g is exceeded at CR-20 through CR-22. The furan TEQ of 3 pg/g is exceeded at CR-20 and CR-22. Dioxin/Furan TEQ (measured as dioxins and furans) soil concentrations are well above typical background levels detected in rural Washington state parks (0.15 to 9.4 pg/g) at CR-20 and CR-22. Dioxins are therefore carried forward for further evaluation.

REMEDY EVALUATION AND CONCLUSIONS

In summary, multiple analytes exceed TEE criteria and should be further evaluated in the context of the upland soil remedy proposed for protection of human health (see the main

[2] Note that Ecology has developed separate TEE criteria for chlorinated dibenzo-p-dioxins (dioxin TEQ) and chlorinated dibenzofurans (furan TEQ); sample concentration dioxin and furan TEQs were therefore calculated separately for comparison, consistent with procedures described in the 2013 Ecology Dioxin/Furan/PCB Ecological Risk Calculation Methodology.

text). The exceedances occur within the footprint of the Former Mill area and are observed at the following locations: CR-20 (3.3 to 5.0 feet bgs), CR-21 (3.3 to 5.0 feet bgs), and CR-22 (3.0 to 4.5 feet bgs). When a remedial action is selected, the TEE should be revisited to evaluate how well the remedy protects ecological receptors.

Attachments: Table
Species of Concern Report

TABLE



Table
Terrestrial Ecological Screening Summary

			Location:	CR-20	CR-21	CR-22	CR-23
			Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0
			Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015
			Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0
	MTCA TEE Table 749-2, Unrestricted Land Use	MTCA TEE Table 749-2, Commercial/ Industrial Properties	Natural Background (Group "W")				
Total Metals (mg/kg)							
Arsenic	20[a]	20[a]	8.47	10 U	10 U	10 U	6 U
Cadmium	25	36	0.1	0.6 U	0.5 U	0.6 U	0.2 U
Chromium	42	135	78.46	**71 J**	**32 J**	**37**	**35.5**
Lead	220	220	10.67	6 U	5 U	6 U	**3**
Mercury	0.7[b]	0.7[b]	0.13	0.03 U	**0.02**	**0.09**	0.02 U
PCBs (ug/kg)							
Aroclor 1016	NV	NV	NV	19 U	17 U	19 U	17 U
Aroclor 1221	NV	NV	NV	19 U	17 U	19 U	17 U
Aroclor 1232	NV	NV	NV	19 U	17 U	19 U	17 U
Aroclor 1242	NV	NV	NV	19 U	17 U	19 U	17 U
Aroclor 1248	NV	NV	NV	**530**	**34**	19 U	17 U
Aroclor 1254	NV	NV	NV	**710 J**	**73 J**	19 U	17 U
Aroclor 1260	NV	NV	NV	**930**	**56**	19 U	17 U
Aroclor 1268	NV	NV	NV	19 U	17 U	19 U	17 U
Total PCBs	2000	2000	NV	**2170 J**	**163 J**	19 U	17 U
SVOCs (ug/kg)							
1,2,4-Trichlorobenzene	NV	NV	NV	280 U	92 U	38 U	19 U
1,2-Dichlorobenzene	NV	NV	NV	280 U	92 U	38 U	19 U
1,3-Dichlorobenzene	NV	NV	NV	280 U	92 U	38 U	19 U
1,4-Dichlorobenzene	NV	NV	NV	280 U	92 U	38 U	19 U
1-Methylnaphthalene	NV	NV	NV	280 U	92 U	38 U	19 U
2,4,5-Trichlorophenol	NV	NV	NV	1400 U	460 U	190 U	93 U
2,4,6-Trichlorophenol	NV	NV	NV	1400 U	460 U	190 U	93 U
2,4-Dichlorophenol	NV	NV	NV	1400 U	460 U	190 U	93 U
2,4-Dimethylphenol	NV	NV	NV	1400 U	460 U	190 U	93 U

Table
Terrestrial Ecological Screening Summary

			Location:	CR-20	CR-21	CR-22	CR-23
			Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0
			Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015
			Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0
	MTCA TEE Table 749-2, Unrestricted Land Use	MTCA TEE Table 749-2, Commercial/ Industrial Properties	Natural Background (Group "W")				
2,4-Dinitrophenol	NV	NV	NV	2800 U	920 U	380 U	190 U
2,4-Dinitrotoluene	NV	NV	NV	1400 U	460 U	190 U	93 U
2,6-Dinitrotoluene	NV	NV	NV	1400 U	460 U	190 U	93 U
2-Chloronaphthalene	NV	NV	NV	280 U	92 U	38 U	19 U
2-Chlorophenol	NV	NV	NV	280 U	92 U	38 U	19 U
2-Methylnaphthalene	NV	NV	NV	280 U	**46 J**	**26 J**	19 U
2-Methylphenol	NV	NV	NV	280 U	92 U	38 U	19 U
2-Nitroaniline	NV	NV	NV	1400 U	460 U	190 U	93 U
2-Nitrophenol	NV	NV	NV	280 U	92 U	38 U	19 U
3,3-Dichlorobenzidine	NV	NV	NV	1400 R	460 R	190 R	93 R
3-Nitroaniline	NV	NV	NV	1400 R	460 R	190 R	93 R
4,6-Dinitro-2-methylphenol	NV	NV	NV	2800 U	920 U	380 U	190 U
4-Bromophenylphenyl ether	NV	NV	NV	280 U	92 U	38 U	19 U
4-Chloro-3-methylphenol	NV	NV	NV	1400 U	460 U	190 U	93 U
4-Chloroaniline	NV	NV	NV	1400 R	460 R	190 R	93 R
4-Chlorophenylphenyl ether	NV	NV	NV	280 U	92 U	38 U	19 U
4-Methylphenol	NV	NV	NV	280 U	**92**	38 U	19 U
4-Nitroaniline	NV	NV	NV	1400 U	460 U	190 U	93 U
4-Nitrophenol	NV	NV	NV	1400 U	460 U	190 U	93 U
Acenaphthene	NV	NV	NV	**140 J**	**420**	38 U	19 U
Acenaphthylene	NV	NV	NV	280 U	92 U	38 U	19 U
Anthracene	NV	NV	NV	280 U	**150**	38 U	19 U
Benzo(a)anthracene	NV	NV	NV	**140 J**	**210**	**21 J**	19 U
Benzo(a)pyrene	30000	300000	NV	**160 J**	**180**	**28 J**	19 U
Benzo(ghi)perylene	NV	NV	NV	280 U	92 U	**32 J**	19 U
Benzoic acid	NV	NV	NV	2800 U	920 U	380 U	190 U

Table
Terrestrial Ecological Screening Summary

			Location:	CR-20	CR-21	CR-22	CR-23
			Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0
			Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015
			Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0
	MTCA TEE Table 749-2, Unrestricted Land Use	MTCA TEE Table 749-2, Commercial/ Industrial Properties	Natural Background (Group "W")				
Benzyl alcohol	NV	NV	NV	280 U	92 U	38 U	19 U
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	280 U	92 U	38 U	19 U
Bis(2-chloroethoxy)methane	NV	NV	NV	280 U	92 U	38 U	19 U
Bis(2-chloroethyl)ether	NV	NV	NV	280 U	92 U	38 U	19 U
Bis(2-ethylhexyl)phthalate	NV	NV	NV	**570 J**	230 U	**3100**	47 U
Butylbenzylphthalate	NV	NV	NV	280 U	92 U	38 U	19 U
Carbazole	NV	NV	NV	280 UJ	92 UJ	38 UJ	19 UJ
Chrysene	NV	NV	NV	**470**	**480**	**75**	19 U
Dibenzo(a,h)anthracene	NV	NV	NV	280 U	92 U	38 U	19 U
Dibenzofuran	NV	NV	NV	280 U	**100**	38 U	19 U
Diethyl phthalate	NV	NV	NV	280 U	92 U	38 U	19 U
Dimethyl phthalate	NV	NV	NV	280 U	92 U	38 U	19 U
Di-n-butyl phthalate	NV	NV	NV	280 U	92 U	38 U	19 U
Di-n-octyl phthalate	NV	NV	NV	280 U	92 U	38 U	19 U
Fluoranthene	NV	NV	NV	**600**	**640**	**28 J**	**11 J**
Fluorene	NV	NV	NV	**160 J**	**300**	38 U	19 U
Hexachlorobenzene	NV	NV	NV	280 U	92 U	38 U	19 U
Hexachlorobutadiene	NV	NV	NV	280 U	92 U	38 U	19 U
Hexachlorocyclopentadiene	NV	NV	NV	1400 U	460 U	190 U	93 U
Hexachloroethane	NV	NV	NV	280 U	92 U	38 U	19 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	280 U	92 U	38 U	19 U
Isophorone	NV	NV	NV	280 U	92 U	38 U	19 U
Naphthalene	NV	NV	NV	280 U	**65 J**	**270**	19 U
Nitrobenzene	NV	NV	NV	280 U	92 U	38 U	19 U
N-Nitrosodiphenylamine	NV	NV	NV	280 U	92 U	38 U	19 U
N-Nitrosodipropylamine	NV	NV	NV	280 U	92 U	38 U	19 U

Table
Terrestrial Ecological Screening Summary

			Location:	CR-20	CR-21	CR-22	CR-23
			Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0
			Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015
			Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0
	MTCA TEE Table 749-2, Unrestricted Land Use	MTCA TEE Table 749-2, Commercial/ Industrial Properties	Natural Background (Group "W")				
Pentachlorophenol	11000	11000	NV	1400 U	460 U	190 U	93 U
Phenanthrene	NV	NV	NV	**510**	**920**	**23 J**	**11 J**
Phenol	NV	NV	NV	280 UJ	92 UJ	38 UJ	19 UJ
Pyrene	NV	NV	NV	**530**	**610**	**30 J**	**11 J**
Total Benzofluoranthenes	NV	NV	NV	**300 J**	**320**	**62 J**	37 U
Dioxins and Furans (pg/g)							
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	**2650**	**373**	**1260**	**26**
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	**653**	**37.9**	**188**	**2.97**
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	**32**	**1.48**	12.5 U	0.221 U
1,2,3,4,7,8-HxCDD	NV	NV	NV	**36.1**	**3.49**	**8.65**	0.193 U
1,2,3,4,7,8-HxCDF	NV	NV	NV	**17**	**2.11**	**4.09 J**	**0.114 J**
1,2,3,6,7,8-HxCDD	NV	NV	NV	**184**	**23.6**	**38.2**	**1.54**
1,2,3,6,7,8-HxCDF	NV	NV	NV	**9.97**	**1.55**	**4.2 J**	0.153 U
1,2,3,7,8,9-HxCDD	NV	NV	NV	**16.7**	**8.09**	**12.1**	**2.35**
1,2,3,7,8,9-HxCDF	NV	NV	NV	**8.52**	**1.3**	**1.82 J**	0.155 U
1,2,3,7,8-PeCDD	NV	NV	NV	**10.8**	**1.97**	**3.14 J**	**1.31**
1,2,3,7,8-PeCDF	NV	NV	NV	4.85 U	**0.859 J**	**1.08 J**	0.0558 U
2,3,4,6,7,8-HxCDF	NV	NV	NV	**40**	**1.58**	**7.81**	0.133 U
2,3,4,7,8-PeCDF	NV	NV	NV	**5.51**	0.727 U	**0.807 J**	0.0598 U
2,3,7,8-TCDD	NV	NV	NV	**6.42**	0.467 U	1.41 U	**1.68**
2,3,7,8-TCDF	NV	NV	NV	**5.07**	0.657 U	**0.552 J**	0.0538 U
OCDD	NV	NV	NV	**18400**	**2480**	**30800 J**	**298**

Table
Terrestrial Ecological Screening Summary

			Location:	CR-20	CR-21	CR-22	CR-23
			Sample Name:	CR20-S-5.0	CR21-S-5.0	CR22-S-3.0	CR23-S-3.0
			Collection Date:	10/12/2015	10/12/2015	10/13/2015	10/13/2015
			Collection Depth (ft bgs):	3.3 - 5.0	3.5 - 5.0	3.0 - 4.5	1.5 - 3.0
	MTCA TEE Table 749-2, Unrestricted Land Use	MTCA TEE Table 749-2, Commercial/ Industrial Properties	Natural Background (Group "W")				
OCDF	NV	NV	NV	**1490**	**42.8**	**412**	**4.82**
Total HpCDDs	NV	NV	NV	**4760**	**708**	**2900**	**52.5**
Total HpCDFs	NV	NV	NV	3080 U	**114**	695 U	10.2 U
Total HxCDDs	NV	NV	NV	843 U	**117**	**205**	27.3 U
Total HxCDFs	NV	NV	NV	1340 U	95.5 U	**243**	5.78 U
Total PeCDDs	NV	NV	NV	**140**	14.9 U	**18.2**	**13.3**
Total PeCDFs	NV	NV	NV	316 U	36.3 U	48.6 U	**0.846**
Total TCDDs	NV	NV	NV	79.6 U	4.89 U	13.6 U	11.4 U
Total TCDFs	NV	NV	NV	50.9 U	7.08 U	5.25 U	0.103 U
Dioxin/Furan TEQ	NV	NV	NV	**90.0**	**11.4 J**	**35.8 J**	**3.82 J**
Dioxin TEQ[c]	5	5	NV	**72.9**	**10.2**	**31.6 J**	**3.74**
Furan TEQ[c]	3	3	NV	**25.4**	**1.83 J**	**5.24 J**	**0.124 J**
TPH (mg/kg)							
Diesel	460	15000	NV	**480**	**620**	**120**	**21**
Lube Oil	NV	NV	NV	**2600**	**3600**	**980**	**51**
Diesel + Lube Oil	NV	NV	NV	**3080**	**4220**	**1100**	**72**

Table
Terrestrial Ecological Screening Summary

NOTES:

Calculated sums use the highest non-detect value when all constituents are non-detect. When detect and non-detect values are summed, one-half the non-detect value is used.

Detected results are indicated by bold font.

Results that exceed screening criteria are shaded except where metals concentrations are below natural background conditions. Non-detect results are not evaluated against screening criteria. Results are shaded according to exceedance of highest evaluated screening criteria.

-- = not analyzed.

Ecology = Washington State Department of Ecology.

ft bgs = feet below ground surface.

J = Result is an estimated value.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram.

SVOC = semivolatile organic compound.

TEE = terrestrial ecological evaluation.

TEQ = toxicity equivalent.

U = Result is non-detect.

UJ = Result is non-detect and an estimated value.

VOC = volatile organic compound.

[a]Value is for arsenic III.

[b]Value is for organic mercury.

[c]Dioxin TEQ mammal values are used. Furan TEQ avian values are used.

SPECIES OF CONCERN REPORT



WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic
REPORT DATE: 12/23/2015 8.42

Query ID: P151223084141

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
	Source Record	More Information (URL)		PHS Listing Status		
Notes	Source Date	Mgmt Recommendations				

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necesssary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to vraition caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

WDFW Test Map



December 23, 2015

1:19,842

0 0.15 0.3 0.6 mi

0 0.275 0.55 1.1 km

PHS Report Clip Area	AS MAPPED	TOWNSHIP
PT	SECTION	
LN	QTR-TWP	

Washington Fish and Wildlife
WDFW

APPENDIX E

SEDIMENT SCREENING LEVEL DEVELOPMENT FOR HUMAN HEALTH—DIRECT CONTACT

Table
Sediment Screening Level Development For Human Health - Direct Contact

Model Parameter	Description	Total PCBs (ug/kg)	cPAH TEQ (ug/kg)	Dioxin TEQ (pg/g)
SC_C[a]	Risk-based sediment concentration	3.1E+03	8.5E+02	1.0E+02
RISK	Acceptable cancer risk (unitless)	1E-06	1E-06	1E-06
BW	Average body weight over the exposure duration (kg)	16	16	16
AT	Averaging time (day)	27375	27375	27375
EF	Exposure frequency (day/year)	41	41	41
ED	Exposure duration (years)	6	6	6
SIR	Soil ingestion rate (mg/day)	200	200	200
AB	Gastrointestinal absorption fraction (unitless)	1	1	0.6
SFo[b]	Oral cancer potency factor (mg/kg/day)	2.0E+00	7.3E+00	1.3E+05
SFd[c]	Dermal cancer potency factor (mg/kg/day) derived by SFo/GI	4.0E+00	1.5E+01	1.6E+05
GI	Gastrointestinal absorption conversion factor (unitless)	0.5	0.5	0.8
SA	Dermal surface area (cm^2)	2200	2200	2200
AF	Adherence factor (mg/cm^2/day)	0.2	0.2	0.2
ABS	Dermal absorption fraction (unitless)	0.1	0.1	0.03

NOTES:

Model parameters based on recommended exposure factors in Ecology (2017), Table 9-1.

cm^2 = square centimeter.

kg = kilogram(s).

mg/cm^2/day = milligrams per square centimeter per day.

mg/day = milligrams per day.

mg/kg = milligrams per kilogram.

mg/kg/day = milligrams per kilogram per day.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram.

TEQ = toxicity equivalent.

[a]SC_C derived using Equation 9-1 from Ecology (2017).

[b]Obtained from Ecology CLARC database.

[a]Derived using Equation 9-3 from Ecology (2017).

APPENDIX F

LABORATORY REPORTS
(PROVIDED ON CD)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AON0

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Three soil samples and two water samples were received on October 14, 2015. The samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx, TOC and total metals as requested.

The percent differences (%Ds) for phenol and carbazole were not within control limits for the CCAL that bracketed the 10/28/15 SVOC analyses of the soil samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The %Ds for several compounds were not within control limits for the CCAL that bracketed the 10/23/15 SVOC analyses of the water samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The percent recovery for the surrogate, d14-p-terphenyl, was low following the SVOC analysis of sample CR23-GW-6.0. Since one acid surrogate and one base/neutral surrogate is permitted to be recovered outside of established QC limits, no corrective actions were taken.

The percent recoveries for 4-chloroaniline and 3-nitroaniline were low and 3,3'-dichlorobenzidine was not recovered following the analysis of the LCS associated with the soil samples. Since all of these compounds are known ton be reactive and recover poorly, no corrective actions were taken.

The RPDs for three compounds were high following the analyses of the LCS/LCSD associated with the analyses of the water samples. Since the individual percent recoveries were within established QC limits for these compounds, no corrective actions were taken.

The %D for Aroclor 1242 was not within control limits for one column for the CCAL that bracketed the 10/23/15 PCB analyses of these samples. The %D for Aroclor 1242 was within acceptable QC limits for the secondary column. The secondary column only was used for the quantitation of Aroclor 1242.

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Novak, Maul, Foster and Alongi, Inc.
Seaport Landing
Sediment
AON0

23 November 2015

The percent recovery for the surrogate, o-terphenyl, was slightly low following the NWTPH-Dx analysis of sample CR23-GW-6.0. Since the QC limits are advisory and the percent recovery was low by <3%, no corrective actions were taken.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AON0

Enclosures

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AONB	Turn-around Requested: Standard.	Page: 5 of 5	
ARI Client Company: Maul Foster + Alongi	Phone: (503) 501-5212	Date: 10/13	Ice Present? yes
Client Contact: Madi Norak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: RD, JP, MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH	metals	PAH	PCB	SVOA	TOC	Mercury	Archive	Notes/Comments: Phenol	Dioxin/Furan	Dissolved metals
CR-07-SSD-comp	10/13/15	1000	S	4	X	X	X	X	X	X	X	X			
CR23-S-9.0	10/13/15	1320	S	5	X	X	X	X	X		X		X	X	
CR22-S-3.0	10/13/15	1400	S	5	X	X	X	X	X		X		X	X	
CR23-GW-6.0	10/13/15	1310	GW	8	X	X		X	X		X				X
CR22-GW-9.0	10/13/15	1345	GW	8	X	X		X	X		X				X

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degens	Printed Name: Archie Tripp	Printed Name:	Printed Name: Emily Litwin
	Company: MFA	Company: M.C. 12a C	Company:	Company: ARI
	Date & Time: 10/14/15 1020	Date & Time: 10/14/15 10:20	Date & Time:	Date & Time: 10/14/15 1235

AONB : 00000

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster

COC No(s): _____ (NA)

Assigned ARI Job No: AONO

Project Name: _____

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 5.2 4.3 5.8 5.0 4.1

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D002565

Cooler Accepted by: UL Date: 10/14/15 Time: 1235

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: UL Date: 10/15/15 Time: 1008

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	• • •	● ● ●

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

PRESERVATION VERIFICATION 10/16/15
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **AON0**

PC: Mark
VTSR: 10/14/15

Inquiry Number: NONE
Analysis Requested: 10/14/15
Contact: Novak, Madi
Client: Maul Foster & Alongi
Logged by: EL
Sample Set Used: Yes-490
Validatable Package: No
Deliverables:

Project #: 1044.02.01-02
Project: Seaport Landing
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-19095 **AON0D**	CR23-GW-6.0						TOT PRES															
15-19096 **AON0E**	CR22-GW-9.0						TOT PRES															
15-19097 **AON0F**	CR23-GW-6.0						DIS PRES									Y						
15-19098 **AON0G**	CR22-GW-9.0						DIS PRES									Y						

AON0 : 00005

Checked By LN Date 10/16/15

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AON0
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR-07-SSD-COMP	AON0A	15-19092	Soil	10/13/15 10:00	10/14/15 12:35
2.	CR23-S-3.0	AON0B	15-19093	Soil	10/13/15 13:20	10/14/15 12:35
3.	CR22-S-3.0	AON0C	15-19094	Soil	10/13/15 14:00	10/14/15 12:35
4.	CR23-GW-6.0	AON0D	15-19095	Ground Wate	10/13/15 13:10	10/14/15 12:35
5.	CR22-GW-9.0	AON0E	15-19096	Ground Wate	10/13/15 13:45	10/14/15 12:35
6.	CR23-GW-6.0	AON0F	15-19097	Ground Wate	10/13/15 13:10	10/14/15 12:35
7.	CR22-GW-9.0	AON0G	15-19098	Ground Wate	10/13/15 13:45	10/14/15 12:35

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

AON0 : 00007

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AON0 : 00008

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

AON0 : 00009

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR-07-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON0A
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized: MW
Reported: 11/03/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 17:46
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.30 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 35.6%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**18 J**
111-44-4	Bis-(2-Chloroethyl) Ether	19	< 19 U
95-57-8	2-Chlorophenol	19	< 19 U
541-73-1	1,3-Dichlorobenzene	19	< 19 U
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19	< 19 U
106-44-5	**4-Methylphenol**	**19**	**26**
621-64-7	N-Nitroso-Di-N-Propylamine	19	< 19 U
67-72-1	Hexachloroethane	19	< 19 U
98-95-3	Nitrobenzene	19	< 19 U
78-59-1	Isophorone	19	< 19 U
88-75-5	2-Nitrophenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	97	< 97 U
65-85-0	**Benzoic Acid**	**190**	**170 J**
111-91-1	bis(2-Chloroethoxy) Methane	19	< 19 U
120-83-2	2,4-Dichlorophenol	97	< 97 U
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**88**
106-47-8	4-Chloroaniline	97	< 97 U
87-68-3	Hexachlorobutadiene	19	< 19 U
59-50-7	4-Chloro-3-methylphenol	97	< 97 U
91-57-6	**2-Methylnaphthalene**	**19**	**40**
77-47-4	Hexachlorocyclopentadiene	97	< 97 U
88-06-2	2,4,6-Trichlorophenol	97	< 97 U
95-95-4	2,4,5-Trichlorophenol	97	< 97 U
91-58-7	2-Chloronaphthalene	19	< 19 U
88-74-4	2-Nitroaniline	97	< 97 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	**Acenaphthylene**	**19**	**16 J**
99-09-2	3-Nitroaniline	97	< 97 U
83-32-9	**Acenaphthene**	**19**	**35**
51-28-5	2,4-Dinitrophenol	190	< 190 U
100-02-7	4-Nitrophenol	97	< 97 U
132-64-9	**Dibenzofuran**	**19**	**45**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR-07-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON0A
LIMS ID: 15-19092
Matrix: Soil
Date Analyzed: 10/28/15 17:46

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	97	< 97 U
121-14-2	2,4-Dinitrotoluene	97	< 97 U
84-66-2	Diethylphthalate	19	< 19 U
7005-72-3	4-Chlorophenyl-phenylether	19	< 19 U
86-73-7	**Fluorene**	**19**	**48**
100-01-6	4-Nitroaniline	97	< 97 U
534-52-1	4,6-Dinitro-2-Methylphenol	190	< 190 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
101-55-3	4-Bromophenyl-phenylether	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	97	< 97 U
85-01-8	**Phenanthrene**	**19**	**190**
86-74-8	**Carbazole**	**19**	**24**
120-12-7	**Anthracene**	**19**	**57**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**450**
129-00-0	**Pyrene**	**19**	**360**
85-68-7	Butylbenzylphthalate	19	< 19 U
91-94-1	3,3'-Dichlorobenzidine	97	< 97 U
56-55-3	**Benzo(a)anthracene**	**19**	**130**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**48**	**58**
218-01-9	**Chrysene**	**19**	**180**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	**Benzo(a)pyrene**	**19**	**67**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**43**
53-70-3	**Dibenz(a,h)anthracene**	**19**	**18 J**
191-24-2	**Benzo(g,h,i)perylene**	**19**	**57**
90-12-0	**1-Methylnaphthalene**	**19**	**18 J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**230**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.2%	2-Fluorobiphenyl	74.4%
d14-p-Terphenyl	89.2%	d4-1,2-Dichlorobenzene	65.4%
d5-Phenol	75.7%	2-Fluorophenol	62.9%
2,4,6-Tribromophenol	77.7%	d4-2-Chlorophenol	73.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR23-S-3.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON0B
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 18:22
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.73 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 17.5%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	19	< 19 U
111-44-4	Bis-(2-Chloroethyl) Ether	19	< 19 U
95-57-8	2-Chlorophenol	19	< 19 U
541-73-1	1,3-Dichlorobenzene	19	< 19 U
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19	< 19 U
106-44-5	4-Methylphenol	19	< 19 U
621-64-7	N-Nitroso-Di-N-Propylamine	19	< 19 U
67-72-1	Hexachloroethane	19	< 19 U
98-95-3	Nitrobenzene	19	< 19 U
78-59-1	Isophorone	19	< 19 U
88-75-5	2-Nitrophenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	93	< 93 U
65-85-0	Benzoic Acid	190	< 190 U
111-91-1	bis(2-Chloroethoxy) Methane	19	< 19 U
120-83-2	2,4-Dichlorophenol	93	< 93 U
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	Naphthalene	19	< 19 U
106-47-8	4-Chloroaniline	93	< 93 U
87-68-3	Hexachlorobutadiene	19	< 19 U
59-50-7	4-Chloro-3-methylphenol	93	< 93 U
91-57-6	2-Methylnaphthalene	19	< 19 U
77-47-4	Hexachlorocyclopentadiene	93	< 93 U
88-06-2	2,4,6-Trichlorophenol	93	< 93 U
95-95-4	2,4,5-Trichlorophenol	93	< 93 U
91-58-7	2-Chloronaphthalene	19	< 19 U
88-74-4	2-Nitroaniline	93	< 93 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
99-09-2	3-Nitroaniline	93	< 93 U
83-32-9	Acenaphthene	19	< 19 U
51-28-5	2,4-Dinitrophenol	190	< 190 U
100-02-7	4-Nitrophenol	93	< 93 U
132-64-9	Dibenzofuran	19	< 19 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR23-S-3.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON0B
LIMS ID: 15-19093
Matrix: Soil
Date Analyzed: 10/28/15 18:22

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	93	< 93 U
121-14-2	2,4-Dinitrotoluene	93	< 93 U
84-66-2	Diethylphthalate	19	< 19 U
7005-72-3	4-Chlorophenyl-phenylether	19	< 19 U
86-73-7	Fluorene	19	< 19 U
100-01-6	4-Nitroaniline	93	< 93 U
534-52-1	4,6-Dinitro-2-Methylphenol	190	< 190 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
101-55-3	4-Bromophenyl-phenylether	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	93	< 93 U
85-01-8	**Phenanthrene**	**19**	**11 J**
86-74-8	Carbazole	19	< 19 U
120-12-7	Anthracene	19	< 19 U
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**11 J**
129-00-0	**Pyrene**	**19**	**11 J**
85-68-7	Butylbenzylphthalate	19	< 19 U
91-94-1	3,3'-Dichlorobenzidine	93	< 93 U
56-55-3	Benzo(a)anthracene	19	< 19 U
117-81-7	bis(2-Ethylhexyl)phthalate	47	< 47 U
218-01-9	Chrysene	19	< 19 U
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
90-12-0	1-Methylnaphthalene	19	< 19 U
TOTBFA	Total Benzofluoranthenes	37	< 37 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.0%	2-Fluorobiphenyl	71.0%
d14-p-Terphenyl	98.4%	d4-1,2-Dichlorobenzene	66.2%
d5-Phenol	73.6%	2-Fluorophenol	68.1%
2,4,6-Tribromophenol	79.5%	d4-2-Chlorophenol	70.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR22-S-3.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON0C
LIMS ID: 15-19094
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 18:58
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.61 g-dry-wt
Final Extract Volume: 2.0 mL
Dilution Factor: 1.00
Percent Moisture: 11.9%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	38	< 38 U
111-44-4	Bis-(2-Chloroethyl) Ether	38	< 38 U
95-57-8	2-Chlorophenol	38	< 38 U
541-73-1	1,3-Dichlorobenzene	38	< 38 U
106-46-7	1,4-Dichlorobenzene	38	< 38 U
100-51-6	Benzyl Alcohol	38	< 38 U
95-50-1	1,2-Dichlorobenzene	38	< 38 U
95-48-7	2-Methylphenol	38	< 38 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	38	< 38 U
106-44-5	4-Methylphenol	38	< 38 U
621-64-7	N-Nitroso-Di-N-Propylamine	38	< 38 U
67-72-1	Hexachloroethane	38	< 38 U
98-95-3	Nitrobenzene	38	< 38 U
78-59-1	Isophorone	38	< 38 U
88-75-5	2-Nitrophenol	38	< 38 U
105-67-9	2,4-Dimethylphenol	190	< 190 U
65-85-0	Benzoic Acid	380	< 380 U
111-91-1	bis(2-Chloroethoxy) Methane	38	< 38 U
120-83-2	2,4-Dichlorophenol	190	< 190 U
120-82-1	1,2,4-Trichlorobenzene	38	< 38 U
91-20-3	**Naphthalene**	**38**	**270**
106-47-8	4-Chloroaniline	190	< 190 U
87-68-3	Hexachlorobutadiene	38	< 38 U
59-50-7	4-Chloro-3-methylphenol	190	< 190 U
91-57-6	**2-Methylnaphthalene**	**38**	**26 J**
77-47-4	Hexachlorocyclopentadiene	190	< 190 U
88-06-2	2,4,6-Trichlorophenol	190	< 190 U
95-95-4	2,4,5-Trichlorophenol	190	< 190 U
91-58-7	2-Chloronaphthalene	38	< 38 U
88-74-4	2-Nitroaniline	190	< 190 U
131-11-3	Dimethylphthalate	38	< 38 U
208-96-8	Acenaphthylene	38	< 38 U
99-09-2	3-Nitroaniline	190	< 190 U
83-32-9	Acenaphthene	38	< 38 U
51-28-5	2,4-Dinitrophenol	380	< 380 U
100-02-7	4-Nitrophenol	190	< 190 U
132-64-9	Dibenzofuran	38	< 38 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR22-S-3.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON0C
LIMS ID: 15-19094
Matrix: Soil
Date Analyzed: 10/28/15 18:58

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	190	< 190 U
121-14-2	2,4-Dinitrotoluene	190	< 190 U
84-66-2	Diethylphthalate	38	< 38 U
7005-72-3	4-Chlorophenyl-phenylether	38	< 38 U
86-73-7	Fluorene	38	< 38 U
100-01-6	4-Nitroaniline	190	< 190 U
534-52-1	4,6-Dinitro-2-Methylphenol	380	< 380 U
86-30-6	N-Nitrosodiphenylamine	38	< 38 U
101-55-3	4-Bromophenyl-phenylether	38	< 38 U
118-74-1	Hexachlorobenzene	38	< 38 U
87-86-5	Pentachlorophenol	190	< 190 U
85-01-8	**Phenanthrene**	**38**	**23 J**
86-74-8	Carbazole	38	< 38 U
120-12-7	Anthracene	38	< 38 U
84-74-2	Di-n-Butylphthalate	38	< 38 U
206-44-0	**Fluoranthene**	**38**	**28 J**
129-00-0	**Pyrene**	**38**	**30 J**
85-68-7	Butylbenzylphthalate	38	< 38 U
91-94-1	3,3'-Dichlorobenzidine	190	< 190 U
56-55-3	**Benzo(a)anthracene**	**38**	**21 J**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**94**	**3,100**
218-01-9	**Chrysene**	**38**	**75**
117-84-0	Di-n-Octyl phthalate	38	< 38 U
50-32-8	**Benzo(a)pyrene**	**38**	**28 J**
193-39-5	Indeno(1,2,3-cd)pyrene	38	< 38 U
53-70-3	Dibenz(a,h)anthracene	38	< 38 U
191-24-2	**Benzo(g,h,i)perylene**	**38**	**32 J**
90-12-0	1-Methylnaphthalene	38	< 38 U
TOTBFA	**Total Benzofluoranthenes**	**75**	**62 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.6%	2-Fluorobiphenyl	78.4%
d14-p-Terphenyl	92.0%	d4-1,2-Dichlorobenzene	64.0%
d5-Phenol	72.0%	2-Fluorophenol	71.2%
2,4,6-Tribromophenol	87.5%	d4-2-Chlorophenol	74.7%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-102015	81.8%	80.6%	113%	81.6%	86.9%	76.7%	74.9%	87.1%	0
LCS-102015	80.6%	81.6%	112%	71.6%	83.7%	76.5%	84.7%	76.7%	0
CR-07-SSD-COMP	64.2%	74.4%	89.2%	65.4%	75.7%	62.9%	77.7%	73.7%	0
CR23-S-3.0	72.0%	71.0%	98.4%	66.2%	73.6%	68.1%	79.5%	70.9%	0
CR22-S-3.0	71.6%	78.4%	92.0%	64.0%	72.0%	71.2%	87.5%	74.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19092 to 15-19094

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102015**
Page 1 of 2 **LAB CONTROL**

Lab Sample ID: LCS-102015 QC Report No: AON0-Maul Foster & Alongi
LIMS ID: 15-19092 Project: Seaport Landing
Matrix: Soil 1044.02.01-02
Data Release Authorized: Date Sampled: 10/13/15
Reported: 11/03/15 Date Received: 10/14/15

Date Extracted: 10/20/15 Sample Amount: 10.00 g
Date Analyzed: 10/28/15 17:10 Final Extract Volume: 1.0 mL
Instrument/Analyst: NT10/YZ Dilution Factor: 1.00
GPC Cleanup: Yes Percent Moisture: NA

Analyte	Lab Control		Spike Added	Recovery
Phenol	459	Q	500	91.8%
Bis-(2-Chloroethyl) Ether	433		500	86.6%
2-Chlorophenol	432		500	86.4%
1,3-Dichlorobenzene	382		500	76.4%
1,4-Dichlorobenzene	373		500	74.6%
Benzyl Alcohol	239		500	47.8%
1,2-Dichlorobenzene	419		500	83.8%
2-Methylphenol	443		500	88.6%
2,2'-Oxybis(1-Chloropropane)	369		500	73.8%
4-Methylphenol	451		500	90.2%
N-Nitroso-Di-N-Propylamine	444		500	88.8%
Hexachloroethane	400		500	80.0%
Nitrobenzene	475		500	95.0%
Isophorone	489		500	97.8%
2-Nitrophenol	420		500	84.0%
2,4-Dimethylphenol	1140		1500	76.0%
Benzoic Acid	2400		2750	87.3%
bis(2-Chloroethoxy) Methane	381		500	76.2%
2,4-Dichlorophenol	1300		1500	86.7%
1,2,4-Trichlorobenzene	475		500	95.0%
Naphthalene	417		500	83.4%
4-Chloroaniline	57.0	J	1500	3.8%
Hexachlorobutadiene	382		500	76.4%
4-Chloro-3-methylphenol	1320		1500	88.0%
2-Methylnaphthalene	423		500	84.6%
Hexachlorocyclopentadiene	1310		1500	87.3%
2,4,6-Trichlorophenol	1350		1500	90.0%
2,4,5-Trichlorophenol	1360		1500	90.7%
2-Chloronaphthalene	435		500	87.0%
2-Nitroaniline	1490		1500	99.3%
Dimethylphthalate	435		500	87.0%
Acenaphthylene	402		500	80.4%
3-Nitroaniline	86.0	J	1500	5.7%
Acenaphthene	470		500	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102015**
 LAB CONTROL

Lab Sample ID: LCS-102015 QC Report No: AON0-Maul Foster & Alongi
LIMS ID: 15-19092 Project: Seaport Landing
Matrix: Soil 1044.02.01-02
Date Analyzed: 10/28/15 17:10

Analyte	Lab Control		Spike Added	Recovery
2,4-Dinitrophenol	2620		2750	95.3%
4-Nitrophenol	1290		1500	86.0%
Dibenzofuran	439		500	87.8%
2,6-Dinitrotoluene	1380		1500	92.0%
2,4-Dinitrotoluene	1400		1500	93.3%
Diethylphthalate	461		500	92.2%
4-Chlorophenyl-phenylether	405		500	81.0%
Fluorene	424		500	84.8%
4-Nitroaniline	382		1500	25.5%
4,6-Dinitro-2-Methylphenol	2410		2750	87.6%
N-Nitrosodiphenylamine	315		500	63.0%
4-Bromophenyl-phenylether	427		500	85.4%
Hexachlorobenzene	417		500	83.4%
Pentachlorophenol	1310		1500	87.3%
Phenanthrene	462		500	92.4%
Carbazole	271	Q	500	54.2%
Anthracene	426		500	85.2%
Di-n-Butylphthalate	510		500	102%
Fluoranthene	474		500	94.8%
Pyrene	442		500	88.4%
Butylbenzylphthalate	501		500	100%
3,3'-Dichlorobenzidine	< 100	U	1500	NA
Benzo(a)anthracene	460		500	92.0%
bis(2-Ethylhexyl)phthalate	479		500	95.8%
Chrysene	456		500	91.2%
Di-n-Octyl phthalate	420		500	84.0%
Benzo(a)pyrene	412		500	82.4%
Indeno(1,2,3-cd)pyrene	471		500	94.2%
Dibenz(a,h)anthracene	475		500	95.0%
Benzo(g,h,i)perylene	436		500	87.2%
1-Methylnaphthalene	393		500	78.6%
Total Benzofluoranthenes	949		1000	94.9%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	80.6%
2-Fluorobiphenyl	81.6%
d14-p-Terphenyl	112%
d4-1,2-Dichlorobenzene	71.6%
d5-Phenol	83.7%
2-Fluorophenol	76.5%
2,4,6-Tribromophenol	84.7%
d4-2-Chlorophenol	76.7%

Reported in µg/kg (ppb)

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: cc1028.d
Analysis Type:
Lab Sample ID: CC1028
Method: /chem1/nt10.i/20151028.b/ABN.m

Injection Date: 28-OCT-2015 15:57
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RPS	CCAL RRFS	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.12958	1.27870	1.27870	0.010	13.20109	20.00000	Averaged	
$ 2 Phenol-d5	1.36520	1.56929	1.56929	0.010	14.94981	20.00000	Averaged	
3 Phenol	1.33180	1.68335	1.68335	0.100	26.39683	20.00000	Averaged	<-
$ 5 2-Chlorophenol-d4	1.33265	1.34155	1.34155	0.010	0.66828	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.01930	1.06981	1.06981	0.700	4.95562	20.00000	Averaged	
6 2-Chlorophenol	1.30689	1.33222	1.33222	0.800	1.93817	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.60078	1.48948	1.48948	0.010	-6.95261	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.54535	1.31524	1.31524	0.010	-14.89051	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.99122	0.92936	0.92936	0.010	-6.24135	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44684	1.31524	1.31524	0.010	-9.09524	20.00000	Averaged	
11 Benzyl alcohol	0.63765	0.64258	0.64258	0.010	0.77311	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.45840	0.44097	0.44097	0.010	-3.80344	20.00000	Averaged	
13 2-Methylphenol	0.99636	1.07412	1.07412	0.700	7.80424	20.00000	Averaged	
17 Hexachloroethane	0.61781	0.57641	0.57641	0.300	-6.70080	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.74117	0.78694	0.78694	0.500	6.17502	20.00000	Averaged	
15 4-Methylphenol	1.00886	1.09715	1.09715	0.600	8.75197	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.39605	0.39223	0.39223	0.010	-0.96304	20.00000	Averaged	
19 Nitrobenzene	0.36379	0.38182	0.38182	0.200	4.95688	20.00000	Averaged	
20 Isophorone	0.57522	0.65887	0.65887	0.300	14.54160	20.00000	Averaged	
21 2-Nitrophenol	0.21477	0.21350	0.21350	0.100	-0.59170	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39317	0.39413	0.39413	0.200	0.24496	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.32972	0.35047	0.35047	0.050	6.29211	20.00000	Averaged	
24 Benzoic acid	20.46106	20.00000	0.24161	0.010	2.30529	20.00000	Quadratic	
25 2,4-Dichlorophenol	0.32107	0.31633	0.31633	0.100	-1.47494	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.37492	0.33392	0.33392	0.010	-10.93523	20.00000	Averaged	
28 Naphthalene	1.03606	0.96624	0.96624	0.100	-6.73888	20.00000	Averaged	
29 4-Chloroaniline	0.41428	0.40850	0.40850	0.010	-1.39542	20.00000	Averaged	
30 Hexachlorobutadiene	0.24781	0.20426	0.20426	0.010	-17.57357	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.33608	0.34255	0.34255	0.200	1.92293	20.00000	Averaged	
32 2-Methylnaphthalene	0.74547	0.68917	0.68917	0.300	-7.55265	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.41843	0.42982	0.42982	0.001	2.72023	20.00000	Averaged	
34 2,4,6-Trichlorophenol	0.37961	0.40517	0.40517	0.200	6.73248	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.39251	0.39177	0.39177	0.200	-0.18957	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.40765	1.32822	1.32822	0.010	-5.64269	20.00000	Averaged	
37 2-Chloronaphthalene	1.14337	1.09230	1.09230	0.700	-4.46642	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: cc1028.d
Analysis Type:
Lab Sample ID: CC1028
Method: /chem1/nt10.i/20151028.b/ABN.m

Injection Date: 28-OCT-2015 15:57
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.31622	0.35430	0.35430	0.010	12.04243	20.00000	Averaged	
39 Dimethylphthalate	1.36783	1.27023	1.27023	0.010	-7.13516	20.00000	Averaged	
40 Acenaphthylene	1.73670	1.72188	1.72188	0.900	-0.85330	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.28981	0.28860	0.28860	0.100	-0.41939	20.00000	Averaged	
43 3-Nitroaniline	0.28271	0.23718	0.23718	0.010	-16.10442	20.00000	Averaged	
44 Acenaphthene	1.04524	1.02323	1.02323	0.100	-2.10575	20.00000	Averaged	
45 2,4-Dinitrophenol	21.27453	20.00000	0.18063	0.030	6.37267	20.00000	Quadratic	
46 Dibenzofuran	1.57152	1.48797	1.48797	0.800	-5.31621	20.00000	Averaged	
47 4-Nitrophenol	8.42031	10.00000	0.22054	0.010	-15.79689	20.00000	Quadratic	
48 2,4-Dinitrotoluene	0.39543	0.38806	0.38806	0.200	-1.86288	20.00000	Averaged	
50 Diethylphthalate	1.32554	1.24690	1.24690	0.010	-5.93214	20.00000	Averaged	
49 Fluorene	1.34379	1.18146	1.18146	0.100	-12.08057	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.68765	0.62587	0.62587	0.100	-8.98460	20.00000	Averaged	
52 4-Nitroaniline	0.30110	0.24827	0.24827	0.010	-17.54542	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	20.35501	20.00000	0.14907	0.001	1.77506	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.54831	0.52705	0.52705	0.010	-3.87684	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.34466	0.33742	0.33742	0.010	-2.09949	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.27932	0.27403	0.27403	0.100	-1.89485	20.00000	Averaged	
57 Hexachlorobenzene	0.36460	0.32863	0.32863	0.100	-9.86642	20.00000	Averaged	
58 Pentachlorophenol	9.15421	10.00000	0.18752	0.010	-8.45787	20.00000	Quadratic	
60 Phenanthrene	1.02053	0.95419	0.95419	0.700	-6.50015	20.00000	Averaged	
61 Anthracene	1.04166	1.02891	1.02891	0.700	-1.22345	20.00000	Averaged	
62 Carbazole	0.87135	0.55581	0.55581	0.010	-36.21289	20.00000	Averaged	<-
63 Di-n-butylphthalate	1.31288	1.37353	1.37353	0.010	4.62033	20.00000	Averaged	
64 Fluoranthene	1.11470	1.02211	1.02211	0.600	-8.30652	20.00000	Averaged	
65 Pyrene	1.18016	1.08700	1.08700	0.600	-7.89403	20.00000	Averaged	
$ 66 Terphenyl-d14	0.74289	0.67781	0.67781	0.010	-8.76130	20.00000	Averaged	
67 Butylbenzylphthalate	0.50597	0.53028	0.53028	0.010	4.80640	20.00000	Averaged	
68 Benzo(a)anthracene	1.12072	1.05682	1.05682	0.700	-5.70173	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.75137	0.38446	0.38446	0.010	-48.83290	20.00000	Averaged	<-
71 Chrysene	0.97701	0.91512	0.91512	0.700	-6.33423	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.52679	0.49117	0.49117	0.010	-6.76242	20.00000	Averaged	
73 Di-n-octylphthalate	1.07536	0.90096	0.90096	0.010	-16.21796	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.08810	1.04642	1.04642	0.700	-3.83032	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08482	1.02927	1.02927	0.700	-5.12063	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: cc1028.d
Analysis Type:
Lab Sample ID: CC1028
Method: /chem1/nt10.i/20151028.b/ABN.m

Injection Date: 28-OCT-2015 15:57
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
76 Benzo(a)pyrene	1.03138	0.96345	0.96345	0.700	-6.58620	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.37485	1.32873	1.32873	0.500	-3.35477	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.13622	1.06501	1.06501	0.400	-6.26771	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.23143	1.11783	1.11783	0.500	-9.22455	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.53343	0.72845	0.72845	0.010	36.55981	20.00000	Averaged	<-
91 Aniline	1.56324	1.70839	1.70839	0.010	9.28518	20.00000	Averaged	
93 Benzidine	0.38521	0.19632	0.19632	0.010	-49.03409	20.00000	Averaged	<-
103 Pyridine	0.85366	1.19979	1.19979	0.010	40.54664	20.00000	Averaged	<-
105 1-methylnaphthalene	0.76506	0.71103	0.71103	0.010	-7.06220	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	1.22084	1.07876	1.07876	0.010	-11.63732	20.00000	Averaged	
187 Total Benzofluoranthenes	1.04123	0.97996	0.97996	0.010	-5.88442	20.00000	Averaged	
99 Perylene	0.99701	0.93856	0.93856	0.010	-5.86286	20.00000	Averaged	
98 Retene	++++	++++	++++	0.010	++++	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.35337	0.32555	0.32555	0.010	-7.87320	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102015
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized: MW
Reported: 11/03/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/28/15 16:33
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
111-44-4	Bis-(2-Chloroethyl) Ether	20	< 20 U
95-57-8	2-Chlorophenol	20	< 20 U
541-73-1	1,3-Dichlorobenzene	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
621-64-7	N-Nitroso-Di-N-Propylamine	20	< 20 U
67-72-1	Hexachloroethane	20	< 20 U
98-95-3	Nitrobenzene	20	< 20 U
78-59-1	Isophorone	20	< 20 U
88-75-5	2-Nitrophenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
111-91-1	bis(2-Chloroethoxy) Methane	20	< 20 U
120-83-2	2,4-Dichlorophenol	100	< 100 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
106-47-8	4-Chloroaniline	100	< 100 U
87-68-3	Hexachlorobutadiene	20	< 20 U
59-50-7	4-Chloro-3-methylphenol	100	< 100 U
91-57-6	2-Methylnaphthalene	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	100	< 100 U
88-06-2	2,4,6-Trichlorophenol	100	< 100 U
95-95-4	2,4,5-Trichlorophenol	100	< 100 U
91-58-7	2-Chloronaphthalene	20	< 20 U
88-74-4	2-Nitroaniline	100	< 100 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
99-09-2	3-Nitroaniline	100	< 100 U
83-32-9	Acenaphthene	20	< 20 U
51-28-5	2,4-Dinitrophenol	200	< 200 U
100-02-7	4-Nitrophenol	100	< 100 U
132-64-9	Dibenzofuran	20	< 20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102015 QC Report No: AON0-Maul Foster & Alongi
LIMS ID: 15-19092 Project: Seaport Landing
Matrix: Soil 1044.02.01-02
Date Analyzed: 10/28/15 16:33

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	100	< 100 U
121-14-2	2,4-Dinitrotoluene	100	< 100 U
84-66-2	Diethylphthalate	20	< 20 U
7005-72-3	4-Chlorophenyl-phenylether	20	< 20 U
86-73-7	Fluorene	20	< 20 U
100-01-6	4-Nitroaniline	100	< 100 U
534-52-1	4,6-Dinitro-2-Methylphenol	200	< 200 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
101-55-3	4-Bromophenyl-phenylether	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
86-74-8	Carbazole	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
91-94-1	3,3'-Dichlorobenzidine	100	< 100 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	81.8%	2-Fluorobiphenyl	80.6%
d14-p-Terphenyl	113%	d4-1,2-Dichlorobenzene	81.6%
d5-Phenol	86.9%	2-Fluorophenol	76.7%
2,4,6-Tribromophenol	74.9%	d4-2-Chlorophenol	87.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: CR23-GW-6.0
SAMPLE

Lab Sample ID: AON0D
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 19:19
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	**4-Methylphenol**	**2.0**	**1.4 J**
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	**Benzoic Acid**	**20**	**14 JQ**
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	**Naphthalene**	**1.0**	**5.5**
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	**2-Methylnaphthalene**	**1.0**	**2.0**
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	**Acenaphthene**	**1.0**	**0.8 J**
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: CR23-GW-6.0
SAMPLE

Lab Sample ID: AON0D
LIMS ID: 15-19095
Matrix: Ground Water
Date Analyzed: 10/23/15 19:19

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	**Phenanthrene**	**1.0**	**0.6 J**
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**2.0**
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.2%	2-Fluorobiphenyl	40.8%
d14-p-Terphenyl	24.9%	d4-1,2-Dichlorobenzene	58.4%
d5-Phenol	72.3%	2-Fluorophenol	69.3%
2,4,6-Tribromophenol	58.7%	d4-2-Chlorophenol	75.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: CR22-GW-9.0
SAMPLE

Lab Sample ID: AON0E
LIMS ID: 15-19096
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 19:52
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	**Naphthalene**	**1.0**	**13**
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	**2-Methylnaphthalene**	**1.0**	**1.7**
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	**Acenaphthene**	**1.0**	**4.1**
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	**Dibenzofuran**	**1.0**	**1.4**
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR22-GW-9.0**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: AON0E
LIMS ID: 15-19096
Matrix: Ground Water
Date Analyzed: 10/23/15 19:52

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	**Fluorene**	**1.0**	**2.0**
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	**Phenanthrene**	**1.0**	**1.7**
86-74-8	**Carbazole**	**1.0**	**0.7 J**
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	**Fluoranthene**	**1.0**	**0.7 J**
129-00-0	**Pyrene**	**1.0**	**0.5 J**
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**1.7**
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	55.6%	2-Fluorobiphenyl	54.4%
d14-p-Terphenyl	48.0%	d4-1,2-Dichlorobenzene	49.2%
d5-Phenol	56.8%	2-Fluorophenol	54.9%
2,4,6-Tribromophenol	66.7%	d4-2-Chlorophenol	61.6%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-101915	74.0%	74.0%	107%	56.0%	81.9%	77.3%	74.4%	85.3%	0
LCS-101915	64.8%	68.8%	86.4%	56.0%	72.8%	65.3%	78.1%	74.7%	0
LCSD-101915	47.2%	50.4%	87.6%	40.4%	49.6%	46.9%	73.1%	52.8%	0
CR23-GW-6.0	67.2%	40.8%	24.9%*	58.4%	72.3%	69.3%	58.7%	75.5%	1
CR22-GW-9.0	55.6%	54.4%	48.0%	49.2%	56.8%	54.9%	66.7%	61.6%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(27-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(33-120)	(33-120)
(TPH) = d14-p-Terphenyl	(28-130)	(28-130)
(DCB) = d4-1,2-Dichlorobenzene	(20-120)	(20-120)
(PHL) = d5-Phenol	(38-120)	(38-120)
(2FP) = 2-Fluorophenol	(33-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(52-131)	(52-131)
(2CP) = d4-2-Chlorophenol	(41-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 15-19095 to 15-19096

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 2

Sample ID: LCS-101915
LCS/LCSD

Lab Sample ID: LCS-101915
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted LCS/LCSD: 10/19/15

Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

GPC Cleanup: NO

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Phenol	18.3		25.0	73.2%	13.4		25.0	53.6%	30.9%
Bis-(2-Chloroethyl) Ether	20.6		25.0	82.4%	15.0		25.0	60.0%	31.5%
2-Chlorophenol	18.3		25.0	73.2%	13.4		25.0	53.6%	30.9%
1,3-Dichlorobenzene	13.1		25.0	52.4%	10.0		25.0	40.0%	26.8%
1,4-Dichlorobenzene	13.5		25.0	54.0%	10.2		25.0	40.8%	27.8%
Benzyl Alcohol	17.9		25.0	71.6%	14.9		25.0	59.6%	18.3%
1,2-Dichlorobenzene	14.2		25.0	56.8%	10.9		25.0	43.6%	26.3%
2-Methylphenol	18.0		25.0	72.0%	13.6		25.0	54.4%	27.8%
2,2'-Oxybis(1-Chloropropane)	14.6		25.0	58.4%	11.1		25.0	44.4%	27.2%
4-Methylphenol	18.8		25.0	75.2%	15.1		25.0	60.4%	21.8%
N-Nitroso-Di-N-Propylamine	18.2		25.0	72.8%	16.1		25.0	64.4%	12.2%
Hexachloroethane	13.1		25.0	52.4%	10.4		25.0	41.6%	23.0%
Nitrobenzene	16.4		25.0	65.6%	12.3		25.0	49.2%	28.6%
Isophorone	16.8		25.0	67.2%	17.2		25.0	68.8%	2.4%
2-Nitrophenol	18.0		25.0	72.0%	13.7		25.0	54.8%	27.1%
2,4-Dimethylphenol	51.0		75.0	68.0%	44.5		75.0	59.3%	13.6%
Benzoic Acid	87.9	Q	138	63.7%	90.3	Q	138	65.4%	2.7%
bis(2-Chloroethoxy) Methane	16.9		25.0	67.6%	13.3		25.0	53.2%	23.8%
2,4-Dichlorophenol	56.8		75.0	75.7%	43.1		75.0	57.5%	27.4%
1,2,4-Trichlorobenzene	13.4		25.0	53.6%	10.4		25.0	41.6%	25.2%
Naphthalene	15.9		25.0	63.6%	11.8		25.0	47.2%	29.6%
4-Chloroaniline	46.2		75.0	61.6%	46.0		75.0	61.3%	0.4%
Hexachlorobutadiene	10.4		25.0	41.6%	8.1		25.0	32.4%	24.9%
4-Chloro-3-methylphenol	72.1		75.0	96.1%	65.3		75.0	87.1%	9.9%
2-Methylnaphthalene	13.4		25.0	53.6%	10.0		25.0	40.0%	29.1%
Hexachlorocyclopentadiene	26.8	Q	75.0	35.7%	20.2	Q	75.0	26.9%	28.1%
2,4,6-Trichlorophenol	71.9		75.0	95.9%	57.6		75.0	76.8%	22.1%
2,4,5-Trichlorophenol	71.6		75.0	95.5%	60.3		75.0	80.4%	17.1%
2-Chloronaphthalene	15.2		25.0	60.8%	11.8		25.0	47.2%	25.2%
2-Nitroaniline	60.1		75.0	80.1%	57.8		75.0	77.1%	3.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-101915
LCS/LCSD

Lab Sample ID: LCS-101915
LIMS ID: 15-19095
Matrix: Ground Water
Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Dimethylphthalate	22.5		25.0	90.0%	23.4		25.0	93.6%	3.9%
Acenaphthylene	19.4		25.0	77.6%	15.8		25.0	63.2%	20.5%
3-Nitroaniline	66.9		75.0	89.2%	68.0		75.0	90.7%	1.6%
Acenaphthene	19.4		25.0	77.6%	15.6		25.0	62.4%	21.7%
2,4-Dinitrophenol	105	Q	138	76.1%	109	Q	138	79.0%	3.7%
4-Nitrophenol	60.9	Q	75.0	81.2%	64.1	Q	75.0	85.5%	5.1%
Dibenzofuran	16.2		25.0	64.8%	13.8		25.0	55.2%	16.0%
2,6-Dinitrotoluene	69.2		75.0	92.3%	65.7		75.0	87.6%	5.2%
2,4-Dinitrotoluene	75.1		75.0	100%	73.8		75.0	98.4%	1.7%
Diethylphthalate	22.4		25.0	89.6%	23.2		25.0	92.8%	3.5%
4-Chlorophenyl-phenylether	17.1		25.0	68.4%	15.5		25.0	62.0%	9.8%
Fluorene	19.4		25.0	77.6%	17.1		25.0	68.4%	12.6%
4-Nitroaniline	62.7		75.0	83.6%	66.6		75.0	88.8%	6.0%
4,6-Dinitro-2-Methylphenol	126		138	91.3%	127		138	92.0%	0.8%
N-Nitrosodiphenylamine	17.3		25.0	69.2%	17.3		25.0	69.2%	0.0%
4-Bromophenyl-phenylether	17.9		25.0	71.6%	16.7		25.0	66.8%	6.9%
Hexachlorobenzene	17.0		25.0	68.0%	15.4		25.0	61.6%	9.9%
Pentachlorophenol	60.6	Q	75.0	80.8%	61.9	Q	75.0	82.5%	2.1%
Phenanthrene	20.1		25.0	80.4%	19.6		25.0	78.4%	2.5%
Carbazole	25.3		25.0	101%	26.6		25.0	106%	5.0%
Anthracene	19.7		25.0	78.8%	19.5		25.0	78.0%	1.0%
Di-n-Butylphthalate	21.0		25.0	84.0%	22.7		25.0	90.8%	7.8%
Fluoranthene	21.1		25.0	84.4%	22.3		25.0	89.2%	5.5%
Pyrene	23.4		25.0	93.6%	24.2		25.0	96.8%	3.4%
Butylbenzylphthalate	23.4		25.0	93.6%	24.7		25.0	98.8%	5.4%
3,3'-Dichlorobenzidine	51.8		75.0	69.1%	55.8		75.0	74.4%	7.4%
Benzo(a)anthracene	20.9		25.0	83.6%	22.9		25.0	91.6%	9.1%
bis(2-Ethylhexyl)phthalate	22.0		25.0	88.0%	23.2		25.0	92.8%	5.3%
Chrysene	24.4		25.0	97.6%	26.1		25.0	104%	6.7%
Di-n-Octyl phthalate	22.7		25.0	90.8%	23.8		25.0	95.2%	4.7%
Benzo(a)pyrene	23.0		25.0	92.0%	25.3		25.0	101%	9.5%
Indeno(1,2,3-cd)pyrene	21.7		25.0	86.8%	23.6		25.0	94.4%	8.4%
Dibenz(a,h)anthracene	22.3		25.0	89.2%	23.8		25.0	95.2%	6.5%
Benzo(g,h,i)perylene	23.1		25.0	92.4%	25.0		25.0	100%	7.9%
1-Methylnaphthalene	16.2		25.0	64.8%	12.4		25.0	49.6%	26.6%
Total Benzofluoranthenes	46.2		50.0	92.4%	50.2		50.0	100%	8.3%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	64.8%	47.2%
2-Fluorobiphenyl	68.8%	50.4%
d14-p-Terphenyl	86.4%	87.6%
d4-1,2-Dichlorobenzene	56.0%	40.4%
d5-Phenol	72.8%	49.6%
2-Fluorophenol	65.3%	46.9%
2,4,6-Tribromophenol	78.1%	73.1%
d4-2-Chlorophenol	74.7%	52.8%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-101915**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-101915
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 13:49
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-101915**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-101915 QC Report No: AON0-Maul Foster & Alongi
LIMS ID: 15-19095 Project: Seaport Landing
Matrix: Ground Water 1044.02.01-02
Date Analyzed: 10/23/15 13:49

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.0%	2-Fluorobiphenyl	74.0%
d14-p-Terphenyl	107%	d4-1,2-Dichlorobenzene	56.0%
d5-Phenol	81.9%	2-Fluorophenol	77.3%
2,4,6-Tribromophenol	74.4%	d4-2-Chlorophenol	85.3%

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 23-OCT-2015 11:35
Lab File ID: 15102301.d Init. Cal. Date(s): 19-AUG-2015 19-AUG-2015
Analysis Type: Init. Cal. Times: 12:04 15:56
Lab Sample ID: ICV151023 Quant Type: ISTD
Method: /chem2/nt6.i/20151023.b/SW846150819.m

AZ 10/23/15

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.06369	0.93822	0.93822	0.010	-11.79594	20.00000	Averaged	
$ 2 Phenol-d5	1.29902	1.24465	1.24465	0.010	-4.18573	20.00000	Averaged	
3 Phenol	1.41269	1.45715	1.45715	0.800	3.14715	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.13628	1.11242	1.11242	0.010	-2.09978	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.09628	1.21444	1.21444	0.700	10.77755	20.00000	Averaged	
6 2-Chlorophenol	1.13828	1.13464	1.13464	0.800	-0.32020	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.47334	1.44660	1.44660	0.010	-1.81460	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.48724	1.46064	1.46064	0.010	-1.78855	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.96174	0.86107	0.86107	0.010	-10.46731	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.43283	1.49191	1.49191	0.010	4.12369	20.00000	Averaged	
11 Benzyl alcohol	25.24468	25.00000	0.85420	0.010	0.97873	20.00000	Quadratic	
14 2,2'-oxybis(1-Chloropropane	1.18478	1.02060	1.02060	0.010	-13.85756	20.00000	Averaged	
13 2-Methylphenol	1.01540	1.00105	1.00105	0.700	-1.41323	20.00000	Averaged	
17 Hexachloroethane	0.59889	0.63902	0.63902	0.300	6.70085	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.88800	0.86911	0.86911	0.500	-2.12782	20.00000	Averaged	
15 4-Methylphenol	1.03538	1.05372	1.05372	0.600	1.77052	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.42722	0.37109	0.37109	0.010	-13.13916	20.00000	Averaged	
19 Nitrobenzene	0.45886	0.43157	0.43157	0.200	-5.94711	20.00000	Averaged	
20 Isophorone	0.75393	0.69259	0.69259	0.400	-8.13640	20.00000	Averaged	
21 2-Nitrophenol	0.18802	0.18975	0.18975	0.100	0.92017	20.00000	Averaged	
22 2,4-Dimethylphenol	0.36807	0.37973	0.37973	0.200	3.16839	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.43430	0.40499	0.40499	0.300	-6.74766	20.00000	Averaged	
24 Benzoic acid	45.33927	75.00000	0.16974	0.010	-39.54764	20.00000	Linear	<-
25 2,4-Dichlorophenol	23.08565	25.00000	0.37371	0.200	-7.65739	20.00000	Linear	
26 1,2,4-Trichlorobenzene	0.46055	0.45615	0.45615	0.010	-0.95574	20.00000	Averaged	
28 Naphthalene	1.05561	0.99969	0.99969	0.700	-5.29653	20.00000	Averaged	
29 4-Chloroaniline	0.40000	0.41408	0.41408	0.010	3.51887	20.00000	Averaged	
30 Hexachlorobutadiene	0.35675	0.33993	0.33993	0.010	-4.71575	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.28808	0.30536	0.30536	0.200	5.99739	20.00000	Averaged	
32 2-Methylnaphthalene	0.75179	0.70861	0.70861	0.400	-5.74361	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.50233	0.39809	0.39809	0.050	-20.75125	20.00000	Averaged	<-
34 2,4,6-Trichlorophenol	0.44316	0.43200	0.43200	0.200	-2.51843	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.46319	0.45793	0.45793	0.200	-1.13664	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.48502	1.22278	1.22278	0.010	-17.65895	20.00000	Averaged	
37 2-Chloronaphthalene	1.33848	1.23389	1.23389	0.800	-7.81403	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 23-OCT-2015 11:35
Lab File ID: 15102301.d Init. Cal. Date(s): 19-AUG-2015 19-AUG-2015
Analysis Type: Init. Cal. Times: 12:04 15:56
Lab Sample ID: ICV151023 Quant Type: ISTD
Method: /chem2/nt6.i/20151023.b/SW846150819.m

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.35614	0.32308	0.32308	0.010	-9.28477	20.00000	Averaged	
39 Dimethylphthalate	1.41959	1.31094	1.31094	0.010	-7.65350	20.00000	Averaged	
40 Acenaphthylene	1.81718	1.65435	1.65435	0.900	-8.96049	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.30810	0.27475	0.27475	0.200	-10.82420	20.00000	Averaged	
43 3-Nitroaniline	0.26821	0.25303	0.25303	0.010	-5.66099	20.00000	Averaged	
44 Acenaphthene	1.17069	1.02661	1.02661	0.900	-12.30670	20.00000	Averaged	
45 2,4-Dinitrophenol	51.37786	75.00000	0.14943	0.010	-31.49618	20.00000	Quadratic	<-
46 Dibenzofuran	1.95777	1.68054	1.68054	0.800	-14.16011	20.00000	Averaged	
47 4-Nitrophenol	17.56141	25.00000	0.18856	0.010	-29.75437	20.00000	Linear	<-
48 2,4-Dinitrotoluene	0.38644	0.39081	0.39081	0.200	1.13126	20.00000	Averaged	
50 Diethylphthalate	1.44722	1.45024	1.45024	0.010	0.20893	20.00000	Averaged	
49 Fluorene	1.49800	1.38693	1.38693	0.900	-7.41488	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.90840	0.76283	0.76283	0.400	-16.02448	20.00000	Averaged	
52 4-Nitroaniline	0.23478	0.20537	0.20537	0.010	-12.52437	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	63.68979	75.00000	0.12347	0.010	-15.08028	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.51731	0.44855	0.44855	0.010	-13.29200	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.24193	0.21894	0.21894	0.010	-9.50564	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.28490	0.23690	0.23690	0.100	-16.84999	20.00000	Averaged	
57 Hexachlorobenzene	0.30157	0.25888	0.25888	0.100	-14.15634	20.00000	Averaged	
58 Pentachlorophenol	37.34306	50.00000	0.12371	0.050	-25.31389	20.00000	Quadratic	<-
60 Phenanthrene	1.07466	0.92753	0.92753	0.700	-13.69048	20.00000	Averaged	
61 Anthracene	1.04181	0.92973	0.92973	0.700	-10.75794	20.00000	Averaged	
62 Carbazole	26.27237	25.00000	0.59952	0.010	5.08948	20.00000	Quadratic	
63 Di-n-butylphthalate	1.18086	1.06979	1.06979	0.010	-9.40630	20.00000	Averaged	
64 Fluoranthene	1.29303	1.14984	1.14984	0.600	-11.07456	20.00000	Averaged	
65 Pyrene	1.03713	1.04760	1.04760	0.600	1.00960	20.00000	Averaged	
$ 66 Terphenyl-d14	0.72589	0.65139	0.65139	0.010	-10.26424	20.00000	Averaged	
67 Butylbenzylphthalate	0.39332	0.39482	0.39482	0.010	0.38174	20.00000	Averaged	
68 Benzo(a)anthracene	1.10504	1.00325	1.00325	0.800	-9.21074	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.39160	0.39563	0.39563	0.010	1.03009	20.00000	Averaged	
71 Chrysene	0.96045	0.98059	0.98059	0.700	2.09658	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.53805	0.52718	0.52718	0.010	-2.02013	20.00000	Averaged	
73 Di-n-octylphthalate	0.95879	0.95442	0.95442	0.010	-0.45595	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.19888	1.12115	1.12115	0.700	-6.48381	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.23129	1.27463	1.27463	0.700	3.51968	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 23-OCT-2015 11:35
Lab File ID: 15102301.d Init. Cal. Date(s): 19-AUG-2015 19-AUG-2015
Analysis Type: Init. Cal. Times: 12:04 15:56
Lab Sample ID: ICV151023 Quant Type: ISTD
Method: /chem2/nt6.i/20151023.b/SW846150819.m

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
187 Total Benzofluoranthenes	1.14658	1.12283	1.12283	0.010	-2.07065	20.00000	Averaged	
76 Benzo(a)pyrene	1.01548	0.96476	0.96476	0.700	-4.99432	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.37047	1.28624	1.28624	0.500	-6.14655	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.14336	1.08073	1.08073	0.400	-5.47742	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.09150	1.05346	1.05346	0.500	-3.48477	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.68182	0.55320	0.55320	0.010	-18.86402	20.00000	Averaged	
103 Pyridine	1.08944	0.99169	0.99169	0.010	-8.97235	20.00000	Averaged	
91 Aniline	1.90244	1.60542	1.60542	0.010	-15.61269	20.00000	Averaged	
105 1-methylnaphthalene	0.60299	0.54762	0.54762	0.010	-9.18301	20.00000	Averaged	
93 Benzidine	53.67197	50.00000	0.15351	0.010	7.34393	20.00000	Quadratic	
111 Azobenzene (1,2-DP-Hydrazin	0.73989	0.71308	0.71308	0.010	-3.62351	20.00000	Averaged	
143 1,4-Dioxane	0.47305	0.37780	0.37780	0.010	-20.13493	20.00000	Averaged	<-
$ 137 d8-1,4-Dioxane	0.35609	0.31362	0.31362	0.010	-11.92650	20.00000	Averaged	
144 alpha-Terpineol	0.25325	0.21599	0.21599	0.010	-14.71432	20.00000	Averaged	
123 Acetophenone	1.44897	1.44599	1.44599	0.010	-0.20558	20.00000	Averaged	
168 Pentachlorobenzene	0.63382	0.54988	0.54988	0.010	-13.24306	20.00000	Averaged	
120 2,3,4,6-Tetrachlorophenol	0.36099	0.29036	0.29036	0.010	-19.56756	20.00000	Averaged	
151 1,2,4,5-Tetrachlorobenzene	0.71800	0.63123	0.63123	0.010	-12.08433	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR23-S-3.0

Lab Sample ID: AON0B
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 17:35
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.56	0.65-0.89		0.996	0.0538	JEMPC
2,3,7,8-TCDD	0.69	0.65-0.89		0.996	1.68	
1,2,3,7,8-PeCDF		1.32-1.78	0.0558	0.996	< 0.0558	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0598	0.996	< 0.0598	U
1,2,3,7,8-PeCDD	1.42	1.32-1.78		0.996	1.31	
1,2,3,4,7,8-HxCDF	1.29	1.05-1.43		0.996	0.114	J
1,2,3,6,7,8-HxCDF	0.99	1.05-1.43		0.996	0.153	JEMPC
2,3,4,6,7,8-HxCDF	1.11	1.05-1.43		0.996	0.133	BJ
1,2,3,7,8,9-HxCDF	1.44	1.05-1.43		0.996	0.155	BJEMPC
1,2,3,4,7,8-HxCDD	0.97	1.05-1.43		0.996	0.193	JEMPC
1,2,3,6,7,8-HxCDD	1.16	1.05-1.43		0.996	1.54	
1,2,3,7,8,9-HxCDD	1.21	1.05-1.43		0.996	2.35	
1,2,3,4,6,7,8-HpCDF	0.92	0.88-1.20		0.996	2.97	
1,2,3,4,7,8,9-HpCDF	0.78	0.88-1.20		0.996	0.221	BJEMPC
1,2,3,4,6,7,8-HpCDD	1.00	0.88-1.20		0.996	26.0	
OCDF	0.79	0.76-1.02		1.99	4.82	
OCDD	0.88	0.76-1.02		9.96	298	

Homologue Group	EDL	RL	Result	
Total TCDF		0.996	0.103	EMPC
Total TCDD		0.996	11.4	EMPC
Total PeCDF	0.0598	1.99	0.846	
Total PeCDD		0.996	13.3	
Total HxCDF		1.99	5.78	EMPC
Total HxCDD		1.99	27.3	EMPC
Total HpCDF		1.99	10.2	EMPC
Total HpCDD		1.99	52.5	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 3.84

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 3.85

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: CR23-S-3.0

Lab Sample ID: AON0B
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 17:35
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	92.6	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	87.5	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	99.4	24-185	
13C-2,3,4,7,8-PeCDF	1.54	1.32-1.78	91.6	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	94.1	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	91.7	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	88.5	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	92.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	88.3	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	94.6	32-141	
13C-1,2,3,6,7,8-HxCDD	1.28	1.05-1.43	90.3	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	82.1	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	83.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	91.0	23-140	
13C-OCDD	0.92	0.76-1.02	75.6	17-157	
37Cl4-2,3,7,8-TCDD			94.9	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR22-S-3.0**

Lab Sample ID: AON0C
LIMS ID: 15-19094
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 18:28
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 1.81 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.73	0.65-0.89		5.52	0.552	J
2,3,7,8-TCDD	0.36	0.65-0.89		5.52	1.41	JEMPC
1,2,3,7,8-PeCDF	1.32	1.32-1.78		5.52	1.08	J
2,3,4,7,8-PeCDF	1.78	1.32-1.78		5.52	0.807	J
1,2,3,7,8-PeCDD	1.47	1.32-1.78		5.52	3.14	J
1,2,3,4,7,8-HxCDF	1.13	1.05-1.43		5.52	4.09	J
1,2,3,6,7,8-HxCDF	1.28	1.05-1.43		5.52	4.20	J
2,3,4,6,7,8-HxCDF	1.06	1.05-1.43		5.52	7.81	
1,2,3,7,8,9-HxCDF	1.38	1.05-1.43		5.52	1.82	BJ
1,2,3,4,7,8-HxCDD	1.15	1.05-1.43		5.52	8.65	
1,2,3,6,7,8-HxCDD	1.20	1.05-1.43		5.52	38.2	
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43		5.52	12.1	
1,2,3,4,6,7,8-HpCDF	0.93	0.88-1.20		5.52	188	
1,2,3,4,7,8,9-HpCDF	0.89	0.88-1.20		5.52	12.5	EMPC
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		5.52	1,260	
OCDF	0.83	0.76-1.02		11.0	412	
OCDD	0.88	0.76-1.02		55.2	30,800	E

Homologue Group	EDL	RL	Result	
Total TCDF		5.52	5.25	EMPC
Total TCDD		5.52	13.6	EMPC
Total PeCDF		11.0	48.6	EMPC
Total PeCDD		5.52	18.2	
Total HxCDF		11.0	243	
Total HxCDD		11.0	205	
Total HpCDF		11.0	695	EMPC
Total HpCDD		11.0	2,900	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 36.5

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 36.5

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR22-S-3.0

Lab Sample ID: AON0C
LIMS ID: 15-19094
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 18:28
Instrument/Analyst: AS1/PK

Sample Amount: 1.81 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	94.6	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	90.7	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	99.4	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	98.5	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	101	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	88.5	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	84.7	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	90.1	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	87.1	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	93.3	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	88.3	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	80.5	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	80.1	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	86.8	23-140	
13C-OCDD	0.89	0.76-1.02	74.5	17-157	
37Cl4-2,3,7,8-TCDD			98.6	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-102315**

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.67	0.65-0.89	1.00	20.1
2,3,7,8-TCDD	0.76	0.65-0.89	1.00	21.8
1,2,3,7,8-PeCDF	1.45	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.41	1.32-1.78	1.00	102
1,2,3,7,8-PeCDD	1.54	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.15	1.05-1.43	1.00	106
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43	1.00	103
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43	1.00	107
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43	1.00	104
1,2,3,6,7,8-HxCDD	1.22	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43	1.00	105
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	109
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	1.00	106
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.83	0.76-1.02	2.00	202
OCDD	0.90	0.76-1.02	10.0	218

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	20.9	EMPC
Total TCDD		1.00	22.3	
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	105	EMPC
Total HxCDF		2.00	422	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	216	EMPC
Total HpCDD		2.00	108	EMPC

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	100	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	96.4	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	105	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	102	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	97.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.50	0.43-0.59	97.0	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	96.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	93.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	102	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	99.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	90.6	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	91.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	97.8	23-140	
13C-OCDD	0.89	0.76-1.02	83.1	17-157	
37Cl4-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.1	20.0	100	75-158
2,3,7,8-TCDD	21.8	20.0	109	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	102	100	102	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	106	100	106	72-134
1,2,3,6,7,8-HxCDF	103	100	103	84-130
2,3,4,6,7,8-HxCDF	107	100	107	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	104	100	104	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	105	100	105	64-162
1,2,3,4,6,7,8-HpCDF	109	100	109	82-132
1,2,3,4,7,8,9-HpCDF	106	100	106	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	202	200	101	63-170
OCDD	218	200	109	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0360	1.00	< 0.0360	U
2,3,7,8-TCDD		0.65-0.89	0.0520	1.00	< 0.0520	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0380	1.00	< 0.0380	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0400	1.00	< 0.0400	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0640	1.00	< 0.0640	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0440	1.00	< 0.0440	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0400	1.00	< 0.0400	U
2,3,4,6,7,8-HxCDF	1.37	1.05-1.43		1.00	0.0400	J
1,2,3,7,8,9-HxCDF	1.13	1.05-1.43		1.00	0.0360	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0520	1.00	< 0.0520	U
1,2,3,6,7,8-HxCDD	1.75	1.05-1.43		1.00	0.0480	JEMPC
1,2,3,7,8,9-HxCDD	0.96	1.05-1.43		1.00	0.106	JEMPC
1,2,3,4,6,7,8-HpCDF	0.58	0.88-1.20		1.00	0.118	JEMPC
1,2,3,4,7,8,9-HpCDF	0.90	0.88-1.20		1.00	0.0480	J
1,2,3,4,6,7,8-HpCDD	1.00	0.88-1.20		1.00	0.962	J
OCDF	0.68	0.76-1.02		2.00	0.378	JEMPC
OCDD	0.86	0.76-1.02		10.0	6.81	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0360	1.00	< 0.0360	U
Total TCDD	0.0520	1.00	< 0.0520	U
Total PeCDF	0.0400	2.00	< 0.0400	U
Total PeCDD	0.0640	1.00	< 0.0640	U
Total HxCDF		2.00	0.116	EMPC
Total HxCDD		2.00	0.760	EMPC
Total HpCDF		2.00	0.341	EMPC
Total HpCDD		2.00	2.29	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.11

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-102315**

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	104	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	99.2	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	108	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	104	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	102	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	102	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	101	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	98.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	108	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	103	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	97.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	98.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	106	23-140	
13C-OCDD	0.90	0.76-1.02	92.3	17-157	
37Cl4-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR-07-SSD-COMP
SAMPLE

Lab Sample ID: AON0A
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 00:00
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.17 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 35.6%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.8%
Tetrachlorometaxylene	74.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR23-S-3.0
SAMPLE

Lab Sample ID: AON0B
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 00:21
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.80 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 17.5%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	< 17 U
11096-82-5	Aroclor 1260	17	< 17 U
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U
11100-14-4	Aroclor 1268	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.5%
Tetrachlorometaxylene	69.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546

Sample ID: CR22-S-3.0
SAMPLE

Lab Sample ID: AON0C
LIMS ID: 15-19094
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 00:42
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.30 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 11.9%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	80.8%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-102015	96.2%	59-115	74.8%	58-112	0
LCS-102015	96.0%	59-115	73.2%	58-112	0
CR-07-SSD-COMP	79.8%	47-120	74.0%	53-116	0
CR23-S-3.0	79.5%	47-120	69.8%	53-116	0
CR22-S-3.0	87.5%	47-120	80.8%	53-116	0

Microwave (MARS) Control Limits PCBSMI
Prep Method: SW3546
Log Number Range: 15-19092 to 15-19094

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-102015
LAB CONTROL

Lab Sample ID: LCS-102015
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:39
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	407	500	81.4%
Aroclor 1260	516	500	103%

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	73.2%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:17
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.2%
Tetrachlorometaxylene	74.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: CR23-GW-6.0
SAMPLE

Lab Sample ID: AON0D
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 00:03
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	39.8%
Tetrachlorometaxylene	37.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: CR22-GW-9.0
SAMPLE

Lab Sample ID: AON0E
LIMS ID: 15-19096
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 00:24
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	68.0%
Tetrachlorometaxylene	64.8%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-101915	117%	38-120	56.0%	29-120	0
LCS-101915	85.2%	38-120	65.8%	29-120	0
CR23-GW-6.0	39.8%	38-120	37.2%	29-120	0
CR22-GW-9.0	68.0%	38-120	64.8%	29-120	0

Prep Method: SW3510C
Log Number Range: 15-19095 to 15-19096

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/22/15 22:59
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	3.84	5.00	76.8%
Aroclor 1260	4.86	5.00	97.2%

PCB Surrogate Recovery

Decachlorobiphenyl	85.2%
Tetrachlorometaxylene	65.8%

Results reported in µg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/22/15 22:38
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	117%
Tetrachlorometaxylene	56.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Soil

Date Received: 10/14/15

Data Release Authorized:
Reported: 10/23/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-101915	Method Blank	10/19/15	10/20/15	1.00	Diesel Range	5.0	< 5.0 U
15-19092	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		78.7%
AON0A	CR-07-SSD-COMP	10/19/15	10/20/15	1.00	**Diesel Range**	**78**	**180**
15-19092	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil Range**	**160**	**520**
					o-Terphenyl		76.7%
AON0B	CR23-S-3.0	10/19/15	10/20/15	1.00	**Diesel Range**	**6.0**	**21**
15-19093	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**12**	**51**
					o-Terphenyl		71.5%
AON0C	CR22-S-3.0	10/19/15	10/20/15	1.00	**Diesel Range**	**57**	**120**
15-19094	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil Range**	**110**	**980**
					o-Terphenyl		73.3%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
101915MB	78.7%	0
101915LCS	74.5%	0
CR-07-SSD-COMP	76.7%	0
CR23-S-3.0	71.5%	0
CR22-S-3.0	73.3%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19092 to 15-19094

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/20/15 17:30
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	107	150	71.3%

TPHD Surrogate Recovery

o-Terphenyl	74.5%

Results reported in mg/kg

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/14/15

ARI Job: AON0
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19092-101915MB1	Method Blank	10.0 g	1.00 mL	-	10/19/15
15-19092-101915LCS1	Lab Control	10.0 g	1.00 mL	-	10/19/15
15-19092-AON0A	CR-07-SSD-COMP	6.45 g	1.00 mL	D	10/19/15
15-19093-AON0B	CR23-S-3.0	8.26 g	1.00 mL	D	10/19/15
15-19094-AON0C	CR22-S-3.0	8.83 g	1.00 mL	D	10/19/15

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 1

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Ground Water

Date Received: 10/14/15

Data Release Authorized: BB
Reported: 10/23/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-101915	Method Blank	10/19/15	10/20/15	1.00	Diesel Range	0.10	< 0.10 U
15-19095	HC ID: ---		FID3B	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		74.1%
AON0D	CR23-GW-6.0	10/19/15	10/20/15	1.00	**Diesel Range**	**0.10**	**3.4**
15-19095	HC ID: **DRO/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**0.20**	**3.2**
					o-Terphenyl		47.6%
AON0E	CR22-GW-9.0	10/19/15	10/20/15	1.00	**Diesel Range**	**0.10**	**0.45**
15-19096	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**0.20**	**0.96**
					o-Terphenyl		57.3%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
MB-101915	74.1%	0
LCS-101915	65.4%	0
CR23-GW-6.0	47.6%*	1
CR22-GW-9.0	57.3%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 15-19095 to 15-19096

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/20/15 14:17
Instrument/Analyst: FID3B/ML

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.18	3.00	72.7%

TPHD Surrogate Recovery

o-Terphenyl	65.4%

Results reported in mg/L

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: AON0
Matrix: Ground Water
Project: Seaport Landing
Date Received: 10/14/15
1044.02.01-02

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
15-19095-101915MB1	Method Blank	500 mL	1.00 mL	10/19/15
15-19095-101915LCS1	Lab Control	500 mL	1.00 mL	10/19/15
15-19095-AON0D	CR23-GW-6.0	500 mL	1.00 mL	10/19/15
15-19096-AON0E	CR22-GW-9.0	500 mL	1.00 mL	10/19/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102019.D

Date : 20-OCT-2015 17:09

Client ID: AONOMBS1

Sample Info: AONOMBS1

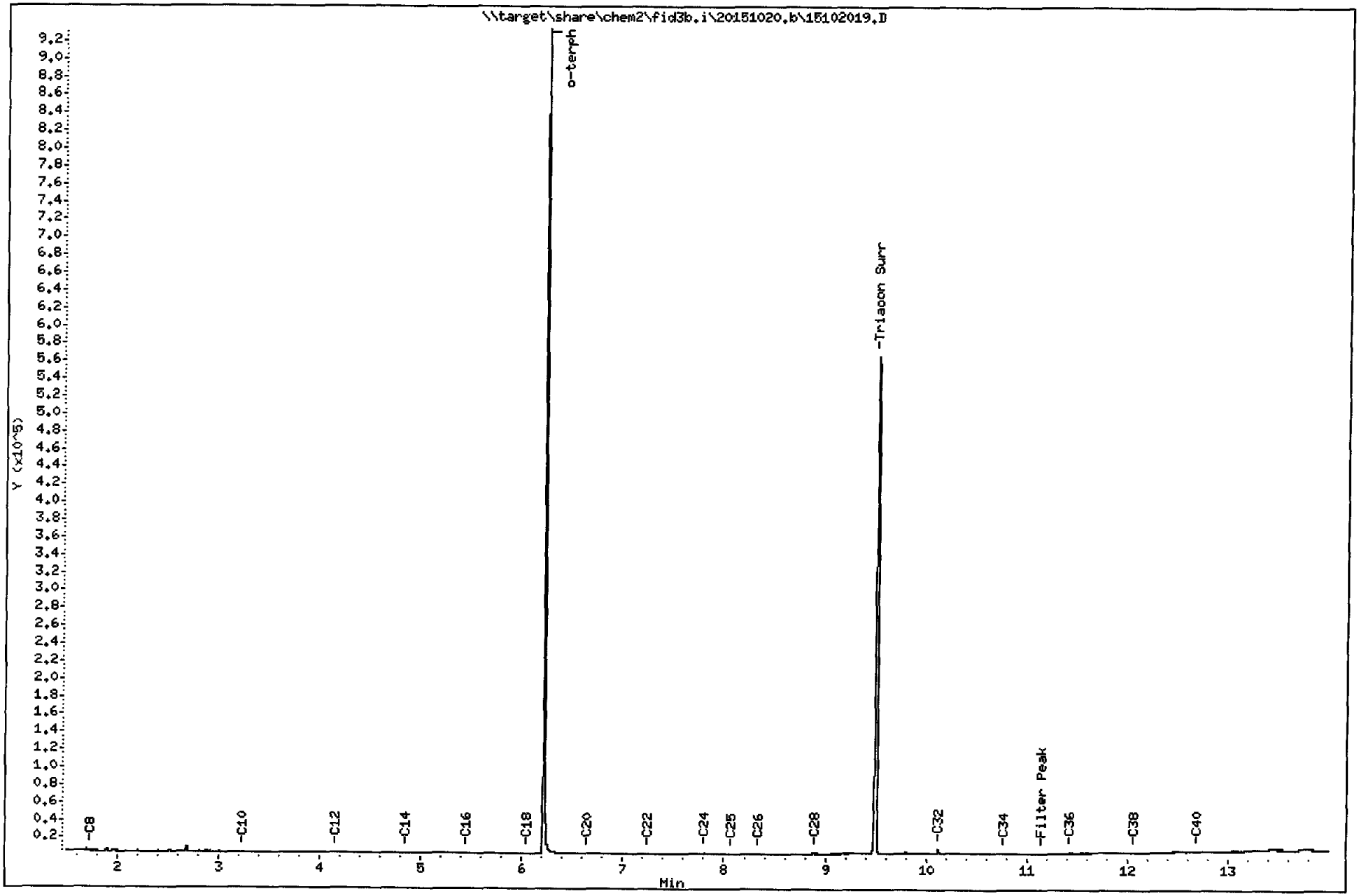
Column phase: RTX-1

Instrument: fid3b.i

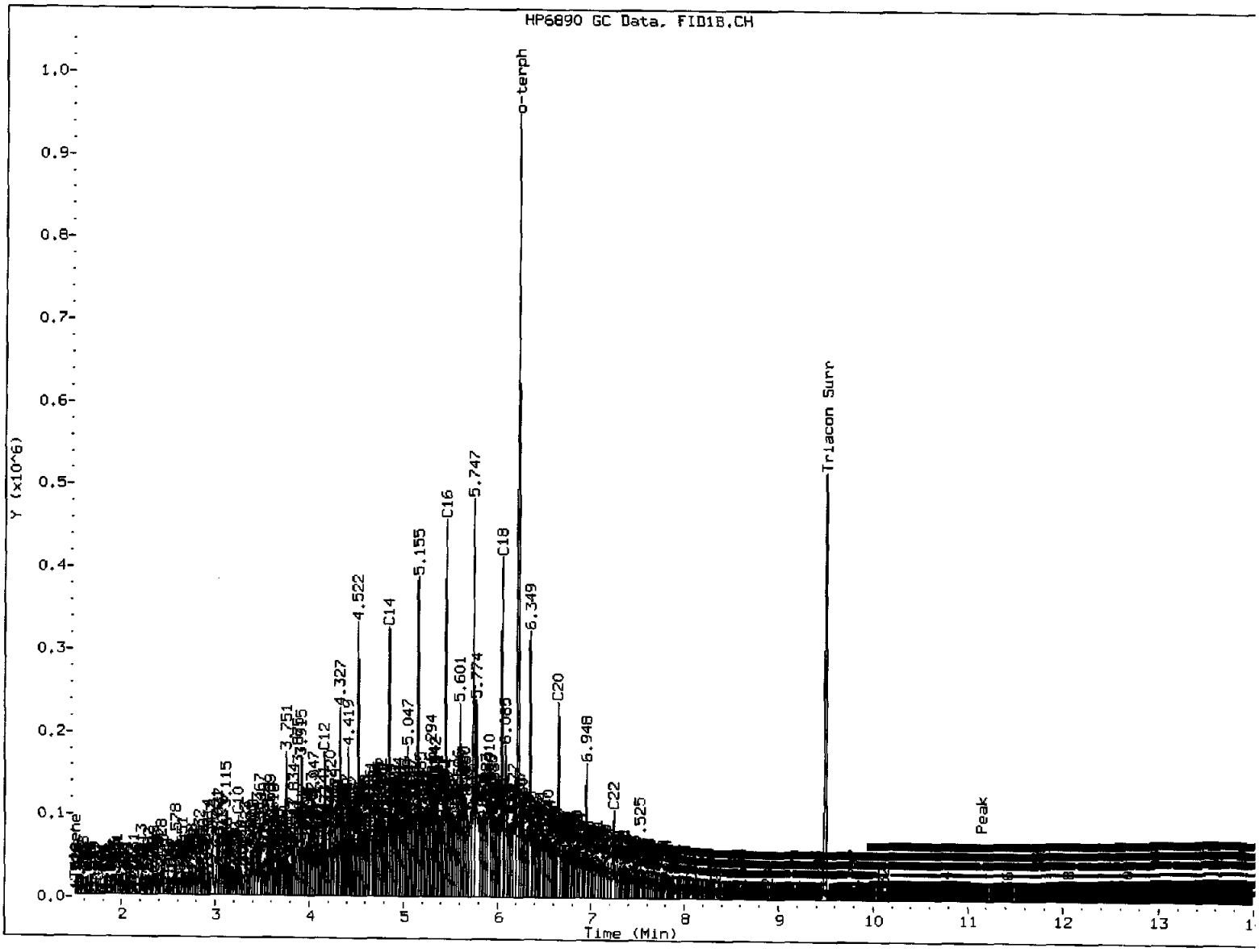
Operator: ML

Column diameter: 0.25

AON0:00064



FID:3B-2C/RTX-1 AON0LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: ML Date: 10/21/15

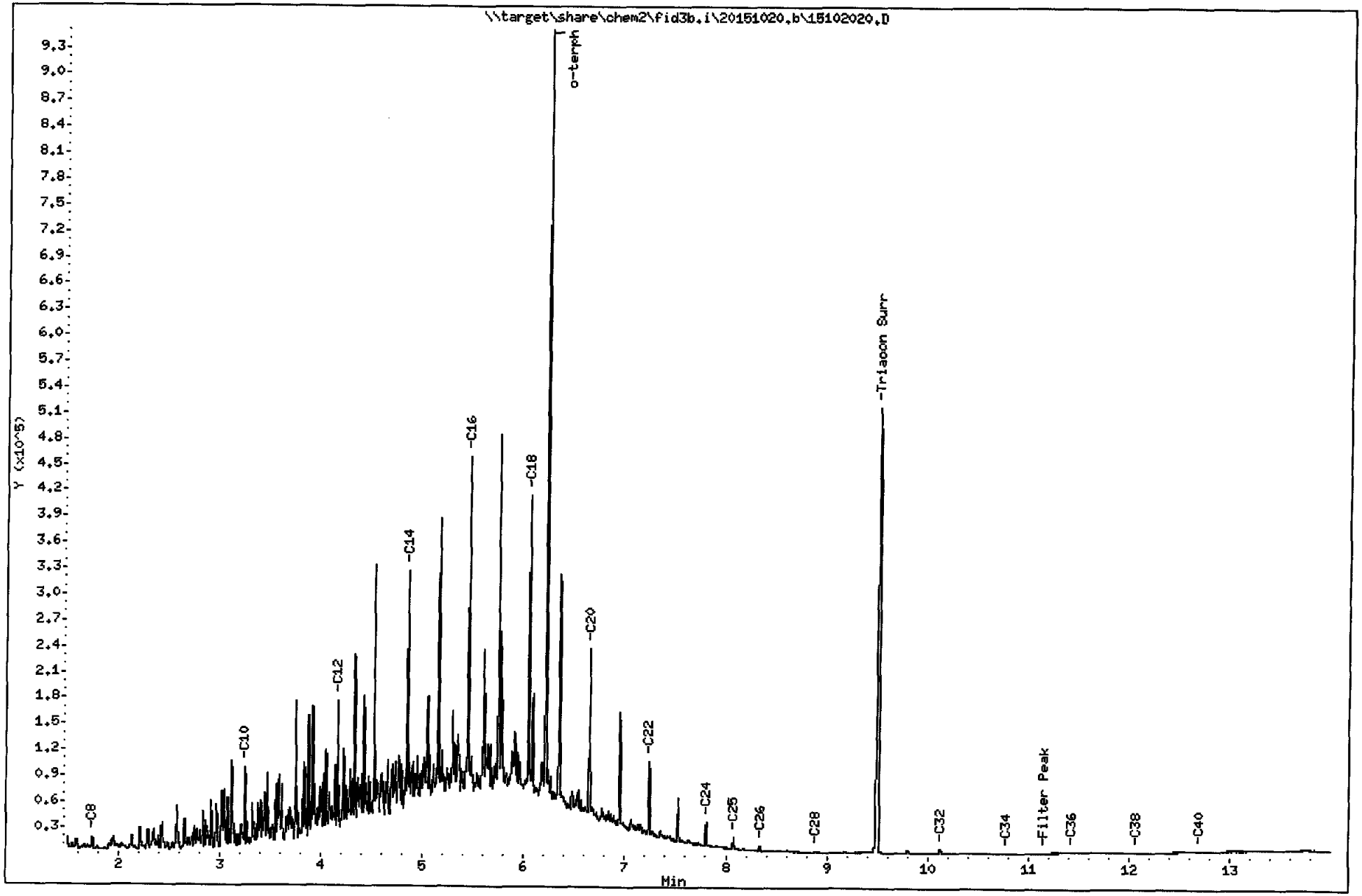
Data File: \\target\share\chem2\fid3b.i\20151020.b\15102020.D
Date : 20-OCT-2015 17:30
Client ID: AON0LCSS1
Sample Info: AON0LCSS1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25

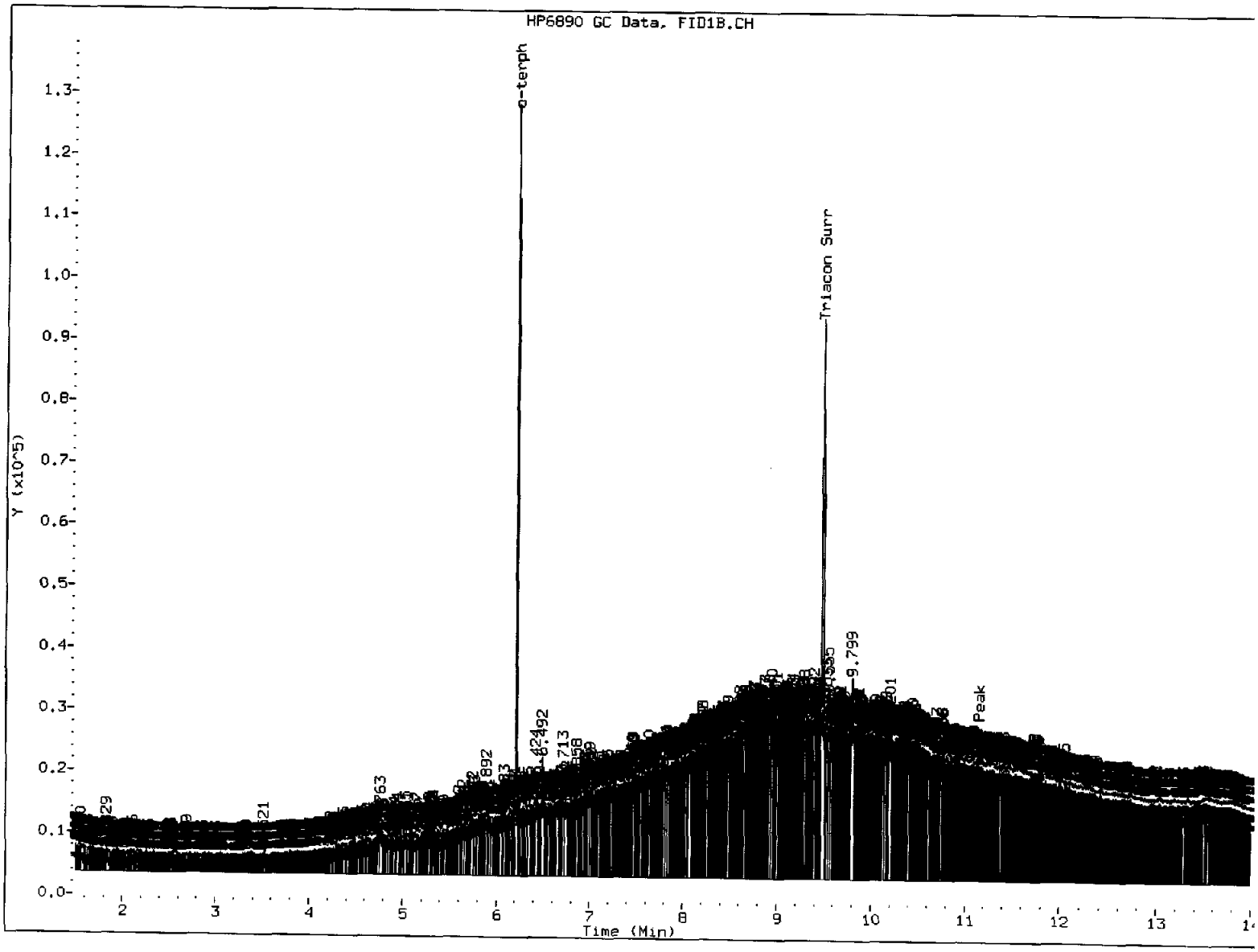
Column phase: RTX-1

AON0 : 00066



FID:3B-2C/RTX-1 AON0A

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: ML Date: 10/21/15

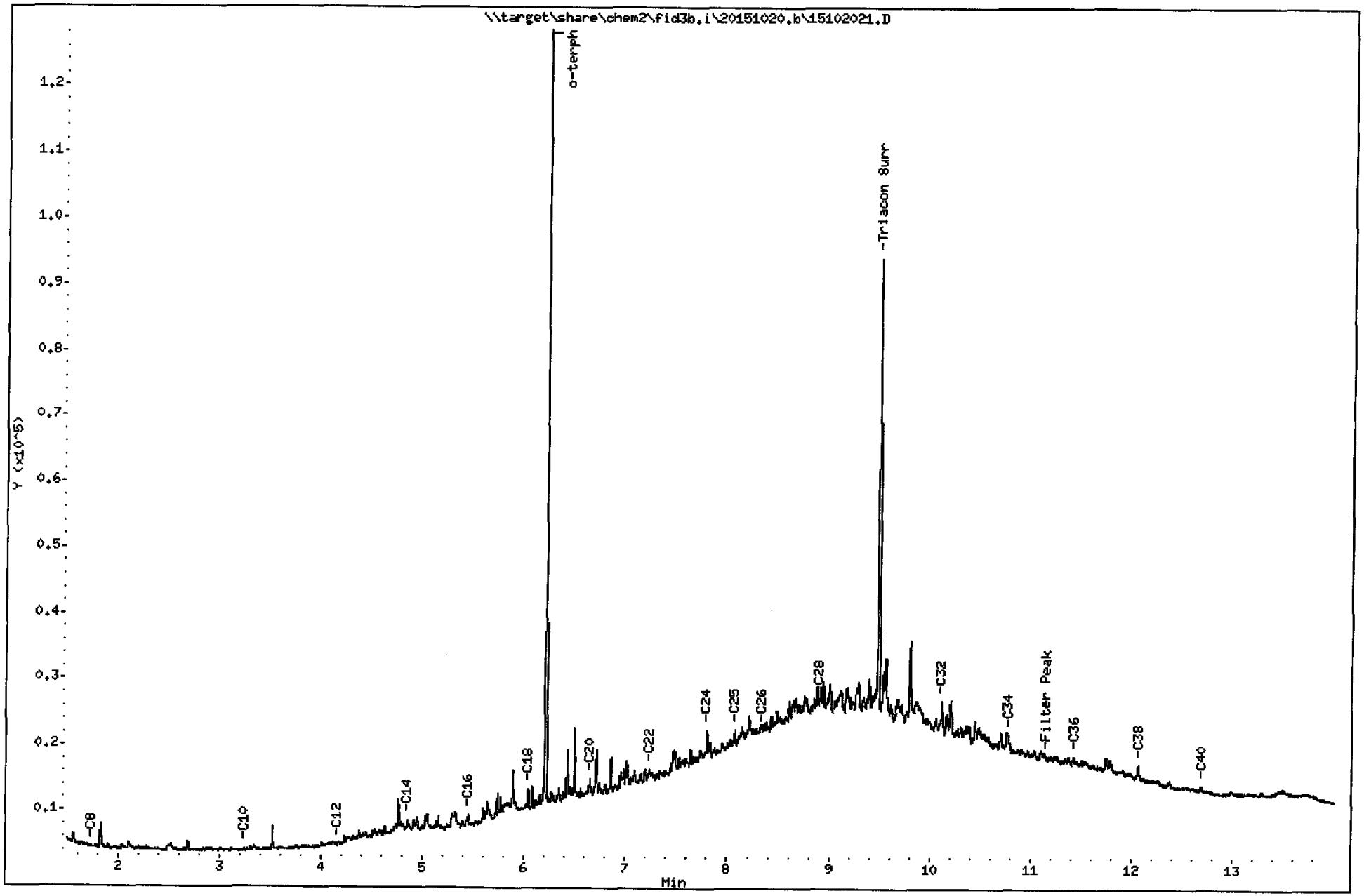
Data File: \\target\share\chem2\fid3b.i\20151020.b\15102021.D
Date : 20-OCT-2015 17:52
Client ID: CR-07-SSD-COMP
Sample Info: AON0A,10

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25

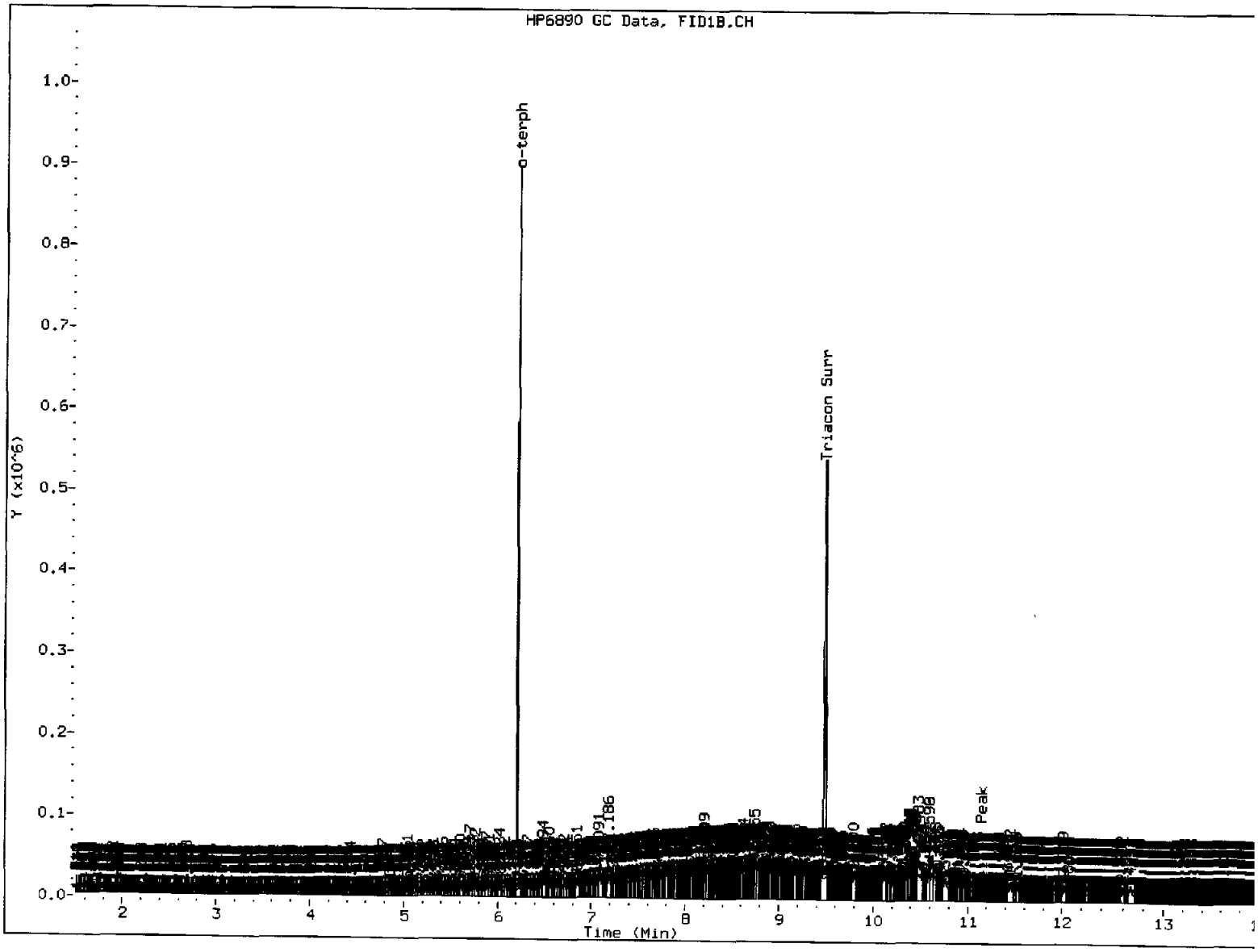
Column phase: RTX-1

AON0 : 00068



FID:3B-2C/RTX-1 AON0B

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: M

Date: 10/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102022.D

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Date : 20-OCT-2015 18:13

Client ID: CR23-S-3.0

Instrument: fid3b.i

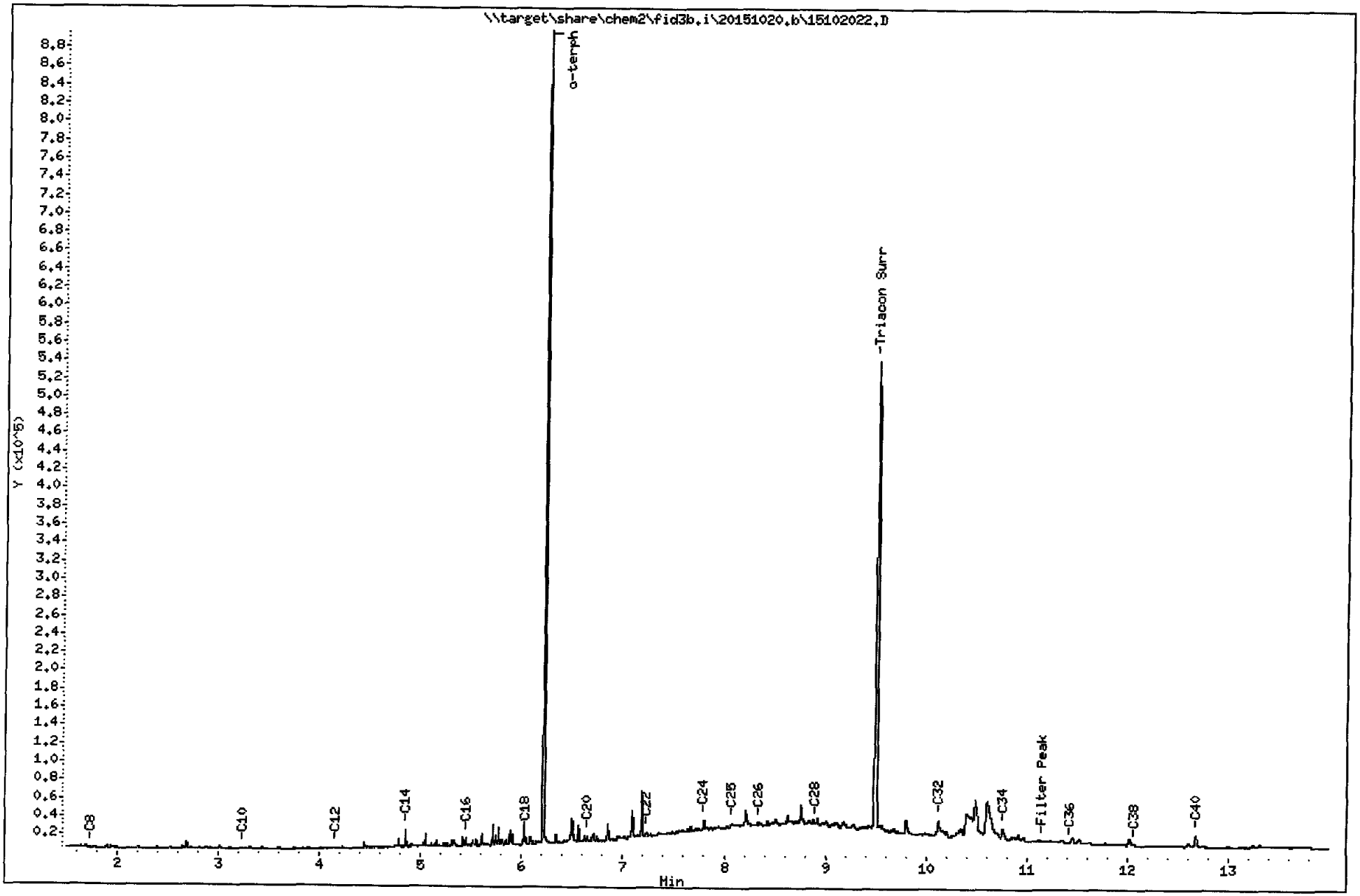
Sample Info: AON0B

Operator: ML

Column phase: RTX-1

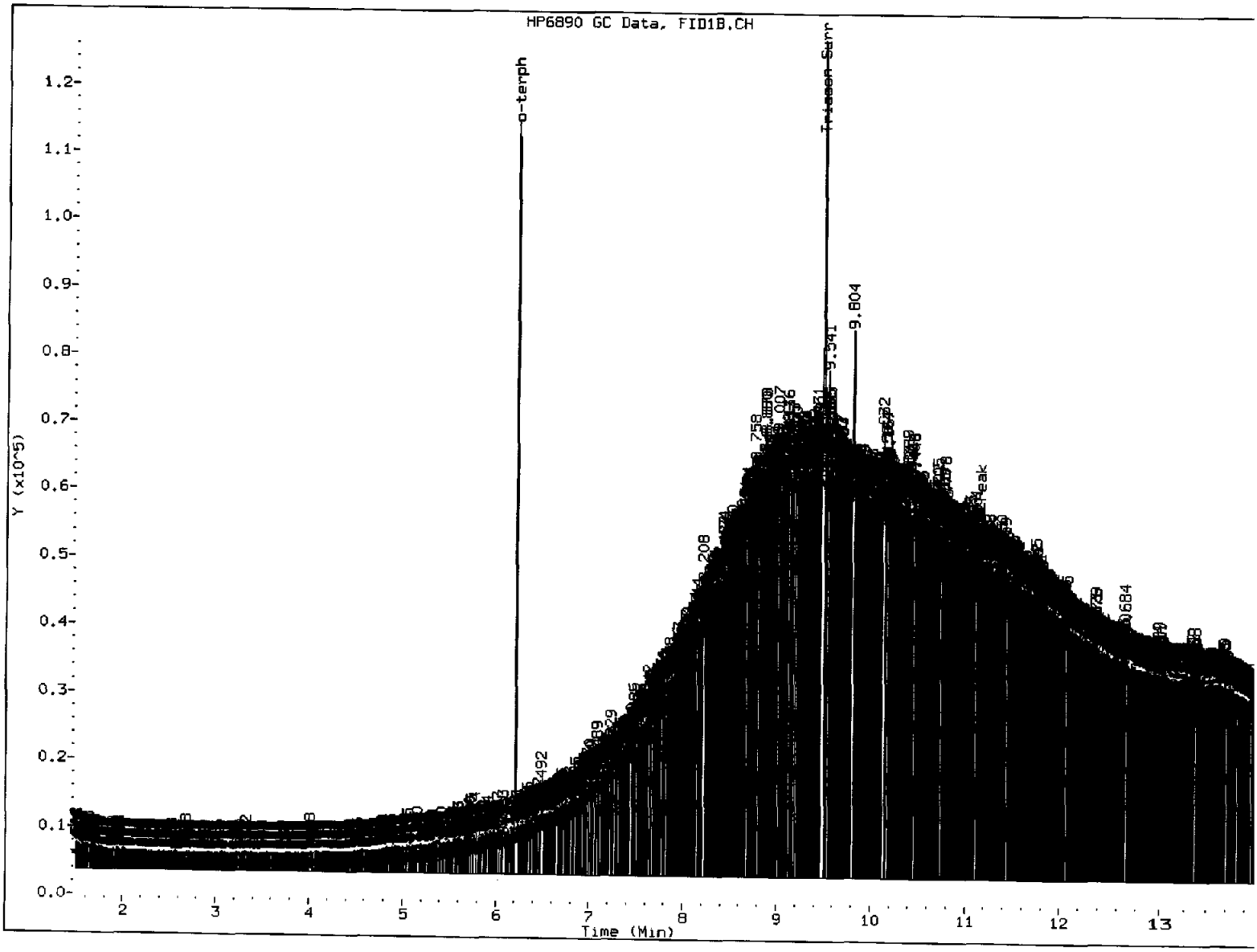
Column diameter: 0.25

AON0 : 000170



FID:3B-2C/RTX-1 AON0C

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

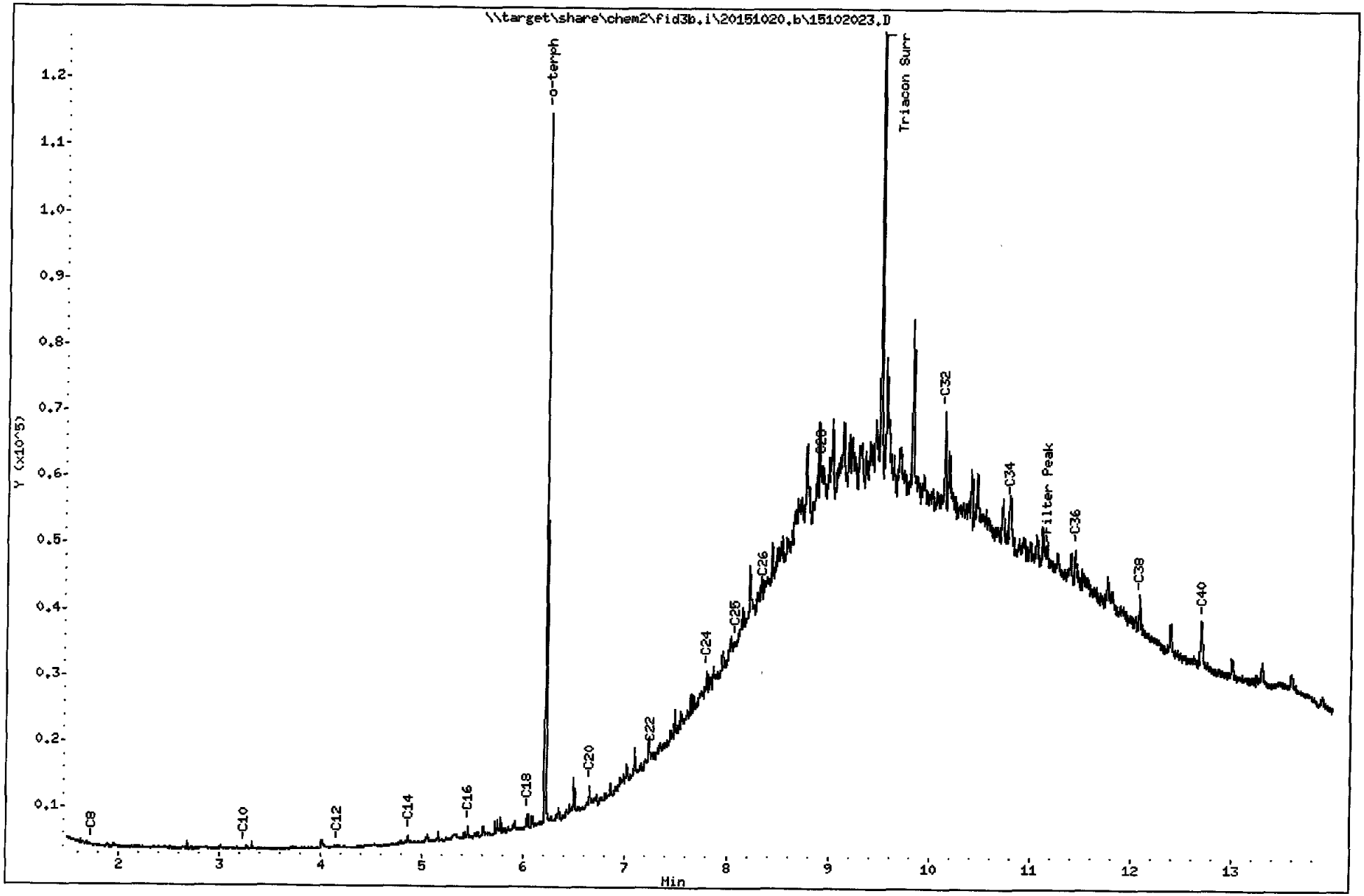
Analyst: ML Date: 6/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102023.D
Date : 20-OCT-2015 18:35
Client ID: CR22-S-3.0
Sample Info: AON0C,10

Instrument: fid3b.i
Operator: ML
Column diameter: 0.25

Column phase: RTX-1

AON0 : 000072



Data File: \\target\share\chem2\fid3b.i\20151020.b\15102010.D

Date : 20-OCT-2015 13:55

Client ID: AONOMBW1

Sample Info: AONOMBW1

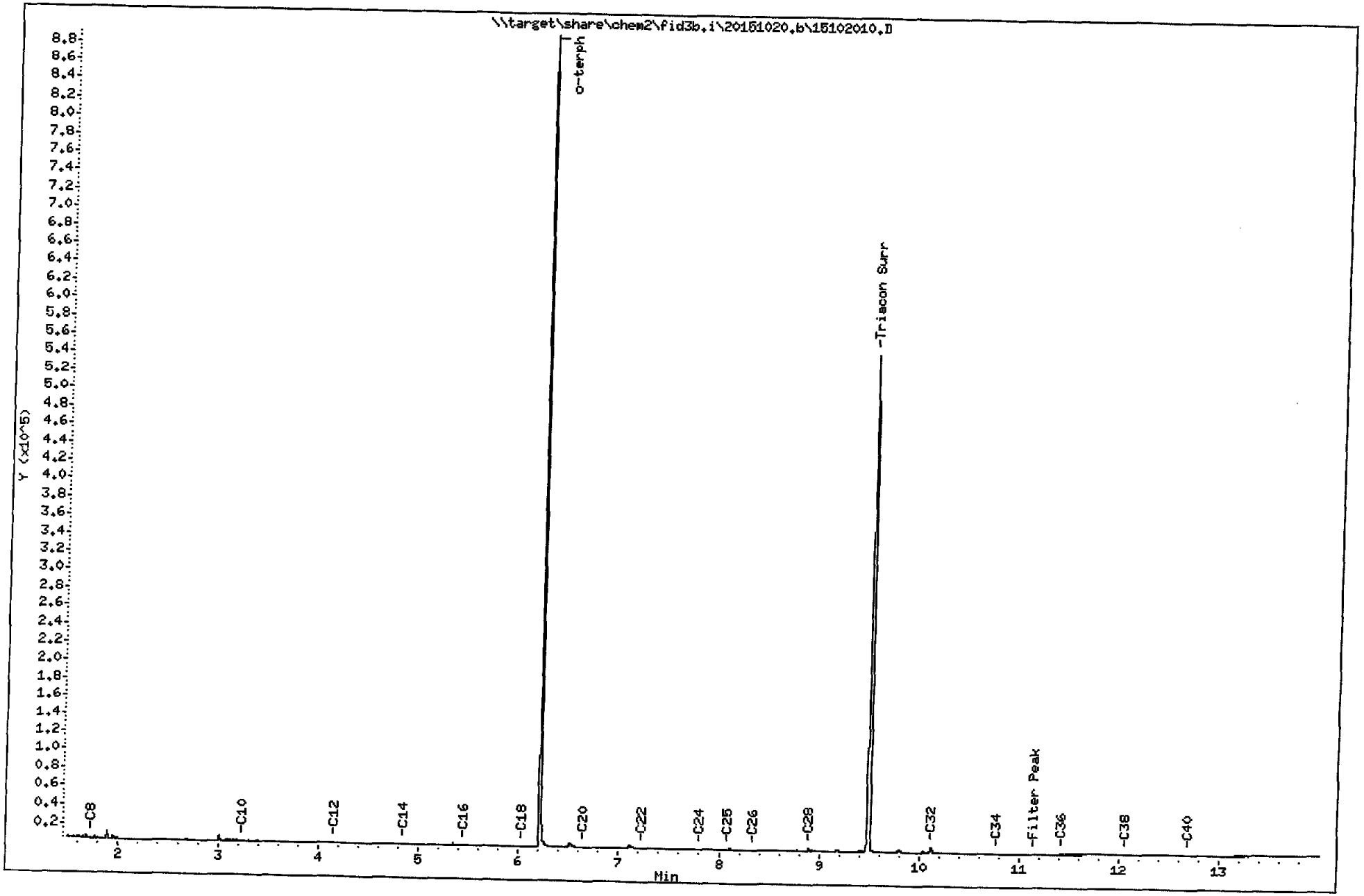
Instrument: fid3b.i

Operator: ML

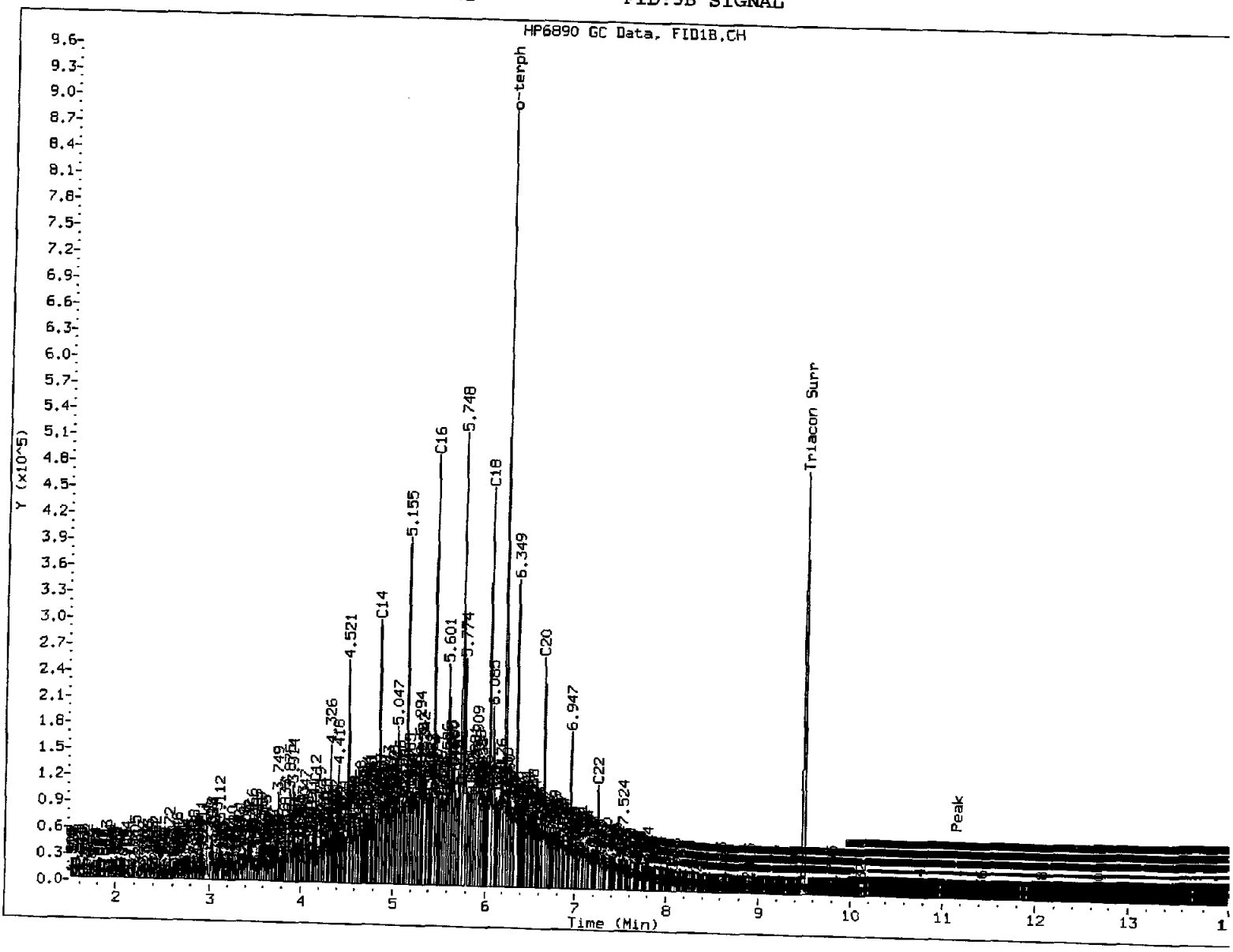
Column phase: RTX-1

Column diameter: 0.25

AON0:00073



FID:3B-2C/RTX-1 AON0LCSW1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

Analyst: UL Date: 10/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102011.D

Date : 20-OCT-2015 14:17

Client ID: AONOLCSW1

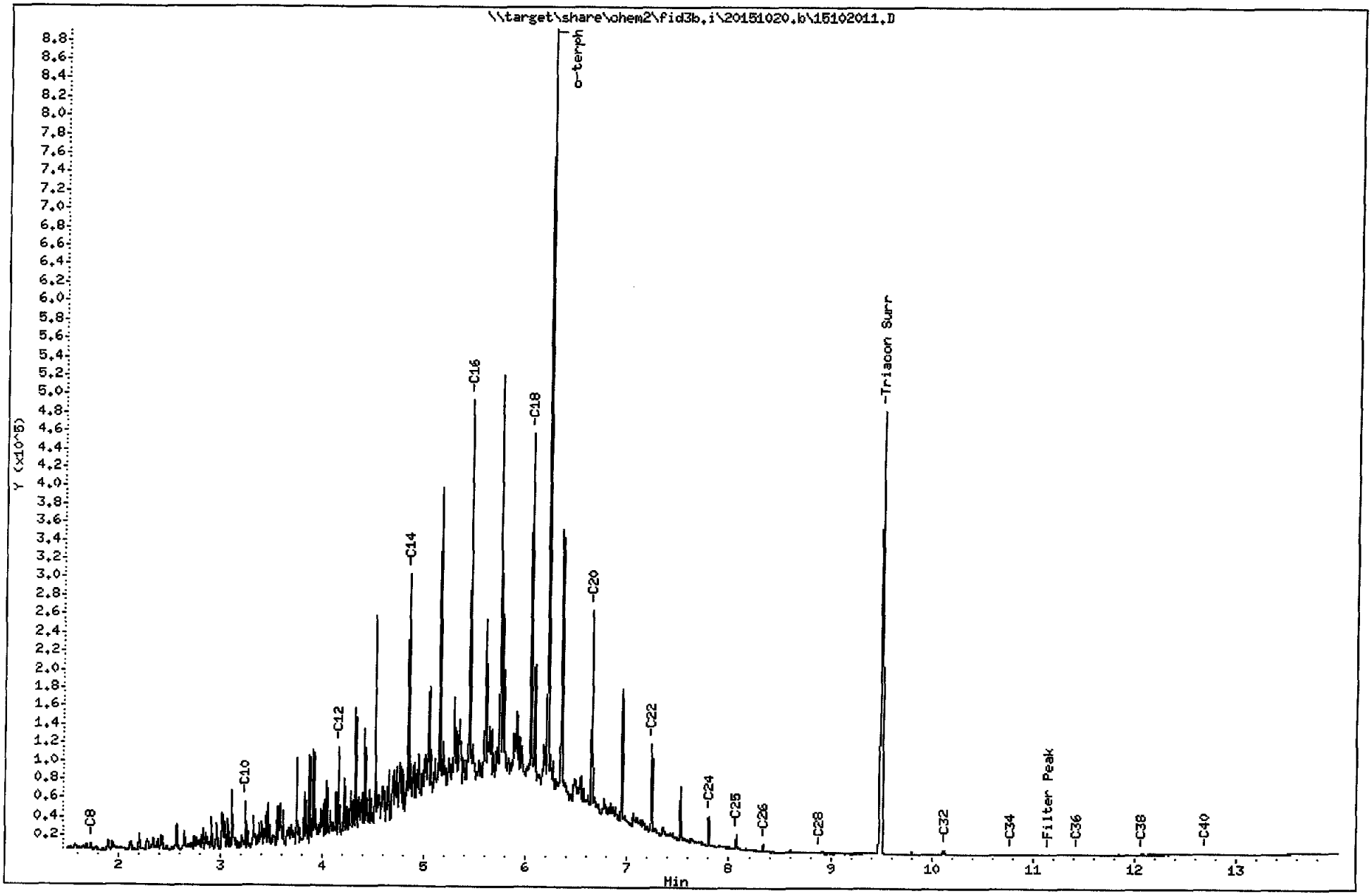
Sample Info: AONOLCSW1

Column phase: RTX-1

Instrument: fid3b.i

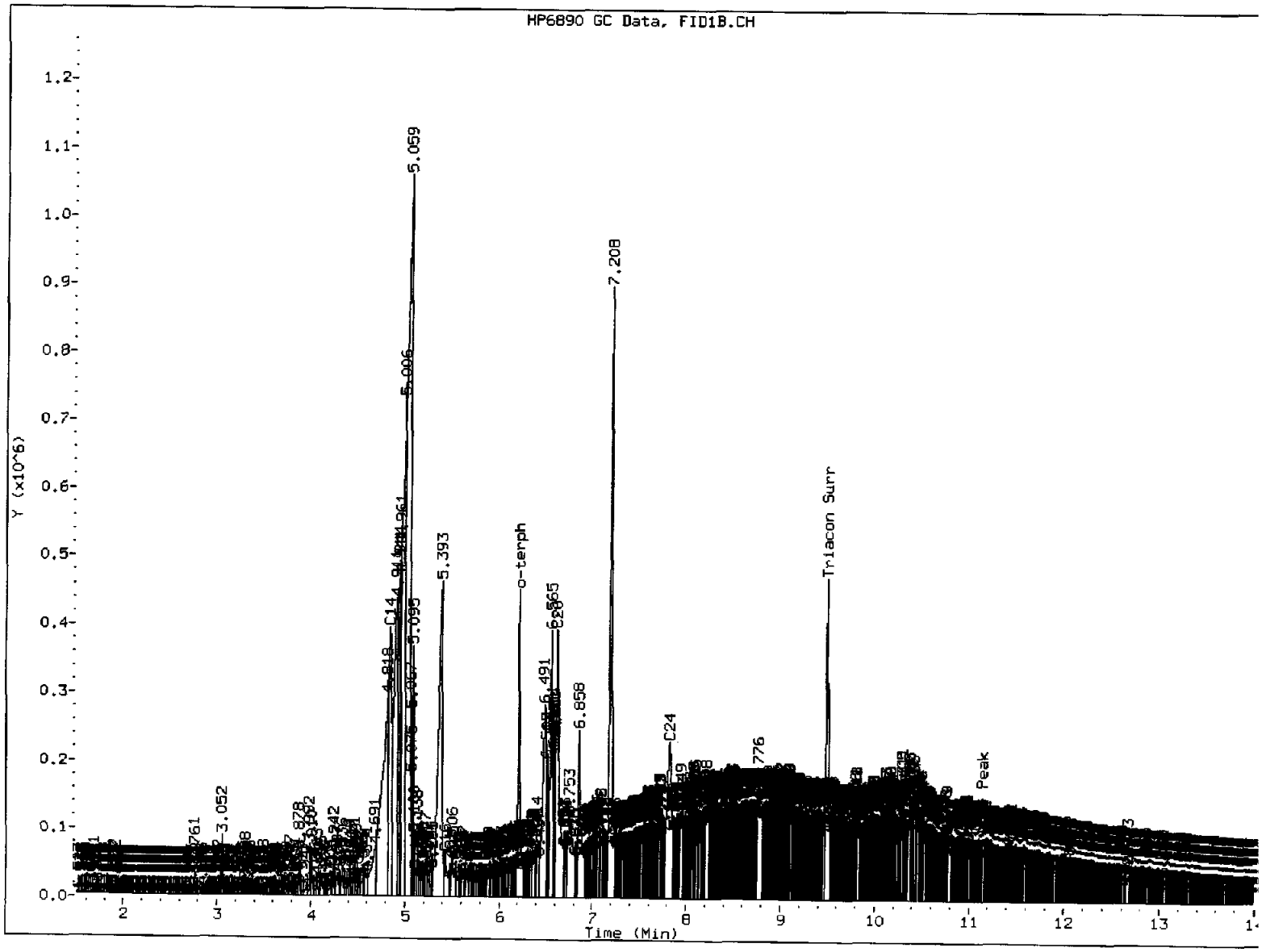
Operator: ML

Column diameter: 0.25



FID:3B-2C/RTX-1 AON0D

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5). Skimmed surrogate

Analyst: M Date: 10/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102012.D

Date : 20-OCT-2015 14:38

Client ID: CR23-GW-6.0

Sample Info: AONOD

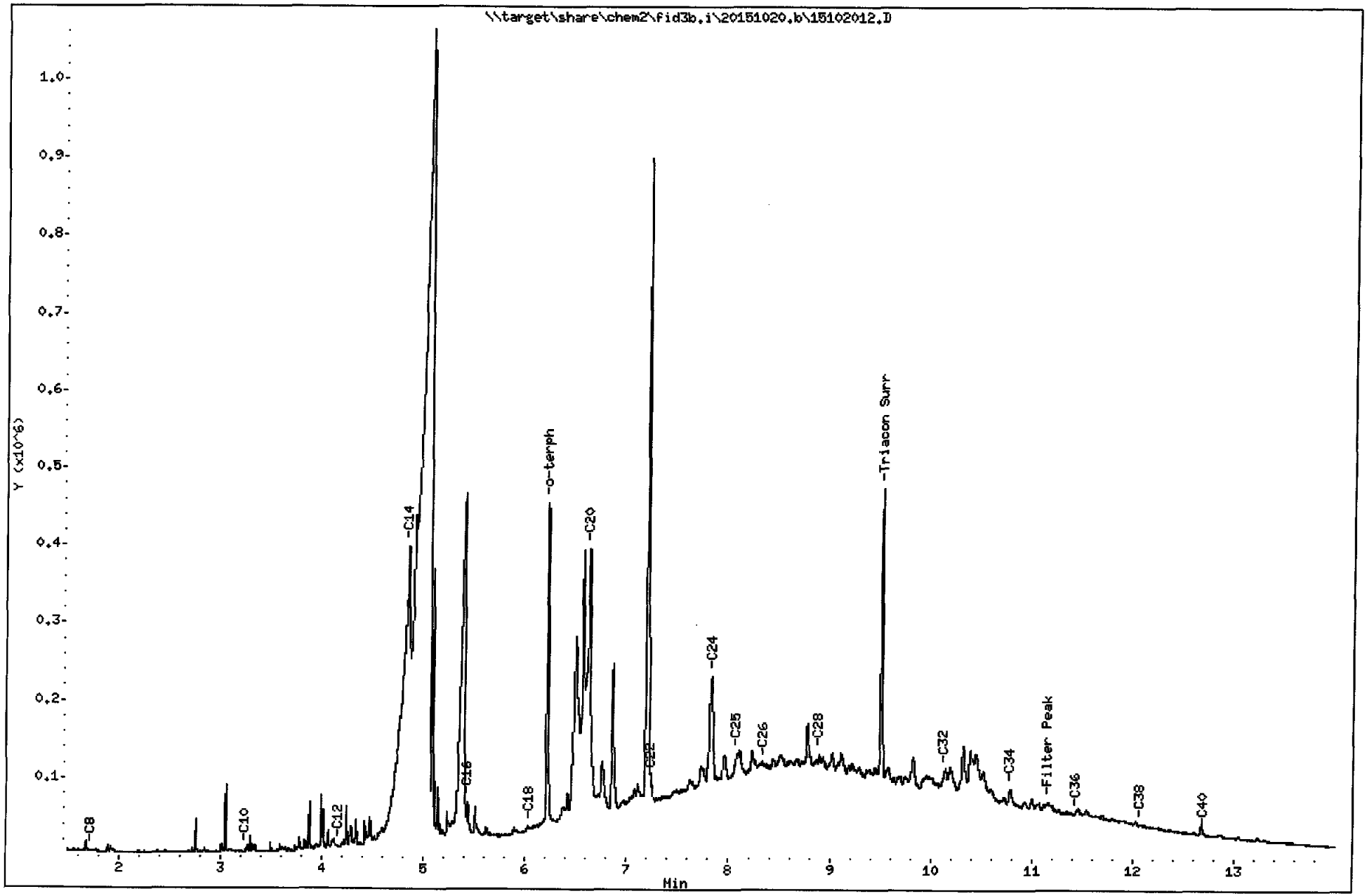
Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

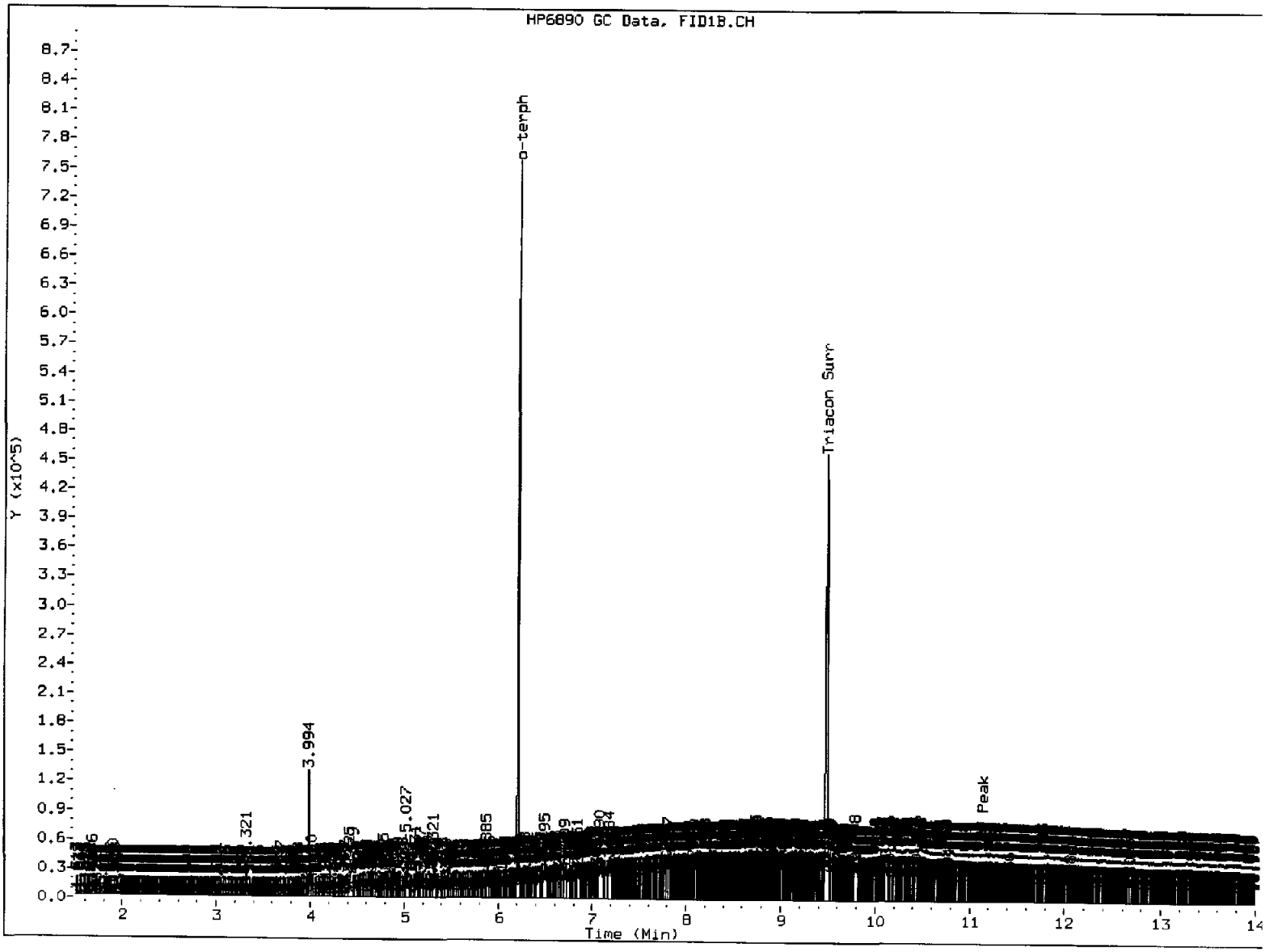
Column diameter: 0.25

AON0:00077



FID:3B-2C/RTX-1 AON0E

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: ML Date: 10/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102013.D

Date : 20-OCT-2015 15:00

Client ID: CR22-GW-9.0

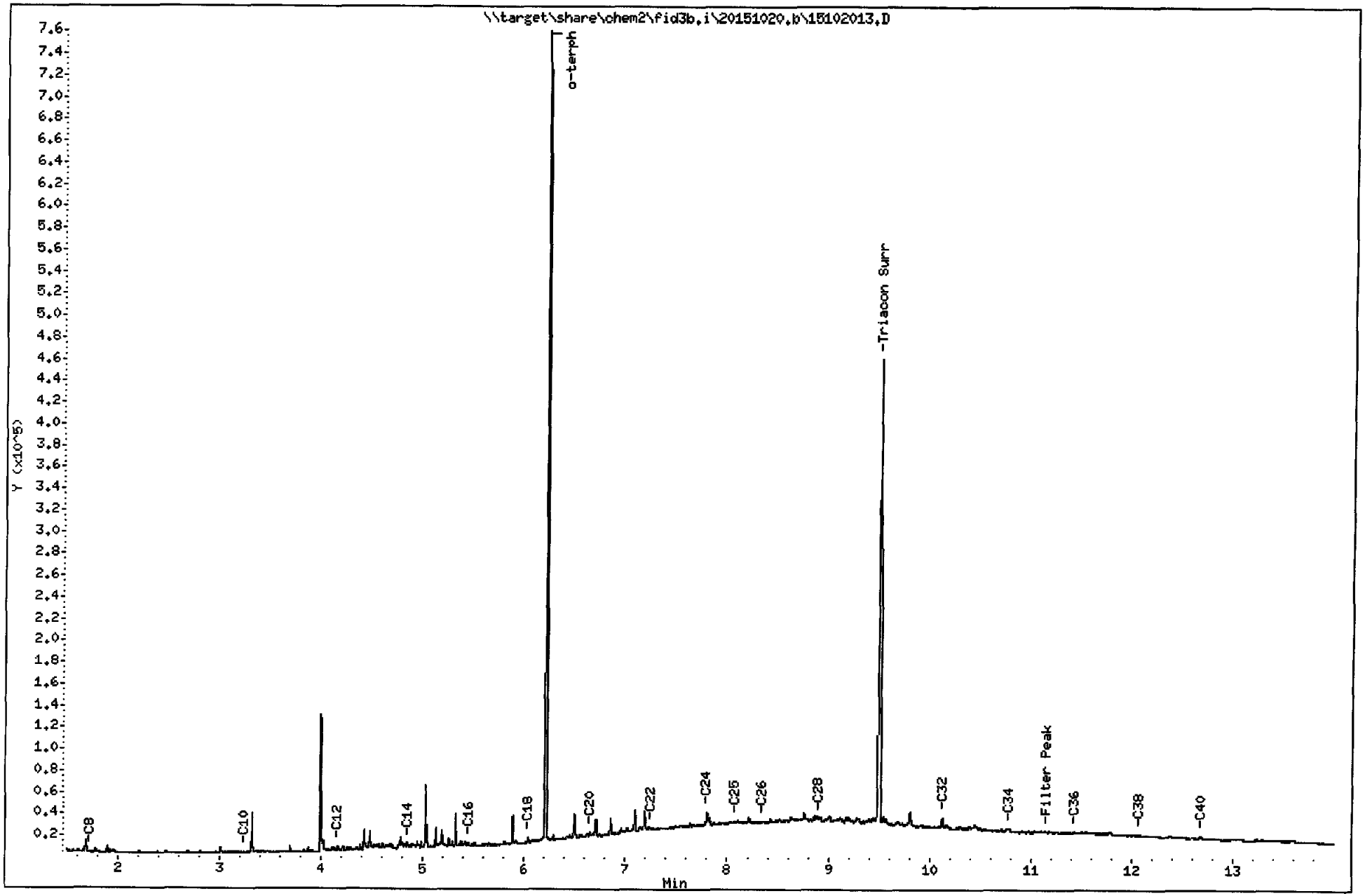
Sample Info: AONOE

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

Column diameter: 0.25



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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: CR-07-SSD-COMP
SAMPLE

Lab Sample ID: AON0A
LIMS ID: 15-19092
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 64.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/27/15	7440-38-2	Arsenic	20	20	U
3050B	10/22/15	6010C	10/27/15	7440-43-9	Cadmium	0.8	0.8	U
3050B	10/22/15	6010C	10/27/15	**7440-47-3**	**Chromium**	2	**43**	
3050B	10/22/15	6010C	10/27/15	**7439-92-1**	**Lead**	8	**11**	
CLP	10/26/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.03	**0.04**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: CR23-S-3.0
SAMPLE

Lab Sample ID: AON0B
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 82.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/26/15	7440-38-2	Arsenic	6	6	U
3050B	10/22/15	6010C	10/26/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/22/15	6010C	10/26/15	**7440-47-3**	**Chromium**	0.6	**35.5**	
3050B	10/22/15	6010C	10/26/15	**7439-92-1**	**Lead**	2	**3**	
CLP	10/26/15	7471A	10/27/15	7439-97-6	Mercury	0.02	0.02	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: CR22-S-3.0
SAMPLE

Lab Sample ID: AON0C
LIMS ID: 15-19094
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 84.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/27/15	7440-38-2	Arsenic	10	10	U
3050B	10/22/15	6010C	10/27/15	7440-43-9	Cadmium	0.6	0.6	U
3050B	10/22/15	6010C	10/27/15	**7440-47-3**	**Chromium**	1	**37**	
3050B	10/22/15	6010C	10/27/15	7439-92-1	Lead	6	6	U
CLP	10/26/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.02	**0.09**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: CR23-GW-6.0
SAMPLE

Lab Sample ID: AON0D
LIMS ID: 15-19095
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	**7440-47-3**	**Chromium**	0.005	**0.011**	
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: CR22-GW-9.0
SAMPLE

Lab Sample ID: AON0E
LIMS ID: 15-19096
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	**7440-47-3**	**Chromium**	0.005	**0.013**	
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	**7439-97-6**	**Mercury**	0.0001	**0.0001**	

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: CR23-GW-6.0
SAMPLE

Lab Sample ID: AON0F
LIMS ID: 15-19097
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: CR22-GW-9.0
SAMPLE

Lab Sample ID: AON0G
LIMS ID: 15-19098
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: Seep-01
DUPLICATE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	0.0001 U	0.0001 U	0.0%	+/- 0.0001	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

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DISSOLVED METALS
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Sample ID: Seep-01
MATRIX SPIKE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	0.0001 U	0.0010	0.001	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: AON3MB
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/26/15	7440-38-2	Arsenic	5	5	U
3050B	10/22/15	6010C	10/26/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/22/15	6010C	10/26/15	7440-47-3	Chromium	0.5	0.5	U
3050B	10/22/15	6010C	10/26/15	7439-92-1	Lead	2	2	U
CLP	10/26/15	7471A	10/27/15	7439-97-6	Mercury	0.02	0.02	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	213	200	106%	
Cadmium	6010C	51.7	50.0	103%	
Chromium	6010C	52.6	50.0	105%	
Lead	6010C	208	200	104%	
Mercury	7471A	0.52	0.50	104%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	2.09	2.00	104%	
Cadmium	6010C	0.496	0.500	99.2%	
Chromium	6010C	0.531	0.500	106%	
Lead	6010C	2.04	2.00	102%	
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

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DISSOLVED METALS
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Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	2.15	2.00	108%	
Cadmium	6010C	0.531	0.500	106%	
Chromium	6010C	0.522	0.500	104%	
Lead	6010C	2.09	2.00	104%	
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AON1

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Twenty sediment samples were received on October 14, 2015. Fourteen samples were placed on hold as specified. The remaining samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx, TOC and total and TCLP metals as requested.

A matrix spike (MS) and a matrix spike duplicate (MSD) were extracted and analyzed for SVOCs in conjunction with sample CR12-SBSD-15. The percent recoveries for 4-methylphenol and N-nitrosodiphenylamine and the RPD for N-nitrosodiphenylamine were not within control limits following the analyses of the MS/MSD. Since the percent recoveries for all compounds were within established QC limits for the corresponding LCS, it was concluded that the sample matrix was the cause of the MS/MSD failures. No corrective actions were taken.

An MS/MSD were extracted and analyzed for SIM-SVOCs in conjunction with sample CR12-SBSD-15. The percent recovery for N-nitrosodiphenylamine was not within control limits following the analysis of the MSD. The percent RPD for N-nitrosodiphenylamine was not within control limits following the analyses of the MS/MSD. Since the percent recovery for N-nitrosodiphenylamine was within established QC limits for the corresponding LCS, it was concluded that the sample matrix was the cause of the MS/MSD failures. No corrective actions were taken.

The percent differences (%Ds) for pentachlorophenol and the surrogate, d14-p-terphenyl, were not within control limits for the CCAL that bracketed the 11/5/15 SIM-SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

An MS was prepared and analyzed for total metals in conjunction with sample CR-24-SSD-COMP. The percent recovery for zinc was not within control limits following the analysis of the MS. Since the percent recovery for zinc was within acceptable QC limits for the corresponding LCS, it was concluded that the sample matrix was the cause of the MS failure. No corrective actions were taken.

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Novak, Maul, Foster and Alongi, Inc.
Seaport Landing
Sediment
AON1

20 November 2015

A matrix duplicate (MD) was prepared and analyzed for total metals in conjunction with the analysis of sample CR-24-SSD-COMP. The RPD for lead was high following the analysis of the MD. Since the percent recovery for lead was within acceptable QC limits for the corresponding LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPD. No corrective actions were taken

All samples were initially prepared and analyzed for total mercury on 10/23/15. The percent recovery for mercury was not within control limits following the analysis of the LCS associated with these samples. All samples were re-prepared and re-analyzed on 10/27/15. The re-analyses proceeded without incident of note. The results for the re-analyses only have been submitted for total mercury.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AON1

Enclosures

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AON 1	Turn-around Requested: Standard	Page: 1 of 5	
ARI Client Company: MFA	Phone: 5035015212	Date:	Ice Present?
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seapo-t Landing			
Client Project #: 1044.02.01-02	Samplers: JJP/MRM/RD		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TCLP Pb and Hg	Cstd TPH	metals	PAH	PCB	SVOCs	TOC	ARCHIVE	Notes/Comments: Mercury
CR11-14-SBSD-COMP	10/13/15	1030	sed	2	X							X	
LS05	10/13/15	0839	sed	1								X	
LS08	10/13/15	0905	sed	1								X	
LS06	10/13/15	0855	sed	1								X	
LS07	10/13/15	0915	sed	1								X	
CR-24-SD-COMP	10/13/15	0918	sed	3 4		X	X	X	X	X	X	X	X
LS01	10/13/15	0928	sed	1								X	
LS02	10/13/15	0938	sed	1								X	
LS03	10/13/15	0945	sed	1								X	
LS04	10/13/15	0955	sed	1								X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degens	Printed Name: Archie Gross	Printed Name:	Printed Name: Emily Litwin
	Company: MFA	Company: M.C. Dec	Company:	Company: ARI
	Date & Time: 10/14/15 1020	Date & Time: 10/14/15 10:20 (A)	Date & Time:	Date & Time: 10/14/15 1235

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: A0N1	Turn-around Requested: Standard	Page: 2 of 5	
ARI Client Company: MFA	Phone:	Date: 10/13	Ice Present?
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seapt Landing			
Client Project #: 1044.02.01-02	Samplers: JJP-MRM-RD		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	SVOAs	PCBs	Mercury	metals	PAHs	TOC	Archive	TPH-Dx	Notes/Comments: Dioxin/Furan	Notes/Comments: TCLP lead + Hg
BA07-0-10cm	10/13	1122	Sed	1							X			
BA07-10cm-1	10/13	1118	Sed	1							X			
BA07-1-2	10/13	1120	Sed	1							X			
BA08-0-10cm	10/13	~~1150~~ 1125	Sed	1							X			
BA08-10cm-1	10/13	1130	Sed	1							X			
BA08-1-2	10/13	1135	Sed	1							X			
CR11-SBSD-23	10/13	1015	Sed	3	X	X	X	X	X	X	X	X	X	
CR12-SBSD-15	10/13	900	Sed	3	X	X	X	X	X	X	X			
CR13-SBSD-11	10/13	950	Sed	3	X	X	X	X	X	X	X			
CR14-SBSD-12	10/13	745	Sed	5	X	X	X	X	X	X	X			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degen	Printed Name: Archie Dizon	Printed Name:	Printed Name: Emily Litwin
	Company: MFA	Company: M.C. DEC	Company:	Company: ARI
	Date & Time: 10/14/15 1020	Date & Time: 10/14/15 10:20	Date & Time:	Date & Time: 10/14/15 1235

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster

COC No(s): _____ (NA)

Assigned ARI Job No: AON1

Project Name: _____

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 5.2 4.3 6.8 5.0 4.1

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D002565

Cooler Accepted by: ul Date: 10/14/15 Time: 1235

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

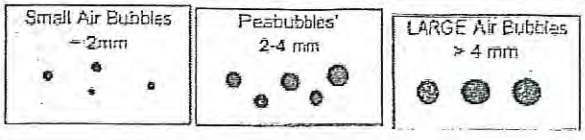
Samples Logged by: ul Date: 10/15/15 Time: 1055

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AON1
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR11-14-SBSD-COMP	AON1A	15-19052	Sediment	10/13/15 10:30	10/14/15 12:35
2.	LSO5	AON1B	15-19053	Sediment	10/13/15 08:39	10/14/15 12:35
3.	LSO8	AON1C	15-19054	Sediment	10/13/15 09:05	10/14/15 12:35
4.	LSO6	AON1D	15-19055	Sediment	10/13/15 08:55	10/14/15 12:35
5.	LSO7	AON1E	15-19056	Sediment	10/13/15 09:15	10/14/15 12:35
6.	CR-24-SSD-COMP	AON1F	15-19057	Sediment	10/13/15 09:18	10/14/15 12:35
7.	LSO1	AON1G	15-19058	Sediment	10/13/15 09:28	10/14/15 12:35
8.	LSO2	AON1H	15-19059	Sediment	10/13/15 09:38	10/14/15 12:35
9.	LSO3	AON1I	15-19060	Sediment	10/13/15 09:45	10/14/15 12:35
10.	LSO4	AON1J	15-19061	Sediment	10/13/15 09:55	10/14/15 12:35
11.	BAO7-0-10CM	AON1K	15-19062	Sediment	10/13/15 11:22	10/14/15 12:35
12.	BAO7-10CM-1	AON1L	15-19063	Sediment	10/13/15 11:18	10/14/15 12:35
13.	BAO7-1-2	AON1M	15-19064	Sediment	10/13/15 11:20	10/14/15 12:35
14.	BAO8-0-10CM	AON1N	15-19065	Sediment	10/13/15 11:25	10/14/15 12:35
15.	BAO8-10CM-1	AON1O	15-19066	Sediment	10/13/15 11:30	10/14/15 12:35
16.	BAO8-1-2	AON1P	15-19067	Sediment	10/13/15 11:35	10/14/15 12:35
17.	CR11-SBSD-23	AON1Q	15-19068	Sediment	10/13/15 10:15	10/14/15 12:35
18.	CR12-SBSD-15	AON1R	15-19069	Sediment	10/13/15 09:00	10/14/15 12:35
19.	CR13-SBSD-11	AON1S	15-19070	Sediment	10/13/15 09:50	10/14/15 12:35
20.	CR14-SBSD-12	AON1T	15-19071	Sediment	10/13/15 07:45	10/14/15 12:35

AON1 : 00006

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AON1 : 00007

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AON1 : 00008

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

AON1 : 00009

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102315
METHOD BLANK

Lab Sample ID: MB-102315
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 14:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102315
METHOD BLANK

Lab Sample ID: MB-102315
LIMS ID: 15-19069
Matrix: Sediment
Date Analyzed: 11/05/15 14:41

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	75.8%	2-Fluorobiphenyl	75.8%
d14-p-Terphenyl	104%	d4-1,2-Dichlorobenzene	77.4%
d5-Phenol	72.9%	2-Fluorophenol	68.9%
2,4,6-Tribromophenol	74.7%	d4-2-Chlorophenol	76.5%

AON1 : 00011

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR-24-SSD-COMP
SAMPLE

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 15:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.48 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 47.6%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	19	100
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	4-Methylphenol	19	120
105-67-9	2,4-Dimethylphenol	95	< 95 U
65-85-0	Benzoic Acid	190	680
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	Naphthalene	19	120
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	25
208-96-8	Acenaphthylene	19	19
83-32-9	Acenaphthene	19	25
132-64-9	Dibenzofuran	19	47
84-66-2	Diethylphthalate	19	< 19 U
86-73-7	Fluorene	19	29
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	95	69 J
85-01-8	Phenanthrene	19	160
120-12-7	Anthracene	19	65
84-74-2	Di-n-Butylphthalate	19	130
206-44-0	Fluoranthene	19	380
129-00-0	Pyrene	19	300
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	Benzo(a)anthracene	19	120
117-81-7	bis(2-Ethylhexyl)phthalate	48	66
218-01-9	Chrysene	19	160
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	84
193-39-5	Indeno(1,2,3-cd)pyrene	19	54
53-70-3	Dibenz(a,h)anthracene	19	19
191-24-2	Benzo(g,h,i)perylene	19	56
90-12-0	1-Methylnaphthalene	19	16 J
TOTBFA	Total Benzofluoranthenes	38	230

AON1 : 00012

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR-24-SSD-COMP SAMPLE

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Date Analyzed: 11/05/15 15:53

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	59.6%	2-Fluorobiphenyl	66.2%
d14-p-Terphenyl	80.0%	d4-1,2-Dichlorobenzene	53.4%
d5-Phenol	58.7%	2-Fluorophenol	52.5%
2,4,6-Tribromophenol	82.9%	d4-2-Chlorophenol	61.7%

AON1:00013

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR11-SBSD-23
SAMPLE

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 16:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.69 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 28.8%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**8.4 J**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	4-Methylphenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	94	< 94 U
65-85-0	Benzoic Acid	190	< 190 U
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	Naphthalene	19	< 19 U
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	Acenaphthene	19	< 19 U
132-64-9	Dibenzofuran	19	< 19 U
84-66-2	Diethylphthalate	19	< 19 U
86-73-7	Fluorene	19	< 19 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	94	< 94 U
85-01-8	**Phenanthrene**	**19**	**19**
120-12-7	Anthracene	19	< 19 U
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**24**
129-00-0	**Pyrene**	**19**	**23**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	**Benzo(a)anthracene**	**19**	**11 J**
117-81-7	bis(2-Ethylhexyl)phthalate	47	< 47 U
218-01-9	**Chrysene**	**19**	**12 J**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
90-12-0	1-Methylnaphthalene	19	< 19 U
TOTBFA	**Total Benzofluoranthenes**	**37**	**16 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR11-SBSD-23
SAMPLE

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Date Analyzed: 11/05/15 16:29

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	55.0%	2-Fluorobiphenyl	59.4%
d14-p-Terphenyl	78.4%	d4-1,2-Dichlorobenzene	56.4%
d5-Phenol	61.1%	2-Fluorophenol	59.1%
2,4,6-Tribromophenol	76.8%	d4-2-Chlorophenol	64.5%

AON1 : 00015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR12-SBSD-15
SAMPLE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 17:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.20 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.4%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	64
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	26
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	870
105-67-9	2,4-Dimethylphenol	98	< 98 U
65-85-0	Benzoic Acid	200	440
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	370
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	41
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	110
83-32-9	Acenaphthene	20	41
132-64-9	Dibenzofuran	20	40
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	47
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	98	< 98 U
85-01-8	Phenanthrene	20	210
120-12-7	Anthracene	20	41
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	150
129-00-0	Pyrene	20	150
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	30
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49 U
218-01-9	Chrysene	20	43
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	24
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	30
90-12-0	1-Methylnaphthalene	20	24
TOTBFA	Total Benzofluoranthenes	39	61

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR12-SBSD-15
SAMPLE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Date Analyzed: 11/05/15 17:05

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.2%	2-Fluorobiphenyl	61.6%
d14-p-Terphenyl	76.8%	d4-1,2-Dichlorobenzene	53.0%
d5-Phenol	55.1%	2-Fluorophenol	51.2%
2,4,6-Tribromophenol	76.5%	d4-2-Chlorophenol	55.2%

AON1 : 00017

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR12-SBSD-15
MATRIX SPIKE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized:
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 18:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.22 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.4%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	---
95-50-1	1,2-Dichlorobenzene	20	---
95-48-7	2-Methylphenol	20	---
106-44-5	4-Methylphenol	20	---
105-67-9	2,4-Dimethylphenol	98	---
65-85-0	Benzoic Acid	200	---
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	Naphthalene	20	---
87-68-3	Hexachlorobutadiene	20	---
91-57-6	2-Methylnaphthalene	20	---
131-11-3	Dimethylphthalate	20	---
208-96-8	Acenaphthylene	20	---
83-32-9	Acenaphthene	20	---
132-64-9	Dibenzofuran	20	---
84-66-2	Diethylphthalate	20	---
86-73-7	Fluorene	20	---
86-30-6	N-Nitrosodiphenylamine	20	---
118-74-1	Hexachlorobenzene	20	---
87-86-5	Pentachlorophenol	98	---
85-01-8	Phenanthrene	20	---
120-12-7	Anthracene	20	---
84-74-2	Di-n-Butylphthalate	20	---
206-44-0	Fluoranthene	20	---
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	---
56-55-3	Benzo(a)anthracene	20	---
117-81-7	bis(2-Ethylhexyl)phthalate	49	---
218-01-9	Chrysene	20	---
117-84-0	Di-n-Octyl phthalate	20	---
50-32-8	Benzo(a)pyrene	20	---
193-39-5	Indeno(1,2,3-cd)pyrene	20	---
53-70-3	Dibenz(a,h)anthracene	20	---
191-24-2	Benzo(g,h,i)perylene	20	---
90-12-0	1-Methylnaphthalene	20	---
TOTBFA	Total Benzofluoranthenes	39	---

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR12-SBSD-15
MATRIX SPIKE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Date Analyzed: 11/05/15 18:17

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.4%	2-Fluorobiphenyl	63.2%
d14-p-Terphenyl	78.6%	d4-1,2-Dichlorobenzene	60.6%
d5-Phenol	64.4%	2-Fluorophenol	61.7%
2,4,6-Tribromophenol	76.3%	d4-2-Chlorophenol	64.5%

AON1 : 00019

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR12-SBSD-15
MATRIX SPIKE DUPLICATE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 17:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.20 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.4%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	---
95-50-1	1,2-Dichlorobenzene	20	---
95-48-7	2-Methylphenol	20	---
106-44-5	4-Methylphenol	20	---
105-67-9	2,4-Dimethylphenol	98	---
65-85-0	Benzoic Acid	200	---
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	Naphthalene	20	---
87-68-3	Hexachlorobutadiene	20	---
91-57-6	2-Methylnaphthalene	20	---
131-11-3	Dimethylphthalate	20	---
208-96-8	Acenaphthylene	20	---
83-32-9	Acenaphthene	20	---
132-64-9	Dibenzofuran	20	---
84-66-2	Diethylphthalate	20	---
86-73-7	Fluorene	20	---
86-30-6	N-Nitrosodiphenylamine	20	---
118-74-1	Hexachlorobenzene	20	---
87-86-5	Pentachlorophenol	98	---
85-01-8	Phenanthrene	20	---
120-12-7	Anthracene	20	---
84-74-2	Di-n-Butylphthalate	20	---
206-44-0	Fluoranthene	20	---
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	---
56-55-3	Benzo(a)anthracene	20	---
117-81-7	bis(2-Ethylhexyl)phthalate	49	---
218-01-9	Chrysene	20	---
117-84-0	Di-n-Octyl phthalate	20	---
50-32-8	Benzo(a)pyrene	20	---
193-39-5	Indeno(1,2,3-cd)pyrene	20	---
53-70-3	Dibenz(a,h)anthracene	20	---
191-24-2	Benzo(g,h,i)perylene	20	---
90-12-0	1-Methylnaphthalene	20	---
TOTBFA	Total Benzofluoranthenes	39	---

AON1 : 00020

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR12-SBSD-15
MATRIX SPIKE DUPLICATE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Date Analyzed: 11/05/15 17:41

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.4%	2-Fluorobiphenyl	67.2%
d14-p-Terphenyl	82.0%	d4-1,2-Dichlorobenzene	64.8%
d5-Phenol	70.8%	2-Fluorophenol	63.9%
2,4,6-Tribromophenol	82.9%	d4-2-Chlorophenol	70.8%

AON1 : 00021

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR13-SBSD-11
SAMPLE

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 18:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.25 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.2%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	44
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	43
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	150
105-67-9	2,4-Dimethylphenol	98	< 98 U
65-85-0	Benzoic Acid	200	260
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	300
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	110
83-32-9	Acenaphthene	20	31
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	35
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	98	< 98 U
85-01-8	Phenanthrene	20	150
120-12-7	Anthracene	20	28
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	100
129-00-0	Pyrene	20	110
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	20
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49 U
218-01-9	Chrysene	20	29
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	18 J
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	30
90-12-0	1-Methylnaphthalene	20	22
TOTBFA	Total Benzofluoranthenes	39	40

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR13-SBSD-11
SAMPLE

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Date Analyzed: 11/05/15 18:53

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	54.2%	2-Fluorobiphenyl	59.4%
d14-p-Terphenyl	77.2%	d4-1,2-Dichlorobenzene	55.4%
d5-Phenol	56.0%	2-Fluorophenol	49.3%
2,4,6-Tribromophenol	74.9%	d4-2-Chlorophenol	59.7%

AON1 : 00023

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR14-SBSD-12
SAMPLE

Lab Sample ID: AON1T
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 19:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.26 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.0%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	50
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	39
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	130
105-67-9	2,4-Dimethylphenol	98	< 98 U
65-85-0	Benzoic Acid	200	200
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	190
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	21
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	61
83-32-9	Acenaphthene	20	20
132-64-9	Dibenzofuran	20	20
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	23
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	98	< 98 U
85-01-8	Phenanthrene	20	120
120-12-7	Anthracene	20	18 J
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	88
129-00-0	Pyrene	20	87
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	17 J
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49 U
218-01-9	Chrysene	20	25
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	15 J
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	20
90-12-0	1-Methylnaphthalene	20	16 J
TOTBFA	Total Benzofluoranthenes	39	39

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR14-SBSD-12
SAMPLE

Lab Sample ID: AON1T
LIMS ID: 15-19071
Matrix: Sediment
Date Analyzed: 11/05/15 19:29

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	44.4%	2-Fluorobiphenyl	47.6%
d14-p-Terphenyl	58.6%	d4-1,2-Dichlorobenzene	41.8%
d5-Phenol	45.2%	2-Fluorophenol	40.1%
2,4,6-Tribromophenol	58.7%	d4-2-Chlorophenol	46.3%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
CR-24-SSD-COMP	59.6%	66.2%	80.0%	53.4%	58.7%	52.5%	82.9%	61.7%	0
CR11-SBSD-23	55.0%	59.4%	78.4%	56.4%	61.1%	59.1%	76.8%	64.5%	0
MB-102315	75.8%	75.8%	104%	77.4%	72.9%	68.9%	74.7%	76.5%	0
LCS-102315	65.2%	64.6%	79.4%	53.8%	66.7%	59.7%	68.0%	62.9%	0
CR12-SBSD-15	58.2%	61.6%	76.8%	53.0%	55.1%	51.2%	76.5%	55.2%	0
CR12-SBSD-15 MS	64.4%	63.2%	78.6%	60.6%	64.4%	61.7%	76.3%	64.5%	0
CR12-SBSD-15 MSD	67.4%	67.2%	82.0%	64.8%	70.8%	63.9%	82.9%	70.8%	0
CR13-SBSD-11	54.2%	59.4%	77.2%	55.4%	56.0%	49.3%	74.9%	59.7%	0
CR14-SBSD-12	44.4%	47.6%	58.6%	41.8%	45.2%	40.1%	58.7%	46.3%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19057 to 15-19071

FORM-II SW8270

AON1 : 00026

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: CR12-SBSD-15
MS/MSD

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted MS/MSD: 10/23/15

Date Analyzed MS: 11/05/15 18:17
MSD: 11/05/15 17:41
Instrument/Analyst MS: NT10/YZ
MSD: NT10/YZ
GPC Cleanup: Yes

Sample Amount MS: 10.22 g-dry-wt
MSD: 10.20 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 43.4 %

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	64	388	489	66.3%	417	490	72.0%	7.2%
1,4-Dichlorobenzene	< 20 U	307	489	62.8%	339	490	69.2%	9.9%
Benzyl Alcohol	26	391	489	74.6%	425	490	81.4%	8.3%
1,2-Dichlorobenzene	< 20 U	325	489	66.5%	341	490	69.6%	4.8%
2-Methylphenol	< 20 U	341	489	69.7%	376	490	76.7%	9.8%
4-Methylphenol	870	1660	489	162%	1550	490	139%	6.9%
2,4-Dimethylphenol	< 98 U	1080	1470	73.5%	1150	1470	78.2%	6.3%
Benzoic Acid	440	2510	2690	77.0%	2700	2700	83.7%	7.3%
1,2,4-Trichlorobenzene	< 20 U	323	489	66.1%	339	490	69.2%	4.8%
Naphthalene	370	712	489	69.9%	775	490	82.7%	8.5%
Hexachlorobutadiene	< 20 U	347	489	71.0%	365	490	74.5%	5.1%
2-Methylnaphthalene	41	395	489	72.4%	413	490	75.9%	4.5%
Dimethylphthalate	< 20 U	341	489	69.7%	357	490	72.9%	4.6%
Acenaphthylene	110	451	489	69.7%	485	490	76.5%	7.3%
Acenaphthene	41	401	489	73.6%	415	490	76.3%	3.4%
Dibenzofuran	40	381	489	69.7%	403	490	74.1%	5.6%
Diethylphthalate	< 20 U	356	489	72.8%	379	490	77.3%	6.3%
Fluorene	47	370	489	66.1%	389	490	69.8%	5.0%
N-Nitrosodiphenylamine	< 20 U	120	489	24.5%	59.8	490	12.2%	67.0%
Hexachlorobenzene	< 20 U	308	489	63.0%	309	490	63.1%	0.3%
Pentachlorophenol	< 98 U	977	1470	66.5%	1040	1470	70.7%	6.2%
Phenanthrene	210	546	489	68.7%	552	490	69.8%	1.1%
Anthracene	41	370	489	67.3%	385	490	70.2%	4.0%
Di-n-Butylphthalate	< 20 U	363	489	74.2%	369	490	75.3%	1.6%
Fluoranthene	150	441	489	59.5%	467	490	64.7%	5.7%
Pyrene	150	427	489	56.6%	441	490	59.4%	3.2%
Butylbenzylphthalate	< 20 U	343	489	70.1%	366	490	74.7%	6.5%
Benzo(a)anthracene	30	345	489	64.4%	356	490	66.5%	3.1%
bis(2-Ethylhexyl)phthalate	< 49 U	376	489	76.9%	356	490	72.7%	5.5%
Chrysene	43	350	489	62.8%	363	490	65.3%	3.6%
Di-n-Octyl phthalate	< 20 U	315	489	64.4%	318	490	64.9%	0.9%
Benzo(a)pyrene	< 20 U	316	489	64.6%	344	490	70.2%	8.5%
Indeno(1,2,3-cd)pyrene	24	313	489	59.1%	331	490	62.7%	5.6%
Dibenz(a,h)anthracene	< 20 U	306	489	62.6%	325	490	66.3%	6.0%
Benzo(g,h,i)perylene	30	283	489	51.7%	300	490	55.1%	5.8%
1-Methylnaphthalene	24	350	489	66.7%	360	490	68.6%	2.8%
Total Benzofluoranthenes	61	681	978	63.4%	725	980	67.8%	6.3%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized:
Reported: 11/10/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 15:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	309	500	61.8%
1,4-Dichlorobenzene	273	500	54.6%
Benzyl Alcohol	302	500	60.4%
1,2-Dichlorobenzene	286	500	57.2%
2-Methylphenol	300	500	60.0%
4-Methylphenol	334	500	66.8%
2,4-Dimethylphenol	875	1500	58.3%
Benzoic Acid	1860	2750	67.6%
1,2,4-Trichlorobenzene	285	500	57.0%
Naphthalene	291	500	58.2%
Hexachlorobutadiene	298	500	59.6%
2-Methylnaphthalene	305	500	61.0%
Dimethylphthalate	324	500	64.8%
Acenaphthylene	306	500	61.2%
Acenaphthene	321	500	64.2%
Dibenzofuran	310	500	62.0%
Diethylphthalate	344	500	68.8%
Fluorene	309	500	61.8%
N-Nitrosodiphenylamine	298	500	59.6%
Hexachlorobenzene	282	500	56.4%
Pentachlorophenol	805	1500	53.7%
Phenanthrene	307	500	61.4%
Anthracene	308	500	61.6%
Di-n-Butylphthalate	331	500	66.2%
Fluoranthene	292	500	58.4%
Pyrene	293	500	58.6%
Butylbenzylphthalate	329	500	65.8%
Benzo(a)anthracene	323	500	64.6%
bis(2-Ethylhexyl)phthalate	312	500	62.4%
Chrysene	310	500	62.0%
Di-n-Octyl phthalate	278	500	55.6%
Benzo(a)pyrene	310	500	62.0%
Indeno(1,2,3-cd)pyrene	341	500	68.2%
Dibenz(a,h)anthracene	347	500	69.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19069
Matrix: Sediment
Date Analyzed: 11/05/15 15:17

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	281	500	56.2%
1-Methylnaphthalene	277	500	55.4%
Total Benzofluoranthenes	686	1000	68.6%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	65.2%
2-Fluorobiphenyl	64.6%
d14-p-Terphenyl	79.4%
d4-1,2-Dichlorobenzene	53.8%
d5-Phenol	66.7%
2-Fluorophenol	59.7%
2,4,6-Tribromophenol	68.0%
d4-2-Chlorophenol	62.9%

Reported in µg/kg (ppb)

AON1 : 00029

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-102315**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102315
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 14:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	64.3%
d14-p-Terphenyl	83.6% Q

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR-24-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 15:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.48 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 47.6%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**19**
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	Butylbenzylphthalate	4.8	< 4.8 U
95-48-7	**2-Methylphenol**	**4.8**	**8.4**
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	Benzyl Alcohol	19	< 19 U
87-86-5	**Pentachlorophenol**	**19**	**86 Q**
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	49.9%
d14-p-Terphenyl	64.8% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR11-SBSD-23**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 16:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.69 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 28.8%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.7	< 4.7 U
106-46-7	1,4-Dichlorobenzene	4.7	< 4.7 U
120-82-1	1,2,4-Trichlorobenzene	4.7	< 4.7 U
118-74-1	Hexachlorobenzene	4.7	< 4.7 U
87-68-3	Hexachlorobutadiene	4.7	< 4.7 U
131-11-3	Dimethylphthalate	4.7	< 4.7 U
85-68-7	Butylbenzylphthalate	4.7	< 4.7 U
95-48-7	2-Methylphenol	4.7	< 4.7 U
105-67-9	2,4-Dimethylphenol	23	< 23 U
86-30-6	N-Nitrosodiphenylamine	4.7	< 4.7 U
100-51-6	Benzyl Alcohol	19	< 19 U
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.7	< 4.7 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	52.9%
d14-p-Terphenyl	64.2% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR12-SBSD-15**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 17:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.20 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.4%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**6.3**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**20**	**23**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	48.9%
d14-p-Terphenyl	61.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR12-SBSD-15**
Extraction Method: SW3546 **MATRIX SPIKE**

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 18:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.22 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.4%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.9	---
106-46-7	1,4-Dichlorobenzene	4.9	---
120-82-1	1,2,4-Trichlorobenzene	4.9	---
118-74-1	Hexachlorobenzene	4.9	---
87-68-3	Hexachlorobutadiene	4.9	---
131-11-3	Dimethylphthalate	4.9	---
85-68-7	Butylbenzylphthalate	4.9	---
95-48-7	2-Methylphenol	4.9	---
105-67-9	2,4-Dimethylphenol	24	---
86-30-6	N-Nitrosodiphenylamine	4.9	---
100-51-6	Benzyl Alcohol	20	---
87-86-5	Pentachlorophenol	20	---
95-50-1	1,2-Dichlorobenzene	4.9	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	58.5%
d14-p-Terphenyl	63.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR12-SBSD-15**
Extraction Method: SW3546 **MATRIX SPIKE DUPLICATE**

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 17:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.20 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.4%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.9	---
106-46-7	1,4-Dichlorobenzene	4.9	---
120-82-1	1,2,4-Trichlorobenzene	4.9	---
118-74-1	Hexachlorobenzene	4.9	---
87-68-3	Hexachlorobutadiene	4.9	---
131-11-3	Dimethylphthalate	4.9	---
85-68-7	Butylbenzylphthalate	4.9	---
95-48-7	2-Methylphenol	4.9	---
105-67-9	2,4-Dimethylphenol	24	---
86-30-6	N-Nitrosodiphenylamine	4.9	---
100-51-6	Benzyl Alcohol	20	---
87-86-5	Pentachlorophenol	20	---
95-50-1	1,2-Dichlorobenzene	4.9	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	59.5%
d14-p-Terphenyl	63.0% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR13-SBSD-11**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 18:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.25 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.2%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**4.3 J**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	**Butylbenzylphthalate**	**4.9**	**7.3**
95-48-7	**2-Methylphenol**	**4.9**	**7.2**
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**20**	**46**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	48.4%
d14-p-Terphenyl	59.2% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR14-SBSD-12**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON1T
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 19:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.26 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 43.0%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**3.2 J**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	**Butylbenzylphthalate**	**4.9**	**4.7 J**
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**20**	**20**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	39.7%
d14-p-Terphenyl	47.2% Q

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
CR-24-SSD-COMP	49.9%	64.8% Q	0
CR11-SBSD-23	52.9%	64.2% Q	0
MB-102315	64.3%	83.6% Q	0
LCS-102315	58.1%	65.6% Q	0
CR12-SBSD-15	48.9%	61.6% Q	0
CR12-SBSD-15 MS	58.5%	63.6% Q	0
CR12-SBSD-15 MSD	59.5%	63.0% Q	0
CR13-SBSD-11	48.4%	59.2% Q	0
CR14-SBSD-12	39.7%	47.2% Q	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19057 to 15-19071

FORM-II SIM SW8270

AON1 : 00038

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-102315**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-102315
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed LCS: 11/05/15 15:17
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Dibenz(a,h)anthracene	305	500	61.0%
1,4-Dichlorobenzene	262	500	52.4%
1,2,4-Trichlorobenzene	270	500	54.0%
Hexachlorobenzene	273	500	54.6%
Hexachlorobutadiene	292	500	58.4%
Dimethylphthalate	308	500	61.6%
Butylbenzylphthalate	344	500	68.8%
2-Methylphenol	276	500	55.2%
2,4-Dimethylphenol	814	1500	54.3%
N-Nitrosodiphenylamine	291	500	58.2%
Benzyl Alcohol	346	500	69.2%
Pentachlorophenol	1000 EQ	1500	66.7%
1,2-Dichlorobenzene	274	500	54.8%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	58.1%
d14-p-Terphenyl	65.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR12-SBSD-15**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/12/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted MS/MSD: 10/23/15

Sample Amount MS: 10.22 g-dry-wt
MSD: 10.20 g-dry-wt

Date Analyzed MS: 11/05/15 18:17
MSD: 11/05/15 17:41

Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL

Instrument/Analyst MS: NT10/YZ
MSD: NT10/YZ

Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Dibenz(a,h)anthracene	6.3	268	489	53.5%	283	490	56.5%	5.4%
1,4-Dichlorobenzene	< 4.9 U	292	489	59.7%	298	490	60.8%	2.0%
1,2,4-Trichlorobenzene	< 4.9 U	294	489	60.1%	299	490	61.0%	1.7%
Hexachlorobenzene	< 4.9 U	300	489	61.3%	295	490	60.2%	1.7%
Hexachlorobutadiene	< 4.9 U	333	489	68.1%	340	490	69.4%	2.1%
Dimethylphthalate	< 4.9 U	332	489	67.9%	344	490	70.2%	3.6%
Butylbenzylphthalate	< 4.9 U	369	489	75.5%	369	490	75.3%	0.0%
2-Methylphenol	< 4.9 U	313	489	64.0%	323	490	65.9%	3.1%
2,4-Dimethylphenol	< 24 U	962	1470	65.4%	985	1470	67.0%	2.4%
N-Nitrosodiphenylamine	< 4.9 U	139	489	28.4%	71.1	490	14.5%	64.6%
Benzyl Alcohol	23	435	489	84.3%	455	490	88.2%	4.5%
Pentachlorophenol	< 20 U	1280 EQ	1470	87.1%	1300 EQ	1470	88.4%	1.6%
1,2-Dichlorobenzene	< 4.9 U	301	489	61.6%	305	490	62.2%	1.3%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: CC1105A.D
Analysis Type:
Lab Sample ID: CC1105A
Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

Injection Date: 05-NOV-2015 14:04
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:39
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.04543	0.98207	0.010	-6.06090	20.00000	Averaged	
3 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.78433	0.010	2.58940	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79485	0.010	-2.74242	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.72457	0.010	5.83701	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.81370	0.010	-12.87015	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81780	0.010	-10.72571	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57662	0.050	-6.38240	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33255	0.010	-15.58052	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.41910	0.010	6.21998	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.33208	0.010	9.37722	20.00000	Averaged	
39 Dimethylphthalate	1.14558	1.01470	0.010	-11.42453	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.13213	0.010	-8.55608	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.57444	0.010	-7.27995	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.46057	0.010	11.11164	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.15371	0.005	-27.87342	20.00000	Averaged	<-
$ 66 Terphenyl-d14	0.36942	0.25581	0.010	-30.75549	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39038	0.010	-5.48875	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.04200	0.010	-9.94423	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.46419	0.010	4.66003	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR11-SBSD-23

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized:
Reported: 11/06/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 19:21
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0339	0.996	< 0.0339	U
2,3,7,8-TCDD	0.68	0.65-0.89		0.996	0.936	J
1,2,3,7,8-PeCDF		1.32-1.78	0.0398	0.996	< 0.0398	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0418	0.996	< 0.0418	U
1,2,3,7,8-PeCDD	1.54	1.32-1.78		0.996	1.02	
1,2,3,4,7,8-HxCDF	1.24	1.05-1.43		0.996	0.0319	J
1,2,3,6,7,8-HxCDF	0.52	1.05-1.43		0.996	0.0339	JEMPC
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0438	0.996	< 0.0438	U
1,2,3,7,8,9-HxCDF	1.68	1.05-1.43		0.996	0.112	BJEMPC
1,2,3,4,7,8-HxCDD	1.02	1.05-1.43		0.996	0.255	JEMPC
1,2,3,6,7,8-HxCDD	1.01	1.05-1.43		0.996	0.631	JEMPC
1,2,3,7,8,9-HxCDD	1.22	1.05-1.43		0.996	2.76	
1,2,3,4,6,7,8-HpCDF	0.87	0.88-1.20		0.996	0.317	BJEMPC
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0458	0.996	< 0.0458	U
1,2,3,4,6,7,8-HpCDD	0.99	0.88-1.20		0.996	6.64	B
OCDF	0.89	0.76-1.02		1.99	1.08	BJ
OCDD	0.87	0.76-1.02		9.96	33.1	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0339	0.996	0.303	EMPC
Total TCDD		0.996	7.61	EMPC
Total PeCDF	0.0418	1.99	0.111	EMPC
Total PeCDD		0.996	7.59	
Total HxCDF		1.99	0.599	EMPC
Total HxCDD		1.99	18.1	EMPC
Total HpCDF		1.99	1.28	EMPC
Total HpCDD		1.99	15.5	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 2.42

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 2.43

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR11-SBSD-23

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 19:21
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	90.3	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	84.4	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	99.6	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	91.2	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	91.8	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	88.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	84.5	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	88.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.50	0.43-0.59	85.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	91.8	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	87.2	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	81.0	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	80.1	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	86.7	23-140	
13C-OCDD	0.90	0.76-1.02	72.2	17-157	
37Cl4-2,3,7,8-TCDD			94.3	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0360	1.00	< 0.0360	U
2,3,7,8-TCDD		0.65-0.89	0.0520	1.00	< 0.0520	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0380	1.00	< 0.0380	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0400	1.00	< 0.0400	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0640	1.00	< 0.0640	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0440	1.00	< 0.0440	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0400	1.00	< 0.0400	U
2,3,4,6,7,8-HxCDF	1.37	1.05-1.43		1.00	0.0400	J
1,2,3,7,8,9-HxCDF	1.13	1.05-1.43		1.00	0.0360	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0520	1.00	< 0.0520	U
1,2,3,6,7,8-HxCDD	1.75	1.05-1.43		1.00	0.0480	JEMPC
1,2,3,7,8,9-HxCDD	0.96	1.05-1.43		1.00	0.106	JEMPC
1,2,3,4,6,7,8-HpCDF	0.58	0.88-1.20		1.00	0.118	JEMPC
1,2,3,4,7,8,9-HpCDF	0.90	0.88-1.20		1.00	0.0480	J
1,2,3,4,6,7,8-HpCDD	1.00	0.88-1.20		1.00	0.962	J
OCDF	0.68	0.76-1.02		2.00	0.378	JEMPC
OCDD	0.86	0.76-1.02		10.0	6.81	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0360	1.00	< 0.0360	U
Total TCDD	0.0520	1.00	< 0.0520	U
Total PeCDF	0.0400	2.00	< 0.0400	U
Total PeCDD	0.0640	1.00	< 0.0640	U
Total HxCDF		2.00	0.116	EMPC
Total HxCDD		2.00	0.760	EMPC
Total HpCDF		2.00	0.341	EMPC
Total HpCDD		2.00	2.29	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.11

Reported in pg/g

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

ANALYTICAL RESOURCES INCORPORATED

Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	104	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	99.2	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	108	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	104	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	102	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	102	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	101	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	98.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	108	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	103	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	97.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	98.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	106	23-140	
13C-OCDD	0.90	0.76-1.02	92.3	17-157	
37Cl4-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.67	0.65-0.89	1.00	20.1
2,3,7,8-TCDD	0.76	0.65-0.89	1.00	21.8
1,2,3,7,8-PeCDF	1.45	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.41	1.32-1.78	1.00	102
1,2,3,7,8-PeCDD	1.54	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.15	1.05-1.43	1.00	106
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43	1.00	103
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43	1.00	107
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43	1.00	104
1,2,3,6,7,8-HxCDD	1.22	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43	1.00	105
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	109
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	1.00	106
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.83	0.76-1.02	2.00	202
OCDD	0.90	0.76-1.02	10.0	218

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	20.9	EMPC
Total TCDD		1.00	22.3	
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	105	EMPC
Total HxCDF		2.00	422	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	216	EMPC
Total HpCDD		2.00	108	EMPC

Reported in pg/g

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

ANALYTICAL RESOURCES INCORPORATED

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	100	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	96.4	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	105	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	102	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	97.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.50	0.43-0.59	97.0	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	96.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	93.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	102	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	99.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	90.6	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	91.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	97.8	23-140	
13C-OCDD	0.89	0.76-1.02	83.1	17-157	
37Cl4-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.1	20.0	100	75-158
2,3,7,8-TCDD	21.8	20.0	109	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	102	100	102	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	106	100	106	72-134
1,2,3,6,7,8-HxCDF	103	100	103	84-130
2,3,4,6,7,8-HxCDF	107	100	107	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	104	100	104	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	105	100	105	64-162
1,2,3,4,6,7,8-HpCDF	109	100	109	82-132
1,2,3,4,7,8,9-HpCDF	106	100	106	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	202	200	101	63-170
OCDD	218	200	109	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR-24-SSD-COMP
SAMPLE

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 01:04
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.26 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 47.6%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	**Aroclor 1254**	**19**	**30**
11096-82-5	**Aroclor 1260**	**19**	**24**
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.2%
Tetrachlorometaxylene	91.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR11-SBSD-23
SAMPLE

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 01:25
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.75 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 28.8%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	< 17 U
11096-82-5	Aroclor 1260	17	< 17 U
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U
11100-14-4	Aroclor 1268	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	77.8%
Tetrachlorometaxylene	70.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR12-SBSD-15
SAMPLE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 01:46
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.10 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 43.4%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.5%
Tetrachlorometaxylene	70.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR13-SBSD-11
SAMPLE

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 02:07
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.12 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 43.2%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	77.2%
Tetrachlorometaxylene	74.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR14-SBSD-12
SAMPLE

Lab Sample ID: AON1T
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 03:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.14 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 43.0%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.0%
Tetrachlorometaxylene	77.5%

AON1 : 00053

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: CR13-SBSD-11
MS/MSD

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted MS/MSD: 10/20/15

Date Analyzed MS: 10/24/15 02:29
MSD: 10/24/15 02:50
Instrument/Analyst MS: ECD7/JGR
MSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 5.15 g-dry-wt
MSD: 5.13 g-dry-wt
Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: Yes

Percent Moisture: 43.2%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 20 U	372	485	76.7%	388	487	79.7%	4.2%
Aroclor 1260	< 20 U	429	485	88.5%	433	487	88.9%	0.9%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

AON1 : 00054

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR13-SBSD-11
MATRIX SPIKE

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 02:29
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.15 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 43.2%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	---
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	---
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.5%
Tetrachlorometaxylene	72.2%

AON1 : 00055

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR13-SBSD-11
MATRIX SPIKE DUP

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 02:50
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.13 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 43.2%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	---
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	---
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.5%
Tetrachlorometaxylene	78.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:17
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.2%
Tetrachlorometaxylene	74.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A

Sample ID: LCS-102015
LAB CONTROL

Lab Sample ID: LCS-102015
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:39
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	407	500	81.4%
Aroclor 1260	516	500	103%

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	73.2%

Results reported in µg/kg (ppb)

AON1 : 00058

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
CR-24-SSD-COMP	78.2%	47-120	91.5%	53-116	0
CR11-SBSD-23	77.8%	47-120	70.0%	53-116	0
CR12-SBSD-15	72.5%	47-120	70.5%	53-116	0
MB-102015	96.2%	59-115	74.8%	58-112	0
LCS-102015	96.0%	59-115	73.2%	58-112	0
CR13-SBSD-11	77.2%	47-120	74.0%	53-116	0
CR13-SBSD-11 MS	75.5%	47-120	72.2%	53-116	0
CR13-SBSD-11 MSD	76.5%	47-120	78.0%	53-116	0
CR14-SBSD-12	79.0%	47-120	77.5%	53-116	0

Microwave (MARS) Control Limits PCBSMI
Prep Method: SW3546
Log Number Range: 15-19057 to 15-19071

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Sediment

Date Received: 10/14/15

Data Release Authorized:
Reported: 10/23/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
AON1F	CR-24-SSD-COMP	10/19/15	10/20/15	1.00	**Diesel Range**	**95**	**370**
15-19057	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil Range**	**190**	**850**
					o-Terphenyl		74.0%
MB-101915	Method Blank	10/19/15	10/20/15	1.00	Diesel Range	5.0	< 5.0 U
15-19068	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		78.7%
AON1Q	CR11-SBSD-23	10/19/15	10/20/15	1.00	Diesel Range	7.0	< 7.0 U
15-19068	HC ID: **MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**14**	**19**
					o-Terphenyl		74.2%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

AON1 : 00060

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID

Sample ID: CR11-SBSD-23
MS/MSD

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted MS/MSD: 10/19/15

Date Analyzed MS: 10/20/15 19:39
MSD: 10/20/15 20:00
Instrument/Analyst MS: FID3B/ML
MSD: FID3B/ML

Sample Amount MS: 7.15 g-dry-wt
MSD: 7.15 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 28.8%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 7.0 U	162	210	77.1%	153	210	72.9%	5.7%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	75.3%	71.1%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

AON1:00061

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/20/15 17:30
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	107	150	71.3%

TPHD Surrogate Recovery

o-Terphenyl	74.5%

Results reported in mg/kg

AON1 : 00062

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Sediment
Date Received: 10/14/15

ARI Job: AON1
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19057-AON1F	CR-24-SSD-COMP	5.25 g	1.00 mL	D	10/19/15
15-19068-101915MB1	Method Blank	10.0 g	1.00 mL	-	10/19/15
15-19068-101915LCS1	Lab Control	10.0 g	1.00 mL	-	10/19/15
15-19068-AON1Q	CR11-SBSD-23	7.13 g	1.00 mL	D	10/19/15
15-19068-AON1QMS	CR11-SBSD-23	7.15 g	1.00 mL	D	10/19/15
15-19068-AON1QMSD	CR11-SBSD-23	7.15 g	1.00 mL	D	10/19/15

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
CR-24-SSD-COMP	74.0%	0
101915MB	78.7%	0
101915LCS	74.5%	0
CR11-SBSD-23	74.2%	0
CR11-SBSD-23 MS	75.3%	0
CR11-SBSD-23 MSD	71.1%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

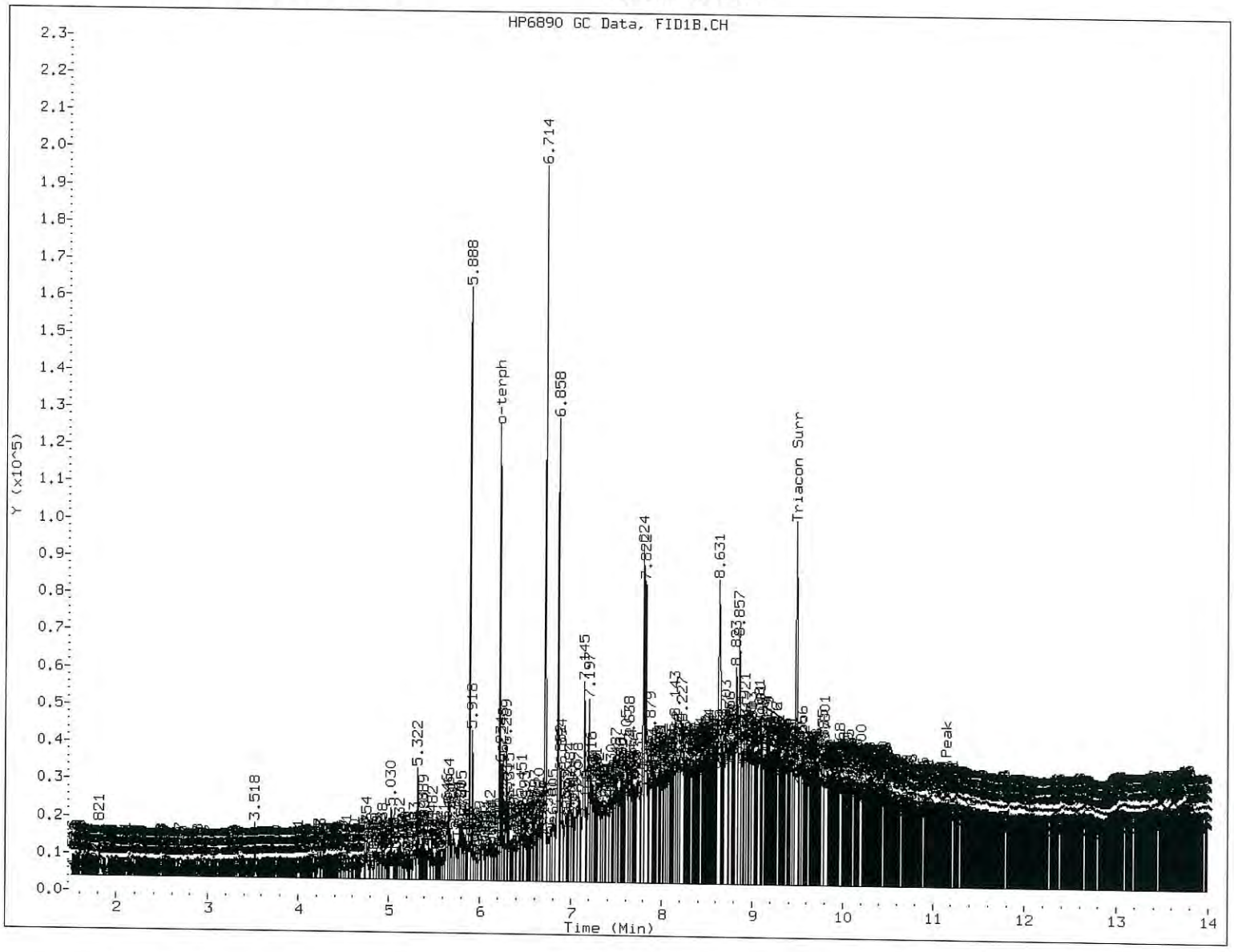
Prep Method: SW3546
Log Number Range: 15-19057 to 15-19068

FORM-II TPHD

AON1 : 00064

FID:3B-2C/RTX-1 AON1F

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

Analyst: ML Date: 12/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102024.D

Date : 20-OCT-2015 18:56

Client ID: CR-24-SSD-COMP

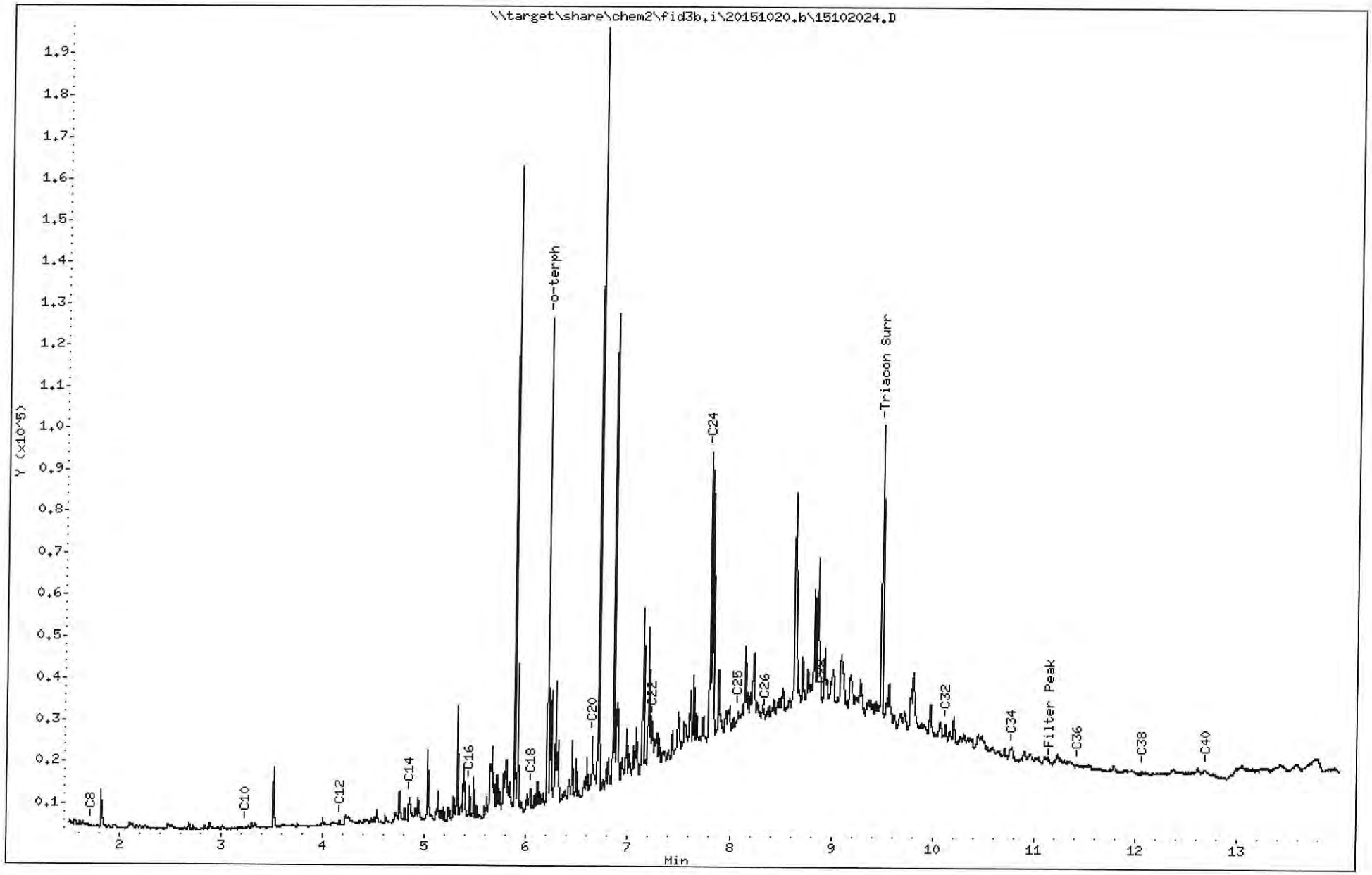
Sample Info: AON1F,10

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

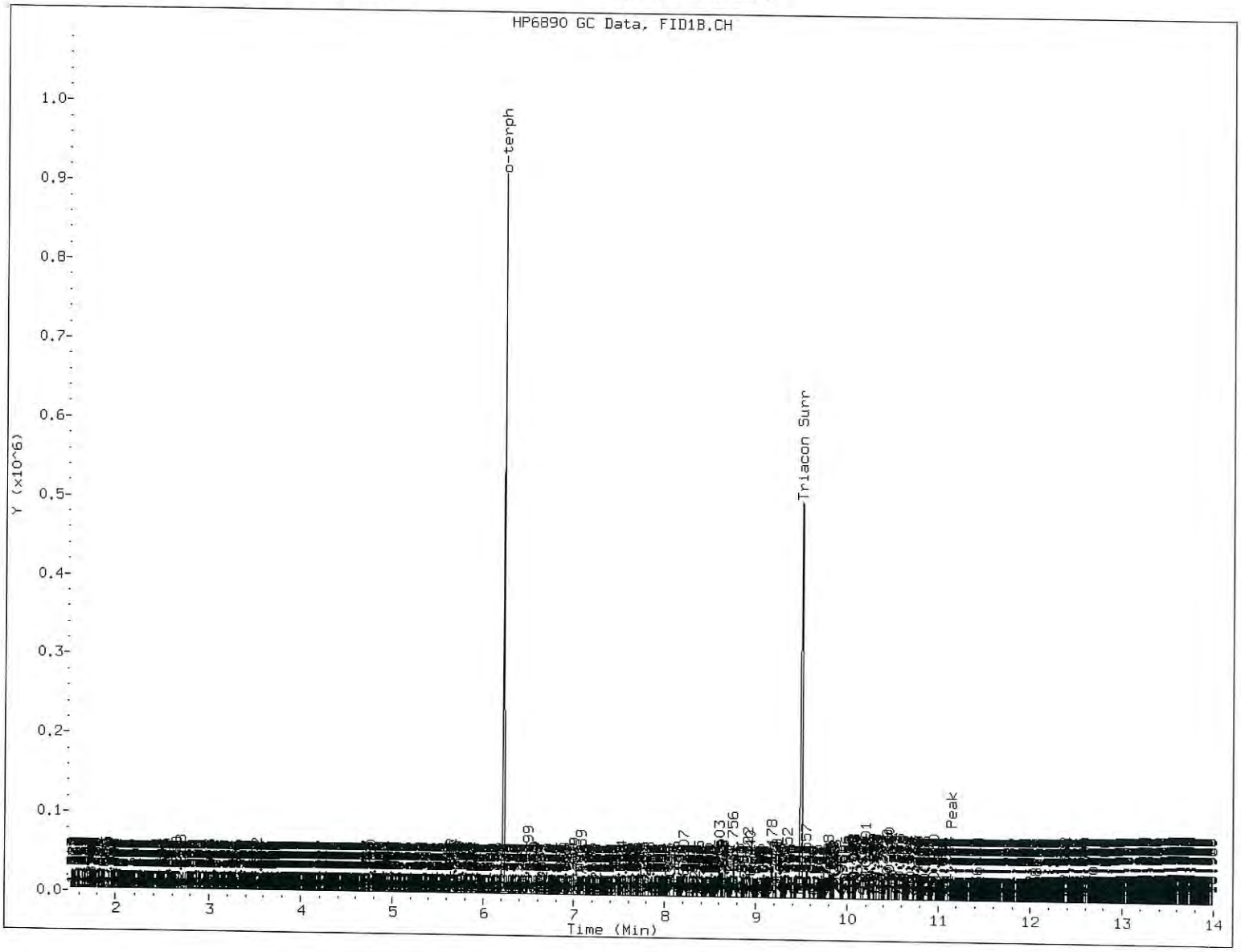
Column diameter: 0.25



AON1:00065

FID:3B-2C/RTX-1 AON1Q

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

Analyst: MC Date: 12/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102025.D

Date : 20-OCT-2015 19:17

Client ID: CR11-SBSD-23

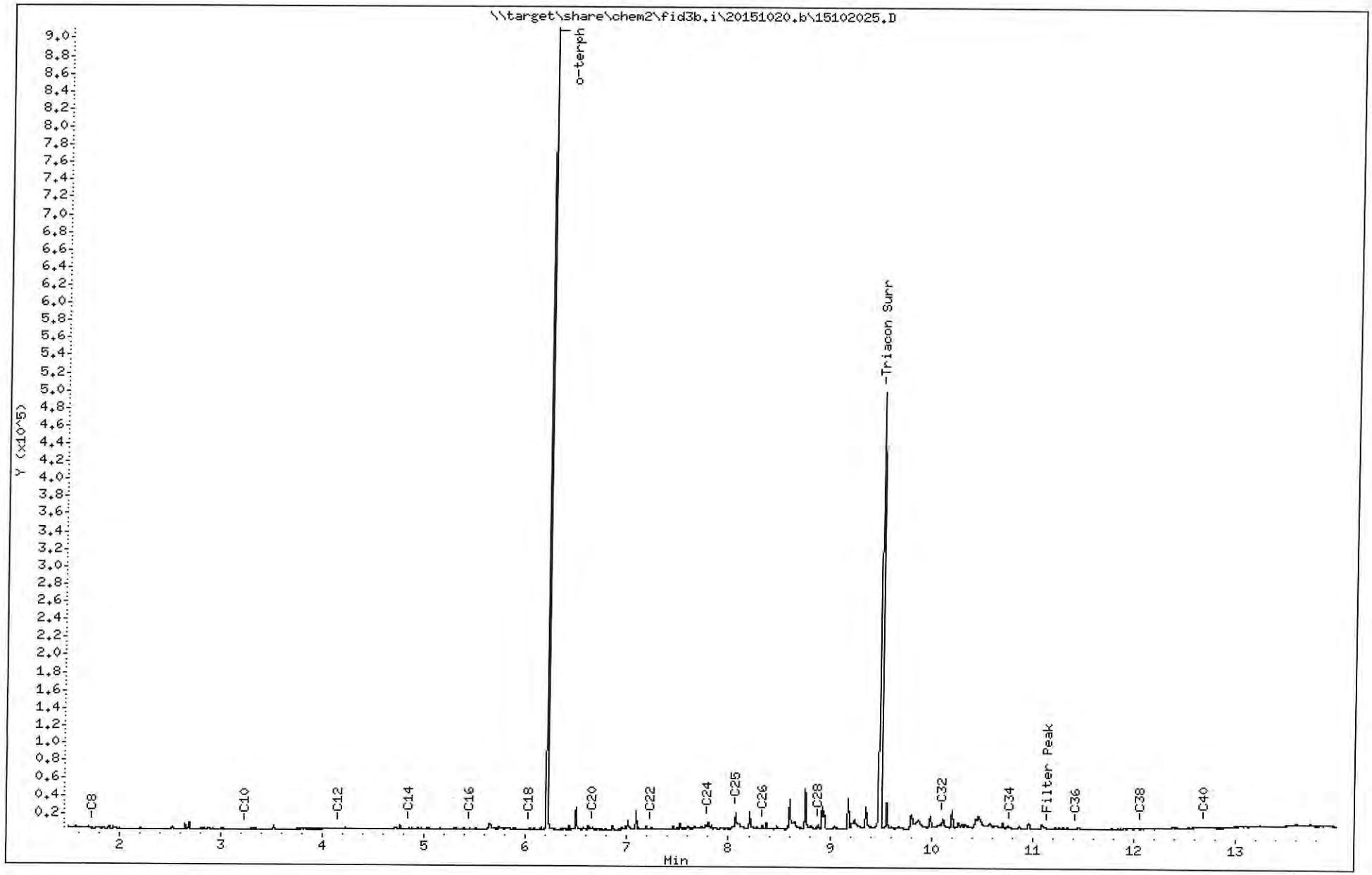
Sample Info: AON1Q

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

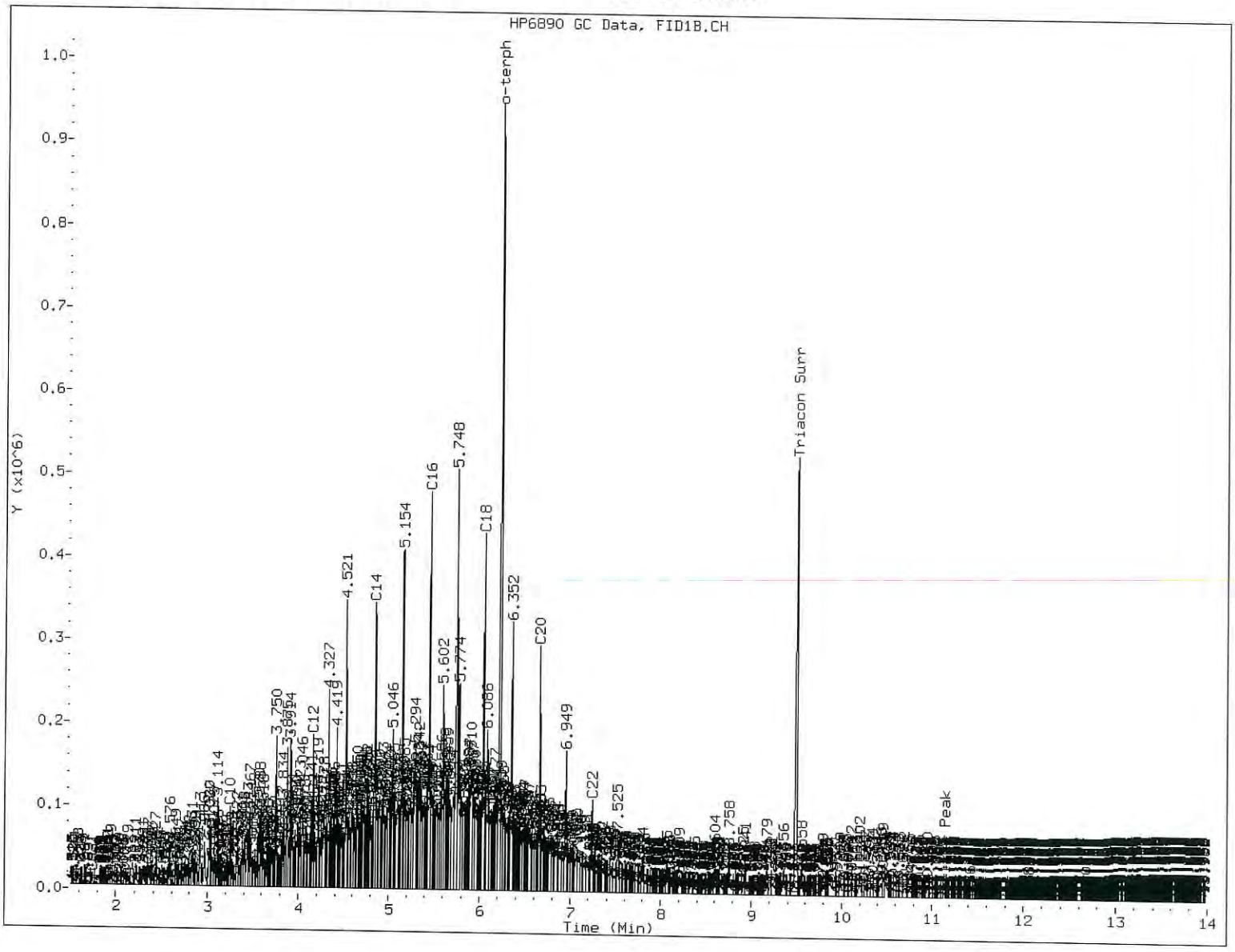
Column diameter: 0.25



AON1 - 00068

FID:3B-2C/RTX-1 AON1QMS

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5). Skimmed surrogate

Analyst: ML Date: 10/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102026.D

Date : 20-OCT-2015 19:39

Client ID: CR11-SBSD-23 MS

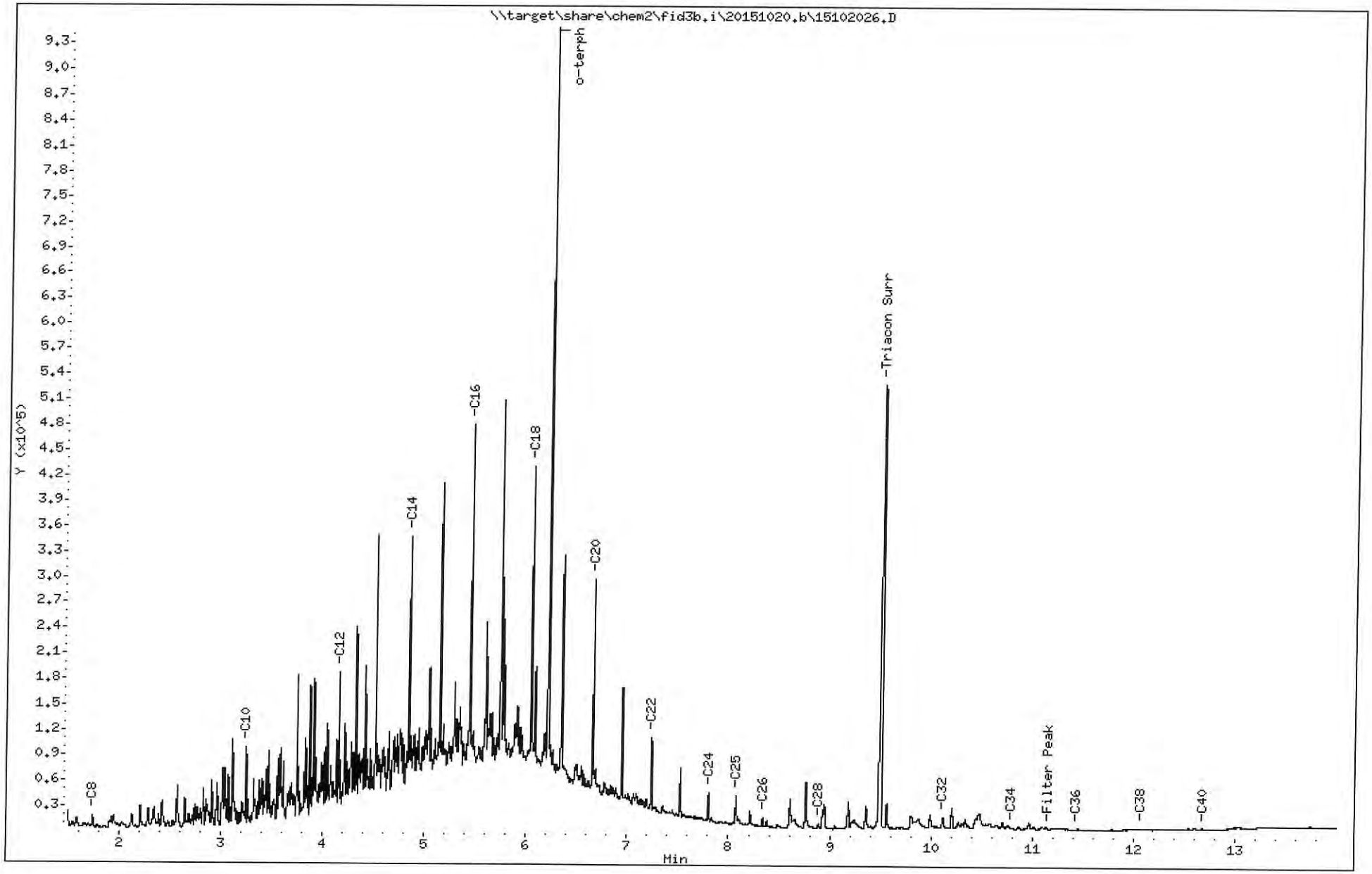
Sample Info: AON1QMS

Column phase: RTX-1

Instrument: fid3b.i

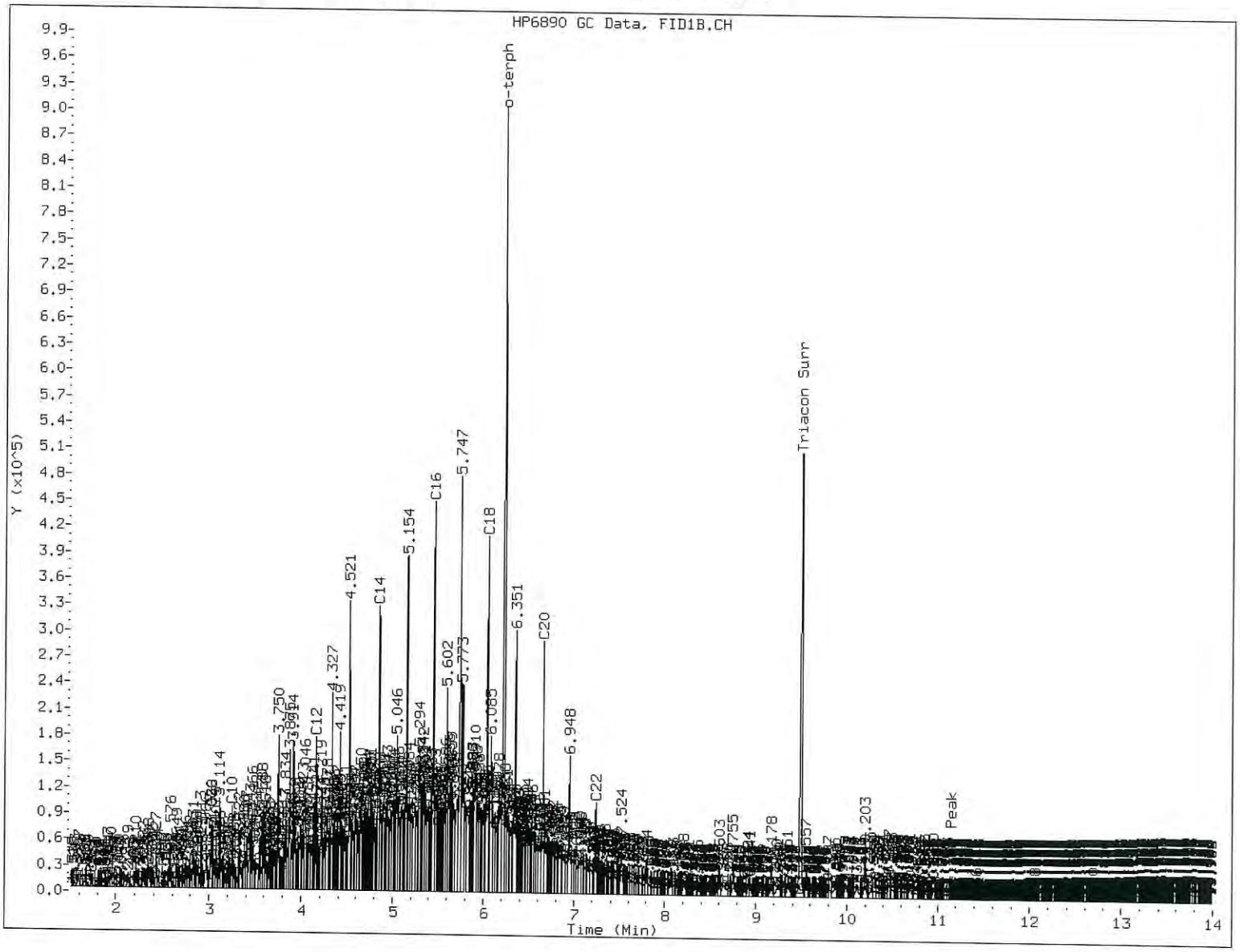
Operator: ML

Column diameter: 0.25



AON1 : 00070

FID:3B-2C/RTX-1 AON1QMSD FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

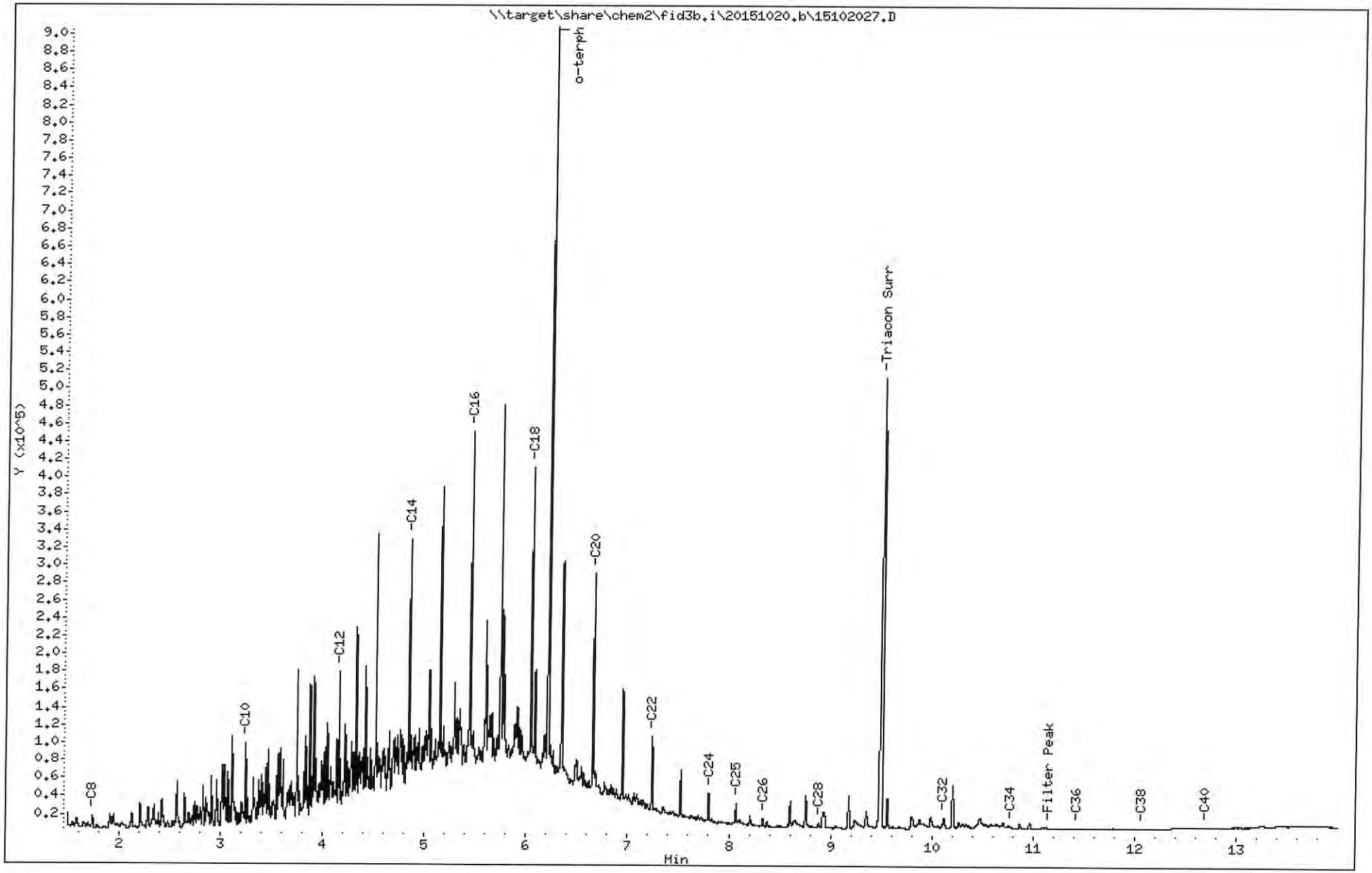
Analyst: M Date: 12/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102027.D
Date : 20-OCT-2015 20:00
Client ID: CR11-SBSD-23 MSD
Sample Info: AON1QMSD

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25



AON1:00072

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR-24-SSD-COMP
ARI ID: 15-19057 AON1F

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	54.35
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	1.56

RL Analytical reporting limit
U Undetected at reported detection limit

AON1 : 00073

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR11-SBSD-23
ARI ID: 15-19068 AON1Q

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	72.59
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	0.415

RL Analytical reporting limit
U Undetected at reported detection limit

AON1 : 00074

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: J
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR12-SBSD-15
ARI ID: 15-19069 AON1R

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	56.65
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	3.33

RL Analytical reporting limit
U Undetected at reported detection limit

AON1 : 00075

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR13-SBSD-11
ARI ID: 15-19070 AON1S

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	57.95
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	2.50

RL Analytical reporting limit
U Undetected at reported detection limit

AON1:00076

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR14-SBSD-12
ARI ID: 15-19071 AON1T

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	57.04
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	3.22

RL Analytical reporting limit
U Undetected at reported detection limit

AON1 : 00077

METHOD BLANK RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/19/15	Percent	< 0.01 U	ICB
Total Organic Carbon	11/11/15	Percent	< 0.020 U	ICB

AON1 : 00078

LAB CONTROL RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: LJ
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	11/11/15	Percent	0.096	0.100	96.0%

AON1 : 00079

STANDARD REFERENCE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST 1941B	11/11/15	Percent	3.05	2.99	102.0%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR-24-SSD-COMP
SAMPLE

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 53.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	20	20	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.9	0.9	U
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	2	**49**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.9	**81.5**	
3050B	10/22/15	6010C	10/28/15	**7439-92-1**	**Lead**	9	**21**	
CLP	10/27/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.03	**0.16**	
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	1	1	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	5	**107**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR-24-SSD-COMP DUPLICATE

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	20 U	20 U	0.0%	+/- 20	L
Cadmium	6010C	0.9 U	0.9 U	0.0%	+/- 0.9	L
Chromium	6010C	49	49	0.0%	+/- 20%	
Copper	6010C	81.5	73.9	9.8%	+/- 20%	
Lead	6010C	21	45	72.7%	+/- 9	L*
Mercury	7471A	0.16	0.16	0.0%	+/- 0.03	L
Silver	6010C	1 U	1 U	0.0%	+/- 1	L
Zinc	6010C	107	118	9.8%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

AON1 : 00082

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR-24-SSD-COMP
MATRIX SPIKE

Lab Sample ID: AON1F
LIMS ID: 15-19057
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	20 U	360	362	99.4%	
Cadmium	6010C	0.9 U	93.7	90.6	103%	
Chromium	6010C	49	145	90.6	106%	
Copper	6010C	81.5	173	90.6	101%	
Lead	6010C	21	390	362	102%	
Mercury	7471A	0.16	0.52	0.345	104%	
Silver	6010C	1 U	95	90.6	105%	
Zinc	6010C	107	293	90.6	205%	N

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

AON1 : 00083

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR11-SBSD-23
SAMPLE

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 72.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	20	20	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.6	0.6	U
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	2	**37**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.6	**47.0**	
3050B	10/22/15	6010C	10/28/15	7439-92-1	Lead	6	6	U
CLP	10/27/15	7471A	10/27/15	7439-97-6	Mercury	0.03	0.03	U
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	1	1	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	3	**78**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

AON1 : 00084

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR12-SBSD-15
SAMPLE

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 56.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	20	20	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.8	0.8	U
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	2	**48**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.8	**62.2**	
3050B	10/22/15	6010C	10/28/15	**7439-92-1**	**Lead**	8	**11**	
CLP	10/27/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.03	**0.09**	
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	1	1	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	4	**86**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR13-SBSD-11
SAMPLE

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 57.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	9	9	U
3050B	10/22/15	6010C	10/28/15	**7440-43-9**	**Cadmium**	0.3	**0.4**	
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	0.9	**41.3**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.3	**55.1**	
3050B	10/22/15	6010C	10/28/15	**7439-92-1**	**Lead**	3	**9**	
CLP	10/27/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.03	**0.07**	
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	0.5	0.5	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	2	**76**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

AON1 : 00086

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR14-SBSD-12
SAMPLE

Lab Sample ID: AON1T
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 56.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	20	20	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.8	0.8	U
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	2	**49**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.8	**63.0**	
3050B	10/22/15	6010C	10/28/15	**7439-92-1**	**Lead**	8	**12**	
CLP	10/27/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.03	**0.09**	
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	1	1	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	4	**90**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

AON1 : 00087

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TCLP METALS

Sample ID: CR11-14-SBSD-COMP
SAMPLE

Lab Sample ID: AON1A
LIMS ID: 15-19052
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	10/21/15	6010C	10/28/15	7439-92-1	Lead	0.1	0.1	U
1311	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

AON1 : 00088

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TCLP METALS

Sample ID: CR11-14-SBSD-COMP DUPLICATE

Lab Sample ID: AON1A
LIMS ID: 15-19052
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010C	0.1 U	0.1 U	0.0%	+/- 0.1	L
Mercury	7470A	0.0001 U	0.0001 U	0.0%	+/- 0.0001	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

AON1 : 00089

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TCLP METALS

Sample ID: CR11-14-SBSD-COMP
MATRIX SPIKE

Lab Sample ID: AON1A
LIMS ID: 15-19052
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010C	0.1 U	4.0	4.0	100%	
Mercury	7470A	0.0001 U	0.0011	0.0010	110%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked or diluted near or below detection limit

Percent Recovery Limits: 75-125%

AON1 : 00090

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TCLP METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON1MB
LIMS ID: 15-19052
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	10/21/15	6010C	10/28/15	7439-92-1	Lead	0.1	0.1	U
1311	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

AON1 : 00091

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: AON1MB
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	5	5	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/22/15	6010C	10/28/15	7440-47-3	Chromium	0.5	0.5	U
3050B	10/22/15	6010C	10/28/15	7440-50-8	Copper	0.2	0.2	U
3050B	10/22/15	6010C	10/28/15	7439-92-1	Lead	2	2	U
CLP	10/27/15	7471A	10/27/15	7439-97-6	Mercury	0.02	0.02	U
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	0.3	0.3	U
3050B	10/22/15	6010C	10/28/15	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: AON1LCS
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	207	200	104%	
Cadmium	6010C	51.2	50.0	102%	
Chromium	6010C	53.9	50.0	108%	
Copper	6010C	51.2	50.0	102%	
Lead	6010C	203	200	102%	
Mercury	7471A	0.52	0.50	104%	
Silver	6010C	53.7	50.0	107%	
Zinc	6010C	51	50	102%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

AON1 : 00093

Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AON2

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Twenty sediment samples were received on October 14, 2015. Eighteen samples were placed on hold as specified. The remaining samples were analyzed for SVOCs, dioxins/furans, PCBs, TOC and total metals as requested.

The percent differences (%Ds) for pentachlorophenol and the surrogate, d14-p-terphenyl, were not within control limits for the CCAL that bracketed the 11/5/15 SIM-SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AON2

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AON 2	Turn-around Requested: Standard	Page: 3 of 5	
ARI Client Company: MFA	Phone: 503 501 5212	Date: 10/14	Ice Present?
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: JJP/MRM-RD		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	SVOAs	PCBs	Mercury	Metals	PAHs	TOC	Archive	Dioxin/Furans	Notes/Comments
CR09a-SSD-COMP	10/13/15	1140	Sed	4	X	X	X	X	X	X	X	X	
CR096-SSD-COMP	10/13/15	1145	Sed	4	X	X	X	X	X	X	X	X	
BA01-0-10cm		1109	Sed	1							X		
BA01-10cm-1		1100	Sed	1							X		
BA01-1-2		1050	Sed	1							X		
BA02-0-10cm		1105	Sed	1							X		
BA02-10cm-1		1107	Sed	1							X		
BA02-1-2		1110	Sed	1							X		
BA03-0-10cm		1113	Sed	1							X		
BA03-10cm-1		1115	Sed	1							X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degens	Printed Name: Archie Trapps	Printed Name:	Printed Name: Emily Litwin
	Company: MFA	Company: M-C-R	Company:	Company: ARI
	Date & Time: 10/14/15 1020	Date & Time: 10/14/15 10:20(A)	Date & Time:	Date & Time: 10/14/15 1235

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

AON2 : 00003

ARI Assigned Number: AON2	Turn-around Requested: Standard	Page: 4 of 5	
ARI Client Company: MFA	Phone: (503) 501 5212	Date: 10/13	Ice Present? yes
Client Contact: S Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seapoint Landing			
Client Project #: 1044.02.01-02	Samplers: JTP/MRM/RD		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Archive	Notes/Comments
BA03-1-2	10/13	1117	Sed	1	X	
BA04-0-10cm	10/13	1120	Sed	1	X	
BA04-10cm-1	10/13	1125	Sed	1	X	
BA04-1-2	10/13	1127	Sed	1	X	
BA05-0-10cm	10/13	1130	Sed	1	X	
BA05 10cm-1	10/13	1132	Sed	1	X	
BA05-1-2	10/13	1135	Sed	1	X	
BA06-0-10cm	10/13	1140	Sed	1	X	
BA06-10cm-1	10/13	1142	Sed	1	X	
BA06-1-2	10/13	1145	Sed	1	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive all samples.				
	Printed Name: Roxanne Degens	Printed Name: Archie Triest	Printed Name:	Printed Name: Emily Litwin
	Company: MFA	Company: M.C. Dec	Company:	Company: ARI
	Date & Time: 10/14/15 1020	Date & Time: 10/14/15 10:20	Date & Time:	Date & Time: 10/14/15 1235

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster

COC No(s): _____ (NA)

Assigned ARI Job No: AON2

Project Name: _____

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc.) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.2 4.3 5.8 5.0 4.1

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D002565

Cooler Accepted by: UL Date: 10/14/16 Time: 1235

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI..... NA _____

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: UL Date: 10/16/16 Time: 1213

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	● ● ●

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AON2
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR09a-SSD-COMP	AON2A	15-19072	Sediment	10/13/15 11:40	10/14/15 10:20
2.	CR09b-SSD-COMP	AON2B	15-19073	Sediment	10/13/15 11:45	10/14/15 10:20
3.	BA01-0-10CM	AON2C	15-19074	Sediment	10/13/15 11:03	10/14/15 10:20
4.	BA01-10CM-1	AON2D	15-19075	Sediment	10/13/15 11:00	10/14/15 10:20
5.	BA01-1-2	AON2E	15-19076	Sediment	10/13/15 10:50	10/14/15 10:20
6.	BA02-0-10CM	AON2F	15-19077	Sediment	10/13/15 11:05	10/14/15 10:20
7.	BA02-10CM-1	AON2G	15-19078	Sediment	10/13/15 11:07	10/14/15 10:20
8.	BA02-1-2	AON2H	15-19079	Sediment	10/13/15 11:10	10/14/15 10:20
9.	BA03-0-10CM	AON2I	15-19080	Sediment	10/13/15 11:13	10/14/15 10:20
10.	BA03-10CM-1	AON2J	15-19081	Sediment	10/13/15 11:15	10/14/15 10:20
11.	BA03-1-2	AON2K	15-19082	Sediment	10/13/15 11:17	10/14/15 10:20
12.	BA04-0-10CM	AON2L	15-19083	Sediment	10/13/15 11:20	10/14/15 10:20
13.	BA04-10CM-1	AON2M	15-19084	Sediment	10/13/15 11:25	10/14/15 10:20
14.	BA04-1-2	AON2N	15-19085	Sediment	10/13/15 11:27	10/14/15 10:20
15.	BA05-0-10CM	AON2O	15-19086	Sediment	10/13/15 11:30	10/14/15 10:20
16.	BA05-10CM-1	AON2P	15-19087	Sediment	10/13/15 11:32	10/14/15 10:20
17.	BA05-1-2	AON2Q	15-19088	Sediment	10/13/15 11:35	10/14/15 10:20
18.	BA06-0-10CM	AON2R	15-19089	Sediment	10/13/15 11:40	10/14/15 10:20
19.	BA06-10CM-1	AON2S	15-19090	Sediment	10/13/15 11:42	10/14/15 10:20
20.	BA06-1-2	AON2T	15-19091	Sediment	10/13/15 11:45	10/14/15 10:20

AON2:00005 RC

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AON2 : 00006

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AON2 : 00007

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

AON2 : 00008

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: MB-102315
METHOD BLANK

Lab Sample ID: MB-102315
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/10/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 14:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102315
METHOD BLANK

Lab Sample ID: MB-102315
LIMS ID: 15-19072
Matrix: Sediment
Date Analyzed: 11/05/15 14:41

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	75.8%	2-Fluorobiphenyl	75.8%
d14-p-Terphenyl	104%	d4-1,2-Dichlorobenzene	77.4%
d5-Phenol	72.9%	2-Fluorophenol	68.9%
2,4,6-Tribromophenol	74.7%	d4-2-Chlorophenol	76.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR09a-SSD-COMP SAMPLE

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 20:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.54 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 38.0%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**130**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	**4-Methylphenol**	**19**	**26**
105-67-9	2,4-Dimethylphenol	95	< 95 U
65-85-0	**Benzoic Acid**	**190**	**230**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**45**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	Acenaphthene	19	< 19 U
132-64-9	Dibenzofuran	19	< 19 U
84-66-2	Diethylphthalate	19	< 19 U
86-73-7	Fluorene	19	< 19 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	95	< 95 U
85-01-8	**Phenanthrene**	**19**	**26**
120-12-7	Anthracene	19	< 19 U
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**22**
129-00-0	**Pyrene**	**19**	**17 J**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	Benzo(a)anthracene	19	< 19 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**47**	**43 J**
218-01-9	**Chrysene**	**19**	**10 J**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
90-12-0	**1-Methylnaphthalene**	**19**	**9.5 J**
TOTBFA	**Total Benzofluoranthenes**	**38**	**12 J**

AON2: 00011 RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR09a-SSD-COMP SAMPLE

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Date Analyzed: 11/05/15 20:05

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	51.0%	2-Fluorobiphenyl	53.4%
d14-p-Terphenyl	70.6%	d4-1,2-Dichlorobenzene	49.0%
d5-Phenol	52.4%	2-Fluorophenol	49.7%
2,4,6-Tribromophenol	66.7%	d4-2-Chlorophenol	53.1%

AON2: 00012 RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR09b-SSD-COMP SAMPLE

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 20:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.34 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 48.3%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**200**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	**Benzyl Alcohol**	**19**	**41**
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	4-Methylphenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	97	< 97 U
65-85-0	**Benzoic Acid**	**190**	**380**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	Naphthalene	19	< 19 U
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	Acenaphthene	19	< 19 U
132-64-9	Dibenzofuran	19	< 19 U
84-66-2	Diethylphthalate	19	< 19 U
86-73-7	**Fluorene**	**19**	**14 J**
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	97	< 97 U
85-01-8	**Phenanthrene**	**19**	**52**
120-12-7	**Anthracene**	**19**	**11 J**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**52**
129-00-0	**Pyrene**	**19**	**40**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	**Benzo(a)anthracene**	**19**	**14 J**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**48**	**39 J**
218-01-9	**Chrysene**	**19**	**24**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	**Benzo(a)pyrene**	**19**	**12 J**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**13 J**
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	**Benzo(g,h,i)perylene**	**19**	**14 J**
90-12-0	1-Methylnaphthalene	19	< 19 U
TOTBFA	**Total Benzofluoranthenes**	**39**	**34 J**

AON2: 00013 RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR09b-SSD-COMP SAMPLE

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Date Analyzed: 11/05/15 20:41

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.0%	2-Fluorobiphenyl	69.2%
d14-p-Terphenyl	90.6%	d4-1,2-Dichlorobenzene	64.4%
d5-Phenol	68.4%	2-Fluorophenol	58.9%
2,4,6-Tribromophenol	82.8%	d4-2-Chlorophenol	69.2%

AON2: DDD 14 RL

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 11/10/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 15:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	309	500	61.8%
1,4-Dichlorobenzene	273	500	54.6%
Benzyl Alcohol	302	500	60.4%
1,2-Dichlorobenzene	286	500	57.2%
2-Methylphenol	300	500	60.0%
4-Methylphenol	334	500	66.8%
2,4-Dimethylphenol	875	1500	58.3%
Benzoic Acid	1860	2750	67.6%
1,2,4-Trichlorobenzene	285	500	57.0%
Naphthalene	291	500	58.2%
Hexachlorobutadiene	298	500	59.6%
2-Methylnaphthalene	305	500	61.0%
Dimethylphthalate	324	500	64.8%
Acenaphthylene	306	500	61.2%
Acenaphthene	321	500	64.2%
Dibenzofuran	310	500	62.0%
Diethylphthalate	344	500	68.8%
Fluorene	309	500	61.8%
N-Nitrosodiphenylamine	298	500	59.6%
Hexachlorobenzene	282	500	56.4%
Pentachlorophenol	805	1500	53.7%
Phenanthrene	307	500	61.4%
Anthracene	308	500	61.6%
Di-n-Butylphthalate	331	500	66.2%
Fluoranthene	292	500	58.4%
Pyrene	293	500	58.6%
Butylbenzylphthalate	329	500	65.8%
Benzo(a)anthracene	323	500	64.6%
bis(2-Ethylhexyl)phthalate	312	500	62.4%
Chrysene	310	500	62.0%
Di-n-Octyl phthalate	278	500	55.6%
Benzo(a)pyrene	310	500	62.0%
Indeno(1,2,3-cd)pyrene	341	500	68.2%
Dibenz(a,h)anthracene	347	500	69.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19072
Matrix: Sediment
Date Analyzed: 11/05/15 15:17

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	281	500	56.2%
1-Methylnaphthalene	277	500	55.4%
Total Benzofluoranthenes	686	1000	68.6%

Semivolatile Surrogate Recovery

d5-Nitrobenzene	65.2%
2-Fluorobiphenyl	64.6%
d14-p-Terphenyl	79.4%
d4-1,2-Dichlorobenzene	53.8%
d5-Phenol	66.7%
2-Fluorophenol	59.7%
2,4,6-Tribromophenol	68.0%
d4-2-Chlorophenol	62.9%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-102315	75.8%	75.8%	104%	77.4%	72.9%	68.9%	74.7%	76.5%	0
LCS-102315	65.2%	64.6%	79.4%	53.8%	66.7%	59.7%	68.0%	62.9%	0
CRO9a-SSD-COMP	51.0%	53.4%	70.6%	49.0%	52.4%	49.7%	66.7%	53.1%	0
CRO96-SSD-COMP	64.0%	69.2%	90.6%	64.4%	68.4%	58.9%	82.8%	69.2%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19072 to 15-19073

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-102315**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102315
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 14:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	64.3%
d14-p-Terphenyl	83.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR09a-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 20:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.54 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 38.0%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.7	< 4.7 U
106-46-7	**1,4-Dichlorobenzene**	**4.7**	**4.2 J**
120-82-1	1,2,4-Trichlorobenzene	4.7	< 4.7 U
118-74-1	Hexachlorobenzene	4.7	< 4.7 U
87-68-3	Hexachlorobutadiene	4.7	< 4.7 U
131-11-3	Dimethylphthalate	4.7	< 4.7 U
85-68-7	**Butylbenzylphthalate**	**4.7**	**5.1**
95-48-7	**2-Methylphenol**	**4.7**	**4.0 J**
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.7	< 4.7 U
100-51-6	Benzyl Alcohol	19	< 19 U
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.7	< 4.7 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	45.7%
d14-p-Terphenyl	55.6% Q

AON2-00019RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR09b-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/05/15 20:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.37 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 48.3%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**3.9 J**
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	Butylbenzylphthalate	4.8	< 4.8 U
95-48-7	**2-Methylphenol**	**4.8**	**7.3**
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	**Benzyl Alcohol**	**19**	**58**
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	57.1%
d14-p-Terphenyl	68.8% Q

AON2-00020RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-102315**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-102315
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed LCS: 11/05/15 15:17
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Dibenz(a,h)anthracene	305	500	61.0%
1,4-Dichlorobenzene	262	500	52.4%
1,2,4-Trichlorobenzene	270	500	54.0%
Hexachlorobenzene	273	500	54.6%
Hexachlorobutadiene	292	500	58.4%
Dimethylphthalate	308	500	61.6%
Butylbenzylphthalate	344	500	68.8%
2-Methylphenol	276	500	55.2%
2,4-Dimethylphenol	814	1500	54.3%
N-Nitrosodiphenylamine	291	500	58.2%
Benzyl Alcohol	346	500	69.2%
Pentachlorophenol	1000 EQ	1500	66.7%
1,2-Dichlorobenzene	274	500	54.8%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	58.1%
d14-p-Terphenyl	65.6% Q

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
MB-102315	64.3%	83.6% Q	0
LCS-102315	58.1%	65.6% Q	0
CRO9a-SSD-COMP	45.7%	55.6% Q	0
CRO96-SSD-COMP	57.1%	68.8% Q	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19072 to 15-19073

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: CC1105A.D
Analysis Type:
Lab Sample ID: CC1105A
Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

Injection Date: 05-NOV-2015 14:04
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:39
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.04543	0.98207	0.010	-6.06090	20.00000	Averaged	
3 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.78433	0.010	2.58940	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79485	0.010	-2.74242	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.72457	0.010	5.83701	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.81370	0.010	-12.87015	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81780	0.010	-10.72571	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57662	0.050	-6.38240	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33255	0.010	-15.58052	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.41910	0.010	6.21998	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.33208	0.010	9.37722	20.00000	Averaged	
39 Dimethylphthalate	1.14558	1.01470	0.010	-11.42453	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.13213	0.010	-8.55608	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.57444	0.010	-7.27995	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.46057	0.010	11.11164	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.15371	0.005	-27.87342	20.00000	Averaged	<-
$ 66 Terphenyl-d14	0.36942	0.25581	0.010	-30.75549	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39038	0.010	-5.48875	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.04200	0.010	-9.94423	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.46419	0.010	4.66003	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: CR09a-SSD-COMP

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 20:14
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.69	0.65-0.89		0.987	0.831	J
2,3,7,8-TCDD	0.81	0.65-0.89		0.987	1.18	
1,2,3,7,8-PeCDF	1.30	1.32-1.78		0.987	0.383	JXEMPC
2,3,4,7,8-PeCDF	1.30	1.32-1.78		0.987	0.379	JEMPC
1,2,3,7,8-PeCDD	1.46	1.32-1.78		0.987	1.99	
1,2,3,4,7,8-HxCDF	1.02	1.05-1.43		0.987	0.991	EMPC
1,2,3,6,7,8-HxCDF	1.27	1.05-1.43		0.987	0.626	J
2,3,4,6,7,8-HxCDF	1.10	1.05-1.43		0.987	0.991	
1,2,3,7,8,9-HxCDF	1.07	1.05-1.43		0.987	0.395	J
1,2,3,4,7,8-HxCDD	1.20	1.05-1.43		0.987	1.32	
1,2,3,6,7,8-HxCDD	1.22	1.05-1.43		0.987	5.25	
1,2,3,7,8,9-HxCDD	1.20	1.05-1.43		0.987	5.49	
1,2,3,4,6,7,8-HpCDF	0.93	0.88-1.20		0.987	14.6	
1,2,3,4,7,8,9-HpCDF	1.04	0.88-1.20		0.987	0.908	J
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.987	95.4	
OCDF	0.83	0.76-1.02		1.97	23.8	
OCDD	0.88	0.76-1.02		9.87	700	

Homologue Group	EDL	RL	Result	
Total TCDF		0.987	6.42	EMPC
Total TCDD		0.987	8.55	EMPC
Total PeCDF		1.97	10.6	EMPC
Total PeCDD		0.987	12.4	EMPC
Total HxCDF		1.97	22.2	EMPC
Total HxCDD		1.97	48.3	EMPC
Total HpCDF		1.97	37.3	
Total HpCDD		1.97	225	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 6.21

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 6.21

Reported in pg/g

AON2-00024RL

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: CR09a-SSD-COMP

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 20:14
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	92.4	24-169	
13C-2,3,7,8-TCDD	0.76	0.65-0.89	89.9	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	96.6	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	95.5	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	95.8	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	90.1	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	85.8	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	92.9	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	89.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	95.9	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	89.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	84.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	85.5	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	90.4	23-140	
13C-OCDD	0.89	0.76-1.02	82.3	17-157	
37Cl4-2,3,7,8-TCDD			97.7	35-197	

Reported in Percent Recovery

AON2: 00025 RL

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR09b-SSD-COMP

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 21:08
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.67	0.65-0.89		0.996	1.63	
2,3,7,8-TCDD	0.63	0.65-0.89		0.996	2.06	EMPC
1,2,3,7,8-PeCDF	1.39	1.32-1.78		0.996	0.394	J
2,3,4,7,8-PeCDF	1.25	1.32-1.78		0.996	0.528	JEMPC
1,2,3,7,8-PeCDD	1.44	1.32-1.78		0.996	3.16	
1,2,3,4,7,8-HxCDF	1.04	1.05-1.43		0.996	1.16	EMPC
1,2,3,6,7,8-HxCDF	1.27	1.05-1.43		0.996	0.924	J
2,3,4,6,7,8-HxCDF	1.30	1.05-1.43		0.996	1.36	
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43		0.996	0.420	J
1,2,3,4,7,8-HxCDD	1.15	1.05-1.43		0.996	1.57	
1,2,3,6,7,8-HxCDD	1.21	1.05-1.43		0.996	6.27	
1,2,3,7,8,9-HxCDD	1.15	1.05-1.43		0.996	7.96	
1,2,3,4,6,7,8-HpCDF	0.91	0.88-1.20		0.996	23.9	
1,2,3,4,7,8,9-HpCDF	1.15	0.88-1.20		0.996	1.15	
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20		0.996	107	
OCDF	0.79	0.76-1.02		1.99	33.8	
OCDD	0.87	0.76-1.02		9.96	788	

Homologue Group	EDL	RL	Result	
Total TCDF		0.996	12.5	EMPC
Total TCDD		0.996	15.4	EMPC
Total PeCDF		1.99	16.5	EMPC
Total PeCDD		0.996	21.0	EMPC
Total HxCDF		1.99	30.8	EMPC
Total HxCDD		1.99	72.3	EMPC
Total HpCDF		1.99	58.9	EMPC
Total HpCDD		1.99	273	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 9.09

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 9.09

Reported in pg/g

AON2: 00026 RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: CR09b-SSD-COMP

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 21:08
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	88.1	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	83.4	25-164	
13C-1,2,3,7,8-PeCDF	1.55	1.32-1.78	89.5	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	85.6	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	85.6	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	88.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	84.7	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	87.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	83.1	29-147	
13C-1,2,3,4,7,8-HxCDD	1.30	1.05-1.43	92.0	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	86.1	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	77.5	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	77.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	83.3	23-140	
13C-OCDD	0.88	0.76-1.02	78.8	17-157	
37Cl4-2,3,7,8-TCDD			94.9	35-197	

Reported in Percent Recovery

AON2: 00027 RE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0360	1.00	< 0.0360	U
2,3,7,8-TCDD		0.65-0.89	0.0520	1.00	< 0.0520	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0380	1.00	< 0.0380	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0400	1.00	< 0.0400	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0640	1.00	< 0.0640	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0440	1.00	< 0.0440	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0400	1.00	< 0.0400	U
2,3,4,6,7,8-HxCDF	1.37	1.05-1.43		1.00	0.0400	J
1,2,3,7,8,9-HxCDF	1.13	1.05-1.43		1.00	0.0360	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0520	1.00	< 0.0520	U
1,2,3,6,7,8-HxCDD	1.75	1.05-1.43		1.00	0.0480	JEMPC
1,2,3,7,8,9-HxCDD	0.96	1.05-1.43		1.00	0.106	JEMPC
1,2,3,4,6,7,8-HpCDF	0.58	0.88-1.20		1.00	0.118	JEMPC
1,2,3,4,7,8,9-HpCDF	0.90	0.88-1.20		1.00	0.0480	J
1,2,3,4,6,7,8-HpCDD	1.00	0.88-1.20		1.00	0.962	J
OCDF	0.68	0.76-1.02		2.00	0.378	JEMPC
OCDD	0.86	0.76-1.02		10.0	6.81	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0360	1.00	< 0.0360	U
Total TCDD	0.0520	1.00	< 0.0520	U
Total PeCDF	0.0400	2.00	< 0.0400	U
Total PeCDD	0.0640	1.00	< 0.0640	U
Total HxCDF		2.00	0.116	EMPC
Total HxCDD		2.00	0.760	EMPC
Total HpCDF		2.00	0.341	EMPC
Total HpCDD		2.00	2.29	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.11

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
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Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	104	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	99.2	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	108	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	104	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	102	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	102	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	101	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	98.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	108	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	103	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	97.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	98.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	106	23-140	
13C-OCDD	0.90	0.76-1.02	92.3	17-157	
37Cl4-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.67	0.65-0.89	1.00	20.1
2,3,7,8-TCDD	0.76	0.65-0.89	1.00	21.8
1,2,3,7,8-PeCDF	1.45	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.41	1.32-1.78	1.00	102
1,2,3,7,8-PeCDD	1.54	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.15	1.05-1.43	1.00	106
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43	1.00	103
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43	1.00	107
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43	1.00	104
1,2,3,6,7,8-HxCDD	1.22	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43	1.00	105
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	109
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	1.00	106
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.83	0.76-1.02	2.00	202
OCDD	0.90	0.76-1.02	10.0	218

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	20.9	EMPC
Total TCDD		1.00	22.3	
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	105	EMPC
Total HxCDF		2.00	422	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	216	EMPC
Total HpCDD		2.00	108	EMPC

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	100	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	96.4	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	105	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	102	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	97.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.50	0.43-0.59	97.0	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	96.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	93.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	102	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	99.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	90.6	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	91.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	97.8	23-140	
13C-OCDD	0.89	0.76-1.02	83.1	17-157	
37Cl4-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.1	20.0	100	75-158
2,3,7,8-TCDD	21.8	20.0	109	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	102	100	102	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	106	100	106	72-134
1,2,3,6,7,8-HxCDF	103	100	103	84-130
2,3,4,6,7,8-HxCDF	107	100	107	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	104	100	104	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	105	100	105	64-162
1,2,3,4,6,7,8-HpCDF	109	100	109	82-132
1,2,3,4,7,8,9-HpCDF	106	100	106	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	202	200	101	63-170
OCDD	218	200	109	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546

Sample ID: CR09a-SSD-COMP
SAMPLE

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 04:15
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.59 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 38.0%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.2%
Tetrachlorometaxylene	75.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546

Sample ID: CR09b-SSD-COMP
SAMPLE

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Data Release Authorized: B
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 04:36
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.21 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 48.3%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.5%
Tetrachlorometaxylene	74.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:17
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.2%
Tetrachlorometaxylene	74.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-102015
LAB CONTROL

Lab Sample ID: LCS-102015
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:39
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	407	500	81.4%
Aroclor 1260	516	500	103%

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	73.2%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-102015	96.2%	59-115	74.8%	58-112	0
LCS-102015	96.0%	59-115	73.2%	58-112	0
CR09a-SSD-COMP	78.2%	47-120	75.5%	53-116	0
CR096-SSD-COMP	74.5%	47-120	74.0%	53-116	0

Microwave (MARS) Control Limits PCBSMI
Prep Method: SW3546
Log Number Range: 15-19072 to 15-19073

SAMPLE RESULTS-CONVENTIONALS
AON2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR09a-SSD-COMP
ARI ID: 15-19072 AON2A

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	55.60
Total Organic Carbon	10/29/15 102915#1	Plumb,1981	Percent	0.020	4.39

RL Analytical reporting limit
U Undetected at reported detection limit

AON2 : 00038 RE

SAMPLE RESULTS-CONVENTIONALS
AON2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Client ID: CR09b-SSD-COMP
ARI ID: 15-19073 AON2B

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	59.33
Total Organic Carbon	10/29/15 102915#1	Plumb,1981	Percent	0.020	2.99

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
AON2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 10/29/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/19/15	Percent	< 0.01 U	ICB
Total Organic Carbon	10/29/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AON2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: LJ
Reported: 10/29/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	10/29/15	Percent	0.095	0.100	95.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
AON2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 10/29/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST 1941B	10/29/15	Percent	2.98	2.99	99.7%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR09a-SSD-COMP
SAMPLE

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 51.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	9	9	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	0.9	**31.0**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.4	**40.8**	
3050B	10/22/15	6010C	10/28/15	**7439-92-1**	**Lead**	4	**8**	
CLP	10/27/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.03	**0.04**	
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	0.5	0.5	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	2	**68**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR09b-SSD-COMP
SAMPLE

Lab Sample ID: AON2B
LIMS ID: 15-19073
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/13/15
Date Received: 10/14/15

Percent Total Solids: 51.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	9	9	U
3050B	10/22/15	6010C	10/28/15	**7440-43-9**	**Cadmium**	0.4	**0.4**	
3050B	10/22/15	6010C	10/28/15	**7440-47-3**	**Chromium**	0.9	**39.9**	
3050B	10/22/15	6010C	10/28/15	**7440-50-8**	**Copper**	0.4	**49.2**	
3050B	10/22/15	6010C	10/28/15	**7439-92-1**	**Lead**	4	**10**	
CLP	10/27/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.04	**0.06**	
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	0.5	0.5	U
3050B	10/22/15	6010C	10/28/15	**7440-66-6**	**Zinc**	2	**80**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

AON2: 00044 RE

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: AON1MB
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/28/15	7440-38-2	Arsenic	5	5	U
3050B	10/22/15	6010C	10/28/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/22/15	6010C	10/28/15	7440-47-3	Chromium	0.5	0.5	U
3050B	10/22/15	6010C	10/28/15	7440-50-8	Copper	0.2	0.2	U
3050B	10/22/15	6010C	10/28/15	7439-92-1	Lead	2	2	U
CLP	10/27/15	7471A	10/27/15	7439-97-6	Mercury	0.02	0.02	U
3050B	10/22/15	6010C	10/28/15	7440-22-4	Silver	0.3	0.3	U
3050B	10/22/15	6010C	10/28/15	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: AON1LCS
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	207	200	104%	
Cadmium	6010C	51.2	50.0	102%	
Chromium	6010C	53.9	50.0	108%	
Copper	6010C	51.2	50.0	102%	
Lead	6010C	203	200	102%	
Mercury	7471A	0.52	0.50	104%	
Silver	6010C	53.7	50.0	107%	
Zinc	6010C	51	50	102%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

9 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AON3

Dear Madi:

Please find enclosed the original chain of custody records and the final data package for the samples from the project referenced above. Two soil samples and three water samples were received on October 14, 2015. The samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx and total and dissolved metals as requested.

Problems associated with these analyses are discussed in the case narrative.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AON3

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • 206-695-6200 • 206-695-6201 fax

AONJ : 00002

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AONJ	Turn-around Requested:	Page: 1 of 1	
ARI Client Company: Maul Foster & Alongi, Inc.	Phone: (503)501-5212	Date: 10/12/15	Ice Present? Y/N
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02-01-02	Samplers: R. Degens + M. Murray		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Total Metals (As, Cd, Cr, Hg, Pb)	Dissolved Metals (As, Cd, Cr, Hg, Pb)	TPH	PAH	Phenol	PCB	Dioxin/Furan	SVOA	Notes/Comments
CR20-S-5.0	10/12/15	1625	S	5	X		X	X	X	X	X	X	
CR21-S-5.0	10/12/15	1520	S	5	X		X	X	X	X	X	X	
CR21-GW-10	10/12/15	1515	GW	8	X	X	X			X		X	
CR20-GW-5.0	10/12/15	1630	GW	8	X	X	X			X		X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degens	Printed Name: Archie Tribbs	Printed Name:	Printed Name: Emily Litwin
	Company: MFA	Company: M.C. 122 L	Company:	Company: ARI
	Date & Time: 10/14/15 1020	Date & Time: 10/14/15 10:20	Date & Time:	Date & Time: 10/14/15 1230

AONJ : 00003

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster

COC No(s): _____ (NA)

Assigned ARI Job No: AON3

Project Name: _____

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.2 4.3 5.8 5.0 4.1

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00256S

Cooler Accepted by: UL Date: 10/14/15 Time: 1235

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	(NO)
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI...	NA	9/17/15	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: UL Date: 10/16/15 Time: 1126

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions: ~~Trip blanks not listed on COC~~

~~for~~ 7 500-ml amber glass bottles labeled "seep" in cooler, not on COCs

By: UL Date: 10/16/15



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

AON3 : 00004

PRESERVATION VERIFICATION 10/19/15
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **AON3**

Inquiry Number: NONE
Analysis Requested: 10/14/15
Contact: Novak, Madi
Client: Maul Foster & Alongi
Logged by: EL
Sample Set Used: Yes-482
Validatable Package: No
Deliverables:

PC: Mark
VTSR: 10/14/15

Project #: 1044.02.01-02
Project: Seaport Landing
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-19217 AON3C	CR21-GW-10						TOT pass									N						
15-19218 AON3D	CR20-GW-5.0						TOT pass									N						
15-19219 AON3E	CR21-GW-10						DIS pass									Y						
15-19220 AON3F	CR20-GW-5.0						DIS pass									Y						
15-19221 AON3G	Seep-01						TOT fail									N		pH	<2	D2431	4mL	10/16/15 MB
15-19363 AON3H	Seep-01						DIS fail									N		↓	↓	↓	↓	10/19/15 MB

preserved G in Lab
10/16/15 MB

filtered + preserved H in Lab
10/19/15 MB

Checked By [signature] Date 10/16/15

AON3 : 00005

Subject: RE: Aberdeen sediment, soil, and groundwater login
From: Mary Benzinger <mbenzinger@maulfoster.com>
Date: 10/16/2015 11:32 AM
To: Mark Harris <markh@arilabs.com>
CC: Mike Murray <mmurray@maulfoster.com>, Roxanne Degens <rdegens@maulfoster.com>

Hi Mark,
Based on the workplan, please analyze the seep for the following:

-NWTPH-Dx
-8270D full list
-Mercury (EPA 7470 – please use the same method used for the groundwater analysis)
-PCB Aroclors (standard list plus Aroclor 1268)

Mike and Roxanne, if you see anything here that doesn't match up, please let us know.

Thanks,

Mary Benzinger | MAUL FOSTER & ALONGI, INC.

d. 503 501 5247 | p. 971 544 2139 | c. 503 319 7132
2001 NW 19th Avenue, Suite 200, Portland, OR 97209
www.maulfoster.com

From: Mark Harris [mailto:markh@arilabs.com]
Sent: Friday, October 16, 2015 11:30 AM
To: Mary Benzinger
Cc: Mike Murray; Roxanne Degens
Subject: Re: Aberdeen sediment, soil, and groundwater login

All:

We received a large plastic bag containing 7-500mL AG bottles of water. The bag is labeled 'Seep' as are the bottles. These aren't on any of the COCs. Should we log and analyze them for anything?

Mark H.

On 10/16/2015 9:27 AM, Mary Benzinger wrote:

> Hi Mark,
> Just to confirm my earlier phone call today:
>
> When we request PCBs for any of the Aberdeen sediment, soil, and groundwater samples, please report the SCUM II Marine Benthic PCB list and also include Aroclor 1268. (Aroclor 1016, 1221, 1232, 1242, 1248, 1254 and 1260, plus 1268).

When we request "SVOCs" or "PAHs and Phenols" for soil and groundwater samples, please report the full list of analytes for 8270D.

1- and 2- methylnaphthalene will need to be reported whenever PAHs are requested.

Thanks, and please let me know if you have any questions.

Mary Benzinger | MAUL FOSTER & ALONGI, INC.

d. 503 501 5247 | p. 971 544 2139 | c. 503 319 7132
2001 NW 19th Avenue, Suite 200, Portland, OR 97209
www.maulfoster.com

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Friday, October 16, 2015 7:42 AM
To: Mike Murray; Amanda Volgardsen; Mary Benzinger
Subject: Re: Conventional analysis

Mike:

For sediment:

Sulfides: 2oz, no headspace, one pipetteful of zinc acetate over the sample before capping.
TOC/TVS/TS/NH3: 4oz.

Phenol (in sediment): 8oz glass.

If this question is in regards to soil or water, let me know.

Mark H.

On 10/16/2015 7:35 AM, Mike Murray wrote:
> Can anyone remind me of the bottle set needed for conventional analysis? I have the zinc acetate:
>
> TOC
> TVS
> Total solids
> Ammonia
> Total sulfides
>
> Also, what bottle do you need for phenol?
>
> Thanks! !
>
>
> Sent from my Verizon Wireless 4G LTE smartphone

AON3 : 00007 10/16/2015 11:40

AON3 : 00006

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

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--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

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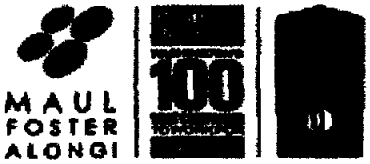
Subject: RE: Aberdeen sediment, soil, and groundwater login
From: Mary Benzinger <mbenzinger@maulfoster.com>
Date: 10/19/2015 8:48 AM
To: Mark Harris <markh@arilabs.com>
CC: Roxanne Degens <rdegens@maulfoster.com>, Mike Murray <mmurray@maulfoster.com>

Hi Mark,
Just talked to the project team, and the Seep sample should be analyzed for both total and dissolved mercury. Let us know if you have any other questions.

Thanks!

Mary Benzinger | MAUL FOSTER & ALONGI, INC.

d. 503 501 5247 | p. 971 544 2139 | c. 503 319 7132
2001 NW 19th Avenue, Suite 200, Portland, OR 97209
www.maulfoster.com



From: Mark Harris [mailto:markh@arilabs.com]
Sent: Monday, October 19, 2015 7:59 AM
To: Mary Benzinger
Subject: Re: Aberdeen sediment, soil, and groundwater login

Total and dissolved.

On 10/19/2015 7:42 AM, Mary Benzinger wrote:

> Hi Mark,
> I'm pretty sure it's just total mercury, but I'd like to double check with some other folks on the project team.
>
> Were the groundwater samples submitted for total and dissolved metals, as well as total mercury? (or just total metals and mercury)
>
> Thanks,
>
> **Mary Benzinger** | MAUL FOSTER & ALONGI, INC.
>
> d. 503 501 5247 | p. 971 544 2139 | c. 503 319 7132
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
> www.maulfoster.com



From: Mark Harris [mailto:markh@arilabs.com]
Sent: Monday, October 19, 2015 6:39 AM
To: Mike Murray; Mary Benzinger
Cc: Roxanne Degens

AON3 : 00009

AON3 : 00008

Subject: Re: Aberdeen sediment, soil, and groundwater login

Mike:

This matches Mary's list. One clarification:

Do you want total mercury only? Or total and dissolved?

Mark H.

On 10/17/2015 1:08 PM, Mike Murray wrote:

> Details...
>
> Sorry about that, the seep samples should be analyzed for: TPH, SVOA, Hg, PCB
>
> For any more detail, I'll have to defer to Mary.
> Thanks!
>
> **MICHAEL R. MURRAY** RG, LHG | MAUL FOSTER & ALONGI, INC.
>
> d. 503 501 5226 | p. 971 544 2139 | c. 503 310 0435 | f. 971 544 2140 | www.maulfoster.com
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
>
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>
> ---
>
> **From:** Mark Harris [mailto:markh@ardlabs.com]
> **Sent:** Friday, October 16, 2015 11:30 AM
> **To:** Mary Benzinger
> **Cc:** Mike Murray; Roxanne Degens
> **Subject:** Re: Aberdeen sediment, soil, and groundwater login
>
> All:
>
> We received a large plastic bag containing 7-500mL AG bottles of water. The bag is labeled 'Seep' as are the bottles. These aren't on any of the COCs. Should we log and analyze them for anything?
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> >
> > When we request "SVOCs" or "PAHs and Phenols" for soil and groundwater samples, please report the full list of analytes for 8270D.
> >
> > 1- and 2- methylnaphthalene will need to be reported whenever PAHs are requested.

Thanks, and please let me know if you have any questions.

Mary Benzinger | MAUL FOSTER & ALONGI, INC.

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-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Friday, October 16, 2015 7:42 AM
To: Mike Murray; Amanda Volgardsen; Mary Benzinger
Subject: Re: Conventional analysis

Mike:

For sediment:

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TOC/TVS/TS/NH3: 4oz.

Phenol (in sediment): 8oz glass.

If this question is in regards to soil or water, let me know.

Mark H.

On 10/16/2015 7:35 AM, Mike Murray wrote:
> Can anyone remind me of the bottle set needed for conventional analysis? I have the zinc acetate:
>
> TOC
> TVS
> Total solids
> Ammonia
> Total sulfides
>
> Also, what bottle do you need for phenol?
>
> Thanks! !
>
>
> Sent from my Verizon Wireless 4G LTE smartphone

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Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

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Mark Harris
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Mark Harris
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AON3 : 00012

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Case Narrative

Client: Maul, Foster, Alongi, Inc.
Project: Seaport Landing
ARI Job Number: AON3
Matrix: Soil/Water

Date: November 9, 2015

SVOA Analysis

The percent differences (%Ds) for several compounds were not within control limits for the CCALs that bracketed the analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The percent recoveries for 4-chloroaniline and 3-nitroaniline were low and 3,3'-dichlorobenzidine was not recovered following the analysis of the LCS associated with the soil samples. Since all of these compounds are known ton be reactive and recover poorly, no corrective actions were taken.

The RPDs for three compounds were high following the analyses of the LCS/LCSD associated with the analyses of the water samples. Since the individual percent recoveries were within established QC limits for these compounds, no corrective actions were taken.

Dioxins/Furans Analysis

These analyses proceeded without incident of note.

PCBs Analysis

The percent recovery for the surrogate, DCBP, was not within control limits following the analysis of sample CR20-S-5.0. This was due to co-elution of target Aroclors present in this sample. Since the percent recovery for the secondary surrogate, TCMX, was within established QC limits for this sample, no corrective actions were taken.

The %D for Aroclor 1242 was high for one column for one CCAL that bracketed the analyses of some of these samples. The %D for Aroclor 1242 was within acceptable QC limits for the secondary column. The secondary column only was used for quantitation.

NWTPH-Dx Analysis

These analyses proceeded without incident of note.

AON3-00014 R2

Novak, Maul, Foster, Alongi, Inc.
Seaport Landing
AON3
Soil/Water

9 November 2015

Metals Analysis

A matrix spike (MS) was prepared and analyzed in conjunction with sample CR20-S-5.0. The percent recovery for mercury was not within control limits following the analysis of the MS. The samples were re-prepared and re-analyzed. The percent recovery for mercury was within established QC limits for the re-analysis. The results for the re-analysis only have been submitted.

A matrix duplicate (MD) was prepared and analyzed in conjunction with the re-analysis of sample CR20-S-5.0. The RPDs for chromium and mercury were high following the analysis of the MD. Since the percent recoveries for all elements were within acceptable QC limits for the corresponding MS and LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPDs. No corrective actions were taken.

The percent recovery for chromium was not within control limits following the ICP analysis of the MS. Since the percent recovery for chromium was within acceptable QC limits for the corresponding LCS, it was concluded that the sample matrix was the cause of the poor MS recovery. No corrective actions were taken.

AON3:00015 RE

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AON3
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR20-S-5.0	AON3A	15-19215	Soil	10/12/15 16:25	10/14/15 12:35
2.	CR21-S-5.0	AON3B	15-19216	Soil	10/12/15 15:20	10/14/15 12:35
3.	CR21-GW-10	AON3C	15-19217	Ground Wate	10/12/15 15:15	10/14/15 12:35
4.	CR20-GW-5.0	AON3D	15-19218	Ground Wate	10/12/15 16:30	10/14/15 12:35
5.	CR21-GW-10	AON3E	15-19219	Ground Wate	10/12/15 15:15	10/14/15 12:35
6.	CR20-GW-5.0	AON3F	15-19220	Ground Wate	10/12/15 16:30	10/14/15 12:35
7.	Seep-01	AON3G	15-19221	Ground Wate	10/12/15	10/14/15 12:35
8.	Seep-01	AON3H	15-19363	Groundwater	10/12/15	10/14/15 12:35

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR20-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized: MW
Reported: 11/03/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 19:34
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.55 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 3.00
Percent Moisture: 24.8%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	280	< 280 U
111-44-4	Bis-(2-Chloroethyl) Ether	280	< 280 U
95-57-8	2-Chlorophenol	280	< 280 U
541-73-1	1,3-Dichlorobenzene	280	< 280 U
106-46-7	1,4-Dichlorobenzene	280	< 280 U
100-51-6	Benzyl Alcohol	280	< 280 U
95-50-1	1,2-Dichlorobenzene	280	< 280 U
95-48-7	2-Methylphenol	280	< 280 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	280	< 280 U
106-44-5	4-Methylphenol	280	< 280 U
621-64-7	N-Nitroso-Di-N-Propylamine	280	< 280 U
67-72-1	Hexachloroethane	280	< 280 U
98-95-3	Nitrobenzene	280	< 280 U
78-59-1	Isophorone	280	< 280 U
88-75-5	2-Nitrophenol	280	< 280 U
105-67-9	2,4-Dimethylphenol	1,400	< 1,400 U
65-85-0	Benzoic Acid	2,800	< 2,800 U
111-91-1	bis(2-Chloroethoxy) Methane	280	< 280 U
120-83-2	2,4-Dichlorophenol	1,400	< 1,400 U
120-82-1	1,2,4-Trichlorobenzene	280	< 280 U
91-20-3	Naphthalene	280	< 280 U
106-47-8	4-Chloroaniline	1,400	< 1,400 U
87-68-3	Hexachlorobutadiene	280	< 280 U
59-50-7	4-Chloro-3-methylphenol	1,400	< 1,400 U
91-57-6	2-Methylnaphthalene	280	< 280 U
77-47-4	Hexachlorocyclopentadiene	1,400	< 1,400 U
88-06-2	2,4,6-Trichlorophenol	1,400	< 1,400 U
95-95-4	2,4,5-Trichlorophenol	1,400	< 1,400 U
91-58-7	2-Chloronaphthalene	280	< 280 U
88-74-4	2-Nitroaniline	1,400	< 1,400 U
131-11-3	Dimethylphthalate	280	< 280 U
208-96-8	Acenaphthylene	280	< 280 U
99-09-2	3-Nitroaniline	1,400	< 1,400 U
83-32-9	**Acenaphthene**	**280**	**140 J**
51-28-5	2,4-Dinitrophenol	2,800	< 2,800 U
100-02-7	4-Nitrophenol	1,400	< 1,400 U
132-64-9	Dibenzofuran	280	< 280 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR20-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Date Analyzed: 10/28/15 19:34

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	1,400	< 1,400 U
121-14-2	2,4-Dinitrotoluene	1,400	< 1,400 U
84-66-2	Diethylphthalate	280	< 280 U
7005-72-3	4-Chlorophenyl-phenylether	280	< 280 U
86-73-7	**Fluorene**	**280**	**160 J**
100-01-6	4-Nitroaniline	1,400	< 1,400 U
534-52-1	4,6-Dinitro-2-Methylphenol	2,800	< 2,800 U
86-30-6	N-Nitrosodiphenylamine	280	< 280 U
101-55-3	4-Bromophenyl-phenylether	280	< 280 U
118-74-1	Hexachlorobenzene	280	< 280 U
87-86-5	Pentachlorophenol	1,400	< 1,400 U
85-01-8	**Phenanthrene**	**280**	**510**
86-74-8	Carbazole	280	< 280 U
120-12-7	Anthracene	280	< 280 U
84-74-2	Di-n-Butylphthalate	280	< 280 U
206-44-0	**Fluoranthene**	**280**	**600**
129-00-0	**Pyrene**	**280**	**530**
85-68-7	Butylbenzylphthalate	280	< 280 U
91-94-1	3,3'-Dichlorobenzidine	1,400	< 1,400 U
56-55-3	**Benzo(a)anthracene**	**280**	**140 J**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**710**	**570 J**
218-01-9	**Chrysene**	**280**	**470**
117-84-0	Di-n-Octyl phthalate	280	< 280 U
50-32-8	**Benzo(a)pyrene**	**280**	**160 J**
193-39-5	Indeno(1,2,3-cd)pyrene	280	< 280 U
53-70-3	Dibenz(a,h)anthracene	280	< 280 U
191-24-2	Benzo(g,h,i)perylene	280	< 280 U
90-12-0	1-Methylnaphthalene	280	< 280 U
TOTBFA	**Total Benzofluoranthenes**	**570**	**300 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	87.0%	2-Fluorobiphenyl	75.0%
d14-p-Terphenyl	99.0%	d4-1,2-Dichlorobenzene	63.0%
d5-Phenol	86.0%	2-Fluorophenol	68.0%
2,4,6-Tribromophenol	72.0%	d4-2-Chlorophenol	80.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR21-S-5.0**
Extraction Method: SW3546 **SAMPLE**
Page 1 of 2

Lab Sample ID: AON3B
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 20:10
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.81 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Percent Moisture: 16.9%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	92	< 92 U
111-44-4	Bis-(2-Chloroethyl) Ether	92	< 92 U
95-57-8	2-Chlorophenol	92	< 92 U
541-73-1	1,3-Dichlorobenzene	92	< 92 U
106-46-7	1,4-Dichlorobenzene	92	< 92 U
100-51-6	Benzyl Alcohol	92	< 92 U
95-50-1	1,2-Dichlorobenzene	92	< 92 U
95-48-7	2-Methylphenol	92	< 92 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	92	< 92 U
106-44-5	**4-Methylphenol**	**92**	**92**
621-64-7	N-Nitroso-Di-N-Propylamine	92	< 92 U
67-72-1	Hexachloroethane	92	< 92 U
98-95-3	Nitrobenzene	92	< 92 U
78-59-1	Isophorone	92	< 92 U
88-75-5	2-Nitrophenol	92	< 92 U
105-67-9	2,4-Dimethylphenol	460	< 460 U
65-85-0	Benzoic Acid	920	< 920 U
111-91-1	bis(2-Chloroethoxy) Methane	92	< 92 U
120-83-2	2,4-Dichlorophenol	460	< 460 U
120-82-1	1,2,4-Trichlorobenzene	92	< 92 U
91-20-3	**Naphthalene**	**92**	**65 J**
106-47-8	4-Chloroaniline	460	< 460 U
87-68-3	Hexachlorobutadiene	92	< 92 U
59-50-7	4-Chloro-3-methylphenol	460	< 460 U
91-57-6	**2-Methylnaphthalene**	**92**	**46 J**
77-47-4	Hexachlorocyclopentadiene	460	< 460 U
88-06-2	2,4,6-Trichlorophenol	460	< 460 U
95-95-4	2,4,5-Trichlorophenol	460	< 460 U
91-58-7	2-Chloronaphthalene	92	< 92 U
88-74-4	2-Nitroaniline	460	< 460 U
131-11-3	Dimethylphthalate	92	< 92 U
208-96-8	Acenaphthylene	92	< 92 U
99-09-2	3-Nitroaniline	460	< 460 U
83-32-9	**Acenaphthene**	**92**	**420**
51-28-5	2,4-Dinitrophenol	920	< 920 U
100-02-7	4-Nitrophenol	460	< 460 U
132-64-9	**Dibenzofuran**	**92**	**100**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR21-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON3B
LIMS ID: 15-19216
Matrix: Soil
Date Analyzed: 10/28/15 20:10

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	460	< 460 U
121-14-2	2,4-Dinitrotoluene	460	< 460 U
84-66-2	Diethylphthalate	92	< 92 U
7005-72-3	4-Chlorophenyl-phenylether	92	< 92 U
86-73-7	**Fluorene**	**92**	**300**
100-01-6	4-Nitroaniline	460	< 460 U
534-52-1	4,6-Dinitro-2-Methylphenol	920	< 920 U
86-30-6	N-Nitrosodiphenylamine	92	< 92 U
101-55-3	4-Bromophenyl-phenylether	92	< 92 U
118-74-1	Hexachlorobenzene	92	< 92 U
87-86-5	Pentachlorophenol	460	< 460 U
85-01-8	**Phenanthrene**	**92**	**920**
86-74-8	Carbazole	92	< 92 U
120-12-7	**Anthracene**	**92**	**150**
84-74-2	Di-n-Butylphthalate	92	< 92 U
206-44-0	**Fluoranthene**	**92**	**640**
129-00-0	**Pyrene**	**92**	**610**
85-68-7	Butylbenzylphthalate	92	< 92 U
91-94-1	3,3'-Dichlorobenzidine	460	< 460 U
56-55-3	**Benzo(a)anthracene**	**92**	**210**
117-81-7	bis(2-Ethylhexyl)phthalate	230	< 230 U
218-01-9	**Chrysene**	**92**	**480**
117-84-0	Di-n-Octyl phthalate	92	< 92 U
50-32-8	**Benzo(a)pyrene**	**92**	**180**
193-39-5	Indeno(1,2,3-cd)pyrene	92	< 92 U
53-70-3	Dibenz(a,h)anthracene	92	< 92 U
191-24-2	Benzo(g,h,i)perylene	92	< 92 U
90-12-0	1-Methylnaphthalene	92	< 92 U
TOTBFA	**Total Benzofluoranthenes**	**160**	**320**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.0%	2-Fluorobiphenyl	74.0%
d14-p-Terphenyl	97.0%	d4-1,2-Dichlorobenzene	75.0%
d5-Phenol	74.0%	2-Fluorophenol	70.7%
2,4,6-Tribromophenol	71.3%	d4-2-Chlorophenol	70.7%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-102015	81.8%	80.6%	113%	81.6%	86.9%	76.7%	74.9%	87.1%	0
LCS-102015	80.6%	81.6%	112%	71.6%	83.7%	76.5%	84.7%	76.7%	0
CR20-S-5.0	87.0%	75.0%	99.0%	63.0%	86.0%	68.0%	72.0%	80.0%	0
CR21-S-5.0	74.0%	74.0%	97.0%	75.0%	74.0%	70.7%	71.3%	70.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19215 to 15-19216

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102015**
Page 1 of 2 **LAB CONTROL**

Lab Sample ID: LCS-102015 QC Report No: AON3-Maul Foster & Alongi
LIMS ID: 15-19215 Project: Seaport Landing
Matrix: Soil 1044.02.01-02
Data Release Authorized: Date Sampled: 10/12/15
Reported: 11/03/15 Date Received: 10/14/15

Date Extracted: 10/20/15 Sample Amount: 10.00 g
Date Analyzed: 10/28/15 17:10 Final Extract Volume: 1.0 mL
Instrument/Analyst: NT10/YZ Dilution Factor: 1.00
GPC Cleanup: Yes Percent Moisture: NA

Analyte	Lab Control		Spike Added	Recovery
Phenol	459	Q	500	91.8%
Bis-(2-Chloroethyl) Ether	433		500	86.6%
2-Chlorophenol	432		500	86.4%
1,3-Dichlorobenzene	382		500	76.4%
1,4-Dichlorobenzene	373		500	74.6%
Benzyl Alcohol	239		500	47.8%
1,2-Dichlorobenzene	419		500	83.8%
2-Methylphenol	443		500	88.6%
2,2'-Oxybis(1-Chloropropane)	369		500	73.8%
4-Methylphenol	451		500	90.2%
N-Nitroso-Di-N-Propylamine	444		500	88.8%
Hexachloroethane	400		500	80.0%
Nitrobenzene	475		500	95.0%
Isophorone	489		500	97.8%
2-Nitrophenol	420		500	84.0%
2,4-Dimethylphenol	1140		1500	76.0%
Benzoic Acid	2400		2750	87.3%
bis(2-Chloroethoxy) Methane	381		500	76.2%
2,4-Dichlorophenol	1300		1500	86.7%
1,2,4-Trichlorobenzene	475		500	95.0%
Naphthalene	417		500	83.4%
4-Chloroaniline	57.0	J	1500	3.8%
Hexachlorobutadiene	382		500	76.4%
4-Chloro-3-methylphenol	1320		1500	88.0%
2-Methylnaphthalene	423		500	84.6%
Hexachlorocyclopentadiene	1310		1500	87.3%
2,4,6-Trichlorophenol	1350		1500	90.0%
2,4,5-Trichlorophenol	1360		1500	90.7%
2-Chloronaphthalene	435		500	87.0%
2-Nitroaniline	1490		1500	99.3%
Dimethylphthalate	435		500	87.0%
Acenaphthylene	402		500	80.4%
3-Nitroaniline	86.0	J	1500	5.7%
Acenaphthene	470		500	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102015**
Page 2 of 2 **LAB CONTROL**

Lab Sample ID: LCS-102015 QC Report No: AON3-Maul Foster & Alongi
LIMS ID: 15-19215 Project: Seaport Landing
Matrix: Soil 1044.02.01-02
Date Analyzed: 10/28/15 17:10

Analyte	Lab Control	Spike Added	Recovery
2,4-Dinitrophenol	2620	2750	95.3%
4-Nitrophenol	1290	1500	86.0%
Dibenzofuran	439	500	87.8%
2,6-Dinitrotoluene	1380	1500	92.0%
2,4-Dinitrotoluene	1400	1500	93.3%
Diethylphthalate	461	500	92.2%
4-Chlorophenyl-phenylether	405	500	81.0%
Fluorene	424	500	84.8%
4-Nitroaniline	382	1500	25.5%
4,6-Dinitro-2-Methylphenol	2410	2750	87.6%
N-Nitrosodiphenylamine	315	500	63.0%
4-Bromophenyl-phenylether	427	500	85.4%
Hexachlorobenzene	417	500	83.4%
Pentachlorophenol	1310	1500	87.3%
Phenanthrene	462	500	92.4%
Carbazole	271 Q	500	54.2%
Anthracene	426	500	85.2%
Di-n-Butylphthalate	510	500	102%
Fluoranthene	474	500	94.8%
Pyrene	442	500	88.4%
Butylbenzylphthalate	501	500	100%
3,3'-Dichlorobenzidine	< 100 U	1500	NA
Benzo(a)anthracene	460	500	92.0%
bis(2-Ethylhexyl)phthalate	479	500	95.8%
Chrysene	456	500	91.2%
Di-n-Octyl phthalate	420	500	84.0%
Benzo(a)pyrene	412	500	82.4%
Indeno(1,2,3-cd)pyrene	471	500	94.2%
Dibenz(a,h)anthracene	475	500	95.0%
Benzo(g,h,i)perylene	436	500	87.2%
1-Methylnaphthalene	393	500	78.6%
Total Benzofluoranthenes	949	1000	94.9%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	80.6%
2-Fluorobiphenyl	81.6%
d14-p-Terphenyl	112%
d4-1,2-Dichlorobenzene	71.6%
d5-Phenol	83.7%
2-Fluorophenol	76.5%
2,4,6-Tribromophenol	84.7%
d4-2-Chlorophenol	76.7%

Reported in µg/kg (ppb)

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

AON0MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: MAUL FOSTER & ALONGI

ARI Job No: AON4

Project: SEAPORT LANDING

Lab File ID: AON0MB

Date Extracted: 10/20/15

Instrument ID: NT10

Date Analyzed: 10/28/15

Matrix: SOLID

Time Analyzed: 1633

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AON0LCSS1	AON0LCSS1	AON0SB	10/28/15
02	B01-S-4.5 MS	AON4AMS	AON4AMS	10/28/15
03	B01-S-4.5 MSD	AON4AMSD	AON4AMSD	10/28/15
04				
05				
06				
07				
08				
09				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102015**
Extraction Method: SW3546 **METHOD BLANK**
Page 1 of 2

Lab Sample ID: MB-102015
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/28/15 16:33
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
111-44-4	Bis-(2-Chloroethyl) Ether	20	< 20 U
95-57-8	2-Chlorophenol	20	< 20 U
541-73-1	1,3-Dichlorobenzene	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
621-64-7	N-Nitroso-Di-N-Propylamine	20	< 20 U
67-72-1	Hexachloroethane	20	< 20 U
98-95-3	Nitrobenzene	20	< 20 U
78-59-1	Isophorone	20	< 20 U
88-75-5	2-Nitrophenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
111-91-1	bis(2-Chloroethoxy) Methane	20	< 20 U
120-83-2	2,4-Dichlorophenol	100	< 100 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
106-47-8	4-Chloroaniline	100	< 100 U
87-68-3	Hexachlorobutadiene	20	< 20 U
59-50-7	4-Chloro-3-methylphenol	100	< 100 U
91-57-6	2-Methylnaphthalene	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	100	< 100 U
88-06-2	2,4,6-Trichlorophenol	100	< 100 U
95-95-4	2,4,5-Trichlorophenol	100	< 100 U
91-58-7	2-Chloronaphthalene	20	< 20 U
88-74-4	2-Nitroaniline	100	< 100 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
99-09-2	3-Nitroaniline	100	< 100 U
83-32-9	Acenaphthene	20	< 20 U
51-28-5	2,4-Dinitrophenol	200	< 200 U
100-02-7	4-Nitrophenol	100	< 100 U
132-64-9	Dibenzofuran	20	< 20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102015 QC Report No: AON3-Maul Foster & Alongi
LIMS ID: 15-19215 Project: Seaport Landing
Matrix: Soil 1044.02.01-02
Date Analyzed: 10/28/15 16:33

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	100	< 100 U
121-14-2	2,4-Dinitrotoluene	100	< 100 U
84-66-2	Diethylphthalate	20	< 20 U
7005-72-3	4-Chlorophenyl-phenylether	20	< 20 U
86-73-7	Fluorene	20	< 20 U
100-01-6	4-Nitroaniline	100	< 100 U
534-52-1	4,6-Dinitro-2-Methylphenol	200	< 200 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
101-55-3	4-Bromophenyl-phenylether	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
86-74-8	Carbazole	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
91-94-1	3,3'-Dichlorobenzidine	100	< 100 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	81.8%	2-Fluorobiphenyl	80.6%
d14-p-Terphenyl	113%	d4-1,2-Dichlorobenzene	81.6%
d5-Phenol	86.9%	2-Fluorophenol	76.7%
2,4,6-Tribromophenol	74.9%	d4-2-Chlorophenol	87.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: CR21-GW-10
SAMPLE

Lab Sample ID: AON3C
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 20:25
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR21-GW-10**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: AON3C
LIMS ID: 15-19217
Matrix: Ground Water
Date Analyzed: 10/23/15 20:25

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	54.8%	2-Fluorobiphenyl	55.2%
d14-p-Terphenyl	47.6%	d4-1,2-Dichlorobenzene	49.6%
d5-Phenol	53.3%	2-Fluorophenol	51.7%
2,4,6-Tribromophenol	68.8%	d4-2-Chlorophenol	60.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: CR20-GW-5.0
SAMPLE

Lab Sample ID: AON3D
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 20:57
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR20-GW-5.0**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: AON3D
LIMS ID: 15-19218
Matrix: Ground Water
Date Analyzed: 10/23/15 20:57

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	62.4%	2-Fluorobiphenyl	64.0%
d14-p-Terphenyl	50.0%	d4-1,2-Dichlorobenzene	56.4%
d5-Phenol	67.2%	2-Fluorophenol	66.9%
2,4,6-Tribromophenol	74.1%	d4-2-Chlorophenol	70.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: Seep-01
SAMPLE

Lab Sample ID: AON3G
LIMS ID: 15-19221
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 21:30
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 2 of 2

Sample ID: Seep-01
SAMPLE

Lab Sample ID: AON3G
LIMS ID: 15-19221
Matrix: Ground Water
Date Analyzed: 10/23/15 21:30

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.0%	2-Fluorobiphenyl	76.0%
d14-p-Terphenyl	94.8%	d4-1,2-Dichlorobenzene	68.0%
d5-Phenol	75.2%	2-Fluorophenol	75.7%
2,4,6-Tribromophenol	88.0%	d4-2-Chlorophenol	81.9%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-101915	74.0%	74.0%	107%	56.0%	81.9%	77.3%	74.4%	85.3%	0
LCS-101915	64.8%	68.8%	86.4%	56.0%	72.8%	65.3%	78.1%	74.7%	0
LCSD-101915	47.2%	50.4%	87.6%	40.4%	49.6%	46.9%	73.1%	52.8%	0
CR21-GW-10	54.8%	55.2%	47.6%	49.6%	53.3%	51.7%	68.8%	60.3%	0
CR20-GW-5.0	62.4%	64.0%	50.0%	56.4%	67.2%	66.9%	74.1%	70.4%	0
Seep-01	72.0%	76.0%	94.8%	68.0%	75.2%	75.7%	88.0%	81.9%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(27-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(33-120)	(33-120)
(TPH) = d14-p-Terphenyl	(28-130)	(28-130)
(DCB) = d4-1,2-Dichlorobenzene	(20-120)	(20-120)
(PHL) = d5-Phenol	(38-120)	(38-120)
(2FP) = 2-Fluorophenol	(33-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(52-131)	(52-131)
(2CP) = d4-2-Chlorophenol	(41-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 15-19217 to 15-19221

FORM-II SW8270

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 2

Sample ID: LCS-101915
LCS/LCSD

Lab Sample ID: LCS-101915
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted LCS/LCSD: 10/19/15

Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Phenol	18.3		25.0	73.2%	13.4		25.0	53.6%	30.9%
Bis-(2-Chloroethyl) Ether	20.6		25.0	82.4%	15.0		25.0	60.0%	31.5%
2-Chlorophenol	18.3		25.0	73.2%	13.4		25.0	53.6%	30.9%
1,3-Dichlorobenzene	13.1		25.0	52.4%	10.0		25.0	40.0%	26.8%
1,4-Dichlorobenzene	13.5		25.0	54.0%	10.2		25.0	40.8%	27.8%
Benzyl Alcohol	17.9		25.0	71.6%	14.9		25.0	59.6%	18.3%
1,2-Dichlorobenzene	14.2		25.0	56.8%	10.9		25.0	43.6%	26.3%
2-Methylphenol	18.0		25.0	72.0%	13.6		25.0	54.4%	27.8%
2,2'-Oxybis(1-Chloropropane)	14.6		25.0	58.4%	11.1		25.0	44.4%	27.2%
4-Methylphenol	18.8		25.0	75.2%	15.1		25.0	60.4%	21.8%
N-Nitroso-Di-N-Propylamine	18.2		25.0	72.8%	16.1		25.0	64.4%	12.2%
Hexachloroethane	13.1		25.0	52.4%	10.4		25.0	41.6%	23.0%
Nitrobenzene	16.4		25.0	65.6%	12.3		25.0	49.2%	28.6%
Isophorone	16.8		25.0	67.2%	17.2		25.0	68.8%	2.4%
2-Nitrophenol	18.0		25.0	72.0%	13.7		25.0	54.8%	27.1%
2,4-Dimethylphenol	51.0		75.0	68.0%	44.5		75.0	59.3%	13.6%
Benzoic Acid	87.9	Q	138	63.7%	90.3	Q	138	65.4%	2.7%
bis(2-Chloroethoxy) Methane	16.9		25.0	67.6%	13.3		25.0	53.2%	23.8%
2,4-Dichlorophenol	56.8		75.0	75.7%	43.1		75.0	57.5%	27.4%
1,2,4-Trichlorobenzene	13.4		25.0	53.6%	10.4		25.0	41.6%	25.2%
Naphthalene	15.9		25.0	63.6%	11.8		25.0	47.2%	29.6%
4-Chloroaniline	46.2		75.0	61.6%	46.0		75.0	61.3%	0.4%
Hexachlorobutadiene	10.4		25.0	41.6%	8.1		25.0	32.4%	24.9%
4-Chloro-3-methylphenol	72.1		75.0	96.1%	65.3		75.0	87.1%	9.9%
2-Methylnaphthalene	13.4		25.0	53.6%	10.0		25.0	40.0%	29.1%
Hexachlorocyclopentadiene	26.8	Q	75.0	35.7%	20.2	Q	75.0	26.9%	28.1%
2,4,6-Trichlorophenol	71.9		75.0	95.9%	57.6		75.0	76.8%	22.1%
2,4,5-Trichlorophenol	71.6		75.0	95.5%	60.3		75.0	80.4%	17.1%
2-Chloronaphthalene	15.2		25.0	60.8%	11.8		25.0	47.2%	25.2%
2-Nitroaniline	60.1		75.0	80.1%	57.8		75.0	77.1%	3.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 2 of 2

Sample ID: LCS-101915
LCS/LCSD

Lab Sample ID: LCS-101915
LIMS ID: 15-19217
Matrix: Ground Water
Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Dimethylphthalate	22.5	25.0	90.0%	23.4	25.0	93.6%	3.9%
Acenaphthylene	19.4	25.0	77.6%	15.8	25.0	63.2%	20.5%
3-Nitroaniline	66.9	75.0	89.2%	68.0	75.0	90.7%	1.6%
Acenaphthene	19.4	25.0	77.6%	15.6	25.0	62.4%	21.7%
2,4-Dinitrophenol	105 Q	138	76.1%	109 Q	138	79.0%	3.7%
4-Nitrophenol	60.9 Q	75.0	81.2%	64.1 Q	75.0	85.5%	5.1%
Dibenzofuran	16.2	25.0	64.8%	13.8	25.0	55.2%	16.0%
2,6-Dinitrotoluene	69.2	75.0	92.3%	65.7	75.0	87.6%	5.2%
2,4-Dinitrotoluene	75.1	75.0	100%	73.8	75.0	98.4%	1.7%
Diethylphthalate	22.4	25.0	89.6%	23.2	25.0	92.8%	3.5%
4-Chlorophenyl-phenylether	17.1	25.0	68.4%	15.5	25.0	62.0%	9.8%
Fluorene	19.4	25.0	77.6%	17.1	25.0	68.4%	12.6%
4-Nitroaniline	62.7	75.0	83.6%	66.6	75.0	88.8%	6.0%
4,6-Dinitro-2-Methylphenol	126	138	91.3%	127	138	92.0%	0.8%
N-Nitrosodiphenylamine	17.3	25.0	69.2%	17.3	25.0	69.2%	0.0%
4-Bromophenyl-phenylether	17.9	25.0	71.6%	16.7	25.0	66.8%	6.9%
Hexachlorobenzene	17.0	25.0	68.0%	15.4	25.0	61.6%	9.9%
Pentachlorophenol	60.6 Q	75.0	80.8%	61.9 Q	75.0	82.5%	2.1%
Phenanthrene	20.1	25.0	80.4%	19.6	25.0	78.4%	2.5%
Carbazole	25.3	25.0	101%	26.6	25.0	106%	5.0%
Anthracene	19.7	25.0	78.8%	19.5	25.0	78.0%	1.0%
Di-n-Butylphthalate	21.0	25.0	84.0%	22.7	25.0	90.8%	7.8%
Fluoranthene	21.1	25.0	84.4%	22.3	25.0	89.2%	5.5%
Pyrene	23.4	25.0	93.6%	24.2	25.0	96.8%	3.4%
Butylbenzylphthalate	23.4	25.0	93.6%	24.7	25.0	98.8%	5.4%
3,3'-Dichlorobenzidine	51.8	75.0	69.1%	55.8	75.0	74.4%	7.4%
Benzo(a)anthracene	20.9	25.0	83.6%	22.9	25.0	91.6%	9.1%
bis(2-Ethylhexyl)phthalate	22.0	25.0	88.0%	23.2	25.0	92.8%	5.3%
Chrysene	24.4	25.0	97.6%	26.1	25.0	104%	6.7%
Di-n-Octyl phthalate	22.7	25.0	90.8%	23.8	25.0	95.2%	4.7%
Benzo(a)pyrene	23.0	25.0	92.0%	25.3	25.0	101%	9.5%
Indeno(1,2,3-cd)pyrene	21.7	25.0	86.8%	23.6	25.0	94.4%	8.4%
Dibenz(a,h)anthracene	22.3	25.0	89.2%	23.8	25.0	95.2%	6.5%
Benzo(g,h,i)perylene	23.1	25.0	92.4%	25.0	25.0	100%	7.9%
1-Methylnaphthalene	16.2	25.0	64.8%	12.4	25.0	49.6%	26.6%
Total Benzofluoranthenes	46.2	50.0	92.4%	50.2	50.0	100%	8.3%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	64.8%	47.2%
2-Fluorobiphenyl	68.8%	50.4%
d14-p-Terphenyl	86.4%	87.6%
d4-1,2-Dichlorobenzene	56.0%	40.4%
d5-Phenol	72.8%	49.6%
2-Fluorophenol	65.3%	46.9%
2,4,6-Tribromophenol	78.1%	73.1%
d4-2-Chlorophenol	74.7%	52.8%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

BLANK NO.

SEMIVOLATILE METHOD BLANK SUMMARY

AON3MBW1

Lab Name: ANALYTICAL RESOURCES INC
ARI Job No: AON3

Client: Paul Foster & Alongi
Project: Seaport landing

Lab File ID: 15102304

Date Extracted: 10/19/15

Instrument ID: NT6

Date Analyzed: 10/23/15

Matrix: LIQUID

Time Analyzed: 1349

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AOP0LCSW1	AOP0LCSW1	15102305	10/23/15
02	AOP0LCSDW1	AOP0LCSDW1	15102306	10/23/15
03	CR21-GW-10	AON3C	15102316	10/23/15
04	CR20-GW-5.0	AON3D	15102317	10/23/15
05	SEEP-01	AON3G	15102318	10/23/15
06				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 13:49
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-101915**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-101915 QC Report No: AON3-Maul Foster & Alongi
LIMS ID: 15-19217 Project: Seaport Landing
Matrix: Ground Water 1044.02.01-02
Date Analyzed: 10/23/15 13:49

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.0%	2-Fluorobiphenyl	74.0%
d14-p-Terphenyl	107%	d4-1,2-Dichlorobenzene	56.0%
d5-Phenol	81.9%	2-Fluorophenol	77.3%
2,4,6-Tribromophenol	74.4%	d4-2-Chlorophenol	85.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR20-S-5.0**
Page 1 of 1

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 22:01
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.69	0.65-0.89		0.992	5.07	
2,3,7,8-TCDD	0.74	0.65-0.89		0.992	6.42	
1,2,3,7,8-PeCDF	1.31	1.32-1.78		0.992	4.85	EMPC
2,3,4,7,8-PeCDF	1.43	1.32-1.78		0.992	5.51	
1,2,3,7,8-PeCDD	1.53	1.32-1.78		0.992	10.8	
1,2,3,4,7,8-HxCDF	1.09	1.05-1.43		0.992	17.0	
1,2,3,6,7,8-HxCDF	1.17	1.05-1.43		0.992	9.97	
2,3,4,6,7,8-HxCDF	1.15	1.05-1.43		0.992	40.0	
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43		0.992	8.52	
1,2,3,4,7,8-HxCDD	1.30	1.05-1.43		0.992	36.1	
1,2,3,6,7,8-HxCDD	1.21	1.05-1.43		0.992	184	
1,2,3,7,8,9-HxCDD	1.30	1.05-1.43		0.992	16.7	
1,2,3,4,6,7,8-HpCDF	0.95	0.88-1.20		0.992	653	
1,2,3,4,7,8,9-HpCDF	0.95	0.88-1.20		0.992	32.0	
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20		9.92	2,650	#
OCDF	0.82	0.76-1.02		1.98	1,490	
OCDD	0.88	0.76-1.02		99.2	18,400	#

Homologue Group	EDL	RL	Result	
Total TCDF		0.992	50.9	EMPC
Total TCDD		0.992	79.6	EMPC
Total PeCDF		1.98	316	EMPC
Total PeCDD		0.992	140	
Total HxCDF		1.98	1,340	EMPC
Total HxCDD		1.98	843	EMPC
Total HpCDF		1.98	3,080	EMPC
Total HpCDD		1.98	4,760	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 90.1

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 90.1

#-Result from diluted secondary analysis.

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR20-S-5.0**
Page 1 of 1

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 22:01
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	75.3	24-169	
13C-2,3,7,8-TCDD	0.76	0.65-0.89	71.9	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	69.6	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	68.4	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	69.3	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	77.2	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	72.1	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	70.0	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	65.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	78.3	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	72.4	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	54.1	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.43	0.37-0.51	48.1	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	55.0	23-140	
13C-OCDD	0.90	0.76-1.02	35.1	17-157	
37Cl4-2,3,7,8-TCDD			94.5	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR20-S-5.0
DILUTION

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 11/06/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/04/15 14:38
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 10.0

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	77.2	23-140	
13C-OCDD	0.93	0.76-1.02	58.5	17-157	
37Cl4-2,3,7,8-TCDD			109	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR21-S-5.0

Lab Sample ID: AON3B
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 11/06/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/04/15 15:29
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.64	0.65-0.89		0.990	0.657	JEMPC
2,3,7,8-TCDD	0.62	0.65-0.89		0.990	0.467	JEMPC
1,2,3,7,8-PeCDF	1.65	1.32-1.78		0.990	0.859	J
2,3,4,7,8-PeCDF	1.02	1.32-1.78		0.990	0.727	JEMPC
1,2,3,7,8-PeCDD	1.66	1.32-1.78		0.990	1.97	
1,2,3,4,7,8-HxCDF	1.16	1.05-1.43		0.990	2.11	
1,2,3,6,7,8-HxCDF	1.25	1.05-1.43		0.990	1.55	
2,3,4,6,7,8-HxCDF	1.10	1.05-1.43		0.990	1.58	
1,2,3,7,8,9-HxCDF	1.17	1.05-1.43		0.990	1.30	
1,2,3,4,7,8-HxCDD	1.22	1.05-1.43		0.990	3.49	
1,2,3,6,7,8-HxCDD	1.25	1.05-1.43		0.990	23.6	
1,2,3,7,8,9-HxCDD	1.25	1.05-1.43		0.990	8.09	
1,2,3,4,6,7,8-HpCDF	1.02	0.88-1.20		0.990	37.9	
1,2,3,4,7,8,9-HpCDF	1.03	0.88-1.20		0.990	1.48	
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.990	373	
OCDF	0.81	0.76-1.02		1.98	42.8	
OCDD	0.89	0.76-1.02		9.90	2,480	

Homologue Group	EDL	RL	Result	
Total TCDF		0.990	7.08	EMPC
Total TCDD		0.990	4.89	EMPC
Total PeCDF		1.98	36.3	EMPC
Total PeCDD		0.990	14.9	EMPC
Total HxCDF		1.98	95.5	EMPC
Total HxCDD		1.98	117	
Total HpCDF		1.98	114	
Total HpCDD		1.98	708	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 11.8

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 11.8

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR21-S-5.0

Lab Sample ID: AON3B
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 11/06/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/23/15
Date Analyzed: 11/04/15 15:29
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	77.0	24-169	
13C-2,3,7,8-TCDD	0.77	0.65-0.89	73.5	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	64.3	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	62.5	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	61.9	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	89.9	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	77.9	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	79.6	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	75.1	29-147	
13C-1,2,3,4,7,8-HxCDD	1.29	1.05-1.43	84.6	32-141	
13C-1,2,3,6,7,8-HxCDD	1.22	1.05-1.43	75.1	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	56.5	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	55.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	58.0	23-140	
13C-OCDD	0.89	0.76-1.02	38.0	17-157	
37Cl4-2,3,7,8-TCDD			90.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.67	0.65-0.89	1.00	20.1
2,3,7,8-TCDD	0.76	0.65-0.89	1.00	21.8
1,2,3,7,8-PeCDF	1.45	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.41	1.32-1.78	1.00	102
1,2,3,7,8-PeCDD	1.54	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.15	1.05-1.43	1.00	106
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43	1.00	103
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43	1.00	107
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43	1.00	104
1,2,3,6,7,8-HxCDD	1.22	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43	1.00	105
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	109
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	1.00	106
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.83	0.76-1.02	2.00	202
OCDD	0.90	0.76-1.02	10.0	218

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	20.9	EMPC
Total TCDD		1.00	22.3	
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	105	EMPC
Total HxCDF		2.00	422	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	216	EMPC
Total HpCDD		2.00	108	EMPC

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	100	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	96.4	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	105	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	102	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	97.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.50	0.43-0.59	97.0	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	96.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	93.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	102	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	99.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	90.6	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	91.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	97.8	23-140	
13C-OCDD	0.89	0.76-1.02	83.1	17-157	
37Cl4-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.1	20.0	100	75-158
2,3,7,8-TCDD	21.8	20.0	109	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	102	100	102	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	106	100	106	72-134
1,2,3,6,7,8-HxCDF	103	100	103	84-130
2,3,4,6,7,8-HxCDF	107	100	107	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	104	100	104	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	105	100	105	64-162
1,2,3,4,6,7,8-HpCDF	109	100	109	82-132
1,2,3,4,7,8,9-HpCDF	106	100	106	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	202	200	101	63-170
OCDD	218	200	109	78-144

Reported in pg/g

4DF - FORM IV-HR CDD
CDD/CDF METHOD BLANK SUMMARY
HIGH RESOLUTION

Blank No.: AON0MB

Lab Name: ANALYTICAL RESOURCES, INC. Contract: MAUL FOSTER

Lab Code: AON0 Project: SEAPORT LANDING

Matrix: (Soil/Water/Ash/Tissue/Oil) SOIL Lab Sample ID: AON0MBS

Sample wt/vol: 10 (g/ml) g Lab File ID: 15110304

Water Sample Prep: (sep/spe) Date Received: 14-OCT-15

GC Column: RTX-DIOXIN2 ID: 0.25 mm Date Extracted: 23-OCT-15

Instrument ID: AUTOSPEC1 Date Analyzed: 03-NOV-15

Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
AON0OPR	AON0OPR	15110305	11/03/15
CR23-S-3.0	AON0B	15110308	11/03/15
CR22-S-3.0	AON0C	15110309	11/03/15
CR11-SBSD-23	AON1Q	15110310	11/03/15
CR09A-SSD-COMP	AON2A	15110311	11/03/15
CR096-SSD-COMP	AON2B	15110312	11/03/15
CR20-S-5.0	AON3A	15110313	11/03/15
CR20-S-5.0	AON3A 10X	15110404	11/04/15
CR21-S-5.0	AON3B	15110405	11/04/15

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0360	1.00	< 0.0360	U
2,3,7,8-TCDD		0.65-0.89	0.0520	1.00	< 0.0520	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0380	1.00	< 0.0380	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0400	1.00	< 0.0400	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0640	1.00	< 0.0640	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0440	1.00	< 0.0440	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0400	1.00	< 0.0400	U
2,3,4,6,7,8-HxCDF	1.37	1.05-1.43		1.00	0.0400	J
1,2,3,7,8,9-HxCDF	1.13	1.05-1.43		1.00	0.0360	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0520	1.00	< 0.0520	U
1,2,3,6,7,8-HxCDD	1.75	1.05-1.43		1.00	0.0480	JEMPC
1,2,3,7,8,9-HxCDD	0.96	1.05-1.43		1.00	0.106	JEMPC
1,2,3,4,6,7,8-HpCDF	0.58	0.88-1.20		1.00	0.118	JEMPC
1,2,3,4,7,8,9-HpCDF	0.90	0.88-1.20		1.00	0.0480	J
1,2,3,4,6,7,8-HpCDD	1.00	0.88-1.20		1.00	0.962	J
OCDF	0.68	0.76-1.02		2.00	0.378	JEMPC
OCDD	0.86	0.76-1.02		10.0	6.81	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0360	1.00	< 0.0360	U
Total TCDD	0.0520	1.00	< 0.0520	U
Total PeCDF	0.0400	2.00	< 0.0400	U
Total PeCDD	0.0640	1.00	< 0.0640	U
Total HxCDF		2.00	0.116	EMPC
Total HxCDD		2.00	0.760	EMPC
Total HpCDF		2.00	0.341	EMPC
Total HpCDD		2.00	2.29	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.11

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102315

Lab Sample ID: MB-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: MW
Reported: 11/06/15

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 11/03/15 14:04
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	104	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	99.2	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	108	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	104	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	102	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	102	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	101	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	98.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	108	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	103	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	97.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	98.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	106	23-140	
13C-OCDD	0.90	0.76-1.02	92.3	17-157	
37Cl4-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR20-S-5.0
SAMPLE

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 04:57
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.32 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 24.8%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	**Aroclor 1248**	**19**	**530**
11097-69-1	**Aroclor 1254**	**19**	**710 P**
11096-82-5	**Aroclor 1260**	**19**	**930**
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	126%
Tetrachlorometaxylene	73.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR21-S-5.0
SAMPLE

Lab Sample ID: AON3B
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/24/15 05:19
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.85 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 16.9%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	34	< 34 Y
11097-69-1	**Aroclor 1254**	**17**	**73 P**
11096-82-5	**Aroclor 1260**	**17**	**56**
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U
11100-14-4	Aroclor 1268	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	101%
Tetrachlorometaxylene	67.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-102015	96.2%	59-115	74.8%	58-112	0
LCS-102015	96.0%	59-115	73.2%	58-112	0
CR20-S-5.0	126%*	47-120	73.0%	53-116	1
CR21-S-5.0	101%	47-120	67.8%	53-116	0

Microwave (MARS) Control Limits PCBSMI
Prep Method: SW3546
Log Number Range: 15-19215 to 15-19216

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-102015
LAB CONTROL

Lab Sample ID: LCS-102015
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:39
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	407	500	81.4%
Aroclor 1260	516	500	103%

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	73.2%

Results reported in µg/kg (ppb)

FORM III

BLANK NO.

PCB METHOD BLANK SUMMARY

AON0MBS1

Lab Name: ANALYTICAL RESOURCES INC — Client: MAUL FOSTER & ALONGI

ARI Job No.: AON0 — Project: SEAPORT LANDING

Lab Sample ID: AON0MBS1 — Lab File ID: 10231518

Date Extracted: 10/20/15 — Matrix: SOLID

Date Analyzed: 10/23/15 — Instrument ID: ECD7

Time Analyzed: 2317 — GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	CR-07-SSD-COMP	AON0A	10/23/15
02	AON0LCSS1	AON0LCSS1	10/23/15
03	CR23-S-3.0	AON0B	10/24/15
04	CR22-S-3.0	AON0C	10/24/15
05	CR-24-SSD-COMP	AON1F	10/24/15
06	CR11-SBSD-23	AON1Q	10/24/15
07	CR12-SBSD-15	AON1R	10/24/15
08	CR13-SBSD-11	AON1S	10/24/15
09	CR13-SBSD-11 MS	AON1SMS	10/24/15
10	CR13-SBSD-11 MSD	AON1SMSD	10/24/15
11	CR14-SBSD-12	AON1T	10/24/15
12	CR09A-SSD-COMP	AON2A	10/24/15
13	CR096-SSD-COMP	AON2B	10/24/15
14	CR20-S-5.0	AON3A	10/24/15
15	CR21-S-5.0	AON3B	10/24/15

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/29/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/23/15 23:17
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	96.2%
Tetrachlorometaxylene	74.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: CR21-GW-10
SAMPLE

Lab Sample ID: AON3C
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 00:45
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	50.5%
Tetrachlorometaxylene	58.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: CR20-GW-5.0
SAMPLE

Lab Sample ID: AON3D
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized: 
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 01:07
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	68.0%
Tetrachlorometaxylene	68.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: Seep-01
SAMPLE

Lab Sample ID: AON3G
LIMS ID: 15-19221
Matrix: Ground Water
Data Release Authorized: B
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 01:28
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	82.0%
Tetrachlorometaxylene	57.5%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-101915	117%	38-120	56.0%	29-120	0
LCS-101915	85.2%	38-120	65.8%	29-120	0
CR21-GW-10	50.5%	38-120	58.2%	29-120	0
CR20-GW-5.0	68.0%	38-120	68.2%	29-120	0
Seep-01	82.0%	38-120	57.5%	29-120	0

Prep Method: SW3510C
Log Number Range: 15-19217 to 15-19221

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/22/15 22:59
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	3.84	5.00	76.8%
Aroclor 1260	4.86	5.00	97.2%

PCB Surrogate Recovery

Decachlorobiphenyl	85.2%
Tetrachlorometaxylene	65.8%

Results reported in µg/L

FORM III

BLANK NO.

PCB METHOD BLANK SUMMARY

AON0MBW1

Lab Name: ANALYTICAL RESOURCES INC — Client: MAUL FOSTER & ALONGI

ARI Job No.: AON0 — Project: SEAPORT LANDING

Lab Sample ID: AON0MBW1 — Lab File ID: 10221546

Date Extracted: 10/19/15 — Matrix: LIQUID

Date Analyzed: 10/22/15 — Instrument ID: ECD7

Time Analyzed: 2238 — GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	AON0LCSW1	AON0LCSW1	10/22/15
02	CR23-GW-6.0	AON0D	10/23/15
03	CR22-GW-9.0	AON0E	10/23/15
04	CR21-GW-10	AON3C	10/23/15
05	CR20-GW-5.0	AON3D	10/23/15
06	SEEP-01	AON3G	10/23/15

ALL RUNS ARE DUAL COLUMN

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/22/15 22:38
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	117%
Tetrachlorometaxylene	56.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Soil

Date Received: 10/14/15

Data Release Authorized:
Reported: 10/23/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-101915	Method Blank	10/19/15	10/20/15	1.00	Diesel Range	5.0	< 5.0 U
15-19215	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		78.7%
AON3A	CR20-S-5.0	10/19/15	10/20/15	1.00	**Diesel Range**	**66**	**480**
15-19215	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil Range**	**130**	**2,600**
					o-Terphenyl		74.9%
AON3B	CR21-S-5.0	10/19/15	10/20/15	1.00	**Diesel Range**	**60**	**620**
15-19216	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil Range**	**120**	**3,600**
					o-Terphenyl		69.3%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
101915MB	78.7%	0
101915LCS	74.5%	0
CR20-S-5.0	74.9%	0
CR21-S-5.0	69.3%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19215 to 15-19216

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/20/15 17:30
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	107	150	71.3%

TPHD Surrogate Recovery

o-Terphenyl	74.5%

Results reported in mg/kg

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/14/15

ARI Job: AON3
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19215-101915MB1	Method Blank	10.0 g	1.00 mL	-	10/19/15
15-19215-101915LCS1	Lab Control	10.0 g	1.00 mL	-	10/19/15
15-19215-AON3A	CR20-S-5.0	7.52 g	1.00 mL	D	10/19/15
15-19216-AON3B	CR21-S-5.0	8.32 g	1.00 mL	D	10/19/15

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 1

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Ground Water

Date Received: 10/14/15

Data Release Authorized:
Reported: 10/23/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-101915	Method Blank	10/19/15	10/20/15	1.00	Diesel Range	0.10	< 0.10 U
15-19217	HC ID: ---		FID3B	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		74.1%
AON3C	CR21-GW-10	10/19/15	10/20/15	1.00	**Diesel Range**	**0.10**	**0.72**
15-19217	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**0.20**	**3.1**
					o-Terphenyl		54.8%
AON3D	CR20-GW-5.0	10/19/15	10/20/15	1.00	**Diesel Range**	**0.10**	**1.0**
15-19218	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**0.20**	**1.6**
					o-Terphenyl		74.0%
AON3G	Seep-01	10/19/15	10/20/15	1.00	**Diesel Range**	**0.10**	**0.22**
15-19221	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**0.20**	**0.33**
					o-Terphenyl		74.9%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
MB-101915	74.1%	0
LCS-101915	65.4%	0
CR21-GW-10	54.8%	0
CR20-GW-5.0	74.0%	0
Seep-01	74.9%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 15-19217 to 15-19221

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-101915
LAB CONTROL

Lab Sample ID: LCS-101915
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/20/15 14:17
Instrument/Analyst: FID3B/ML

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.18	3.00	72.7%

TPHD Surrogate Recovery

o-Terphenyl	65.4%

Results reported in mg/L

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Ground Water
Date Received: 10/14/15

ARI Job: AON3
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
15-19217-101915MB1	Method Blank	500 mL	1.00 mL	10/19/15
15-19217-101915LCS1	Lab Control	500 mL	1.00 mL	10/19/15
15-19217-AON3C	CR21-GW-10	500 mL	1.00 mL	10/19/15
15-19218-AON3D	CR20-GW-5.0	500 mL	1.00 mL	10/19/15
15-19221-AON3G	Seep-01	500 mL	1.00 mL	10/19/15

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR20-S-5.0
SAMPLE

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Percent Total Solids: 83.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/27/15	7440-38-2	Arsenic	10	10	U
3050B	10/22/15	6010C	10/27/15	7440-43-9	Cadmium	0.6	0.6	U
3050B	10/22/15	6010C	10/27/15	**7440-47-3**	**Chromium**	1	**71**	
3050B	10/22/15	6010C	10/27/15	7439-92-1	Lead	6	6	U
CLP	10/26/15	7471A	10/27/15	7439-97-6	Mercury	0.03	0.03	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR20-S-5.0
DUPLICATE

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	10 U	10 U	0.0%	+/- 10	L
Cadmium	6010C	0.6 U	0.6 U	0.0%	+/- 0.6	L
Chromium	6010C	71	18	119%	+/- 20%	*
Lead	6010C	6 U	6 U	0.0%	+/- 6	L
Mercury	7471A	0.03 U	0.06	66.7%	+/- 0.03	L

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR20-S-5.0
MATRIX SPIKE

Lab Sample ID: AON3A
LIMS ID: 15-19215
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	10 U	200	221	90.5%	
Cadmium	6010C	0.6 U	52.8	55.3	95.5%	
Chromium	6010C	71	68	55.3	-5.4%	N
Lead	6010C	6 U	206	221	93.2%	
Mercury	7471A	0.03 U	0.30	0.277	108%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR21-S-5.0
SAMPLE

Lab Sample ID: AON3B
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Percent Total Solids: 91.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/27/15	7440-38-2	Arsenic	10	10	U
3050B	10/22/15	6010C	10/27/15	7440-43-9	Cadmium	0.5	0.5	U
3050B	10/22/15	6010C	10/27/15	**7440-47-3**	**Chromium**	1	**32**	
3050B	10/22/15	6010C	10/27/15	7439-92-1	Lead	5	5	U
CLP	10/26/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.02	**0.02**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR21-GW-10
SAMPLE

Lab Sample ID: AON3C
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	**7440-47-3**	**Chromium**	0.005	**0.066**	
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	**7439-97-6**	**Mercury**	0.0001	**0.0001**	

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR21-GW-10
DUPLICATE

Lab Sample ID: AON3C
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	0.05 U	0.05 U	0.0%	+/- 0.05	L
Cadmium	6010C	0.002 U	0.002 U	0.0%	+/- 0.002	L
Chromium	6010C	0.066	0.063	4.7%	+/- 20%	
Lead	6010C	0.02 U	0.02 U	0.0%	+/- 0.02	L
Mercury	7470A	0.0001	0.0001	0.0%	+/- 0.0001	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR21-GW-10
MATRIX SPIKE

Lab Sample ID: AON3C
LIMS ID: 15-19217
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	0.05 U	2.23	2.00	112%	
Cadmium	6010C	0.002 U	0.519	0.500	104%	
Chromium	6010C	0.066	0.571	0.500	101%	
Lead	6010C	0.02 U	1.97	2.00	98.5%	
Mercury	7470A	0.0001	0.0011	0.0010	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked or
LOQ > Spike Concentration

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR20-GW-5.0
SAMPLE

Lab Sample ID: AON3D
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: CR21-GW-10
SAMPLE

Lab Sample ID: AON3E
LIMS ID: 15-19219
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: CR21-GW-10
DUPLICATE

Lab Sample ID: AON3E
LIMS ID: 15-19219
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	0.05 U	0.05 U	0.0%	+/- 0.05	L
Cadmium	6010C	0.002 U	0.002 U	0.0%	+/- 0.002	L
Chromium	6010C	0.005 U	0.005 U	0.0%	+/- 0.005	L
Lead	6010C	0.02 U	0.02 U	0.0%	+/- 0.02	L
Mercury	7470A	0.0001 U	0.0001 U	0.0%	+/- 0.0001	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: CR21-GW-10
MATRIX SPIKE

Lab Sample ID: AON3E
LIMS ID: 15-19219
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	0.05 U	2.27	2.00	114%	
Cadmium	6010C	0.002 U	0.534	0.500	107%	
Chromium	6010C	0.005 U	0.503	0.500	101%	
Lead	6010C	0.02 U	1.99	2.00	99.5%	
Mercury	7470A	0.0001 U	0.0010	0.001	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: CR20-GW-5.0
SAMPLE

Lab Sample ID: AON3F
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: Seep-01
SAMPLE

Lab Sample ID: AON3G
LIMS ID: 15-19221
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: Seep-01
SAMPLE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: Seep-01
DUPLICATE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	0.0001 U	0.0001 U	0.0%	+/- 0.0001	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: Seep-01
MATRIX SPIKE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	0.0001 U	0.0010	0.001	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/26/15	7440-38-2	Arsenic	5	5	U
3050B	10/22/15	6010C	10/26/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/22/15	6010C	10/26/15	7440-47-3	Chromium	0.5	0.5	U
3050B	10/22/15	6010C	10/26/15	7439-92-1	Lead	2	2	U
CLP	10/26/15	7471A	10/27/15	7439-97-6	Mercury	0.02	0.02	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	213	200	106%	
Cadmium	6010C	51.7	50.0	103%	
Chromium	6010C	52.6	50.0	105%	
Lead	6010C	208	200	104%	
Mercury	7471A	0.52	0.50	104%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	2.09	2.00	104%	
Cadmium	6010C	0.496	0.500	99.2%	
Chromium	6010C	0.531	0.500	106%	
Lead	6010C	2.04	2.00	102%	
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	2.15	2.00	108%	
Cadmium	6010C	0.531	0.500	106%	
Chromium	6010C	0.522	0.500	104%	
Lead	6010C	2.09	2.00	104%	
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

24 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AOT3

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the sample from the project referenced above. One sediment sample was received on October 16, 2015. The sample was analyzed for phenol, grain size and conventional parameters as requested. The analysis for grain size was sub-contracted to MTC in Tukwila, WA.

These analyses proceeded without incident of note.

An electronic copy of these reports will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AOT3

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AOT3	Turn-around Requested: standard	Page: 1 of 1	
ARI Client Company: Anchor Foster & Alongi	Phone: (503) 501 5212	Date: 10/16/15	Ice Present? yes
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: DD + MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TOC	TVS	Total solids	Ammonia	total sulfides	Grain size	Phenol (dry weight)		Notes/Comments
CR19D-SSD-CMW	10/16/15	1110	Sed	4	X	X	X	X	X	X	X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degay	Printed Name: Emily Litwin	Printed Name:	Printed Name:
	Company: MPA	Company: ARI	Company:	Company:
	Date & Time: 10/16 1520	Date & Time: 10/16/15 1520	Date & Time:	Date & Time:

AOT3 : 00002

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Mall foster

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.6

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00256S

Cooler Accepted by: WL Date: 10/16/15 Time: 1520

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: WL Date: 10/20/15 Time: _____

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles < 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	● ● ●

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 10/19/15

ANALYTICAL RESOURCES INCORPORATED

17.4°C

ARI Project: AOT3

Laboratory: Materials Testing & Consulting, In
Lab Contact: Harold Benny
Lab Address: 4611 S. 134th Pl
Tukwila, WA 98168
Phone: 360-255-9802
Fax:

ARI Client: Maul Foster & Alongi
Project ID: Seaport Landing
ARI PM: Mark Harris
Phone: 206-695-6210
Fax: 206-695-6201
Email: subdata@arilabs.com

Analytical Protocol: PSDDA
Special Instructions:

Requested Turn Around: **10/30/15**
Email Results (Y/N): **Yes**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
15-19369-AOT3A	CR19D-SSD-CONV	10/16/15 11:10	Sediment	1	PSEP, 1986 Sub GSPSEP

Special Instructions: None

Carrier	Airbill	Date

Relinquished by	Company ARI	Date 10/19/15	Time 1343
Received by	Company MTC	Date 10/19/15	Time 1350

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AOT3
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR19D-SSD-CONV	AOT3A	15-19369	Sediment	10/16/15 11:10	10/16/15 15:20

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AOT3 : 00006

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AOT3 : 00007

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

AOT3 : 00008

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR19D-SSD-CONV**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOT3A
LIMS ID: 15-19369
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOT3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/28/15
Date Analyzed: 11/02/15 19:28
Instrument/Analyst: NT10/YZ
GPC Cleanup: No

Sample Amount: 10.07 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 59.8%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	93 B

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	77.1%
2-Fluorophenol	66.3%
2,4,6-Tribromophenol	94.0%
d4-2-Chlorophenol	74.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102815**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102815
LIMS ID: 15-19369
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOT3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/28/15
Date Analyzed: 11/02/15 18:16
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	17 J

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	72.5%
2-Fluorophenol	67.1%
2,4,6-Tribromophenol	62.8%
d4-2-Chlorophenol	71.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102815**
Page 1 of 1 **LAB CONTROL**

Lab Sample ID: LCS-102815
LIMS ID: 15-19369
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOT3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/28/15
Date Analyzed: 11/02/15 18:52
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	467 B	500	93.4%

Semivolatile Surrogate Recovery

d5-Phenol	81.7%
2-Fluorophenol	80.0%
2,4,6-Tribromophenol	85.9%
d4-2-Chlorophenol	82.3%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOT3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-102815	72.5%	67.1%	62.8%	71.1%	0
LCS-102815	81.7%	80.0%	85.9%	82.3%	0
CR19D-SSD-CONV	77.1%	66.3%	94.0%	74.7%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19369 to 15-19369

SAMPLE RESULTS-CONVENTIONALS
AOT3-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 10/23/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Client ID: CR19D-SSD-CONV
ARI ID: 15-19369 AOT3A

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	39.38
Preserved Total Solids	10/19/15 101915#1	SM2540G	Percent	0.01	44.80
Total Volatile Solids	10/19/15 101915#1	SM2540G	Percent	0.01	8.58
N-Ammonia	10/21/15 102115#1	EPA 350.1M	mg-N/kg	0.22	18.6
Sulfide	10/19/15 101915#1	SM4500-S2D	mg/kg	39.1	605
Total Organic Carbon	10/22/15 102215#1	Plumb,1981	Percent	0.020	3.99

RL Analytical reporting limit
U Undetected at reported detection limit

Ammonia determined on 2N KCl extracts.

METHOD BLANK RESULTS-CONVENTIONALS
AOT3-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 10/23/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/19/15	Percent	< 0.01 U	ICB
Preserved Total Solids	10/19/15	Percent	< 0.01 U	ICB
Total Volatile Solids	10/19/15	Percent	< 0.01 U	ICB
N-Ammonia	10/21/15	mg-N/kg	< 0.10 U	PREP
Sulfide	10/19/15	mg/kg	< 0.05 U	PREP
Total Organic Carbon	10/22/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AOT3-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: LJ
Reported: 10/23/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Sulfide SM4500-S2D	PREP	10/19/15	mg/kg	6.13	6.42	95.5%
Total Organic Carbon Plumb,1981	ICVL	10/22/15	Percent	0.099	0.100	99.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
AOT3-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: CJ
Reported: 10/23/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
N-Ammonia ERA #360114	10/21/15	mg-N/kg	97.1	100	97.1%
Total Organic Carbon NIST 1941B	10/22/15	Percent	3.01	2.99	100.7%

REPLICATE RESULTS-CONVENTIONALS
AOT3-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: U
Reported: 10/23/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: AOT3A Client ID: CR19D-SSD-CONV					
N-Ammonia	10/21/15	mg-N/kg	18.6	18.9 18.9	0.9%

MS/MSD RESULTS-CONVENTIONALS
AOT3-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 10/23/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: AOT3A Client ID: CR19D-SSD-CONV						
N-Ammonia	10/21/15	mg-N/kg	18.6	653	694	91.4%

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project:	Seaport Landing	**Date Received:**	October 19, 2015
Project #:	AOT3	**Sampled By:**	Others
Client :	Analytical Resources, Inc.	**Date Tested:**	November 20, 2015
Source:	CR19D-SSD-CONV	**Tested By:**	A. Urban, B. Goble, C. Laramie
MTC Sample#:	T15-2434		

CASE NARRATIVE

1. One sample was submitted for grain size analysis according to Puget Sound Estuary Protocol (PSEP) methodology.
2. The sample was run in a single batch and one sample from another job was chosen for triplicate analysis. The triplicate data is reported on the QA summary.
3. The data is provided in summary tables and plots.
4. There were no other noted anomalies in this project.

All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Reviewed by: EGoble

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Seaport Landing
Project #: AOT3
Date Received: October 19, 2015
Date Tested: November 20, 2015

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: A. Urban, B. Goble, C. Laramie

Apparent Grain Size Distribution Summary

Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4 (4750)	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (63)	31.0	15.6	7.8	3.9	2.0	1.0
T15-2412	100.0	99.2	96.6	90.9	85.7	74.2	47.4	25.6	25.0	21.9	17.5	13.1	9.3	6.7
	100.0	99.1	95.0	89.3	82.7	71.2	45.2	23.7	23.2	20.4	16.5	11.9	8.9	6.1
	100.0	100.0	96.2	90.8	85.6	74.1	47.8	26.2	24.4	21.4	17.5	13.0	10.0	6.5
CR19D-SSD-CONV	100.0	100.0	99.0	95.2	93.4	91.3	86.8	77.8	61.9	41.7	27.1	19.8	13.9	10.5

Notes to the Testing: Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Reviewed by: _____

AOT3 : 00020

AOT3:00021

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Seaport Landing
Project #: AOT3
Date Received: October 19, 2015
Date Tested: November 20, 2015

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: A. Urban, B. Goble, C. Laramie

Apparent Grain Size Distribution Summary

Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay			Total Fines
Phi Size	< -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	> 10	> 4
Sieve Size (microns)	> #10 (2000)	10-18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31.0-15.6	15.6-7.8	7.8-3.9	3.9-2.0	2.0-1.0	<1.0	<230 (<62)
T15-2412	3.4	5.7	5.2	11.5	26.8	21.8	0.6	3.1	4.4	4.4	3.9	2.5	6.7	25.6
	5.0	5.7	6.6	11.5	26.0	21.5	0.4	2.8	3.9	4.7	2.9	2.9	6.1	23.7
	3.8	5.3	5.2	11.5	26.3	21.6	1.8	3.0	3.9	4.4	3.0	3.5	6.5	26.2
CR19D-SSD-CONV	1.0	3.8	1.8	2.0	4.6	8.9	16.0	20.1	14.6	7.3	5.9	3.4	10.5	77.8

Notes to the Testing: Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Reviewed by: E Gabe Goble

AOT3 : 00022

Corporate ~ 777 Chrysler Drive • **Burlington, WA 98233** • **Phone (360) 755-1990** • **Fax (360) 755-1980**
Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6111 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Seaport Landing
Project #: AOT3
Date Received: October 19, 2015
Date Tested: November 20, 2015

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: A. Urban, B. Goble, C. Laramie

Relative Standard Deviation, By Phi Size

Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
T15-2412	100.0	99.2	96.6	90.9	85.7	74.2	47.4	25.6	25.0	21.9	17.5	13.1	9.3	6.7
	100.0	99.1	95.0	89.3	82.7	71.2	45.2	23.7	23.2	20.4	16.5	11.9	8.9	6.1
	100.0	100.0	96.2	90.8	85.6	74.1	47.8	26.2	24.4	21.4	17.5	13.0	10.0	6.5
AVE	100.0	99.4	95.9	90.4	84.6	73.2	46.8	25.2	24.2	21.2	17.2	12.7	9.4	6.4
STDEV	0.0	0.4	0.7	0.7	1.4	1.4	1.2	1.1	0.7	0.6	0.4	0.6	0.4	0.3
%RSD	0.0	0.4	0.7	0.8	1.6	1.9	2.5	4.3	3.0	2.8	2.6	4.5	4.7	4.3

The Triplicate Applies To The Following Samples

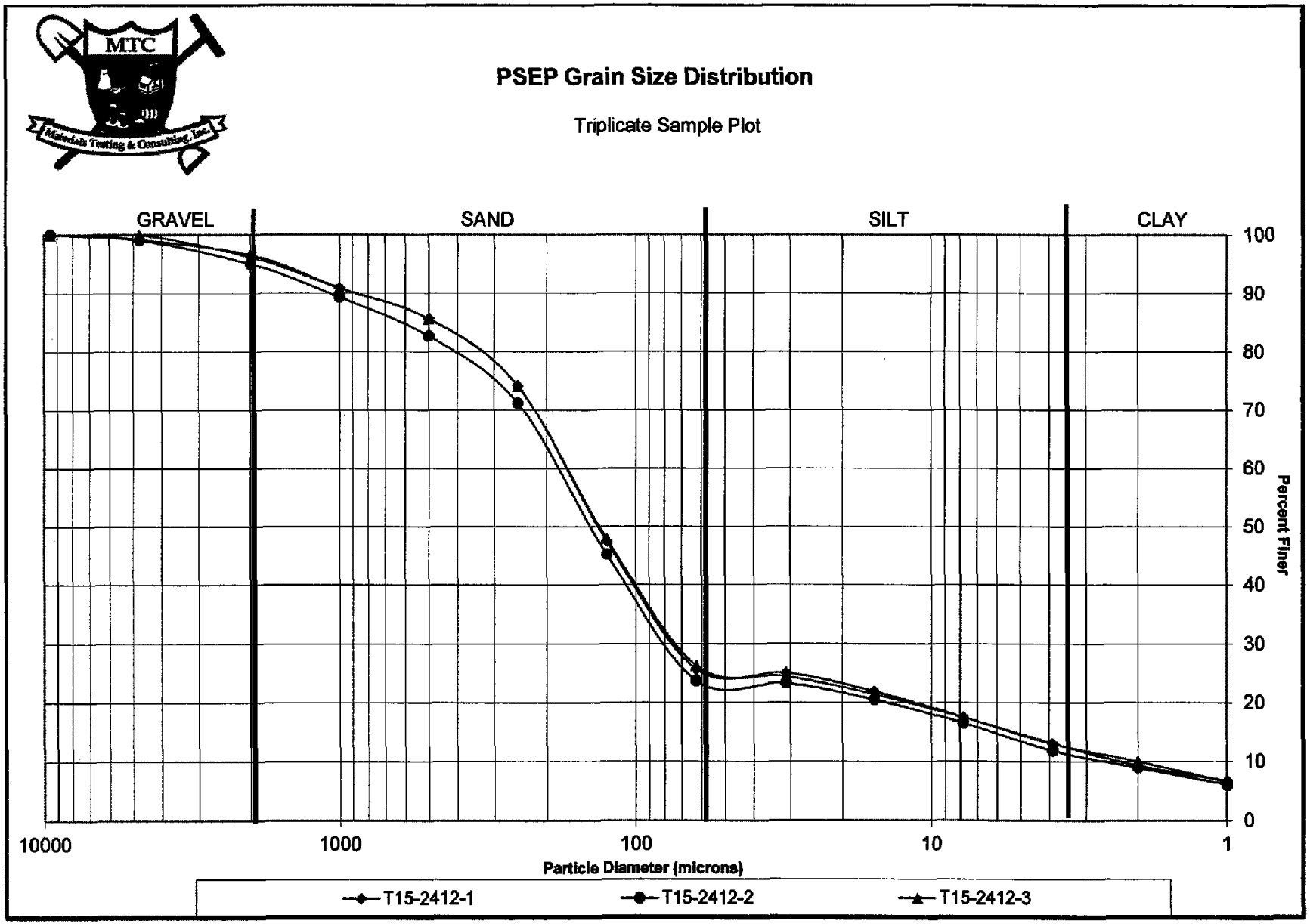
Client ID	Date Sampled	Date Extracted	Date Complete	QA Ratio (95-105)	Data Qualifiers	Pipette Portion (5.0-25.0g)
T15-2412	10/15/2015	11/5/2015	11/11/2015	97.7		5.5
	10/15/2015	11/5/2015	11/11/2015	95.9		5.4
	10/15/2015	11/5/2015	11/11/2015	97.9		5.9
CR19D-SSD-CONV	10/16/2015	11/5/2015	11/9/2015	98.1		11.9

* MTC Internal QA limits = 95-105%

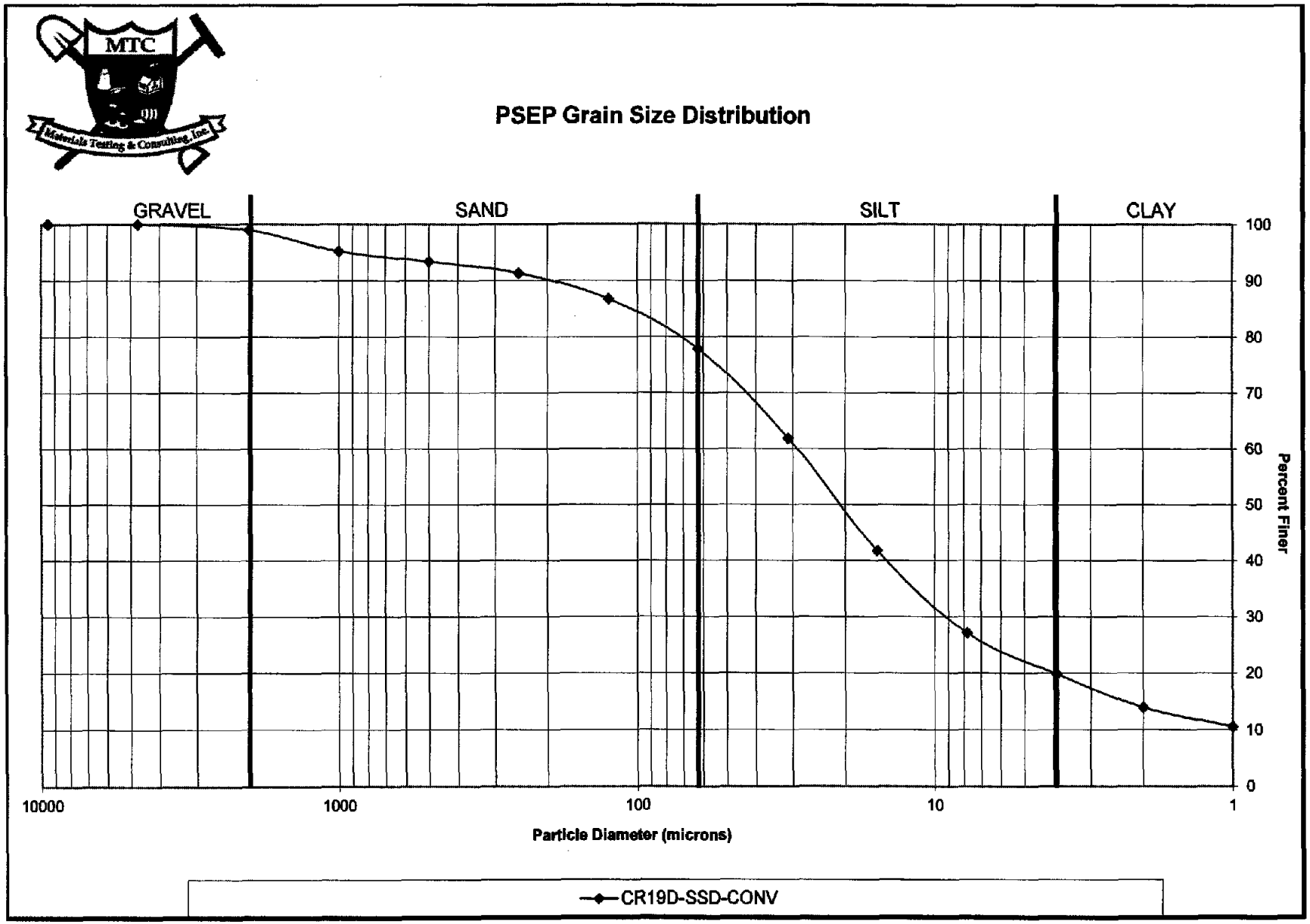
Notes to the Testing: Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Reviewed by: _____

AOT3:00023


MTC
Materials Testing & Consulting, Inc.
PSEP Grain Size Distribution
Triplicate Sample Plot
GRAVEL
SAND
SILT
CLAY
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
10000
1000
100
10
1
Particle Diameter (microns)
T15-2412-1
T15-2412-2
T15-2412-3

AOT3 : 00021


MTC
Materials Testing & Consulting, Inc
PSEP Grain Size Distribution
GRAVEL
SAND
SILT
CLAY
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
10000
1000
100
10
1
Particle Diameter (microns)
CR19D-SSD-CONV

AOT3:00025

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AOV8

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Twenty sediment samples were received on October 16, 2015. Fifteen samples were placed on hold as specified. The remaining samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx, asbestos, TOC and total metals as requested. The analysis for asbestos was sub-contracted to NVL Laboratories in Seattle, WA.

The percent differences (%Ds) for 4-methylphenol and benzoic acid were not within control limits for the CCAL that bracketed the 10/30/15 SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The %D for the surrogate, d14-p-terphenyl, was not within control limits for the CCAL that bracketed the 10/30/15 SIM-SVOC analyses of these samples. All positive results for this surrogate have been flagged with a "Q" qualifier to denote the high %Ds.

The %D for Aroclor 1260 was not within control limits for one column for the CCAL that bracketed the 10/29/15 PCB analyses of these samples. The %D for Aroclor 1260 was within acceptable QC limits for the secondary column. The secondary column only was used for the quantitation of Aroclor 1260.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AOV8
Enclosures
MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AOV8	Turn-around Requested: standard	Page: 1 of 3	
ARI Client Company: Maul Foster & Alongi	Phone: (503)5015212	Date: 10/15/15	Ice Present? yes
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: RD & MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Archive	TPH	Dioxin/Furan	PAH	TPC	Phenol	PCB	Metals	Notes/Comments: Asbestos	Archive
CR17C-0-10cm	10/15/15	9:40	Sed	1	X									
CR17C-9.5		9:35	sed	1	X									
CR17-D-SSD		10:10	sed	5	X	X	X	X	X	X	X	X		X
CR17-D-SBSD		10:15	sed	2	X			X	X	X	X	X		X
CR19B-0-10cm		1115	Sed	1	X									
CR19B-10.0		1117	Sed	1	X									
CR19D-0-10cm		1215	Sed	1	X									
CR19D-9.0		1220	sed	1	X									
CR18A-9.0		1325	Sed	1	X									
CR03A-SBSD	↓	1420	Sed	5	X	X	X	X	X	X	X	X	~~Archive~~ Only asbestos if enough sample volume	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive all remaining volume.		Archie Jones		
	Printed Name: Roxanne Defelice	Printed Name: ARCHIE TRIEST	Printed Name:	Printed Name: Chris Atwell
	Company: MFA	Company: U.C. Del	Company:	Company: ARI
	Date & Time: 10/15/15	Date & Time: 10/16/15 8:35	Date & Time:	Date & Time: 10/16/15 1116

AOV8:00002

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: A0V8	Turn-around Requested: Standard	Page: 2 of 3	
ARI Client Company: Maul Foster & Alongi	Phone: 503 8015212	Date: 10/15/15	Ice Present? yes
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.0201-02	Samplers: RD+MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TOC	PAH	PCB	Phenol	metals	Archive	Dioxin/Furans	TPH-DX	Notes/Comments: TCLP lead/mercury	Asbestos	Archive
CR10-SSD Comp	10/14/15	10:00	S	3	X	X	X	X	X	X					X
SM-01	10/14/15	9:45	S	1						X					
SM-02	10/14/15	9:40	S	1						X					
SM-03	10/14/15	9:35	S	1						X					
SM-04	10/14/15	9:30	S	1						X					
FB-01	10/14/15	09:35	S	1						X					
FB-02	10/14/15	09:40	S	1						X					
FB-03	10/14/15	09:47	S	1						X					
FB-04	10/14/15	09:54	S	1						X					
CR02a-SSD-Comp	10/14/15	1000	S	6	X	X	X	X	X	X	X			X	X

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive all remaining volume.	Printed Name: Roxanne Rogers	Printed Name: Archie Tirsbr	Printed Name: Chris Atwell	Printed Name: Chris Atwell
	Company: MFA	Company: M.C. Rec	Company: ARI	Company: ARI
	Date & Time: 10/16	Date & Time: 10/16/15	Date & Time: 10/16/15 1116	Date & Time: 10/16/15 1116

A0V8

C0000903

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster & Alongi

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: AOV8

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.1 4.9

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00265

Cooler Accepted by: CA Date: 10/16/15 Time: 1116

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

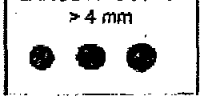
Samples Logged by: _____ Date: 10/20/15 Time: 1056

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

Small → "sm" (< 2 mm)	
Peabubbles → "pb" (2 to < 4 mm)	
Large → "lg" (4 to < 6 mm)	
Headspace → "hs" (> 6 mm)	

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AOV8
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR17C-0-10CM	AOV8A	15-19491	Sediment	10/15/15 09:40	10/16/15 11:16
2.	CR17C-9.5	AOV8B	15-19492	Sediment	10/15/15 09:35	10/16/15 11:16
3.	CR17-D-SSD	AOV8C	15-19493	Sediment	10/15/15 10:10	10/16/15 11:16
4.	CR17-D-SBSD	AOV8D	15-19494	Sediment	10/15/15 10:15	10/16/15 11:16
5.	CR19B-0-10CM	AOV8E	15-19495	Sediment	10/15/15 11:15	10/16/15 11:16
6.	CR19B-10.0	AOV8F	15-19496	Sediment	10/15/15 11:17	10/16/15 11:16
7.	CR19D-0-10CM	AOV8G	15-19497	Sediment	10/15/15 12:15	10/16/15 11:16
8.	CR19D-9.0	AOV8H	15-19498	Sediment	10/15/15 12:20	10/16/15 11:16
9.	CR18A-9.0	AOV8I	15-19499	Sediment	10/15/15 13:25	10/16/15 11:16
10.	CR08A-SBSD	AOV8J	15-19500	Sediment	10/15/15 14:20	10/16/15 11:16
11.	CR10-SSD-COMP	AOV8K	15-19501	Sediment	10/14/15 10:00	10/16/15 11:16
12.	SM-01	AOV8L	15-19502	Sediment	10/14/15 09:45	10/16/15 11:16
13.	SM-02	AOV8M	15-19503	Sediment	10/14/15 09:40	10/16/15 11:16
14.	SM-03	AOV8N	15-19504	Sediment	10/14/15 09:35	10/16/15 11:16
15.	SM-04	AOV8O	15-19505	Sediment	10/14/15 09:30	10/16/15 11:16
16.	FB-01	AOV8P	15-19506	Sediment	10/14/15 09:35	10/16/15 11:16
17.	FB-02	AOV8Q	15-19507	Sediment	10/14/15 09:40	10/16/15 11:16
18.	FB-03	AOV8R	15-19508	Sediment	10/14/15 09:47	10/16/15 11:16
19.	FB-04	AOV8S	15-19509	Sediment	10/14/15 09:54	10/16/15 11:16
20.	CR08a-SSD-COMP	AOV8T	15-19510	Sediment	10/14/15 10:00	10/16/15 11:16

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

AOV8 : 00006

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

AOV8 : 00008

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR17-D-SSD
SAMPLE

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 17:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 42.2%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**16 J**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	4-Methylphenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	96	< 96 U
65-85-0	**Benzoic Acid**	**190**	**150 JQ**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**13 J**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	Acenaphthene	19	< 19 U
132-64-9	Dibenzofuran	19	< 19 U
84-66-2	Diethylphthalate	19	< 19 U
86-73-7	Fluorene	19	< 19 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	96	< 96 U
85-01-8	**Phenanthrene**	**19**	**19**
120-12-7	Anthracene	19	< 19 U
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**25**
129-00-0	**Pyrene**	**19**	**20**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	Benzo(a)anthracene	19	< 19 U
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
218-01-9	**Chrysene**	**19**	**8.6 J**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
90-12-0	1-Methylnaphthalene	19	< 19 U
TOTBFA	**Total Benzofluoranthenes**	**38**	**13 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR17-D-SSD
SAMPLE

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Date Analyzed: 10/30/15 17:17

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	70.6%	2-Fluorobiphenyl	68.2%
d14-p-Terphenyl	100%	d4-1,2-Dichlorobenzene	61.8%
d5-Phenol	65.9% Q	2-Fluorophenol	59.1%
2,4,6-Tribromophenol	78.1%	d4-2-Chlorophenol	64.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR17-D-SBSD
SAMPLE

Lab Sample ID: AOV8D
LIMS ID: 15-19494
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 17:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.29 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 48.8%

CAS Number	Analyte	LOQ	Result	
108-95-2	**Phenol**	**19**	**39**	
106-46-7	1,4-Dichlorobenzene	19	< 19	U
100-51-6	**Benzyl Alcohol**	**19**	**44**	
95-50-1	1,2-Dichlorobenzene	19	< 19	U
95-48-7	2-Methylphenol	19	< 19	U
106-44-5	**4-Methylphenol**	**19**	**120**	**Q**
105-67-9	2,4-Dimethylphenol	97	< 97	U
65-85-0	**Benzoic Acid**	**190**	**230**	**Q**
120-82-1	1,2,4-Trichlorobenzene	19	< 19	U
91-20-3	**Naphthalene**	**19**	**110**	
87-68-3	Hexachlorobutadiene	19	< 19	U
91-57-6	**2-Methylnaphthalene**	**19**	**31**	
131-11-3	Dimethylphthalate	19	< 19	U
208-96-8	**Acenaphthylene**	**19**	**20**	
83-32-9	**Acenaphthene**	**19**	**420**	
132-64-9	**Dibenzofuran**	**19**	**84**	
84-66-2	Diethylphthalate	19	< 19	U
86-73-7	**Fluorene**	**19**	**140**	
86-30-6	N-Nitrosodiphenylamine	19	< 19	U
118-74-1	Hexachlorobenzene	19	< 19	U
87-86-5	Pentachlorophenol	97	< 97	U
85-01-8	**Phenanthrene**	**19**	**360**	
120-12-7	**Anthracene**	**19**	**110**	
84-74-2	Di-n-Butylphthalate	19	< 19	U
206-44-0	**Fluoranthene**	**19**	**600**	
129-00-0	**Pyrene**	**19**	**470**	
85-68-7	Butylbenzylphthalate	19	< 19	U
56-55-3	**Benzo(a)anthracene**	**19**	**160**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**49**	**38**	**J**
218-01-9	**Chrysene**	**19**	**210**	
117-84-0	Di-n-Octyl phthalate	19	< 19	U
50-32-8	**Benzo(a)pyrene**	**19**	**81**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**41**	
53-70-3	**Dibenz(a,h)anthracene**	**19**	**16**	**J**
191-24-2	**Benzo(g,h,i)perylene**	**19**	**36**	
90-12-0	**1-Methylnaphthalene**	**19**	**23**	
TOTBFA	**Total Benzofluoranthenes**	**39**	**240**	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR17-D-SBSD
SAMPLE

Lab Sample ID: AOV8D
LIMS ID: 15-19494
Matrix: Sediment
Date Analyzed: 10/30/15 17:53

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	73.0%	2-Fluorobiphenyl	77.8%
d14-p-Terphenyl	101%	d4-1,2-Dichlorobenzene	66.8%
d5-Phenol	76.9% Q	2-Fluorophenol	70.3%
2,4,6-Tribromophenol	93.3%	d4-2-Chlorophenol	73.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR08A-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 18:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 32.7%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**20**	**22**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**190 Q**
105-67-9	2,4-Dimethylphenol	99	< 99 U
65-85-0	**Benzoic Acid**	**200**	**110 JQ**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**180**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**56**
83-32-9	**Acenaphthene**	**20**	**18 J**
132-64-9	**Dibenzofuran**	**20**	**14 J**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**15 J**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**60**
120-12-7	**Anthracene**	**20**	**15 J**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**44**
129-00-0	**Pyrene**	**20**	**41**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	**1-Methylnaphthalene**	**20**	**13 J**
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08A-SBSD
SAMPLE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Date Analyzed: 10/30/15 18:29

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.4%	2-Fluorobiphenyl	60.6%
d14-p-Terphenyl	80.6%	d4-1,2-Dichlorobenzene	50.2%
d5-Phenol	55.7% Q	2-Fluorophenol	56.7%
2,4,6-Tribromophenol	72.1%	d4-2-Chlorophenol	56.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR10-SSD-COMP
SAMPLE

Lab Sample ID: AOV8K
LIMS ID: 15-19501
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 20:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.9%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**20**	**51**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	**Benzyl Alcohol**	**20**	**22**
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	**2-Methylphenol**	**20**	**11 J**
106-44-5	**4-Methylphenol**	**20**	**160 Q**
105-67-9	2,4-Dimethylphenol	99	< 99 U
65-85-0	**Benzoic Acid**	**200**	**210 Q**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**200**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**26**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**59**
83-32-9	**Acenaphthene**	**20**	**24**
132-64-9	**Dibenzofuran**	**20**	**28**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**29**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**110**
120-12-7	**Anthracene**	**20**	**26**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**180**
129-00-0	**Pyrene**	**20**	**150**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**46**
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	**Chrysene**	**20**	**56**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	**Benzo(a)pyrene**	**20**	**32**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**19 J**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**29**
90-12-0	**1-Methylnaphthalene**	**20**	**15 J**
TOTBFA	**Total Benzofluoranthenes**	**40**	**110**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR10-SSD-COMP
SAMPLE

Lab Sample ID: AOV8K
LIMS ID: 15-19501
Matrix: Sediment
Date Analyzed: 10/30/15 20:17

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.4%	2-Fluorobiphenyl	71.8%
d14-p-Terphenyl	91.6%	d4-1,2-Dichlorobenzene	62.6%
d5-Phenol	66.0% Q	2-Fluorophenol	61.7%
2,4,6-Tribromophenol	81.3%	d4-2-Chlorophenol	67.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR08a-SSD-COMP
SAMPLE

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 20:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.31 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 48.5%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**35**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	**Benzyl Alcohol**	**19**	**28**
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	**4-Methylphenol**	**19**	**28 Q**
105-67-9	2,4-Dimethylphenol	97	< 97 U
65-85-0	**Benzoic Acid**	**190**	**180 JQ**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**110**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	**2-Methylnaphthalene**	**19**	**23**
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	**Acenaphthylene**	**19**	**14 J**
83-32-9	**Acenaphthene**	**19**	**16 J**
132-64-9	**Dibenzofuran**	**19**	**25**
84-66-2	**Diethylphthalate**	**19**	**19**
86-73-7	Fluorene	19	< 19 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	97	< 97 U
85-01-8	**Phenanthrene**	**19**	**92**
120-12-7	**Anthracene**	**19**	**27**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**110**
129-00-0	**Pyrene**	**19**	**84**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	**Benzo(a)anthracene**	**19**	**43**
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
218-01-9	**Chrysene**	**19**	**74**
117-84-0	**Di-n-Octyl phthalate**	**19**	**710**
50-32-8	**Benzo(a)pyrene**	**19**	**37**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**26**
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	**Benzo(g,h,i)perylene**	**19**	**28**
90-12-0	**1-Methylnaphthalene**	**19**	**16 J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**100**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08a-SSD-COMP SAMPLE

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Date Analyzed: 10/30/15 20:53

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.4%	2-Fluorobiphenyl	69.0%
d14-p-Terphenyl	87.0%	d4-1,2-Dichlorobenzene	57.2%
d5-Phenol	64.8% Q	2-Fluorophenol	59.7%
2,4,6-Tribromophenol	77.3%	d4-2-Chlorophenol	66.0%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
CR17-D-SSD	70.6%	68.2%	100%	61.8%	65.9%Q	59.1%	78.1%	64.4%	0
CR17-D-SBSD	73.0%	77.8%	101%	66.8%	76.9%Q	70.3%	93.3%	73.3%	0
MB-102415	72.0%	73.6%	103%	71.4%	69.7%Q	64.4%	69.7%	70.1%	0
LCS-102415	82.0%	80.8%	118%	73.8%	85.7%Q	78.7%	91.1%	81.5%	0
CR08A-SBSD	58.4%	60.6%	80.6%	50.2%	55.7%Q	56.7%	72.1%	56.3%	0
CR08A-SBSD MS	70.8%	72.0%	89.6%	66.0%	75.9%Q	74.3%	85.1%	77.6%	0
CR08A-SBSD MSD	68.0%	68.2%	88.4%	62.4%	72.3%Q	68.7%	79.2%	72.7%	0
CR10-SSD-COMP	71.4%	71.8%	91.6%	62.6%	66.0%Q	61.7%	81.3%	67.3%	0
CR08a-SSD-COMP	61.4%	69.0%	87.0%	57.2%	64.8%Q	59.7%	77.3%	66.0%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19493 to 15-19510

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 1

Sample ID: CR08A-SBSD
MS/MSD

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted MS/MSD: 10/24/15

Sample Amount MS: 10.12 g-dry-wt
MSD: 10.12 g-dry-wt

Date Analyzed MS: 10/30/15 19:05
MSD: 10/30/15 19:41

Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL

Instrument/Analyst MS: NT10/YZ
MSD: NT10/YZ

Dilution Factor MS: 1.00
MSD: 1.00

GPC Cleanup: Yes

Percent Moisture: 32.7 %

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	22	440	494	84.6%	363	494	69.0%	19.2%
1,4-Dichlorobenzene	< 20 U	308	494	62.3%	310	494	62.8%	0.6%
Benzyl Alcohol	< 20 U	403	494	81.6%	403	494	81.6%	0.0%
1,2-Dichlorobenzene	< 20 U	337	494	68.2%	324	494	65.6%	3.9%
2-Methylphenol	< 20 U	374	494	75.7%	383	494	77.5%	2.4%
4-Methylphenol	190 Q	691 Q	494	101%	642 Q	494	91.5%	7.4%
2,4-Dimethylphenol	< 99 U	1120	1480	75.7%	1110	1480	75.0%	0.9%
Benzoic Acid	110 J	1790 Q	2720	61.8%	1920 Q	2720	66.5%	7.0%
1,2,4-Trichlorobenzene	< 20 U	336	494	68.0%	314	494	63.6%	6.8%
Naphthalene	180	485	494	61.7%	468	494	58.3%	3.6%
Hexachlorobutadiene	< 20 U	345	494	69.8%	317	494	64.2%	8.5%
2-Methylnaphthalene	< 20 U	376	494	76.1%	359	494	72.7%	4.6%
Dimethylphthalate	< 20 U	354	494	71.7%	371	494	75.1%	4.7%
Acenaphthylene	56	407	494	71.1%	411	494	71.9%	1.0%
Acenaphthene	18 J	396	494	76.5%	401	494	77.5%	1.3%
Dibenzofuran	14 J	382	494	74.5%	374	494	72.9%	2.1%
Diethylphthalate	< 20 U	376	494	76.1%	393	494	79.6%	4.4%
Fluorene	15 J	354	494	68.6%	367	494	71.3%	3.6%
N-Nitrosodiphenylamine	< 20 U	301	494	60.9%	328	494	66.4%	8.6%
Hexachlorobenzene	< 20 U	374	494	75.7%	328	494	66.4%	13.1%
Pentachlorophenol	< 99 U	1310	1480	88.5%	1180	1480	79.7%	10.4%
Phenanthrene	60	443	494	77.5%	412	494	71.3%	7.3%
Anthracene	15 J	398	494	77.5%	373	494	72.5%	6.5%
Di-n-Butylphthalate	< 20 U	406	494	82.2%	388	494	78.5%	4.5%
Fluoranthene	44	375	494	67.0%	398	494	71.7%	6.0%
Pyrene	41	368	494	66.2%	373	494	67.2%	1.3%
Butylbenzylphthalate	< 20 U	356	494	72.1%	366	494	74.1%	2.8%
Benzo(a)anthracene	< 20 U	350	494	70.9%	367	494	74.3%	4.7%
bis(2-Ethylhexyl)phthalate	< 50 U	345	494	69.8%	357	494	72.3%	3.4%
Chrysene	< 20 U	352	494	71.3%	355	494	71.9%	0.8%
Di-n-Octyl phthalate	< 20 U	324	494	65.6%	319	494	64.6%	1.6%
Benzo(a)pyrene	< 20 U	333	494	67.4%	339	494	68.6%	1.8%
Indeno(1,2,3-cd)pyrene	< 20 U	331	494	67.0%	347	494	70.2%	4.7%
Dibenz(a,h)anthracene	< 20 U	342	494	69.2%	352	494	71.3%	2.9%
Benzo(g,h,i)perylene	< 20 U	317	494	64.2%	339	494	68.6%	6.7%
1-Methylnaphthalene	13 J	329	494	64.0%	351	494	68.4%	6.5%
Total Benzofluoranthenes	< 40 U	718	988	72.7%	724	988	73.3%	0.8%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08A-SBSD
MATRIX SPIKE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 19:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.12 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 32.7%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	---
95-50-1	1,2-Dichlorobenzene	20	---
95-48-7	2-Methylphenol	20	---
106-44-5	4-Methylphenol	20	---
105-67-9	2,4-Dimethylphenol	99	---
65-85-0	Benzoic Acid	200	---
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	Naphthalene	20	---
87-68-3	Hexachlorobutadiene	20	---
91-57-6	2-Methylnaphthalene	20	---
131-11-3	Dimethylphthalate	20	---
208-96-8	Acenaphthylene	20	---
83-32-9	Acenaphthene	20	---
132-64-9	Dibenzofuran	20	---
84-66-2	Diethylphthalate	20	---
86-73-7	Fluorene	20	---
86-30-6	N-Nitrosodiphenylamine	20	---
118-74-1	Hexachlorobenzene	20	---
87-86-5	Pentachlorophenol	99	---
85-01-8	Phenanthrene	20	---
120-12-7	Anthracene	20	---
84-74-2	Di-n-Butylphthalate	20	---
206-44-0	Fluoranthene	20	---
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	---
56-55-3	Benzo(a)anthracene	20	---
117-81-7	bis(2-Ethylhexyl)phthalate	49	---
218-01-9	Chrysene	20	---
117-84-0	Di-n-Octyl phthalate	20	---
50-32-8	Benzo(a)pyrene	20	---
193-39-5	Indeno(1,2,3-cd)pyrene	20	---
53-70-3	Dibenz(a,h)anthracene	20	---
191-24-2	Benzo(g,h,i)perylene	20	---
90-12-0	1-Methylnaphthalene	20	---
TOTBFA	Total Benzofluoranthenes	40	---

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08A-SBSD
MATRIX SPIKE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Date Analyzed: 10/30/15 19:05

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	70.8%	2-Fluorobiphenyl	72.0%
d14-p-Terphenyl	89.6%	d4-1,2-Dichlorobenzene	66.0%
d5-Phenol	75.9% Q	2-Fluorophenol	74.3%
2,4,6-Tribromophenol	85.1%	d4-2-Chlorophenol	77.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08A-SBSD
MATRIX SPIKE DUPLICATE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 19:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.12 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 32.7%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	---
95-50-1	1,2-Dichlorobenzene	20	---
95-48-7	2-Methylphenol	20	---
106-44-5	4-Methylphenol	20	---
105-67-9	2,4-Dimethylphenol	99	---
65-85-0	Benzoic Acid	200	---
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	Naphthalene	20	---
87-68-3	Hexachlorobutadiene	20	---
91-57-6	2-Methylnaphthalene	20	---
131-11-3	Dimethylphthalate	20	---
208-96-8	Acenaphthylene	20	---
83-32-9	Acenaphthene	20	---
132-64-9	Dibenzofuran	20	---
84-66-2	Diethylphthalate	20	---
86-73-7	Fluorene	20	---
86-30-6	N-Nitrosodiphenylamine	20	---
118-74-1	Hexachlorobenzene	20	---
87-86-5	Pentachlorophenol	99	---
85-01-8	Phenanthrene	20	---
120-12-7	Anthracene	20	---
84-74-2	Di-n-Butylphthalate	20	---
206-44-0	Fluoranthene	20	---
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	---
56-55-3	Benzo(a)anthracene	20	---
117-81-7	bis(2-Ethylhexyl)phthalate	49	---
218-01-9	Chrysene	20	---
117-84-0	Di-n-Octyl phthalate	20	---
50-32-8	Benzo(a)pyrene	20	---
193-39-5	Indeno(1,2,3-cd)pyrene	20	---
53-70-3	Dibenz(a,h)anthracene	20	---
191-24-2	Benzo(g,h,i)perylene	20	---
90-12-0	1-Methylnaphthalene	20	---
TOTBFA	Total Benzofluoranthenes	40	---

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08A-SBSD
MATRIX SPIKE DUPLICATE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Date Analyzed: 10/30/15 19:41

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	68.0%	2-Fluorobiphenyl	68.2%
d14-p-Terphenyl	88.4%	d4-1,2-Dichlorobenzene	62.4%
d5-Phenol	72.3% Q	2-Fluorophenol	68.7%
2,4,6-Tribromophenol	79.2%	d4-2-Chlorophenol	72.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 2

Sample ID: LCS-102415
LAB CONTROL

Lab Sample ID: LCS-102415
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 16:42
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control		Spike Added	Recovery
Phenol	358		500	71.6%
1,4-Dichlorobenzene	315		500	63.0%
Benzyl Alcohol	262		500	52.4%
1,2-Dichlorobenzene	334		500	66.8%
2-Methylphenol	365		500	73.0%
4-Methylphenol	436	Q	500	87.2%
2,4-Dimethylphenol	1060		1500	70.7%
Benzoic Acid	2740	Q	2750	99.6%
1,2,4-Trichlorobenzene	331		500	66.2%
Naphthalene	327		500	65.4%
Hexachlorobutadiene	325		500	65.0%
2-Methylnaphthalene	346		500	69.2%
Dimethylphthalate	369		500	73.8%
Acenaphthylene	349		500	69.8%
Acenaphthene	371		500	74.2%
Dibenzofuran	367		500	73.4%
Diethylphthalate	402		500	80.4%
Fluorene	358		500	71.6%
N-Nitrosodiphenylamine	329		500	65.8%
Hexachlorobenzene	361		500	72.2%
Pentachlorophenol	1440		1500	96.0%
Phenanthrene	384		500	76.8%
Anthracene	380		500	76.0%
Di-n-Butylphthalate	404		500	80.8%
Fluoranthene	399		500	79.8%
Pyrene	385		500	77.0%
Butylbenzylphthalate	410		500	82.0%
Benzo(a)anthracene	382		500	76.4%
bis(2-Ethylhexyl)phthalate	389		500	77.8%
Chrysene	376		500	75.2%
Di-n-Octyl phthalate	359		500	71.8%
Benzo(a)pyrene	358		500	71.6%
Indeno(1,2,3-cd)pyrene	375		500	75.0%
Dibenz(a,h)anthracene	373		500	74.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102415
LAB CONTROL

Lab Sample ID: LCS-102415
LIMS ID: 15-19500
Matrix: Sediment
Date Analyzed: 10/30/15 16:42

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	338	500	67.6%
1-Methylnaphthalene	316	500	63.2%
Total Benzofluoranthenes	783	1000	78.3%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	82.0%
2-Fluorobiphenyl	80.8%
d14-p-Terphenyl	118%
d4-1,2-Dichlorobenzene	73.8%
d5-Phenol	85.7%
2-Fluorophenol	78.7%
2,4,6-Tribromophenol	91.1%
d4-2-Chlorophenol	81.5%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102415
METHOD BLANK

Lab Sample ID: MB-102415
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 16:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102415
METHOD BLANK

Lab Sample ID: MB-102415
LIMS ID: 15-19500
Matrix: Sediment
Date Analyzed: 10/30/15 16:05

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.0%	2-Fluorobiphenyl	73.6%
d14-p-Terphenyl	103%	d4-1,2-Dichlorobenzene	71.4%
d5-Phenol	69.7% Q	2-Fluorophenol	64.4%
2,4,6-Tribromophenol	69.7%	d4-2-Chlorophenol	70.1%

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 30-OCT-2015 12:48
Lab File ID: 15103002.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Analysis Type: Init. Cal. Times: 11:52 16:03
Lab Sample ID: ABN 5 Quant Type: ISTD
Method: /chem1/nt10.i/20151030.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.12958	1.25667	1.25667	0.010	11.25129	20.00000	Averaged	
$ 2 Phenol-d5	1.36520	1.77220	1.77220	0.010	29.81235	20.00000	Averaged	<-
3 Phenol	1.33180	1.39912	1.39912	0.100	5.05461	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.33265	1.38844	1.38844	0.010	4.18634	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.01930	0.98740	0.98740	0.700	-3.12944	20.00000	Averaged	
6 2-Chlorophenol	1.30689	1.40643	1.40643	0.800	7.61663	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.60078	1.54935	1.54935	0.010	-3.21253	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.54535	1.51473	1.51473	0.010	-1.98142	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.99122	0.89358	0.89358	0.010	-9.85095	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44684	1.41150	1.41150	0.010	-2.44239	20.00000	Averaged	
11 Benzyl alcohol	0.63765	0.71838	0.71838	0.010	12.66063	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.45840	0.46004	0.46004	0.010	0.35677	20.00000	Averaged	
13 2-Methylphenol	0.99636	1.06374	1.06374	0.700	6.76215	20.00000	Averaged	
17 Hexachloroethane	0.61781	0.59664	0.59664	0.300	-3.42602	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.74117	0.80620	0.80620	0.500	8.77350	20.00000	Averaged	
15 4-Methylphenol	1.00886	1.34036	1.34036	0.600	32.85896	20.00000	Averaged	<-
$ 18 Nitrobenzene-d5	0.39605	0.40683	0.40683	0.010	2.72180	20.00000	Averaged	
19 Nitrobenzene	0.36379	0.36907	0.36907	0.200	1.45212	20.00000	Averaged	
20 Isophorone	0.57522	0.61950	0.61950	0.300	7.69752	20.00000	Averaged	
21 2-Nitrophenol	0.21477	0.23500	0.23500	0.100	9.42189	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39317	0.39472	0.39472	0.200	0.39531	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.32972	0.31872	0.31872	0.050	-3.33731	20.00000	Averaged	
24 Benzoic acid	24.39186	20.00000	0.29066	0.010	21.95931	20.00000	Quadratic	<-
25 2,4-Dichlorophenol	0.32107	0.32388	0.32388	0.100	0.87503	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.37492	0.34970	0.34970	0.010	-6.72587	20.00000	Averaged	
28 Naphthalene	1.03606	0.97223	0.97223	0.100	-6.16116	20.00000	Averaged	
29 4-Chloroaniline	0.41428	0.40344	0.40344	0.010	-2.61718	20.00000	Averaged	
30 Hexachlorobutadiene	0.24781	0.27998	0.27998	0.010	12.98214	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.33608	0.35003	0.35003	0.200	4.14809	20.00000	Averaged	
32 2-Methylnaphthalene	0.74547	0.71366	0.71366	0.300	-4.26724	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.41843	0.48193	0.48193	0.001	15.17489	20.00000	Averaged	
34 2,4,6-Trichlorophenol	0.37961	0.39533	0.39533	0.200	4.13879	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.39251	0.41014	0.41014	0.200	4.49159	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.40765	1.31736	1.31736	0.010	-6.41413	20.00000	Averaged	
37 2-Chloronaphthalene	1.14337	1.05852	1.05852	0.700	-7.42109	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15103002.d
Analysis Type:
Lab Sample ID: ABN 5
Method: /chem1/nt10.i/20151030.b/ABN.m

Injection Date: 30-OCT-2015 12:48
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.31622	0.35585	0.35585	0.010	12.53104	20.00000	Averaged	
39 Dimethylphthalate	1.36783	1.32388	1.32388	0.010	-3.21284	20.00000	Averaged	
40 Acenaphthylene	1.73670	1.66151	1.66151	0.900	-4.32942	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.28981	0.29600	0.29600	0.100	2.13428	20.00000	Averaged	
43 3-Nitroaniline	0.28271	0.21623	0.21623	0.010	-23.51299	20.00000	Averaged	<-
44 Acenaphthene	1.04524	1.05083	1.05083	0.100	0.53450	20.00000	Averaged	
45 2,4-Dinitrophenol	24.71689	20.00000	0.21203	0.030	23.58447	20.00000	Quadratic	<-
46 Dibenzofuran	1.57152	1.51619	1.51619	0.800	-3.52039	20.00000	Averaged	
47 4-Nitrophenol	9.37250	10.00000	0.24621	0.010	-6.27500	20.00000	Quadratic	
48 2,4-Dinitrotoluene	0.39543	0.40859	0.40859	0.200	3.32881	20.00000	Averaged	
50 Diethylphthalate	1.32554	1.31047	1.31047	0.010	-1.13655	20.00000	Averaged	
49 Fluorene	1.34379	1.20883	1.20883	0.100	-10.04354	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.68765	0.65187	0.65187	0.100	-5.20323	20.00000	Averaged	
52 4-Nitroaniline	0.30110	0.25121	0.25121	0.010	-16.56968	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	20.80121	20.00000	0.15246	0.001	4.00604	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.54831	0.50988	0.50988	0.010	-7.00857	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.34466	0.36287	0.36287	0.010	5.28225	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.27932	0.26556	0.26556	0.100	-4.92601	20.00000	Averaged	
57 Hexachlorobenzene	0.36460	0.32067	0.32067	0.100	-12.05077	20.00000	Averaged	
58 Pentachlorophenol	10.21740	10.00000	0.21002	0.010	2.17396	20.00000	Quadratic	
60 Phenanthrene	1.02053	0.94907	0.94907	0.700	-7.00175	20.00000	Averaged	
61 Anthracene	1.04166	1.00682	1.00682	0.700	-3.34414	20.00000	Averaged	
62 Carbazole	0.87135	0.84632	0.84632	0.010	-2.87351	20.00000	Averaged	
63 Di-n-butylphthalate	1.31288	1.36435	1.36435	0.010	3.92112	20.00000	Averaged	
64 Fluoranthene	1.11470	1.03055	1.03055	0.600	-7.54914	20.00000	Averaged	
65 Pyrene	1.18016	1.09600	1.09600	0.600	-7.13137	20.00000	Averaged	
$ 66 Terphenyl-d14	0.74289	0.68480	0.68480	0.010	-7.82036	20.00000	Averaged	
67 Butylbenzylphthalate	0.50597	0.49895	0.49895	0.010	-1.38563	20.00000	Averaged	
68 Benzo(a)anthracene	1.12072	1.04909	1.04909	0.700	-6.39155	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.75137	0.60645	0.60645	0.010	-19.28827	20.00000	Averaged	
71 Chrysene	0.97701	0.88490	0.88490	0.700	-9.42727	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.52679	0.48145	0.48145	0.010	-8.60659	20.00000	Averaged	
73 Di-n-octylphthalate	1.07536	0.91056	0.91056	0.010	-15.32476	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.08810	1.04396	1.04396	0.700	-4.05689	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08482	1.12636	1.12636	0.700	3.82913	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 30-OCT-2015 12:48
Lab File ID: 15103002.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Analysis Type: Init. Cal. Times: 11:52 16:03
Lab Sample ID: ABN 5 Quant Type: ISTD
Method: /chem1/nt10.i/20151030.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
76 Benzo(a)pyrene	1.03138	1.00573	1.00573	0.700	-2.48654	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.37485	1.30285	1.30285	0.500	-5.23687	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.13622	1.06040	1.06040	0.400	-6.67317	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.23143	1.07154	1.07154	0.500	-12.98367	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.53343	0.64824	0.64824	0.010	21.52303	20.00000	Averaged	<-
91 Aniline	1.56324	1.67206	1.67206	0.010	6.96121	20.00000	Averaged	
93 Benzidine	0.38521	0.17587	0.17587	0.010	-54.34480	20.00000	Averaged	<-
103 Pyridine	0.85366	1.08870	1.08870	0.010	27.53394	20.00000	Averaged	<-
105 1-methylnaphthalene	0.76506	0.75900	0.75900	0.010	-0.79269	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	1.22084	1.11240	1.11240	0.010	-8.88248	20.00000	Averaged	
187 Total Benzofluoranthenes	1.04123	1.04020	1.04020	0.010	-0.09922	20.00000	Averaged	
99 Perylene	0.99701	0.98004	0.98004	0.010	-1.70288	20.00000	Averaged	
98 Retene	++++	++++	++++	0.010	++++	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.35337	0.36589	0.36589	0.010	3.54308	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-102415**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102415
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 16:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	64.9%
d14-p-Terphenyl	88.4% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR17-D-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 17:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 42.2%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**2.3 J**
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	**Butylbenzylphthalate**	**4.8**	**3.4 J**
95-48-7	2-Methylphenol	4.8	< 4.8 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	**Benzyl Alcohol**	**19**	**16 J**
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	59.1%
d14-p-Terphenyl	86.4% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR17-D-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV8D
LIMS ID: 15-19494
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 17:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.29 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 48.8%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**15**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	**1,2,4-Trichlorobenzene**	**4.9**	**4.8 J**
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**19**	**48**
87-86-5	**Pentachlorophenol**	**19**	**21**
95-50-1	**1,2-Dichlorobenzene**	**4.9**	**1.6 J**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	62.9%
d14-p-Terphenyl	88.2% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08A-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 18:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 32.7%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	**Benzyl Alcohol**	**20**	**17 J**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	53.9%
dl4-p-Terphenyl	69.8% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08A-SBSD**
Extraction Method: SW3546 **MATRIX SPIKE**

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 19:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.12 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 32.7%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.9	---
106-46-7	1,4-Dichlorobenzene	4.9	---
120-82-1	1,2,4-Trichlorobenzene	4.9	---
118-74-1	Hexachlorobenzene	4.9	---
87-68-3	Hexachlorobutadiene	4.9	---
131-11-3	Dimethylphthalate	4.9	---
85-68-7	Butylbenzylphthalate	4.9	---
95-48-7	2-Methylphenol	4.9	---
105-67-9	2,4-Dimethylphenol	25	---
86-30-6	N-Nitrosodiphenylamine	4.9	---
100-51-6	Benzyl Alcohol	20	---
87-86-5	Pentachlorophenol	20	---
95-50-1	1,2-Dichlorobenzene	4.9	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	68.1%
d14-p-Terphenyl	79.0% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08A-SBSD**
Extraction Method: SW3546 **MATRIX SPIKE DUPLICATE**

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 19:41
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.12 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 32.7%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.9	---
106-46-7	1,4-Dichlorobenzene	4.9	---
120-82-1	1,2,4-Trichlorobenzene	4.9	---
118-74-1	Hexachlorobenzene	4.9	---
87-68-3	Hexachlorobutadiene	4.9	---
131-11-3	Dimethylphthalate	4.9	---
85-68-7	Butylbenzylphthalate	4.9	---
95-48-7	2-Methylphenol	4.9	---
105-67-9	2,4-Dimethylphenol	25	---
86-30-6	N-Nitrosodiphenylamine	4.9	---
100-51-6	Benzyl Alcohol	20	---
87-86-5	Pentachlorophenol	20	---
95-50-1	1,2-Dichlorobenzene	4.9	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	62.0%
d14-p-Terphenyl	74.0% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR10-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV8K
LIMS ID: 15-19501
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 20:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.9%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**5.0**	**8.5**
106-46-7	**1,4-Dichlorobenzene**	**5.0**	**3.7 J**
120-82-1	**1,2,4-Trichlorobenzene**	**5.0**	**3.0 J**
118-74-1	**Hexachlorobenzene**	**5.0**	**3.3 J**
87-68-3	**Hexachlorobutadiene**	**5.0**	**2.8 J**
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	**2-Methylphenol**	**5.0**	**7.7**
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	**Benzyl Alcohol**	**20**	**22**
87-86-5	**Pentachlorophenol**	**20**	**23**
95-50-1	**1,2-Dichlorobenzene**	**5.0**	**3.3 J**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	61.3%
d14-p-Terphenyl	77.2% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08a-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 20:53
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.31 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 48.5%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**9.5**
106-46-7	**1,4-Dichlorobenzene**	**4.8**	**2.4 J**
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	Butylbenzylphthalate	4.8	< 4.8 U
95-48-7	2-Methylphenol	4.8	< 4.8 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	**Benzyl Alcohol**	**19**	**27**
87-86-5	**Pentachlorophenol**	**19**	**14 J**
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	57.1%
d14-p-Terphenyl	75.4% Q

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
CR17-D-SSD	59.1%	86.4% Q	0
CR17-D-SBSD	62.9%	88.2% Q	0
MB-102415	64.9%	88.4% Q	0
LCS-102415	73.6%	103% Q	0
CR08A-SBSD	53.9%	69.8% Q	0
CR08A-SBSD MS	68.1%	79.0% Q	0
CR08A-SBSD MSD	62.0%	74.0% Q	0
CR10-SSD-COMP	61.3%	77.2% Q	0
CR08a-SSD-COMP	57.1%	75.4% Q	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19493 to 15-19510

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-102415**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-102415
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/24/15
Date Analyzed LCS: 10/30/15 16:42
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Dibenz(a,h)anthracene	341	500	68.2%
1,4-Dichlorobenzene	281	500	56.2%
1,2,4-Trichlorobenzene	299	500	59.8%
Hexachlorobenzene	330	500	66.0%
Hexachlorobutadiene	317	500	63.4%
Dimethylphthalate	342	500	68.4%
Butylbenzylphthalate	432	500	86.4%
2-Methylphenol	316	500	63.2%
2,4-Dimethylphenol	932	1500	62.1%
N-Nitrosodiphenylamine	313	500	62.6%
Benzyl Alcohol	304	500	60.8%
Pentachlorophenol	1680 E	1500	112%
1,2-Dichlorobenzene	291	500	58.2%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	73.6%
d14-p-Terphenyl	103% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08A-SBSD**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/23/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted MS/MSD: 10/24/15

Sample Amount MS: 10.12 g-dry-wt
MSD: 10.12 g-dry-wt

Date Analyzed MS: 10/30/15 19:05
MSD: 10/30/15 19:41

Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL

Instrument/Analyst MS: NT10/YZ
MSD: NT10/YZ

Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Dibenz(a,h)anthracene	< 5.0 U	298	494	60.3%	310	494	62.8%	3.9%
1,4-Dichlorobenzene	< 5.0 U	293	494	59.3%	279	494	56.5%	4.9%
1,2,4-Trichlorobenzene	< 5.0 U	308	494	62.3%	293	494	59.3%	5.0%
Hexachlorobenzene	< 5.0 U	338	494	68.4%	321	494	65.0%	5.2%
Hexachlorobutadiene	< 5.0 U	329	494	66.6%	319	494	64.6%	3.1%
Dimethylphthalate	< 5.0 U	345	494	69.8%	331	494	67.0%	4.1%
Butylbenzylphthalate	< 5.0 U	399	494	80.8%	395	494	80.0%	1.0%
2-Methylphenol	< 5.0 U	323	494	65.4%	316	494	64.0%	2.2%
2,4-Dimethylphenol	< 25 U	1040 E	1480	70.3%	988	1480	66.8%	5.1%
N-Nitrosodiphenylamine	< 5.0 U	301	494	60.9%	336	494	68.0%	11.0%
Benzyl Alcohol	17 J	412	494	80.0%	398	494	77.1%	3.5%
Pentachlorophenol	< 20 U	1520 E	1480	103%	1420 E	1480	95.9%	6.8%
1,2-Dichlorobenzene	< 5.0 U	305	494	61.7%	294	494	59.5%	3.7%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 30-OCT-2015 13:24
Lab File ID: 15103003.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Analysis Type: Init. Cal. Times: 11:52 16:39
Lab Sample ID: ABN 1 Quant Type: ISTD
Method: /chem1/nt10.i/20151030.b/SIM.b/SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.04543	0.96142	0.010	-8.03654	20.00000	Averaged	
3 Phenol	1.55661	1.40648	0.010	-9.64464	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.81225	0.010	2.83494	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.76468	0.010	1.45974	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79225	0.010	-3.06060	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.70304	0.010	4.51605	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.80168	0.010	-14.15811	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81806	0.010	-10.69673	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57640	0.050	-6.41927	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33783	0.010	-14.23919	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.42313	0.010	7.24230	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.32506	0.010	7.06797	20.00000	Averaged	
39 Dimethylphthalate	1.14558	0.98245	0.010	-14.23996	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.15862	0.010	-6.41678	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.55635	0.010	-10.20083	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.45813	0.010	10.52324	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.22135	0.005	3.86819	20.00000	Averaged	
$ 66 Terphenyl-d14	0.36942	0.29005	0.010	-21.48474	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39713	0.010	-3.85451	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.02003	0.010	-11.84321	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.45598	0.010	2.81024	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR17-D-SSD**

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 08:35
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.63	0.65-0.89		0.994	0.406	JEMPC
2,3,7,8-TCDD	0.74	0.65-0.89		0.994	1.85	
1,2,3,7,8-PeCDF	1.13	1.32-1.78		0.994	0.213	JEMPC
2,3,4,7,8-PeCDF	2.15	1.32-1.78		0.994	0.239	JEMPC
1,2,3,7,8-PeCDD	1.60	1.32-1.78		0.994	2.49	
1,2,3,4,7,8-HxCDF	1.19	1.05-1.43		0.994	0.596	J
1,2,3,6,7,8-HxCDF	1.42	1.05-1.43		0.994	0.370	J
2,3,4,6,7,8-HxCDF	0.82	1.05-1.43		0.994	0.443	JEMPC
1,2,3,7,8,9-HxCDF	0.80	1.05-1.43		0.994	0.324	BJEMPC
1,2,3,4,7,8-HxCDD	1.04	1.05-1.43		0.994	0.736	JEMPC
1,2,3,6,7,8-HxCDD	1.15	1.05-1.43		0.994	2.94	
1,2,3,7,8,9-HxCDD	1.33	1.05-1.43		0.994	6.33	
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20		0.994	8.12	
1,2,3,4,7,8,9-HpCDF	0.83	0.88-1.20		0.994	0.483	JEMPC
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.994	56.2	
OCDF	0.77	0.76-1.02		1.99	14.0	
OCDD	0.88	0.76-1.02		9.94	475	

Homologue Group	EDL	RL	Result	
Total TCDF		0.994	4.27	EMPC
Total TCDD		0.994	12.4	EMPC
Total PeCDF		1.99	4.66	EMPC
Total PeCDD		0.994	16.7	EMPC
Total HxCDF		1.99	10.8	EMPC
Total HxCDD		1.99	45.8	EMPC
Total HpCDF		1.99	21.2	EMPC
Total HpCDD		1.99	150	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 6.43

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 6.43

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B

Sample ID: CR17-D-SSD

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 08:35
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	90.2	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	86.6	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	88.9	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	87.8	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	86.6	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	91.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	87.7	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	91.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	89.9	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	96.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	88.4	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	80.0	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	80.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	85.8	23-140	
13C-OCDD	0.89	0.76-1.02	72.1	17-157	
37Cl4-2,3,7,8-TCDD			95.3	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR08A-SBSD**
Page 1 of 1

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 09:35
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.69	0.65-0.89		0.978	0.0880	J
2,3,7,8-TCDD	0.70	0.65-0.89		0.978	1.55	
1,2,3,7,8-PeCDF	1.68	1.32-1.78		0.978	0.141	J
2,3,4,7,8-PeCDF	1.57	1.32-1.78		0.978	0.0704	J
1,2,3,7,8-PeCDD	1.49	1.32-1.78		0.978	1.76	
1,2,3,4,7,8-HxCDF	1.26	1.05-1.43		0.978	0.217	J
1,2,3,6,7,8-HxCDF	1.35	1.05-1.43		0.978	0.178	J
2,3,4,6,7,8-HxCDF	1.21	1.05-1.43		0.978	0.188	J
1,2,3,7,8,9-HxCDF	1.05	1.05-1.43		0.978	0.258	BJEMPC
1,2,3,4,7,8-HxCDD	1.76	1.05-1.43		0.978	0.583	JEMPC
1,2,3,6,7,8-HxCDD	1.12	1.05-1.43		0.978	1.30	
1,2,3,7,8,9-HxCDD	1.28	1.05-1.43		0.978	5.31	
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20		0.978	1.26	B
1,2,3,4,7,8,9-HpCDF	1.33	0.88-1.20		0.978	0.250	JEMPC
1,2,3,4,6,7,8-HpCDD	1.00	0.88-1.20		0.978	14.5	B
OCDF	0.84	0.76-1.02		1.96	6.41	
OCDD	0.90	0.76-1.02		9.78	130	B

Homologue Group	EDL	RL	Result	
Total TCDF		0.978	0.656	EMPC
Total TCDD		0.978	12.0	EMPC
Total PeCDF		1.96	0.428	EMPC
Total PeCDD		0.978	12.7	EMPC
Total HxCDF		1.96	1.27	EMPC
Total HxCDD		1.96	33.2	EMPC
Total HpCDF		1.96	3.43	EMPC
Total HpCDD		1.96	32.3	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 4.35

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 4.35

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR08A-SBSD

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 09:35
Instrument/Analyst: AS1/PK

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	85.9	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	82.0	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	89.2	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	85.3	21-178	
13C-1,2,3,7,8-PeCDD	1.54	1.32-1.78	86.5	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	86.5	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	83.2	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	86.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	82.7	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	88.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	83.7	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	77.0	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.43	0.37-0.51	74.3	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	82.1	23-140	
13C-OCDD	0.90	0.76-1.02	65.1	17-157	
37Cl4-2,3,7,8-TCDD			91.9	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: CR08a-SSD-COMP

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 10:28
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.72	0.65-0.89		0.993	1.06	
2,3,7,8-TCDD	0.69	0.65-0.89		0.993	1.71	
1,2,3,7,8-PeCDF	1.79	1.32-1.78		0.993	0.483	JEMPC
2,3,4,7,8-PeCDF	1.47	1.32-1.78		0.993	0.506	J
1,2,3,7,8-PeCDD	1.64	1.32-1.78		0.993	2.87	
1,2,3,4,7,8-HxCDF	1.18	1.05-1.43		0.993	1.42	
1,2,3,6,7,8-HxCDF	1.11	1.05-1.43		0.993	0.798	J
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43		0.993	1.46	
1,2,3,7,8,9-HxCDF		1.05-1.43	0.0933	0.993	< 0.0933	U
1,2,3,4,7,8-HxCDD	1.19	1.05-1.43		0.993	2.33	
1,2,3,6,7,8-HxCDD	1.20	1.05-1.43		0.993	10.7	
1,2,3,7,8,9-HxCDD	1.18	1.05-1.43		0.993	8.01	
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20		0.993	33.1	
1,2,3,4,7,8,9-HpCDF	0.82	0.88-1.20		0.993	2.10	EMPC
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.993	583	
OCDF	0.82	0.76-1.02		1.99	73.9	
OCDD	0.89	0.76-1.02		9.93	13,700	E

Homologue Group	EDL	RL	Result	
Total TCDF		0.993	10.9	EMPC
Total TCDD		0.993	23.9	EMPC
Total PeCDF		1.99	12.8	EMPC
Total PeCDD		0.993	25.9	EMPC
Total HxCDF		1.99	44.0	EMPC
Total HxCDD		1.99	147	EMPC
Total HpCDF		1.99	126	EMPC
Total HpCDD		1.99	1,650	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 17.6

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 17.6

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: CR08a-SSD-COMP

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 10:28
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	96.4	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	92.5	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	101	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	101	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	99.3	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	93.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	89.8	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	94.7	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	95.0	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	104	32-141	
13C-1,2,3,6,7,8-HxCDD	1.29	1.05-1.43	92.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	88.5	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	89.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	95.8	23-140	
13C-OCDD	0.90	0.76-1.02	100	17-157	
37Cl4-2,3,7,8-TCDD			103	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.70	0.65-0.89	1.00	20.6
2,3,7,8-TCDD	0.74	0.65-0.89	1.00	21.4
1,2,3,7,8-PeCDF	1.43	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.44	1.32-1.78	1.00	104
1,2,3,7,8-PeCDD	1.56	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,6,7,8-HxCDF	1.14	1.05-1.43	1.00	105
2,3,4,6,7,8-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	1.00	102
1,2,3,6,7,8-HxCDD	1.19	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43	1.00	107
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	108
1,2,3,4,7,8,9-HpCDF	0.99	0.88-1.20	1.00	109
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.82	0.76-1.02	2.00	199
OCDD	0.90	0.76-1.02	10.0	212

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	21.4	EMPC
Total TCDD		1.00	22.0	EMPC
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	104	EMPC
Total HxCDF		2.00	421	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	217	
Total HpCDD		2.00	106	

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
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Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	93.5	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	89.2	25-164	
13C-1,2,3,7,8-PeCDF	1.55	1.32-1.78	97.5	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	92.4	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	93.9	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	90.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	88.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	89.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	84.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	95.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	89.2	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	82.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.43	0.37-0.51	82.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20	88.8	23-140	
13C-OCDD	0.90	0.76-1.02	77.0	17-157	
37Cl4-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.6	20.0	103	75-158
2,3,7,8-TCDD	21.4	20.0	107	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	104	100	104	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	105	100	105	72-134
1,2,3,6,7,8-HxCDF	105	100	105	84-130
2,3,4,6,7,8-HxCDF	105	100	105	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	102	100	102	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	107	100	107	64-162
1,2,3,4,6,7,8-HpCDF	108	100	108	82-132
1,2,3,4,7,8,9-HpCDF	109	100	109	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	199	200	99.5	63-170
OCDD	212	200	106	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0500	1.00	< 0.0500	U
2,3,7,8-TCDD		0.65-0.89	0.0560	1.00	< 0.0560	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0580	1.00	< 0.0580	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0600	1.00	< 0.0600	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0980	1.00	< 0.0980	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0640	1.00	< 0.0640	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0580	1.00	< 0.0580	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0620	1.00	< 0.0620	U
1,2,3,7,8,9-HxCDF	1.11	1.05-1.43		1.00	0.116	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0840	1.00	< 0.0840	U
1,2,3,6,7,8-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,7,8,9-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,4,6,7,8-HpCDF	0.84	0.88-1.20		1.00	0.196	JEMPC
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0600	1.00	< 0.0600	U
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		1.00	1.99	
OCDF	0.72	0.76-1.02		2.00	0.776	JEMPC
OCDD	0.86	0.76-1.02		10.0	16.9	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0500	1.00	< 0.0500	U
Total TCDD	0.0560	1.00	0.0524	EMPC
Total PeCDF	0.0600	2.00	< 0.0600	U
Total PeCDD	0.0980	1.00	0.253	EMPC
Total HxCDF		2.00	0.117	
Total HxCDD	0.0880	2.00	1.31	EMPC
Total HpCDF		2.00	0.426	EMPC
Total HpCDD		2.00	5.27	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.15

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	99.6	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	95.8	25-164	
13C-1,2,3,7,8-PeCDF	1.59	1.32-1.78	103	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	96.9	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	98.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	99.9	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	101	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	99.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	92.8	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	103	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	99.0	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	90.7	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	91.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	98.5	23-140	
13C-OCDD	0.91	0.76-1.02	84.7	17-157	
37Cl4-2,3,7,8-TCDD			105	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR17-D-SSD
SAMPLE

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 19:35
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.21 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 42.2%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	73.2%
Tetrachlorometaxylene	80.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR17-D-SBSD
SAMPLE

Lab Sample ID: AOV8D
LIMS ID: 15-19494
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 19:56
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.12 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 48.8%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	**Aroclor 1254**	**20**	**18 J**
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	68.5%
Tetrachlorometaxylene	78.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR08A-SBSD
SAMPLE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 20:17
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.42 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 32.7%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.2%
Tetrachlorometaxylene	83.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR10-SSD-COMP
SAMPLE

Lab Sample ID: AOV8K
LIMS ID: 15-19501
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 20:38
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.31 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 51.9%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.8%
Tetrachlorometaxylene	73.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR08a-SSD-COMP
SAMPLE

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 20:59
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.15 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 48.5%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.0%
Tetrachlorometaxylene	80.8%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
CR17-D-SSD	73.2%	40-133	80.2%	53-120	0
CR17-D-SBSD	68.5%	40-133	78.5%	53-120	0
CR08A-SBSD	75.2%	40-133	83.2%	53-120	0
CR10-SSD-COMP	62.8%	40-133	73.2%	53-120	0
MB-102615	71.8%	40-133	77.5%	53-120	0
LCS-102615	74.0%	40-133	82.0%	53-120	0
CR08a-SSD-COMP	75.0%	40-133	80.8%	53-120	0
CR08a-SSD-COMP MS	70.0%	40-133	82.8%	53-120	0
CR08a-SSD-COMP MSD	67.2%	40-133	83.5%	53-120	0

Microwave (MARS) Control Limits PCBSMP
Prep Method: SW3546
Log Number Range: 15-19493 to 15-19510

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: CR08a-SSD-COMP
MS/MSD

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted MS/MSD: 10/26/15

Date Analyzed MS: 10/29/15 21:20
MSD: 10/29/15 21:41
Instrument/Analyst MS: ECD7/JGR
MSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 5.15 g-dry-wt
MSD: 5.15 g-dry-wt
Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: No

Percent Moisture: 48.5%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 19 U	463	485	95.5%	434	485	89.5%	6.5%
Aroclor 1260	< 19 U	408	485	84.1%	399	485	82.3%	2.2%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR08a-SSD-COMP
MATRIX SPIKE

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 21:20
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.15 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 48.5%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	---
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	---
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.0%
Tetrachlorometaxylene	82.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR08a-SSD-COMP
MATRIX SPIKE DUP

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 21:41
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.15 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 48.5%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	---
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	---
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.2%
Tetrachlorometaxylene	83.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-102615
LAB CONTROL

Lab Sample ID: LCS-102615
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 19:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	405	500	81.0%
Aroclor 1260	407	500	81.4%

PCB Surrogate Recovery

Decachlorobiphenyl	74.0%
Tetrachlorometaxylene	82.0%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102615
METHOD BLANK

Lab Sample ID: MB-102615
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 18:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.8%
Tetrachlorometaxylene	77.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS

NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Sediment

Date Received: 10/16/15

Data Release Authorized: MW
Reported: 11/02/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-102315	Method Blank	10/23/15	10/28/15	1.00	Diesel Range	5.0	< 5.0 U
15-19493	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		74.0%
AOV8C	CR17-D-SSD	10/23/15	10/28/15	1.00	**Diesel Range**	**8.6**	**24**
15-19493	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**17**	**46**
					o-Terphenyl		62.5%
AOV8J	CR08A-SBSD	10/23/15	10/29/15	1.00	**Diesel Range**	**7.4**	**26**
15-19500	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**15**	**74**
					o-Terphenyl		71.3%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
102315MB	74.0%	0
102315LCS	74.6%	0
CR17-D-SSD	62.5%	0
CR17-D-SSD MS	70.0%	0
CR17-D-SSD MSD	74.8%	0
CR08A-SBSD	71.3%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19493 to 15-19500

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: CR17-D-SSD
MS/MSD

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized:
Reported: 11/02/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted MS/MSD: 10/23/15

Date Analyzed MS: 10/28/15 23:41
MSD: 10/29/15 00:03
Instrument/Analyst MS: FID3B/ML
MSD: FID3B/ML

Sample Amount MS: 5.80 g-dry-wt
MSD: 5.80 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 42.2%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	24	201	259	68.3%	209	259	71.4%	3.9%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	70.0%	74.8%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 10/28/15 22:59
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	109	150	72.7%

TPHD Surrogate Recovery

o-Terphenyl	74.6%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Sediment
Date Received: 10/16/15

ARI Job: AOV8
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19493-102315MB1	Method Blank	10.0 g	1.00 mL	-	10/23/15
15-19493-102315LCS1	Lab Control	10.0 g	1.00 mL	-	10/23/15
15-19493-AOV8C	CR17-D-SSD	5.80 g	1.00 mL	D	10/23/15
15-19493-AOV8CMS	CR17-D-SSD	5.80 g	1.00 mL	D	10/23/15
15-19493-AOV8CMSD	CR17-D-SSD	5.80 g	1.00 mL	D	10/23/15
15-19500-AOV8J	CR08A-SBSD	6.76 g	1.00 mL	D	10/23/15

Basis: D=Dry Weight W=As Received

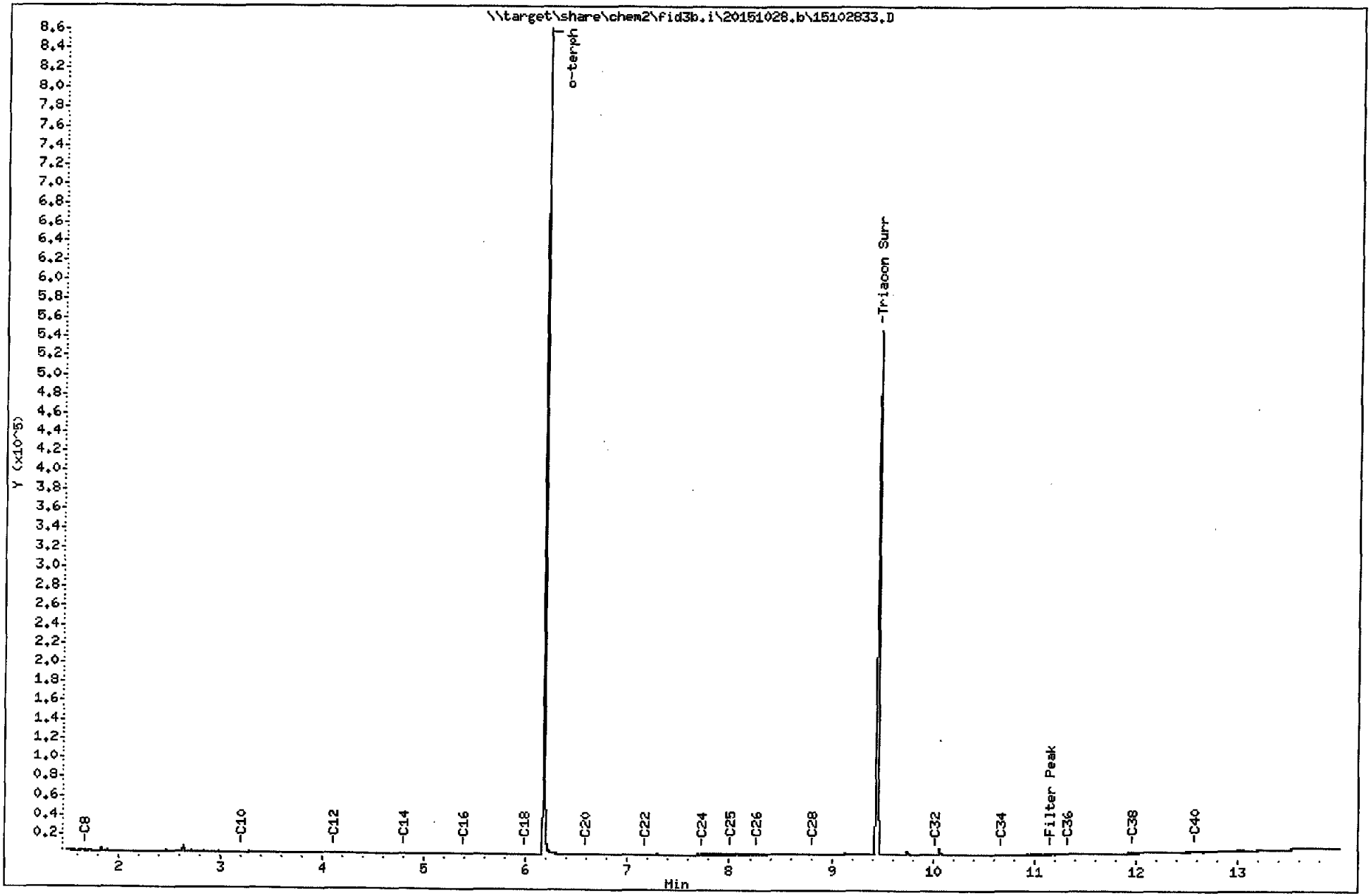
Data File: \\target\share\chem2\fid3b.i\20151028.b\15102833.D
Date : 28-OCT-2015 22:38
Client ID: AOV8MBS1
Sample Info: AOV8MBS1

Instrument: fid3b.i

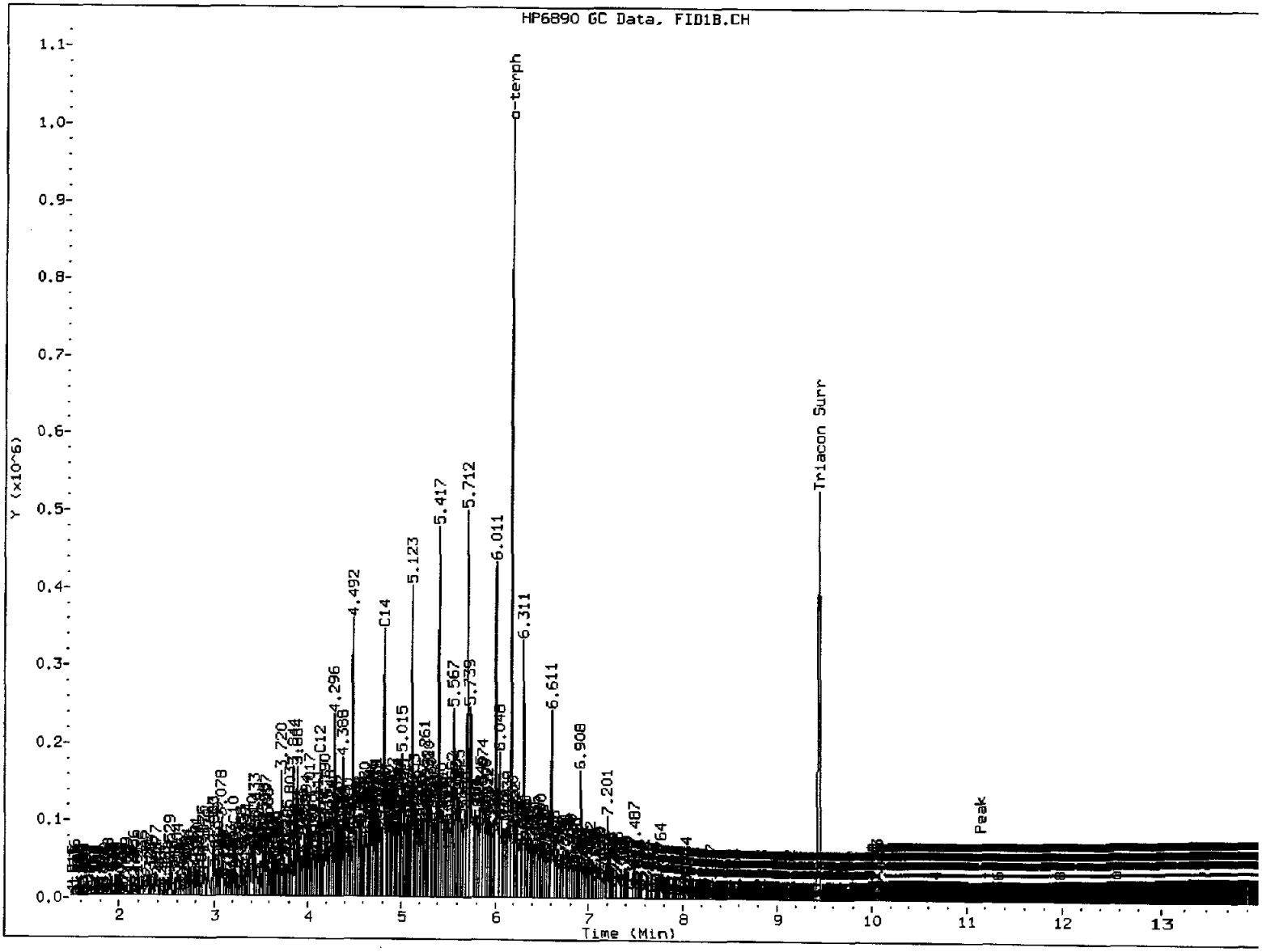
Operator: ML
Column diameter: 0.25

Column phase: RTX-1

AOV8:000071



FID:3B-2C/RTX-1 AOV8LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MM Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102834.D

Date : 28-OCT-2015 22:59

Client ID: AOV8LCSS1

Sample Info: AOV8LCSS1

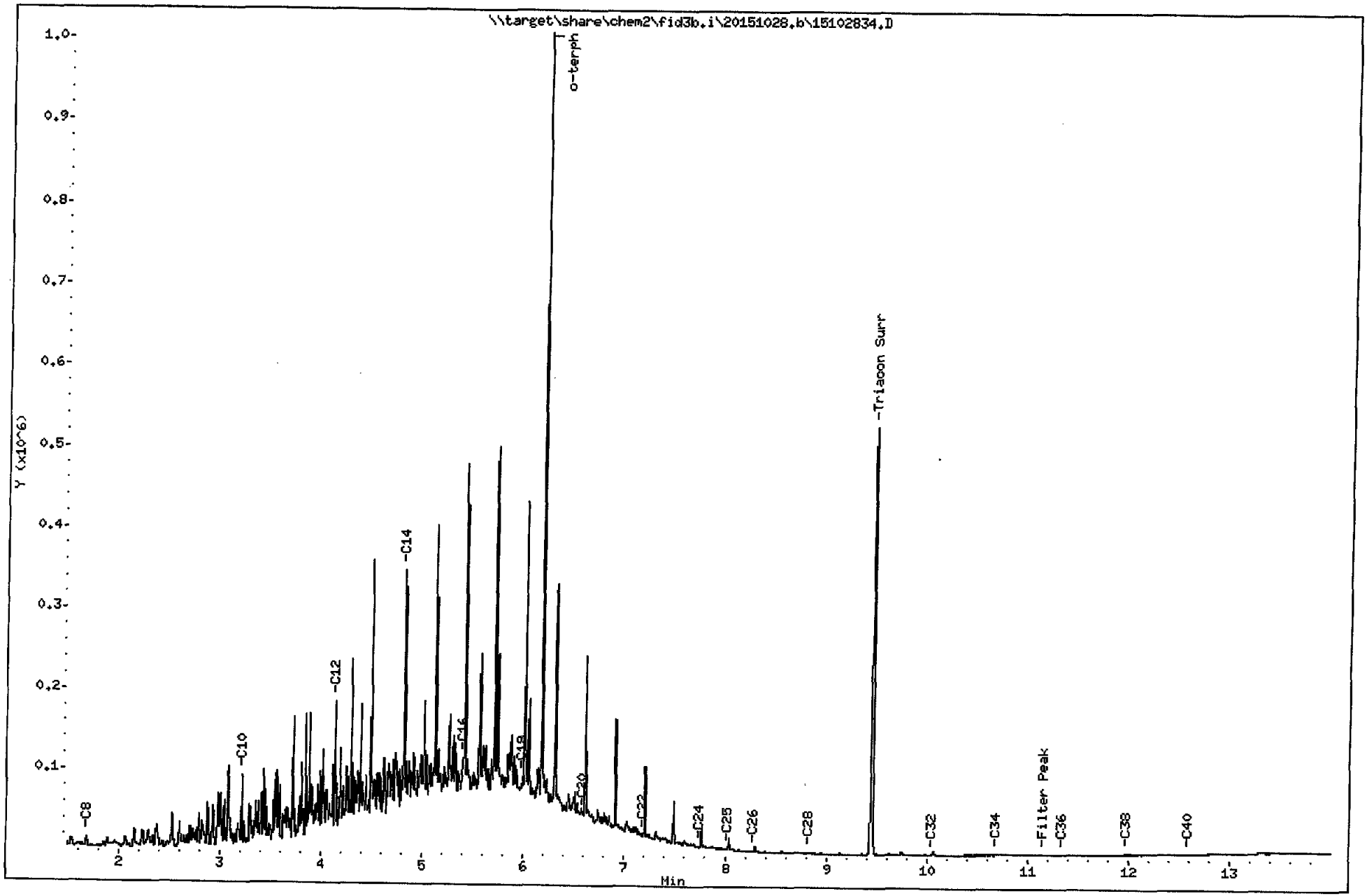
Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

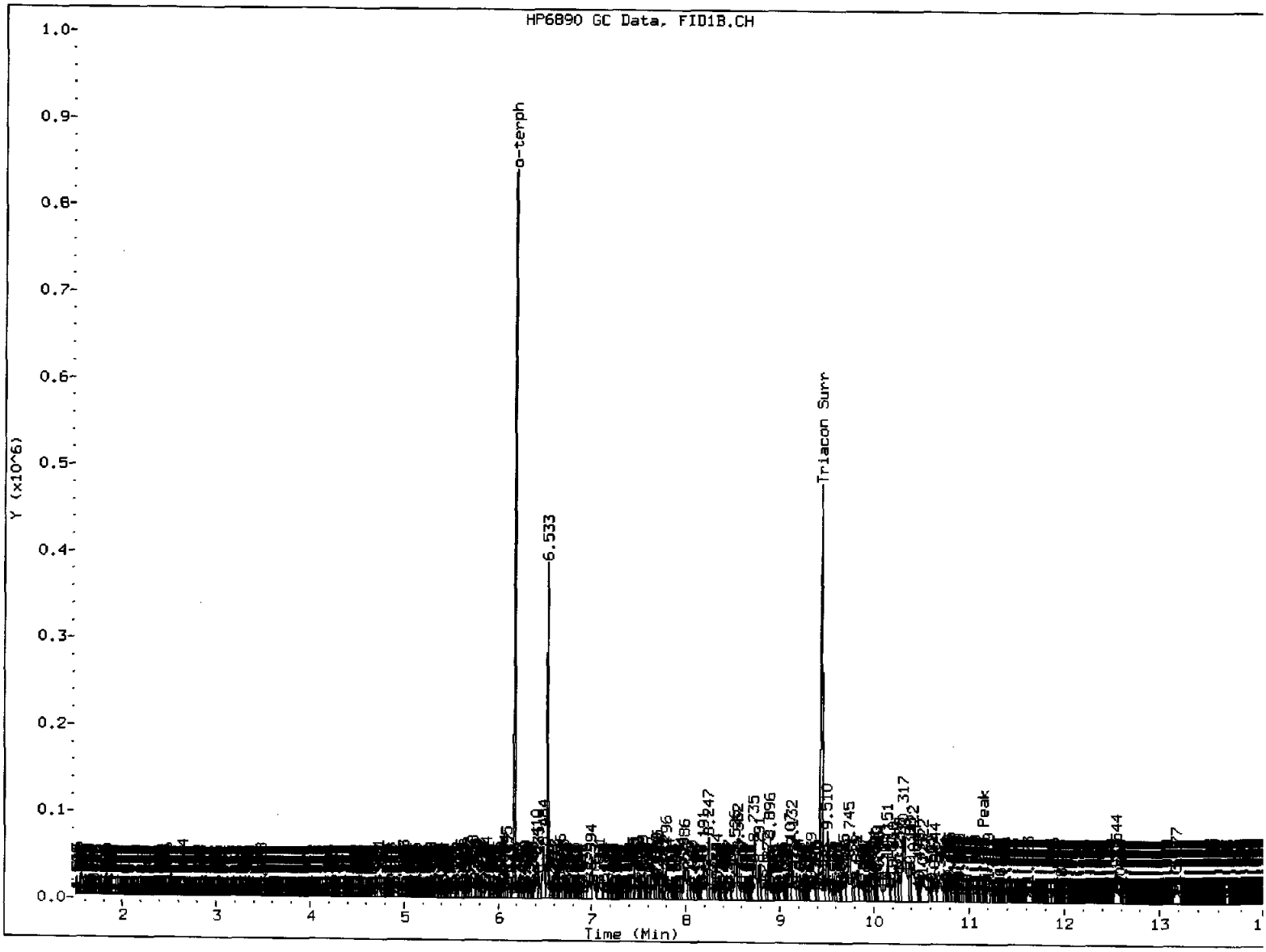
Column diameter: 0.25

AOV8:000073



FID:3B-2C/RTX-1 AOV8C

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5.) Skimmed surrogate

Analyst: MA Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102835.D

Page 1

Date : 28-OCT-2015 23:20

Client ID: CR17-D-SSD

Instrument: fid3b.i

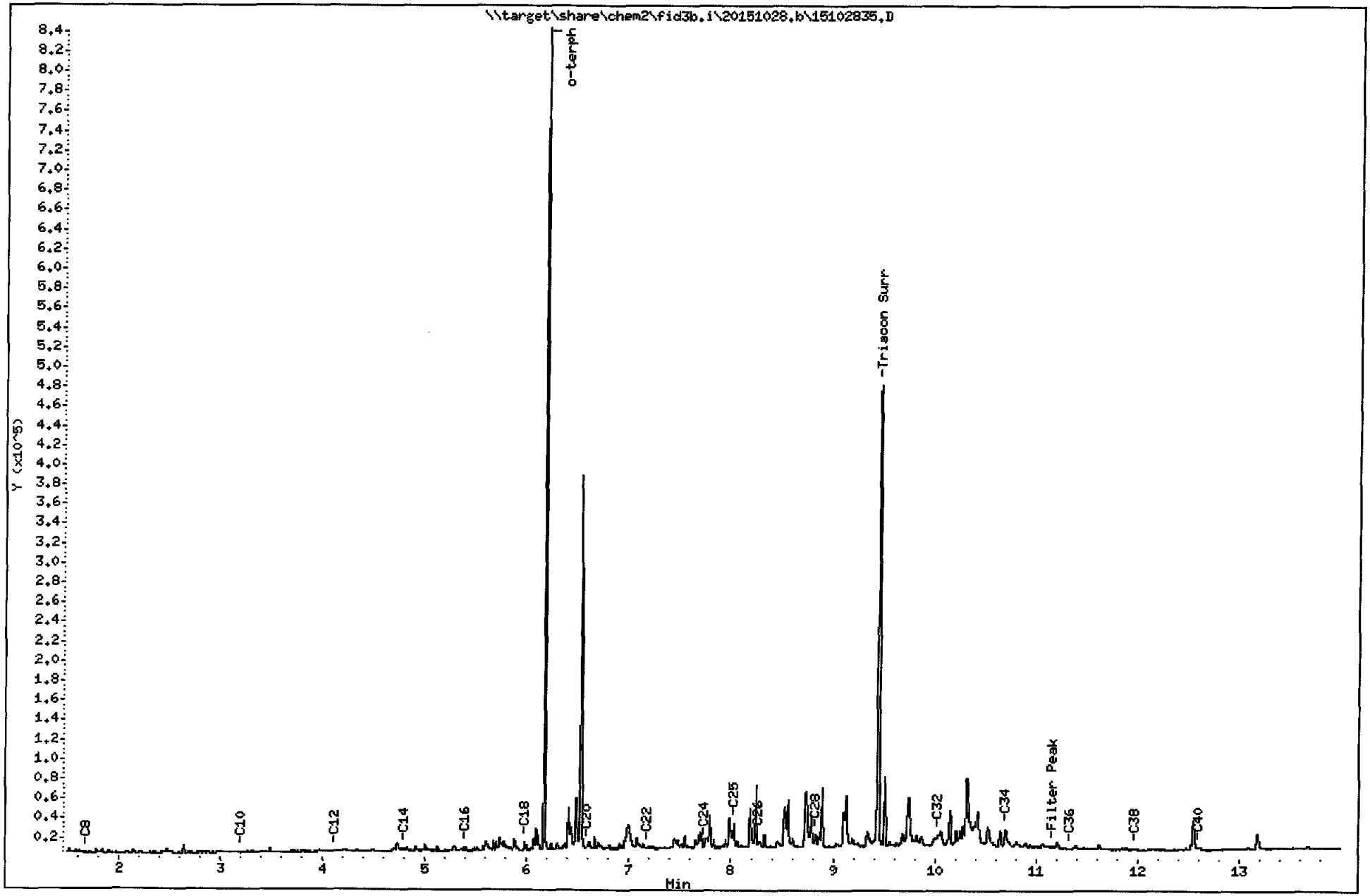
Sample Info: AOV8C

Operator: ML

Column phase: RTX-1

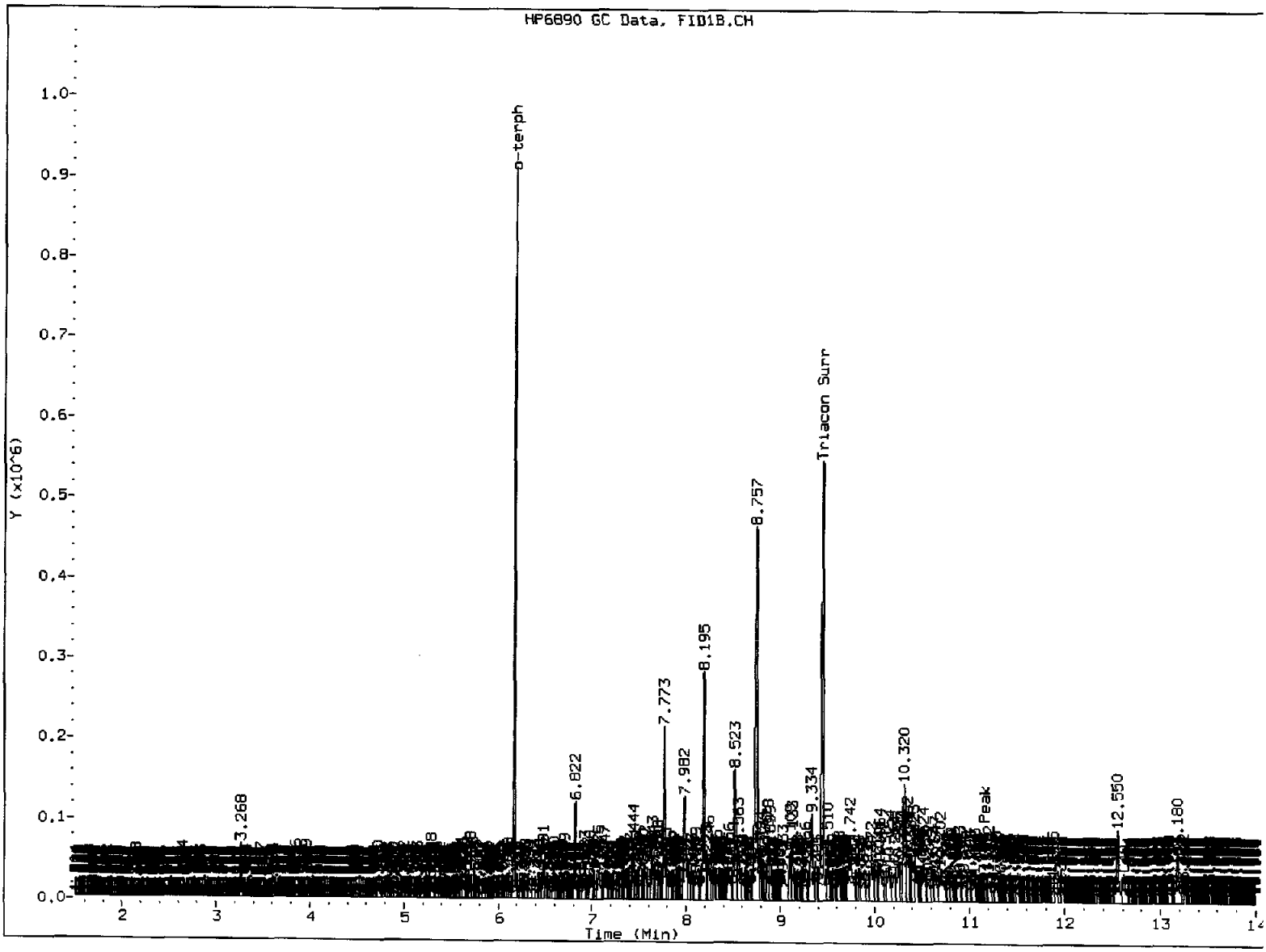
Column diameter: 0.25

AOV8:00075



FID:3B-2C/RTX-1 AOV8J

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5). Skimmed surrogate

Analyst: m Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102838.D

Page 1

Date : 29-OCT-2015 00:24

Client ID: CR08A-SBSD

Instrument: fid3b.i

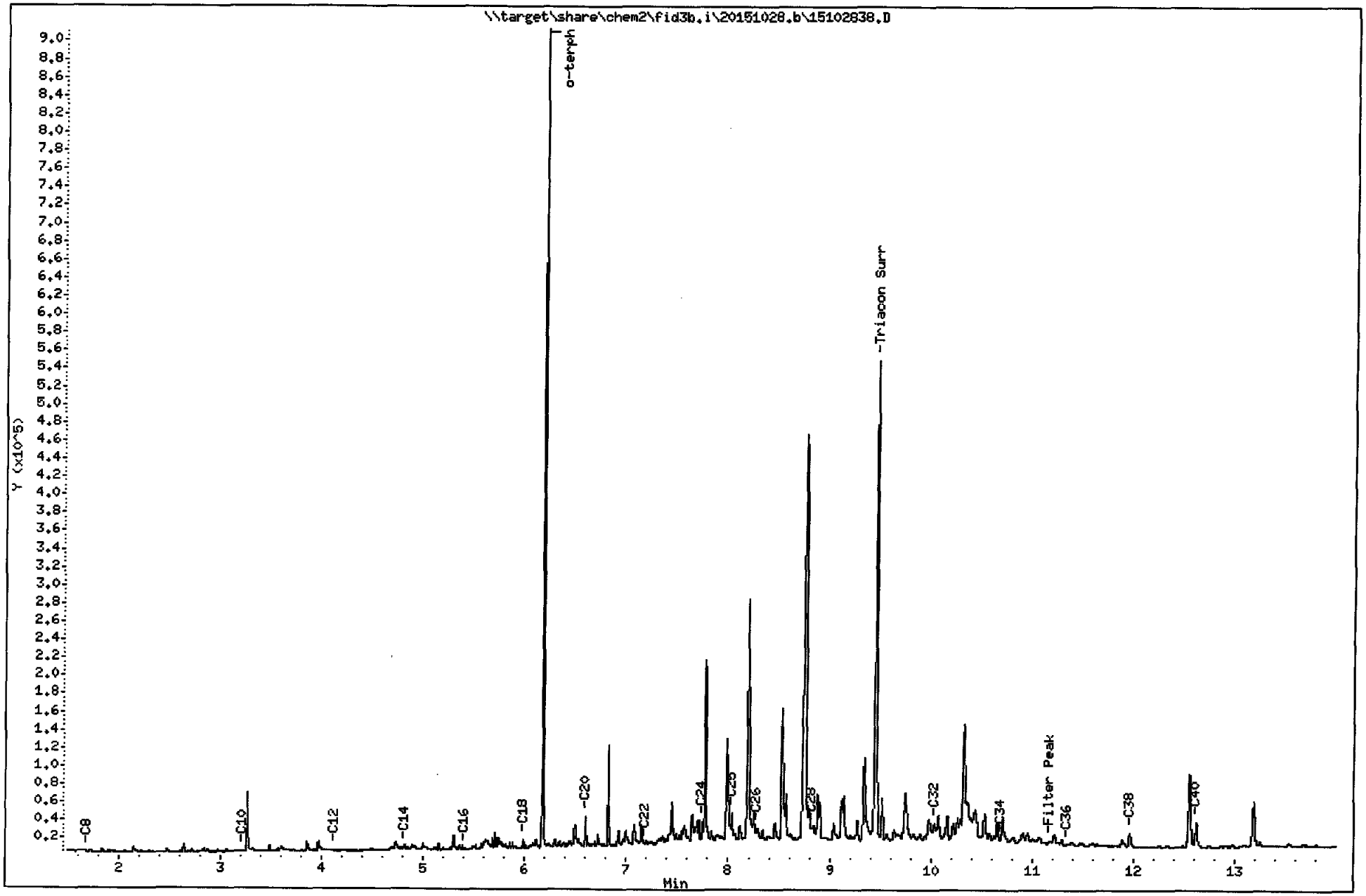
Sample Info: AOV8J

Operator: ML

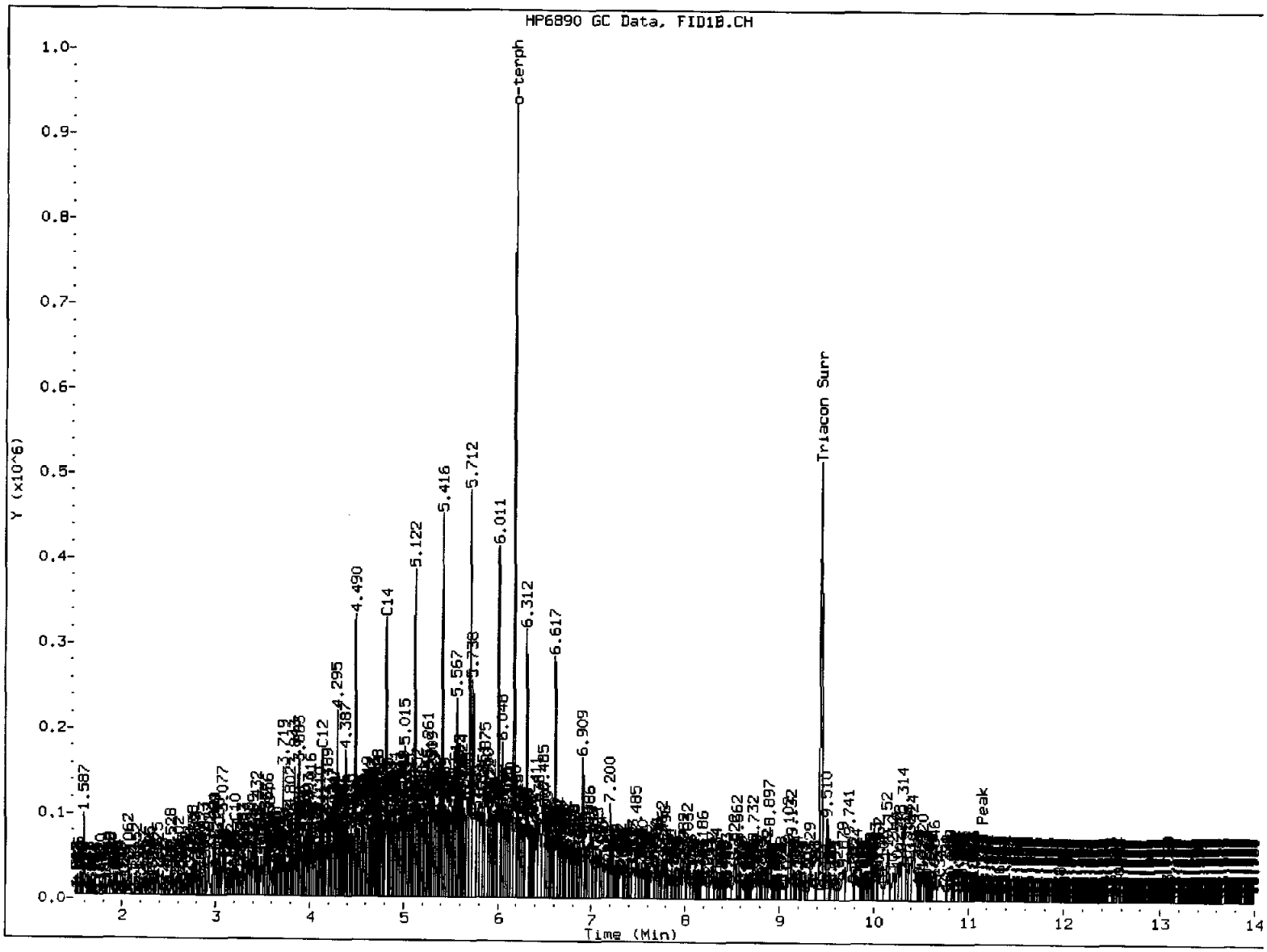
Column phase: RTX-1

Column diameter: 0.25

AOV8 : 000077



FID:3B-2C/RTX-1 AOV8CMS FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MU Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102836.D

Date : 28-OCT-2015 23:41

Client ID: CR17-D-SSD MS

Sample Info: AOV8CMS

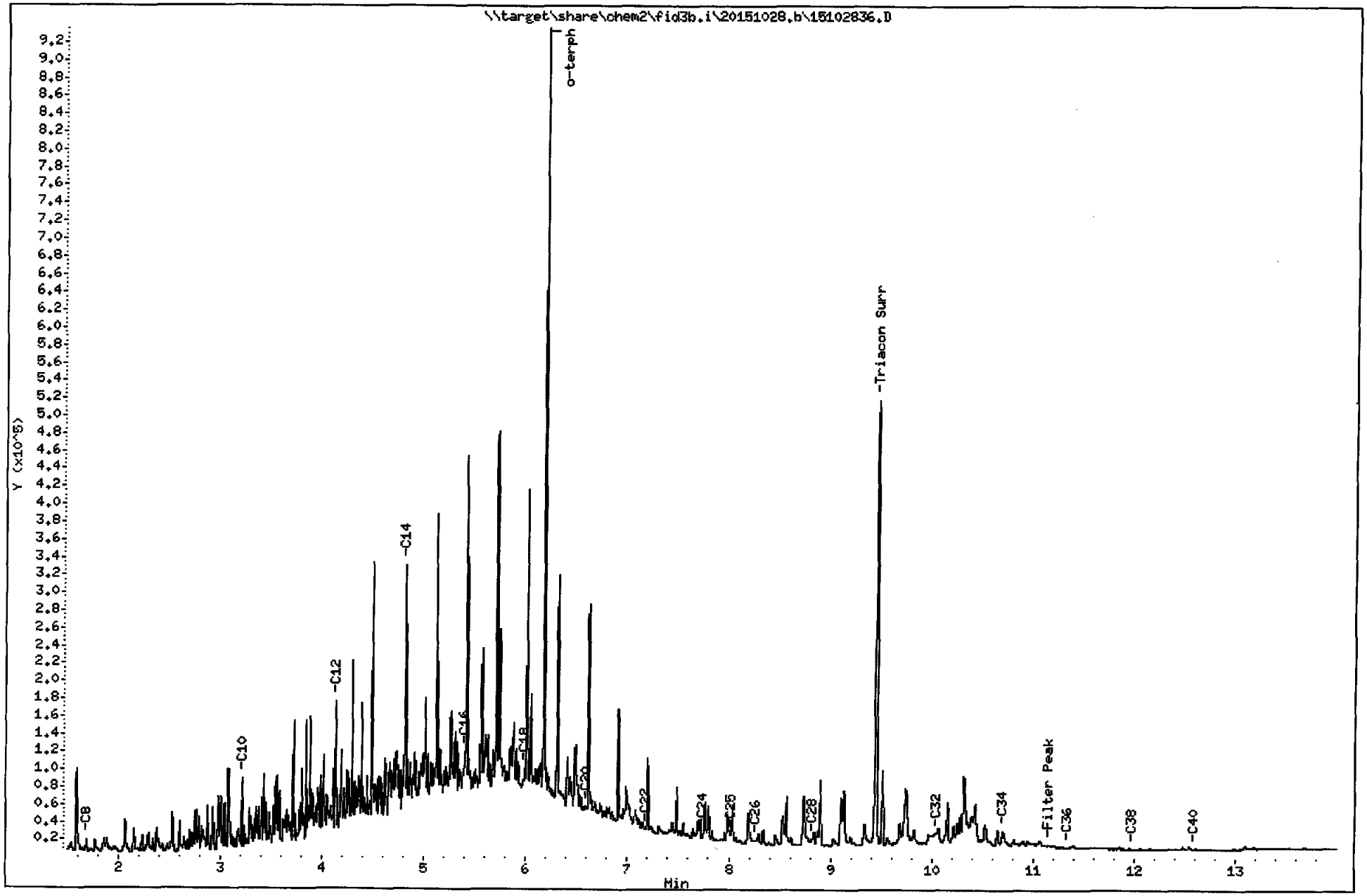
Column phase: RTX-1

Instrument: fid3b.i

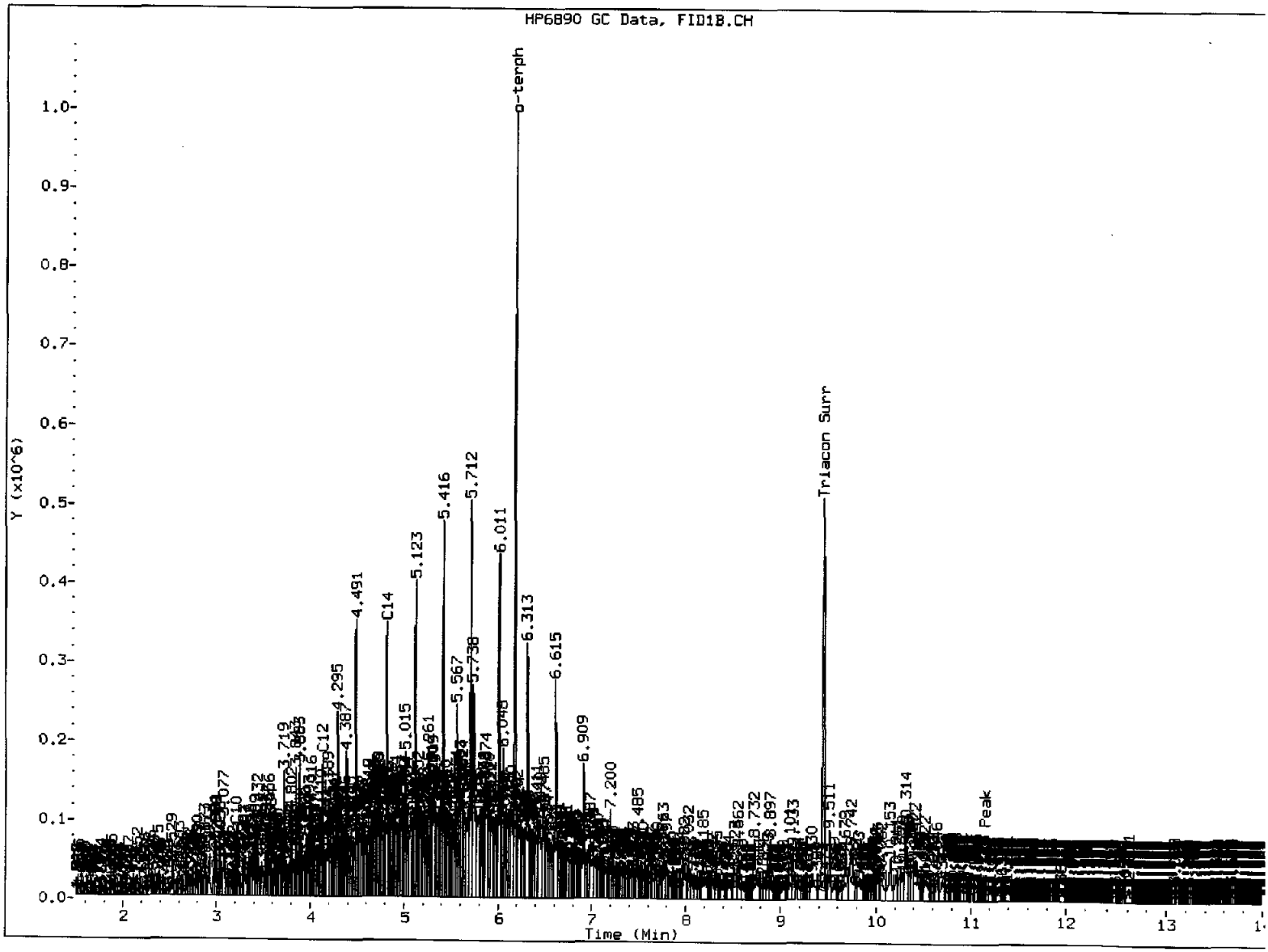
Operator: ML

Column diameter: 0.25

AOV8:00079



FID:3B-2C/RTX-1 AOV8CMSD FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MM Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102837.D

Date : 29-OCT-2015 00:03

Client ID: CR17-D-SSD MSD

Sample Info: AOV8CMSD

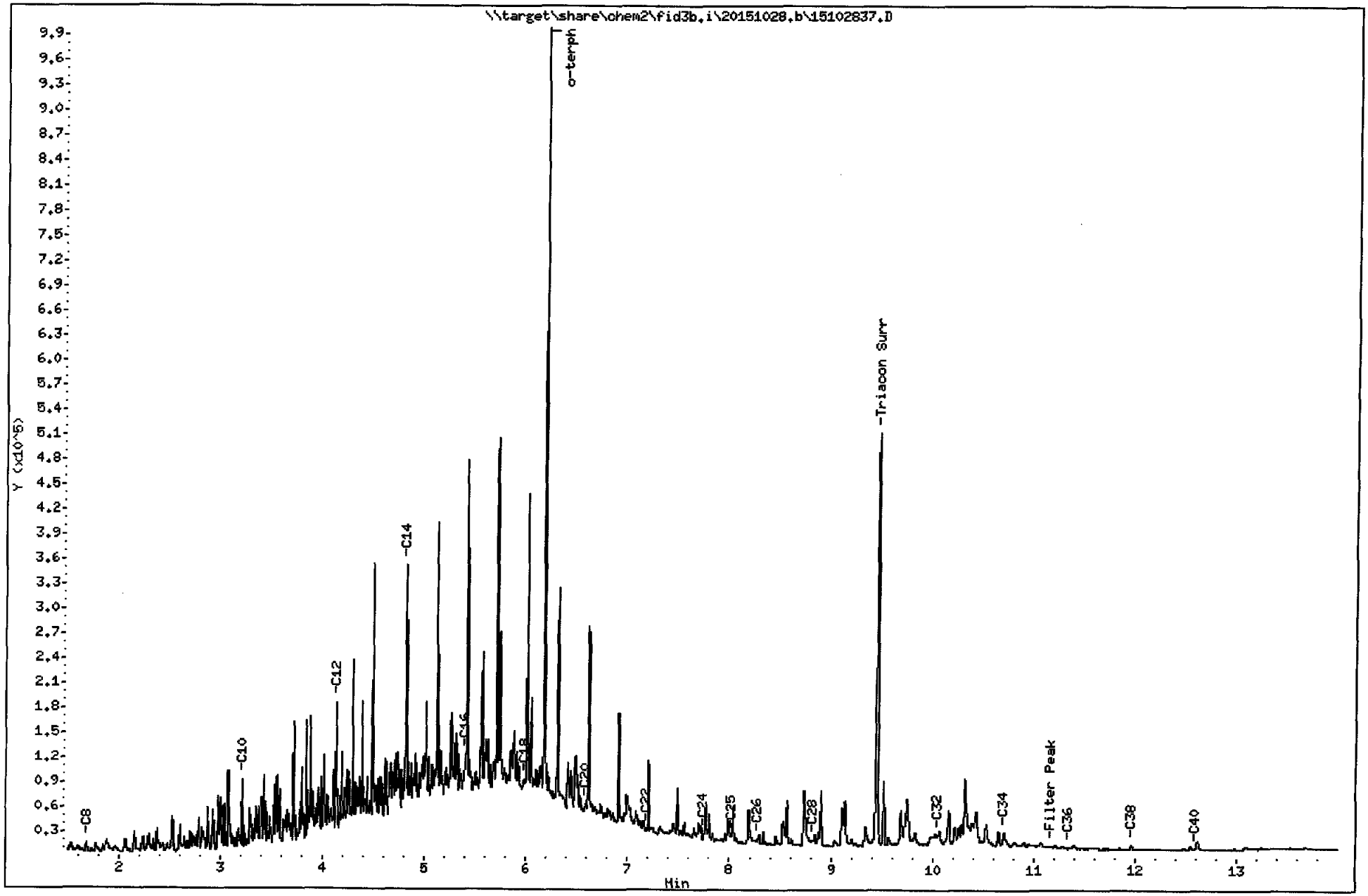
Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

Column diameter: 0.25

AOV8:000831



ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR17-D-SSD
SAMPLE

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Percent Total Solids: 53.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	9	**21**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	0.9	**34.4**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**51.1**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**9**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.04**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**70**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR17-D-SBSD
SAMPLE

Lab Sample ID: AOV8D
LIMS ID: 15-19494
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Percent Total Solids: 49.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**30**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**40**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**58.2**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**12**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.07**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**79**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR08A-SBSD
SAMPLE

Lab Sample ID: AOV8J
LIMS ID: 15-19500
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Percent Total Solids: 65.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	20	**20**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.7	0.7	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	2	**39**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.7	**57.8**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	7	**8**	
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.03	0.03	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	1	1	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	4	**71**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR10-SSD-COMP
SAMPLE

Lab Sample ID: AOV8K
LIMS ID: 15-19501
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Percent Total Solids: 46.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**30**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**42**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**54.8**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**11**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.05	**0.07**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**83**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR08a-SSD-COMP
SAMPLE

Lab Sample ID: AOV8T
LIMS ID: 15-19510
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Percent Total Solids: 47.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**30**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**52**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**134**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**30**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.06**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**134**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: AOW1MB
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	7440-38-2	Arsenic	5	5	U
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7440-47-3	Chromium	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	7440-50-8	Copper	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7439-92-1	Lead	2	2	U
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.02	0.02	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.3	0.3	U
3050B	11/02/15	6010C	11/03/15	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AOW1LCS
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery
Arsenic	6010C	200	200	100%
Cadmium	6010C	49.7	50.0	99.4%
Chromium	6010C	50.9	50.0	102%
Copper	6010C	47.6	50.0	95.2%
Lead	6010C	197	200	98.5%
Mercury	7471A	0.49	0.50	98.0%
Silver	6010C	51.3	50.0	103%
Zinc	6010C	47	50	94.0%

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

SAMPLE RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ω
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Client ID: CR17-D-SSD
ARI ID: 15-19493 AOV8C

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	52.10
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	1.61

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: U
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Client ID: CR17-D-SBSD
ARI ID: 15-19494 AOV8D

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	48.09
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	3.05

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Client ID: CR08A-SBSD
ARI ID: 15-19500 AOV8J

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	63.97
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	1.29

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Client ID: CR10-SSD-COMP
ARI ID: 15-19501 AOV8K

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	45.44
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	2.94

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: LJ
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Client ID: CR08a-SSD-COMP
ARI ID: 15-19510 AOV8T

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	47.46
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	1.92

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/21/15	Percent	< 0.01 U	ICB
Total Organic Carbon	11/09/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: JJ
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	11/09/15	Percent	0.096	0.100	96.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
AOV8-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 11/11/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST 1941B	11/09/15	Percent	3.03	2.99	101.3%

October 29, 2015

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

Mark Harris
Analytical Resources, Incorporated
4611 S. 134th Place Suite 100
Tukwila, WA 98168

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1519449.00

Client Project: ARI Project AOV8 Seaport Landing
Location: N-A

Dear Mr. Harris,

Enclosed please find test results for the 2 sample(s) submitted to our laboratory for analysis on 10/23/2015.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

NVLAP Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

AOV8 : 00097

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Analytical Resources, Incorporated
Address: 4611 S. 134th Place Suite 100
Tukwila, WA 98168

Attention: Mr. Mark Harris
Project Location: N-A

Batch #: 1519449.00
Client Project #: ARI Project AOV8 Seaport Landing
Date Received: 10/23/2015
Samples Received: 2
Samples Analyzed: 2
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 15116163 **Client Sample #: 15-19500-AOV8J**
Location: N-A
Comments: Sample was dried prior to analysis. Qualitative analysis was conducted for presence of asbestos
Layer 1 of 1 **Description:** Black wet sludge sample

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Fine particles, Mineral grains, Mica	Cellulose	**None Detected ND**
Paint		

Lab ID: 15116164 **Client Sample #: 15-19510-AOV8T**
Location: N-A
Comments: Sample was dried prior to analysis. Qualitative analysis was conducted for presence of asbestos
Layer 1 of 1 **Description:** Black wet sludge sample

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Fine particles, Mineral grains, Paint	Cellulose	**None Detected ND**
Rusted metal, Glass beads, Gravel	Glass fibers	

Sampled by: Client
Analyzed by: Nadezhda Prysyazhnyuk **Date:** 10/28/2015
Reviewed by: Nick Ly **Date:** 10/29/2015

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

AOV8 : 00098

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

NVL LABS

Company Analytical Resources, Incorporated
Address 4611 S. 134th Place Suite 100
Tukwila, WA 98168
Project Manager Mr. Mark Harris
Phone (206) 695-6200

NVL Batch Number 1519449.00
TAT 5 Days **AH** No
Rush TAT
Due Date 10/30/2015 **Time** 12:15 PM
Email markh@arilabs.com
Fax (206) 695-6202

Project Name/Number: ARI Project AOV8 Seaport Landing **Project Location:** N-A

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 2 **Rush Samples**

	Lab ID	Sample ID	Description	A/R
1	15116163	15-19500-AOV8J		A
2	15116164	15-19510-AOV8T		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	UPS				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Maxwell Raymond		NVL	10/23/15	1215
Analyzed by	Nadezhda		NVL	10/28/15	11:39 AM
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/23/2015
Time: 5:41 PM
Entered By: Justin Shearer

AOV8 : 00099

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 10/20/15

ANALYTICAL RESOURCES INCORPORATED

1519449

Laboratory: NVL Laboratories, Inc
Lab Contact: Perry Cheston
Lab Address: 4708 Aurora Ave. N.
Seattle, WA 98103
Phone: 206-547-0100
Fax: 206-344-1878

ARI Client: Maul Foster & Alongi
Project ID: Seaport Landing
ARI PM: Mark Harris
Phone: 206-695-6210
Fax: 206-695-6201
Email: subdata@arilabs.com

Analytical Protocol: PSDDA
Special Instructions:

Requested Turn Around: **10/30/15**
Email Results (Y/N): **Yes**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
15-19500-AOV8J	CR08A-SBSD	10/15/15 14:20	Sediment	1	Asbestos (Sub)
Special Instructions: None					
15-19510-AOV8T	CR08a-SSD-COMP	10/14/15 10:00	Sediment	1	Asbestos (Sub)
Special Instructions: None					

Carrier UPS	Airbill 1Z 832 695 03 5676 9540		Date 10/22/15
Relinquished by ul	Company ARI	Date 10/22/15	Time 927
Received by Max	Company NVL	Date 10/23/15	Time 1215

Subcontractor Custody Form - **AOV8**
Page 1 of 1

AOV8 : 00100

Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AOV9

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Five sediment samples were received on October 16, 2015. Three samples were placed on hold as specified. The remaining samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx, asbestos and total metals as requested. The analysis for asbestos was sub-contracted to NVL Laboratories in Seattle, WA.

The percent differences (%Ds) for 4-methylphenol and benzoic acid were not within control limits for the CCAL that bracketed the 10/30/15 SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The %D for the surrogate, d14-p-terphenyl, was not within control limits for the CCAL that bracketed the 10/30/15 SIM-SVOC analyses of these samples. All positive results for this surrogate have been flagged with a "Q" qualifier to denote the high %Ds.

The %Ds for pentachlorophenol and d14-p-terphenyl were not within control limits for the CCAL that bracketed the 11/5/15 SIM-SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AOV9
Enclosures
MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

20000.604

ARI Assigned Number: AOV9	Turn-around Requested: Standard	Page: 3 of 3	
ARI Client Company: Mail Foster & Alongi	Phone: (503) 501-5212	Date: 10/15/15	Ice Present? yes
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: RD + MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Archive	PAH	PCB	Phenol	Metals	Dioxin/Furan	Asbestos	Mercury	Notes/Comments
CR026-SBSD	10/15/15	1507	Sed	6	X	X	X	X	X	X	X	X	
CR25-0-10cm	10/15/15	1553	sed	1	X								
CR25.5.0	10/15/15	1555	sed	1	X								
CR26-SSD	10/15/15	1620	sed	5	X								
CR26-SBSD	10/15/15	1623	sed	3	X	X	X	X	X			X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive all remaining volume.	Printed Name: Roxanne Rogers	Printed Name: Archie Triggs	Printed Name:	Printed Name: Chris Arndt
	Company: MFA	Company: M.C. DL	Company:	Company: ARI
	Date & Time: 10/15/15	Date & Time: 10/16/15 8:35	Date & Time:	Date & Time: 10/16/15 1114

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster & Alongi

COC No(s): _____ NA

Assigned ARI Job No: AOV9

Project Name: _____

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	5.1	4.8
Time: _____		

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00265

Cooler Accepted by: CA Date: 10/22/15 Time: 1116

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

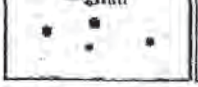
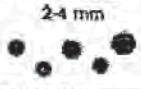
Samples Logged by: VL Date: 10/20/15 Time: 1237

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles >4 mm
		

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Subject: RE: AON4-Seaport Landing
From: Roxanne Degens <rdegens@maulfoster.com>
Date: 10/21/2015 12:57 PM
To: Mark Harris <markh@arilabs.com>

Thank you! Also, could you add TPH for CR08b-SBSD? Thanks!

ROXANNE DEGENS | MAUL FOSTER & ALONGI, INC.

d. 206.724.0612 | p. 206 858 7620 | c. 206.450.3396
411 First Avenue South, Suite 610, Seattle, WA 98104
www.maulfoster.com

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Wednesday, October 21, 2015 5:21 AM
To: Roxanne Degens <rdegens@maulfoster.com>
Subject: Re: AON4-Seaport Landing

Roxanne:

Should not be a problem. We'll get these added this morning.

Mark H.

On 10/20/2015 4:03 PM, Roxanne Degens wrote:

> Mark -
> In looking through the COCs earlier, I noticed that I had miswritten/not included an analyte on some of the COCs. The following samples must additionally be analyzed for SVOAs:
>
> CR17D-SSD
> CR17D-SBSD
> CR08A-SBSD
> CR10-SSD-COMP
> CR08A-SSD-COMP
> CR08b-SBSD
> CR26-SBSD
> CR19F-SBSD
> CR19F-SBSD-DUP
> CR19F-SSD
> CR18B-SBSD
> CR18B-SSD

Please let me know if this will cause any issues. SVOAs is part of the SMS suite. Thanks!

ROXANNE DEGENS | MAUL FOSTER & ALONGI, INC.

d. 206.724.0612 | p. 206 858 7620 | c. 206.450.3396
411 First Avenue South, Suite 610, Seattle, WA 98104
www.maulfoster.com

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, October 20, 2015 2:27 PM
To: Madi Novak <mnovak@maulfoster.com>; Mike Murray <mmurray@maulfoster.com>; Mary Benzinger <mbenzinger@maulfoster.com>
Cc: Roxanne Degens <rdegens@maulfoster.com>
Subject: Re: AON4-Seaport Landing

Will do.

On 10/20/2015 2:21 PM, Madi Novak wrote:

> Thanks Mark,
> Yes, please run NWTPH-Dx for B02-S-5.0 and B03-S-5.0. Thank you!
>
> MADI NOVAK | MAUL FOSTER & ALONGI, INC.
> direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060 |www.maulfoster.com
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
>
> -----Original Message-----
> From: Mark Harris [mailto:markh@arilabs.com]
> Sent: Tuesday, October 20, 2015 2:20 PM
> To: Madi Novak; Mike Murray; Mary Benzinger
> Cc: Roxanne Degens
> Subject: Re: AON4-Seaport Landing

Here are the soil HCID results. Let me know if you'd like and TPH-Dx follow-ups.

Mark H.

On 10/19/2015 1:29 PM, Madi Novak wrote:

> Yes, please go ahead and trigger -Dx analysis for B02-GW-6 and B03-GW-10. Let's do -Gx for B02-GW-6 as well. Thank you.
>
> MADI NOVAK | MAUL FOSTER & ALONGI, INC.
> direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060
> |www.maulfoster.com
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
>
> -----Original Message-----
> From: Mark Harris [mailto:markh@arilabs.com]
> Sent: Monday, October 19, 2015 1:28 PM
> To: Madi Novak; Mike Murray; Mary Benzinger
> Subject: AON4-Seaport Landing
>
> All:
>
> One set of HCID analyses are done for some soil samples.
>
> Let me know if you'd like us to trigger any NWTPH-Dx analyses based on these results.
>
> Mark H.
>
> --
> Mark Harris
> Project Manager
> Analytical Resources, Inc.
> 206/695-6210
> markh@arilabs.com
>
> How was your customer experience?

Please take our 5 minute online customer survey<https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey
<https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey

<https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey <https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AOV9
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR08b-SBSD	AOV9A	15-19535	Sediment	10/15/15 15:07	10/16/15 11:16
2.	CR25-0-10CM	AOV9B	15-19536	Sediment	10/15/15 15:53	10/16/15 11:16
3.	CR25-5.0	AOV9C	15-19537	Sediment	10/15/15 15:55	10/16/15 11:16
4.	CR26-SSD	AOV9D	15-19538	Sediment	10/15/15 16:20	10/16/15 11:16
5.	CR26-SBSD	AOV9E	15-19539	Sediment	10/15/15 16:23	10/16/15 11:16

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AOV9 : 00010

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AOV9 : 00011

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

AOV9 : 00012

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR08b-SBSD
SAMPLE

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 21:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.27 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 46.0%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**20**	**53**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	**Benzyl Alcohol**	**20**	**29**
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**560 Q**
105-67-9	2,4-Dimethylphenol	97	< 97 U
65-85-0	**Benzoic Acid**	**200**	**290 Q**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**800**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**79**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**300**
83-32-9	**Acenaphthene**	**20**	**75**
132-64-9	**Dibenzofuran**	**20**	**65**
84-66-2	**Diethylphthalate**	**20**	**25**
86-73-7	**Fluorene**	**20**	**66**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	97	< 97 U
85-01-8	**Phenanthrene**	**20**	**430**
120-12-7	**Anthracene**	**20**	**72**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**290**
129-00-0	**Pyrene**	**20**	**300**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**46**
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49 U
218-01-9	**Chrysene**	**20**	**73**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	**Benzo(a)pyrene**	**20**	**44**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**28**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**44**
90-12-0	**1-Methylnaphthalene**	**20**	**50**
TOTBFA	**Total Benzofluoranthenes**	**39**	**92**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08b-SBSD SAMPLE

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Date Analyzed: 10/30/15 21:29

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.6%	2-Fluorobiphenyl	68.2%
d14-p-Terphenyl	77.4%	d4-1,2-Dichlorobenzene	59.2%
d5-Phenol	67.5%	2-Fluorophenol	62.0%
2,4,6-Tribromophenol	82.3%	d4-2-Chlorophenol	65.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102415
METHOD BLANK

Lab Sample ID: MB-102415
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 16:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-102415
METHOD BLANK

Lab Sample ID: MB-102415
LIMS ID: 15-19535
Matrix: Sediment
Date Analyzed: 10/30/15 16:05

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.0%	2-Fluorobiphenyl	73.6%
d14-p-Terphenyl	103%	d4-1,2-Dichlorobenzene	71.4%
d5-Phenol	69.7%	2-Fluorophenol	64.4%
2,4,6-Tribromophenol	69.7%	d4-2-Chlorophenol	70.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102415
LAB CONTROL

Lab Sample ID: LCS-102415
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 16:42
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	358	500	71.6%
1,4-Dichlorobenzene	315	500	63.0%
Benzyl Alcohol	262	500	52.4%
1,2-Dichlorobenzene	334	500	66.8%
2-Methylphenol	365	500	73.0%
4-Methylphenol	436 Q	500	87.2%
2,4-Dimethylphenol	1060	1500	70.7%
Benzoic Acid	2740 Q	2750	99.6%
1,2,4-Trichlorobenzene	331	500	66.2%
Naphthalene	327	500	65.4%
Hexachlorobutadiene	325	500	65.0%
2-Methylnaphthalene	346	500	69.2%
Dimethylphthalate	369	500	73.8%
Acenaphthylene	349	500	69.8%
Acenaphthene	371	500	74.2%
Dibenzofuran	367	500	73.4%
Diethylphthalate	402	500	80.4%
Fluorene	358	500	71.6%
N-Nitrosodiphenylamine	329	500	65.8%
Hexachlorobenzene	361	500	72.2%
Pentachlorophenol	1440	1500	96.0%
Phenanthrene	384	500	76.8%
Anthracene	380	500	76.0%
Di-n-Butylphthalate	404	500	80.8%
Fluoranthene	399	500	79.8%
Pyrene	385	500	77.0%
Butylbenzylphthalate	410	500	82.0%
Benzo(a)anthracene	382	500	76.4%
bis(2-Ethylhexyl)phthalate	389	500	77.8%
Chrysene	376	500	75.2%
Di-n-Octyl phthalate	359	500	71.8%
Benzo(a)pyrene	358	500	71.6%
Indeno(1,2,3-cd)pyrene	375	500	75.0%
Dibenz(a,h)anthracene	373	500	74.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-102415
LAB CONTROL

Lab Sample ID: LCS-102415
LIMS ID: 15-19535
Matrix: Sediment
Date Analyzed: 10/30/15 16:42

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	338	500	67.6%
1-Methylnaphthalene	316	500	63.2%
Total Benzofluoranthenes	783	1000	78.3%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	82.0%
2-Fluorobiphenyl	80.8%
d14-p-Terphenyl	118%
d4-1,2-Dichlorobenzene	73.8%
d5-Phenol	85.7%
2-Fluorophenol	78.7%
2,4,6-Tribromophenol	91.1%
d4-2-Chlorophenol	81.5%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR26-SBSD
SAMPLE

Lab Sample ID: AOV9E
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 22:28
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.27 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.1%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**20**	**76**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	**Benzyl Alcohol**	**20**	**54**
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	**2-Methylphenol**	**20**	**12 J**
106-44-5	**4-Methylphenol**	**20**	**45**
105-67-9	2,4-Dimethylphenol	97	< 97 U
65-85-0	**Benzoic Acid**	**200**	**440**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**51**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**9.7 J**
83-32-9	**Acenaphthene**	**20**	**29**
132-64-9	**Dibenzofuran**	**20**	**25**
84-66-2	**Diethylphthalate**	**20**	**20 B**
86-73-7	**Fluorene**	**20**	**23**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	97	< 97 U
85-01-8	**Phenanthrene**	**20**	**39**
120-12-7	**Anthracene**	**20**	**14 J**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**75**
129-00-0	**Pyrene**	**20**	**70**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**18 J**
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49 U
218-01-9	**Chrysene**	**20**	**26**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**8.8 J**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**13 J**
90-12-0	**1-Methylnaphthalene**	**20**	**11 J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**36 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR26-SBSD SAMPLE

Lab Sample ID: AOV9E
LIMS ID: 15-19539
Matrix: Sediment
Date Analyzed: 11/05/15 22:28

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	53.2%	2-Fluorobiphenyl	58.4%
d14-p-Terphenyl	71.8%	d4-1,2-Dichlorobenzene	48.4%
d5-Phenol	54.5%	2-Fluorophenol	45.7%
2,4,6-Tribromophenol	72.8%	d4-2-Chlorophenol	51.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-103015
METHOD BLANK

Lab Sample ID: MB-103015
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	**Diethylphthalate**	**20**	**21**
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-103015
METHOD BLANK

Lab Sample ID: MB-103015
LIMS ID: 15-19539
Matrix: Sediment
Date Analyzed: 11/05/15 21:17

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.0%	2-Fluorobiphenyl	65.0%
d14-p-Terphenyl	94.2%	d4-1,2-Dichlorobenzene	65.0%
d5-Phenol	65.6%	2-Fluorophenol	61.7%
2,4,6-Tribromophenol	74.3%	d4-2-Chlorophenol	66.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-103015
LAB CONTROL

Lab Sample ID: LCS-103015
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:52
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	418	500	83.6%
1,4-Dichlorobenzene	339	500	67.8%
Benzyl Alcohol	401	500	80.2%
1,2-Dichlorobenzene	368	500	73.6%
2-Methylphenol	346	500	69.2%
4-Methylphenol	393	500	78.6%
2,4-Dimethylphenol	822	1500	54.8%
Benzoic Acid	2160	2750	78.5%
1,2,4-Trichlorobenzene	349	500	69.8%
Naphthalene	351	500	70.2%
Hexachlorobutadiene	390	500	78.0%
2-Methylnaphthalene	374	500	74.8%
Dimethylphthalate	372	500	74.4%
Acenaphthylene	356	500	71.2%
Acenaphthene	371	500	74.2%
Dibenzofuran	375	500	75.0%
Diethylphthalate	410 B	500	82.0%
Fluorene	342	500	68.4%
N-Nitrosodiphenylamine	368	500	73.6%
Hexachlorobenzene	350	500	70.0%
Pentachlorophenol	977	1500	65.1%
Phenanthrene	402	500	80.4%
Anthracene	405	500	81.0%
Di-n-Butylphthalate	446	500	89.2%
Fluoranthene	386	500	77.2%
Pyrene	371	500	74.2%
Butylbenzylphthalate	398	500	79.6%
Benzo(a)anthracene	401	500	80.2%
bis(2-Ethylhexyl)phthalate	372	500	74.4%
Chrysene	389	500	77.8%
Di-n-Octyl phthalate	353	500	70.6%
Benzo(a)pyrene	384	500	76.8%
Indeno(1,2,3-cd)pyrene	362	500	72.4%
Dibenz(a,h)anthracene	371	500	74.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-103015
LAB CONTROL

Lab Sample ID: LCS-103015
LIMS ID: 15-19539
Matrix: Sediment
Date Analyzed: 11/05/15 21:52

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	304	500	60.8%
1-Methylnaphthalene	350	500	70.0%
Total Benzofluoranthenes	806	1000	80.6%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	63.8%
2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	88.6%
d4-1,2-Dichlorobenzene	59.4%
d5-Phenol	65.6%
2-Fluorophenol	66.0%
2,4,6-Tribromophenol	70.7%
d4-2-Chlorophenol	66.8%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-102415	72.0%	73.6%	103%	71.4%	69.7%	64.4%	69.7%	70.1%	0
LCS-102415	82.0%	80.8%	118%	73.8%	85.7%	78.7%	91.1%	81.5%	0
CR08b-SBSD	60.6%	68.2%	77.4%	59.2%	67.5%	62.0%	82.3%	65.7%	0
MB-103015	61.0%	65.0%	94.2%	65.0%	65.6%	61.7%	74.3%	66.7%	0
LCS-103015	63.8%	65.2%	88.6%	59.4%	65.6%	66.0%	70.7%	66.8%	0
CR26-SBSD	53.2%	58.4%	71.8%	48.4%	54.5%	45.7%	72.8%	51.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19535 to 15-19539

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15103002.d
Analysis Type:
Lab Sample ID: ABN 5
Method: /chem1/nt10.i/20151030.b/ABN.m

Injection Date: 30-OCT-2015 12:48
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.12958	1.25667	1.25667	0.010	11.25129	20.00000	Averaged	
$ 2 Phenol-d5	1.36520	1.77220	1.77220	0.010	29.81235	20.00000	Averaged	<-
3 Phenol	1.33180	1.39912	1.39912	0.100	5.05461	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.33265	1.38844	1.38844	0.010	4.18634	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.01930	0.98740	0.98740	0.700	-3.12944	20.00000	Averaged	
6 2-Chlorophenol	1.30689	1.40643	1.40643	0.800	7.61663	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.60078	1.54935	1.54935	0.010	-3.21253	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.54535	1.51473	1.51473	0.010	-1.98142	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.99122	0.89358	0.89358	0.010	-9.85095	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44684	1.41150	1.41150	0.010	-2.44239	20.00000	Averaged	
11 Benzyl alcohol	0.63765	0.71838	0.71838	0.010	12.66063	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.45840	0.46004	0.46004	0.010	0.35677	20.00000	Averaged	
13 2-Methylphenol	0.99636	1.06374	1.06374	0.700	6.76215	20.00000	Averaged	
17 Hexachloroethane	0.61781	0.59664	0.59664	0.300	-3.42602	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.74117	0.80620	0.80620	0.500	8.77350	20.00000	Averaged	
15 4-Methylphenol	1.00886	1.34036	1.34036	0.600	32.85896	20.00000	Averaged	<-
$ 18 Nitrobenzene-d5	0.39605	0.40683	0.40683	0.010	2.72180	20.00000	Averaged	
19 Nitrobenzene	0.36379	0.36907	0.36907	0.200	1.45212	20.00000	Averaged	
20 Isophorone	0.57522	0.61950	0.61950	0.300	7.69752	20.00000	Averaged	
21 2-Nitrophenol	0.21477	0.23500	0.23500	0.100	9.42189	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39317	0.39472	0.39472	0.200	0.39531	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.32972	0.31872	0.31872	0.050	-3.33731	20.00000	Averaged	
24 Benzoic acid	24.39186	20.00000	0.29066	0.010	21.95931	20.00000	Quadratic	<-
25 2,4-Dichlorophenol	0.32107	0.32388	0.32388	0.100	0.87503	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.37492	0.34970	0.34970	0.010	-6.72587	20.00000	Averaged	
28 Naphthalene	1.03606	0.97223	0.97223	0.100	-6.16116	20.00000	Averaged	
29 4-Chloroaniline	0.41428	0.40344	0.40344	0.010	-2.61718	20.00000	Averaged	
30 Hexachlorobutadiene	0.24781	0.27998	0.27998	0.010	12.98214	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.33608	0.35003	0.35003	0.200	4.14809	20.00000	Averaged	
32 2-Methylnaphthalene	0.74547	0.71366	0.71366	0.300	-4.26724	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.41843	0.48193	0.48193	0.001	15.17489	20.00000	Averaged	
34 2,4,6-Trichlorophenol	0.37961	0.39533	0.39533	0.200	4.13879	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.39251	0.41014	0.41014	0.200	4.49159	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.40765	1.31736	1.31736	0.010	-6.41413	20.00000	Averaged	
37 2-Chloronaphthalene	1.14337	1.05852	1.05852	0.700	-7.42109	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15103002.d
Analysis Type:
Lab Sample ID: ABN 5
Method: /chem1/nt10.i/20151030.b/ABN.m

Injection Date: 30-OCT-2015 12:48
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RFS	CCAL RRFS	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.31622	0.35585	0.35585	0.010	12.53104	20.00000	Averaged	
39 Dimethylphthalate	1.36783	1.32388	1.32388	0.010	-3.21284	20.00000	Averaged	
40 Acenaphthylene	1.73670	1.66151	1.66151	0.900	-4.32942	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.28981	0.29600	0.29600	0.100	2.13428	20.00000	Averaged	
43 3-Nitroaniline	0.28271	0.21623	0.21623	0.010	-23.51299	20.00000	Averaged	<-
44 Acenaphthene	1.04524	1.05083	1.05083	0.100	0.53450	20.00000	Averaged	
45 2,4-Dinitrophenol	24.71689	20.00000	0.21203	0.030	23.58447	20.00000	Quadratic	<-
46 Dibenzofuran	1.57152	1.51619	1.51619	0.800	-3.52039	20.00000	Averaged	
47 4-Nitrophenol	9.37250	10.00000	0.24621	0.010	-6.27500	20.00000	Quadratic	
48 2,4-Dinitrotoluene	0.39543	0.40859	0.40859	0.200	3.32881	20.00000	Averaged	
50 Diethylphthalate	1.32554	1.31047	1.31047	0.010	-1.13655	20.00000	Averaged	
49 Fluorene	1.34379	1.20883	1.20883	0.100	-10.04354	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.68765	0.65187	0.65187	0.100	-5.20323	20.00000	Averaged	
52 4-Nitroaniline	0.30110	0.25121	0.25121	0.010	-16.56968	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	20.80121	20.00000	0.15246	0.001	4.00604	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.54831	0.50988	0.50988	0.010	-7.00857	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.34466	0.36287	0.36287	0.010	5.28225	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.27932	0.26556	0.26556	0.100	-4.92601	20.00000	Averaged	
57 Hexachlorobenzene	0.36460	0.32067	0.32067	0.100	-12.05077	20.00000	Averaged	
58 Pentachlorophenol	10.21740	10.00000	0.21002	0.010	2.17396	20.00000	Quadratic	
60 Phenanthrene	1.02053	0.94907	0.94907	0.700	-7.00175	20.00000	Averaged	
61 Anthracene	1.04166	1.00682	1.00682	0.700	-3.34414	20.00000	Averaged	
62 Carbazole	0.87135	0.84632	0.84632	0.010	-2.87351	20.00000	Averaged	
63 Di-n-butylphthalate	1.31288	1.36435	1.36435	0.010	3.92112	20.00000	Averaged	
64 Fluoranthene	1.11470	1.03055	1.03055	0.600	-7.54914	20.00000	Averaged	
65 Pyrene	1.18016	1.09600	1.09600	0.600	-7.13137	20.00000	Averaged	
$ 66 Terphenyl-d14	0.74289	0.68480	0.68480	0.010	-7.82036	20.00000	Averaged	
67 Butylbenzylphthalate	0.50597	0.49895	0.49895	0.010	-1.38563	20.00000	Averaged	
68 Benzo(a)anthracene	1.12072	1.04909	1.04909	0.700	-6.39155	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.75137	0.60645	0.60645	0.010	-19.28827	20.00000	Averaged	
71 Chrysene	0.97701	0.88490	0.88490	0.700	-9.42727	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.52679	0.48145	0.48145	0.010	-8.60659	20.00000	Averaged	
73 Di-n-octylphthalate	1.07536	0.91056	0.91056	0.010	-15.32476	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.08810	1.04396	1.04396	0.700	-4.05689	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08482	1.12636	1.12636	0.700	3.82913	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15103002.d
Analysis Type:
Lab Sample ID: ABN 5
Method: /chem1/nt10.i/20151030.b/ABN.m

Injection Date: 30-OCT-2015 12:48
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RFS	CCAL RRFS	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
76 Benzo(a)pyrene	1.03138	1.00573	1.00573	0.700	-2.48654	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.37485	1.30285	1.30285	0.500	-5.23687	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.13622	1.06040	1.06040	0.400	-6.67317	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.23143	1.07154	1.07154	0.500	-12.98367	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.53343	0.64824	0.64824	0.010	21.52303	20.00000	Averaged	<-
91 Aniline	1.56324	1.67206	1.67206	0.010	6.96121	20.00000	Averaged	
93 Benzidine	0.38521	0.17587	0.17587	0.010	-54.34480	20.00000	Averaged	<-
103 Pyridine	0.85366	1.08870	1.08870	0.010	27.53394	20.00000	Averaged	<-
105 1-methylnaphthalene	0.76506	0.75900	0.75900	0.010	-0.79269	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	1.22084	1.11240	1.11240	0.010	-8.88248	20.00000	Averaged	
187 Total Benzofluoranthenes	1.04123	1.04020	1.04020	0.010	-0.09922	20.00000	Averaged	
99 Perylene	0.99701	0.98004	0.98004	0.010	-1.70288	20.00000	Averaged	
98 Retene	++++	++++	++++	0.010	++++	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.35337	0.36589	0.36589	0.010	3.54308	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-102415**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102415
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/20/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 16:05
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	64.9%
d14-p-Terphenyl	88.4% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08b-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/20/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/24/15
Date Analyzed: 10/30/15 21:29
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.27 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 46.0%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**6.4**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	**2,4-Dimethylphenol**	**24**	**17 J**
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**20**	**50**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	**1,2-Dichlorobenzene**	**4.9**	**1.8 J**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	58.0%
d14-p-Terphenyl	66.0% Q

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
MB-102415	64.9%	88.4% Q	0
LCS-102415	73.6%	103% Q	0
CR08b-SBSD	58.0%	66.0% Q	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19535 to 15-19535

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-102415**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-102415
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/24/15
Date Analyzed LCS: 10/30/15 16:42
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Dibenz(a,h)anthracene	341	500	68.2%
1,4-Dichlorobenzene	281	500	56.2%
1,2,4-Trichlorobenzene	299	500	59.8%
Hexachlorobenzene	330	500	66.0%
Hexachlorobutadiene	317	500	63.4%
Dimethylphthalate	342	500	68.4%
Butylbenzylphthalate	432	500	86.4%
2-Methylphenol	316	500	63.2%
2,4-Dimethylphenol	932	1500	62.1%
N-Nitrosodiphenylamine	313	500	62.6%
Benzyl Alcohol	304	500	60.8%
Pentachlorophenol	1680 E	1500	112%
1,2-Dichlorobenzene	291	500	58.2%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	73.6%
d14-p-Terphenyl	103% Q

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 30-OCT-2015 13:24
Lab File ID: 15103003.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Analysis Type: Init. Cal. Times: 11:52 16:39
Lab Sample ID: ABN 1 Quant Type: ISTD
Method: /chem1/nt10.i/20151030.b/SIM.b/SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.04543	0.96142	0.010	-8.03654	20.00000	Averaged	
3 Phenol	1.55661	1.40648	0.010	-9.64464	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.81225	0.010	2.83494	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.76468	0.010	1.45974	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79225	0.010	-3.06060	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.70304	0.010	4.51605	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.80168	0.010	-14.15811	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81806	0.010	-10.69673	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57640	0.050	-6.41927	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33783	0.010	-14.23919	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.42313	0.010	7.24230	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.32506	0.010	7.06797	20.00000	Averaged	
39 Dimethylphthalate	1.14558	0.98245	0.010	-14.23996	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.15862	0.010	-6.41678	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.55635	0.010	-10.20083	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.45813	0.010	10.52324	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.22135	0.005	3.86819	20.00000	Averaged	
$ 66 Terphenyl-d14	0.36942	0.29005	0.010	-21.48474	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39713	0.010	-3.85451	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.02003	0.010	-11.84321	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.45598	0.010	2.81024	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-103015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-103015
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/20/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	57.9%
d14-p-Terphenyl	75.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR26-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOV9E
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 22:28
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.27 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.1%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**3.1 J**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	**2-Methylphenol**	**4.9**	**5.4**
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**20**	**64**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	45.9%
d14-p-Terphenyl	58.6% Q

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
MB-103015	57.9%	75.6% Q	0
LCS-103015	60.9%	71.2% Q	0
CR26-SBSD	45.9%	58.6% Q	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19539 to 15-19539

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-103015**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-103015
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed LCS: 11/05/15 21:52
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS		Spike Added	Recovery
Dibenz(a,h)anthracene	334		500	66.8%
1,4-Dichlorobenzene	316		500	63.2%
1,2,4-Trichlorobenzene	324		500	64.8%
Hexachlorobenzene	333		500	66.6%
Hexachlorobutadiene	364		500	72.8%
Dimethylphthalate	378		500	75.6%
Butylbenzylphthalate	416		500	83.2%
2-Methylphenol	317		500	63.4%
2,4-Dimethylphenol	770		1500	51.3%
N-Nitrosodiphenylamine	346		500	69.2%
Benzyl Alcohol	416		500	83.2%
Pentachlorophenol	1210	EQ	1500	80.7%
1,2-Dichlorobenzene	328		500	65.6%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	60.9%
d14-p-Terphenyl	71.2% Q

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: CC1105A.D
Analysis Type:
Lab Sample ID: CC1105A
Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

Injection Date: 05-NOV-2015 14:04
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:39
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.04543	0.98207	0.010	-6.06090	20.00000	Averaged	
3 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.78433	0.010	2.58940	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79485	0.010	-2.74242	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.72457	0.010	5.83701	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.81370	0.010	-12.87015	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81780	0.010	-10.72571	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57662	0.050	-6.38240	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33255	0.010	-15.58052	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.41910	0.010	6.21998	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.33208	0.010	9.37722	20.00000	Averaged	
39 Dimethylphthalate	1.14558	1.01470	0.010	-11.42453	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.13213	0.010	-8.55608	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.57444	0.010	-7.27995	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.46057	0.010	11.11164	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.15371	0.005	-27.87342	20.00000	Averaged	<-
$ 66 Terphenyl-d14	0.36942	0.25581	0.010	-30.75549	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39038	0.010	-5.48875	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.04200	0.010	-9.94423	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.46419	0.010	4.66003	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR08b-SBSD

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 03:12
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.4 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.66	0.65-0.89		0.959	0.529	J
2,3,7,8-TCDD	0.77	0.65-0.89		0.959	2.06	
1,2,3,7,8-PeCDF	1.21	1.32-1.78		0.959	0.288	JEMPC
2,3,4,7,8-PeCDF	1.63	1.32-1.78		0.959	0.201	J
1,2,3,7,8-PeCDD	1.65	1.32-1.78		0.959	2.68	
1,2,3,4,7,8-HxCDF	1.25	1.05-1.43		0.959	0.111	J
1,2,3,6,7,8-HxCDF	1.21	1.05-1.43		0.959	0.140	J
2,3,4,6,7,8-HxCDF	1.41	1.05-1.43		0.959	0.105	J
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43		0.959	0.146	BJ
1,2,3,4,7,8-HxCDD	1.27	1.05-1.43		0.959	0.589	J
1,2,3,6,7,8-HxCDD	1.32	1.05-1.43		0.959	1.71	
1,2,3,7,8,9-HxCDD	1.27	1.05-1.43		0.959	7.04	
1,2,3,4,6,7,8-HpCDF	1.21	0.88-1.20		0.959	0.295	BJEMPC
1,2,3,4,7,8,9-HpCDF	1.04	0.88-1.20		0.959	0.0959	J
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.959	12.5	B
OCDF	0.70	0.76-1.02		1.92	0.802	BJEMPC
OCDD	0.87	0.76-1.02		9.59	45.4	B

Homologue Group	EDL	RL	Result	
Total TCDF		0.959	10.7	EMPC
Total TCDD		0.959	21.4	EMPC
Total PeCDF		1.92	2.08	EMPC
Total PeCDD		0.959	21.9	EMPC
Total HxCDF		1.92	0.888	EMPC
Total HxCDD		1.92	45.4	EMPC
Total HpCDF		1.92	0.643	EMPC
Total HpCDD		1.92	26.3	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 5.99

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 5.99

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR08b-SBSD

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 03:12
Instrument/Analyst: AS1/PK

Sample Amount: 10.4 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	91.1	24-169	
13C-2,3,7,8-TCDD	0.77	0.65-0.89	87.8	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	94.2	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	95.3	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	97.5	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	85.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.53	0.43-0.59	82.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	88.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	86.0	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	90.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	85.2	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	78.4	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	82.2	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	85.6	23-140	
13C-OCDD	0.89	0.76-1.02	75.1	17-157	
37Cl4-2,3,7,8-TCDD			98.5	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0500	1.00	< 0.0500	U
2,3,7,8-TCDD		0.65-0.89	0.0560	1.00	< 0.0560	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0580	1.00	< 0.0580	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0600	1.00	< 0.0600	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0980	1.00	< 0.0980	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0640	1.00	< 0.0640	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0580	1.00	< 0.0580	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0620	1.00	< 0.0620	U
1,2,3,7,8,9-HxCDF	1.11	1.05-1.43		1.00	0.116	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0840	1.00	< 0.0840	U
1,2,3,6,7,8-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,7,8,9-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,4,6,7,8-HpCDF	0.84	0.88-1.20		1.00	0.196	JEMPC
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0600	1.00	< 0.0600	U
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		1.00	1.99	
OCDF	0.72	0.76-1.02		2.00	0.776	JEMPC
OCDD	0.86	0.76-1.02		10.0	16.9	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0500	1.00	< 0.0500	U
Total TCDD	0.0560	1.00	0.0524	EMPC
Total PeCDF	0.0600	2.00	< 0.0600	U
Total PeCDD	0.0980	1.00	0.253	EMPC
Total HxCDF		2.00	0.117	
Total HxCDD	0.0880	2.00	1.31	EMPC
Total HpCDF		2.00	0.426	EMPC
Total HpCDD		2.00	5.27	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.15

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	99.6	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	95.8	25-164	
13C-1,2,3,7,8-PeCDF	1.59	1.32-1.78	103	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	96.9	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	98.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	99.9	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	101	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	99.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	92.8	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	103	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	99.0	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	90.7	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	91.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	98.5	23-140	
13C-OCDD	0.91	0.76-1.02	84.7	17-157	
37Cl4-2,3,7,8-TCDD			105	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.70	0.65-0.89	1.00	20.6
2,3,7,8-TCDD	0.74	0.65-0.89	1.00	21.4
1,2,3,7,8-PeCDF	1.43	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.44	1.32-1.78	1.00	104
1,2,3,7,8-PeCDD	1.56	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,6,7,8-HxCDF	1.14	1.05-1.43	1.00	105
2,3,4,6,7,8-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	1.00	102
1,2,3,6,7,8-HxCDD	1.19	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43	1.00	107
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	108
1,2,3,4,7,8,9-HpCDF	0.99	0.88-1.20	1.00	109
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.82	0.76-1.02	2.00	199
OCDD	0.90	0.76-1.02	10.0	212

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	21.4	EMPC
Total TCDD		1.00	22.0	EMPC
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	104	EMPC
Total HxCDF		2.00	421	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	217	
Total HpCDD		2.00	106	

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	93.5	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	89.2	25-164	
13C-1,2,3,7,8-PeCDF	1.55	1.32-1.78	97.5	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	92.4	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	93.9	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	90.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	88.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	89.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	84.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	95.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	89.2	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	82.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.43	0.37-0.51	82.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20	88.8	23-140	
13C-OCDD	0.90	0.76-1.02	77.0	17-157	
37Cl4-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.6	20.0	103	75-158
2,3,7,8-TCDD	21.4	20.0	107	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	104	100	104	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	105	100	105	72-134
1,2,3,6,7,8-HxCDF	105	100	105	84-130
2,3,4,6,7,8-HxCDF	105	100	105	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	102	100	102	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	107	100	107	64-162
1,2,3,4,6,7,8-HpCDF	108	100	108	82-132
1,2,3,4,7,8,9-HpCDF	109	100	109	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	199	200	99.5	63-170
OCDD	212	200	106	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR08b-SBSD
SAMPLE

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 22:02
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.41 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 46.0%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.2%
Tetrachlorometaxylene	75.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR26-SBSD
SAMPLE

Lab Sample ID: AOV9E
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 23:05
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.38 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 51.1%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	64.2%
Tetrachlorometaxylene	75.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102615
METHOD BLANK

Lab Sample ID: MB-102615
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 18:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	71.8%
Tetrachlorometaxylene	77.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-102615
LAB CONTROL

Lab Sample ID: LCS-102615
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 19:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	405	500	81.0%
Aroclor 1260	407	500	81.4%

PCB Surrogate Recovery

Decachlorobiphenyl	74.0%
Tetrachlorometaxylene	82.0%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-102615	71.8%	40-133	77.5%	53-120	0
LCS-102615	74.0%	40-133	82.0%	53-120	0
CR08b-SBSD	67.2%	40-133	75.0%	53-120	0
CR26-SBSD	64.2%	40-133	75.0%	53-120	0

Microwave (MARS) Control Limits PCBSMP
Prep Method: SW3546
Log Number Range: 15-19535 to 15-19539

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Sediment

Date Received: 10/16/15

Data Release Authorized:
Reported: 11/02/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-102315	Method Blank	10/23/15	10/28/15	1.00	Diesel Range	5.0	< 5.0 U
15-19535	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		74.0%
AOV9A	CR08b-SBSD	10/23/15	10/29/15	1.00	**Diesel Range**	**9.3**	**170**
15-19535	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**18**	**280**
					o-Terphenyl		72.4%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
102315MB	74.0%	0
102315LCS	74.6%	0
CR08b-SBSD	72.4%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19535 to 15-19535

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/02/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 10/28/15 22:59
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	109	150	72.7%

TPHD Surrogate Recovery

o-Terphenyl	74.6%

Results reported in mg/kg

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Sediment
Date Received: 10/16/15

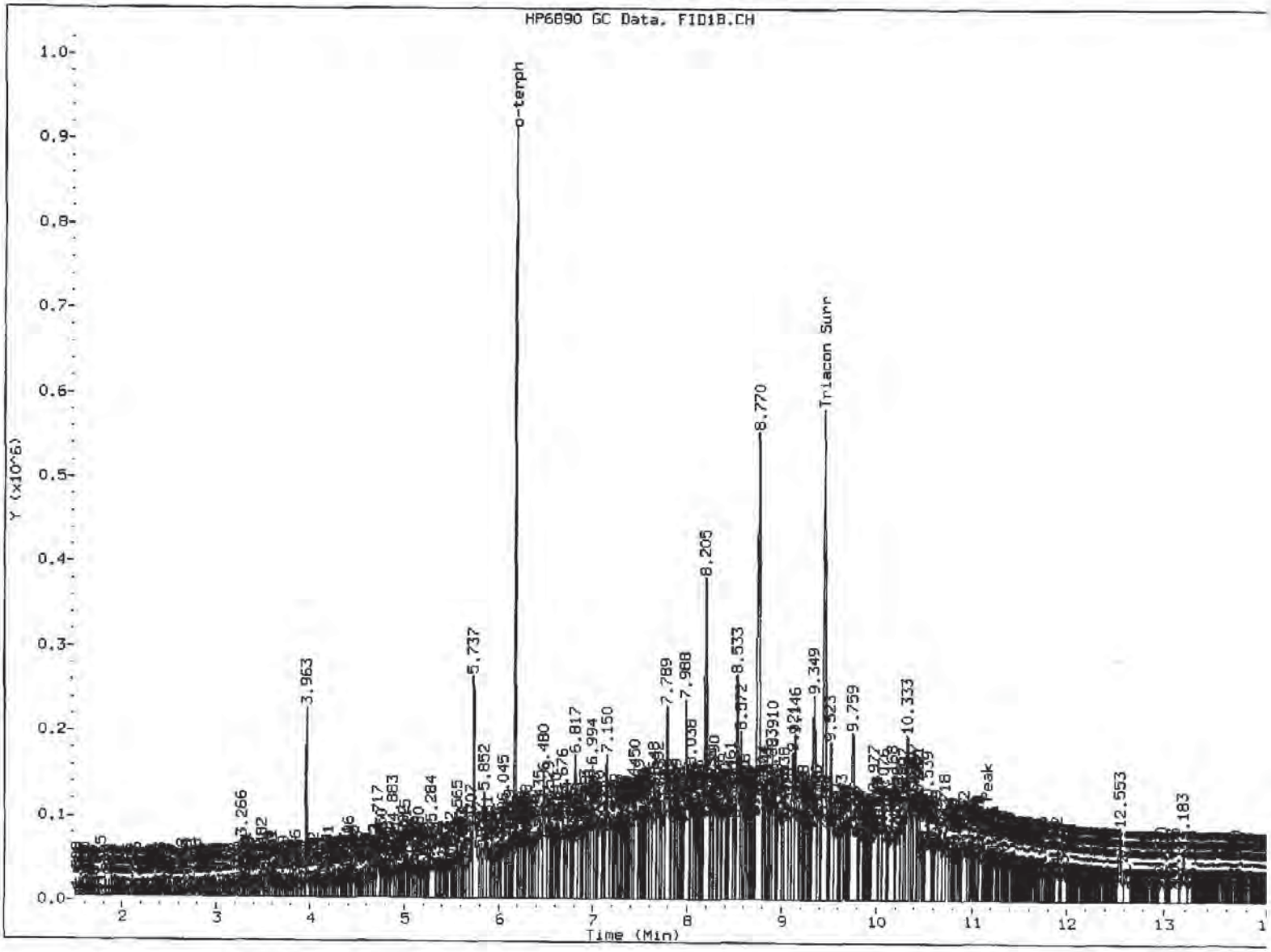
ARI Job: AOV9
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19535-102315MB1	Method Blank	10.0 g	1.00 mL	-	10/23/15
15-19535-102315LCS1	Lab Control	10.0 g	1.00 mL	-	10/23/15
15-19535-AOV9A	CR08b-SBSD	5.40 g	1.00 mL	D	10/23/15

Basis: D=Dry Weight W=As Received

FID:3B-2C/RTX-1 AOV9A

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MI Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102839.D

Page 1

Date : 29-OCT-2015 00:45

Client ID: CRO8b-SBSD

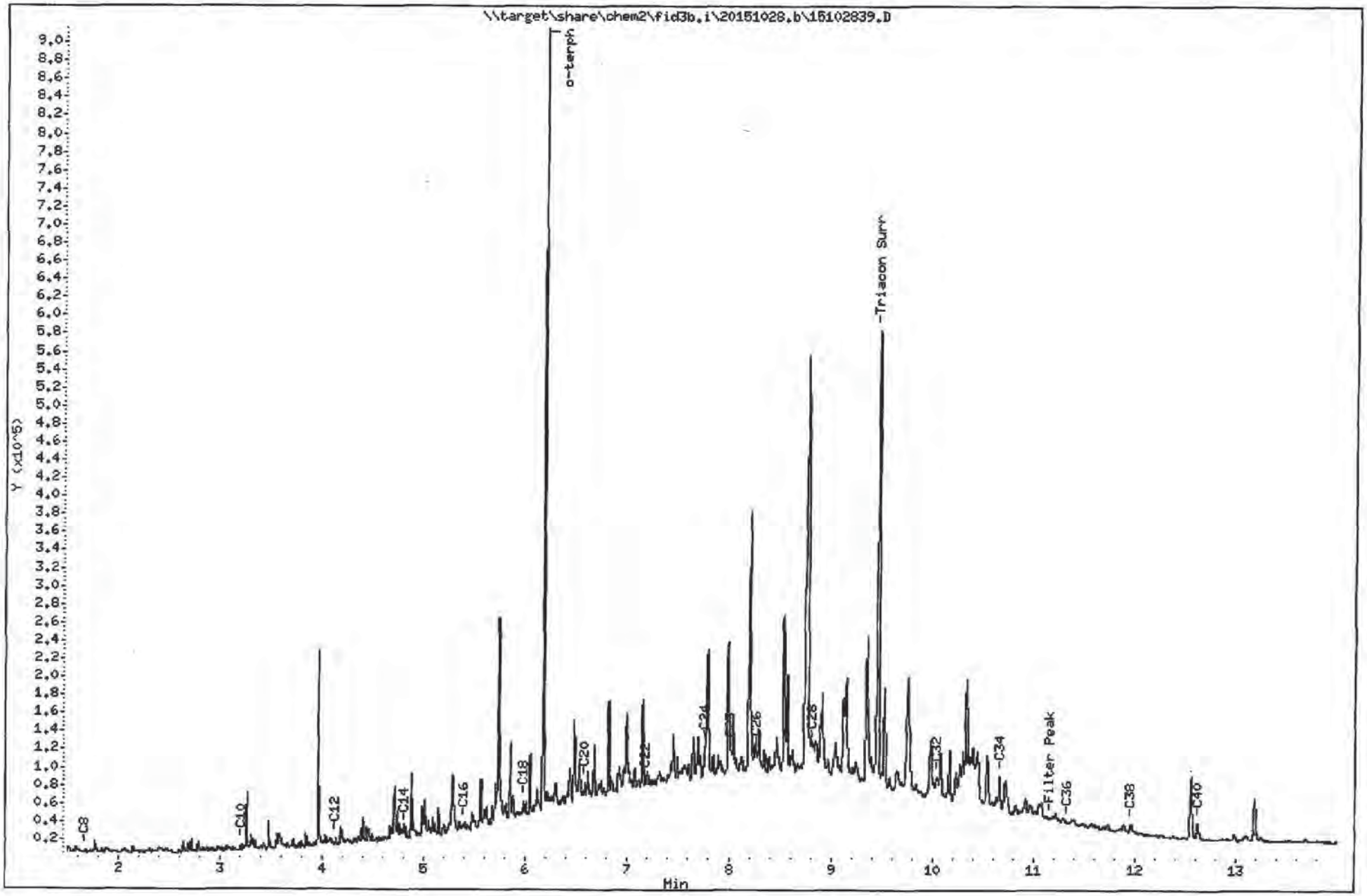
Instrument: fid3b.i

Sample Info: AOV9A

Operator: ML

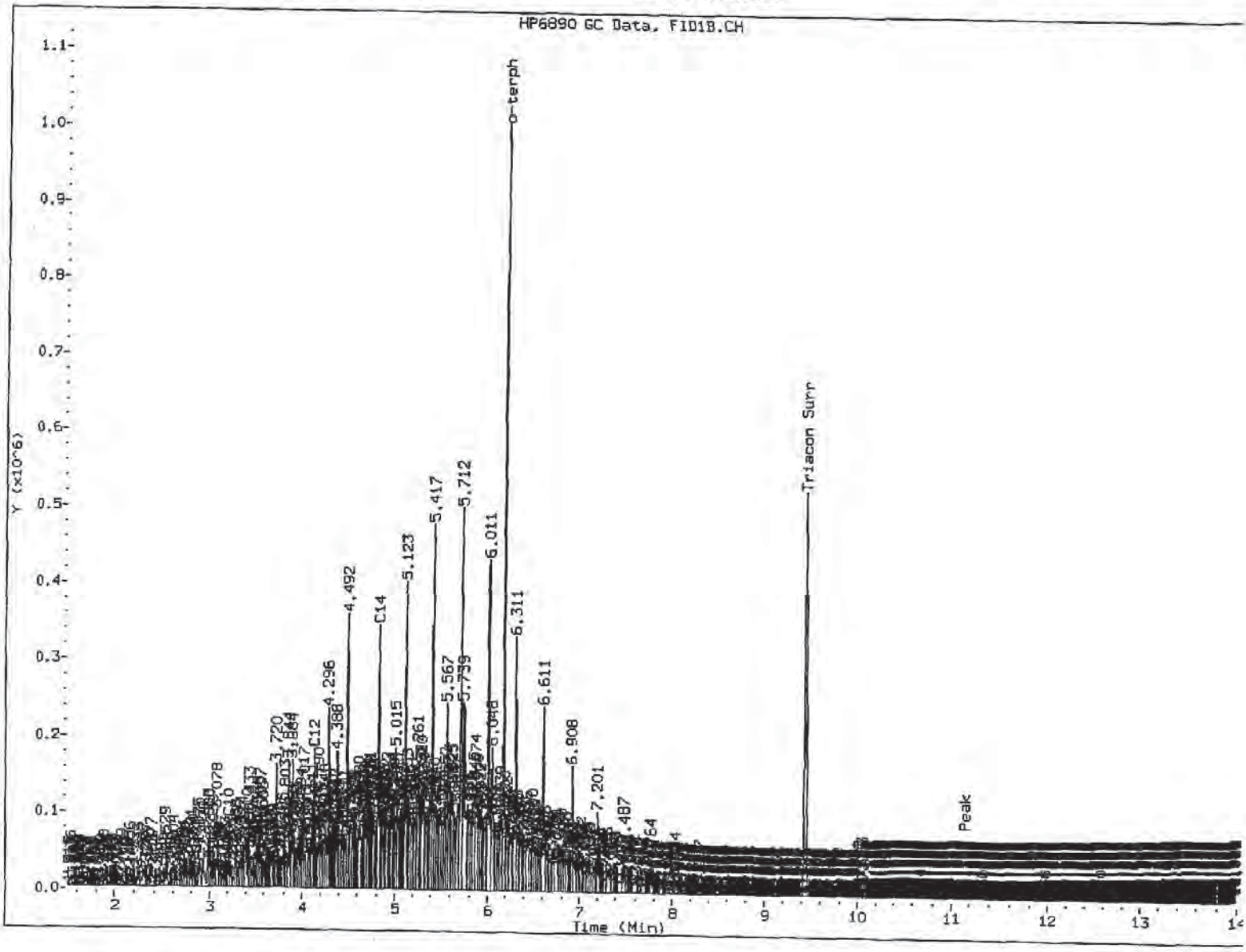
Column phase: RTX-1

Column diameter: 0.25



AOV9:00056

FID:3B-2C/RTX-1 AOV8LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

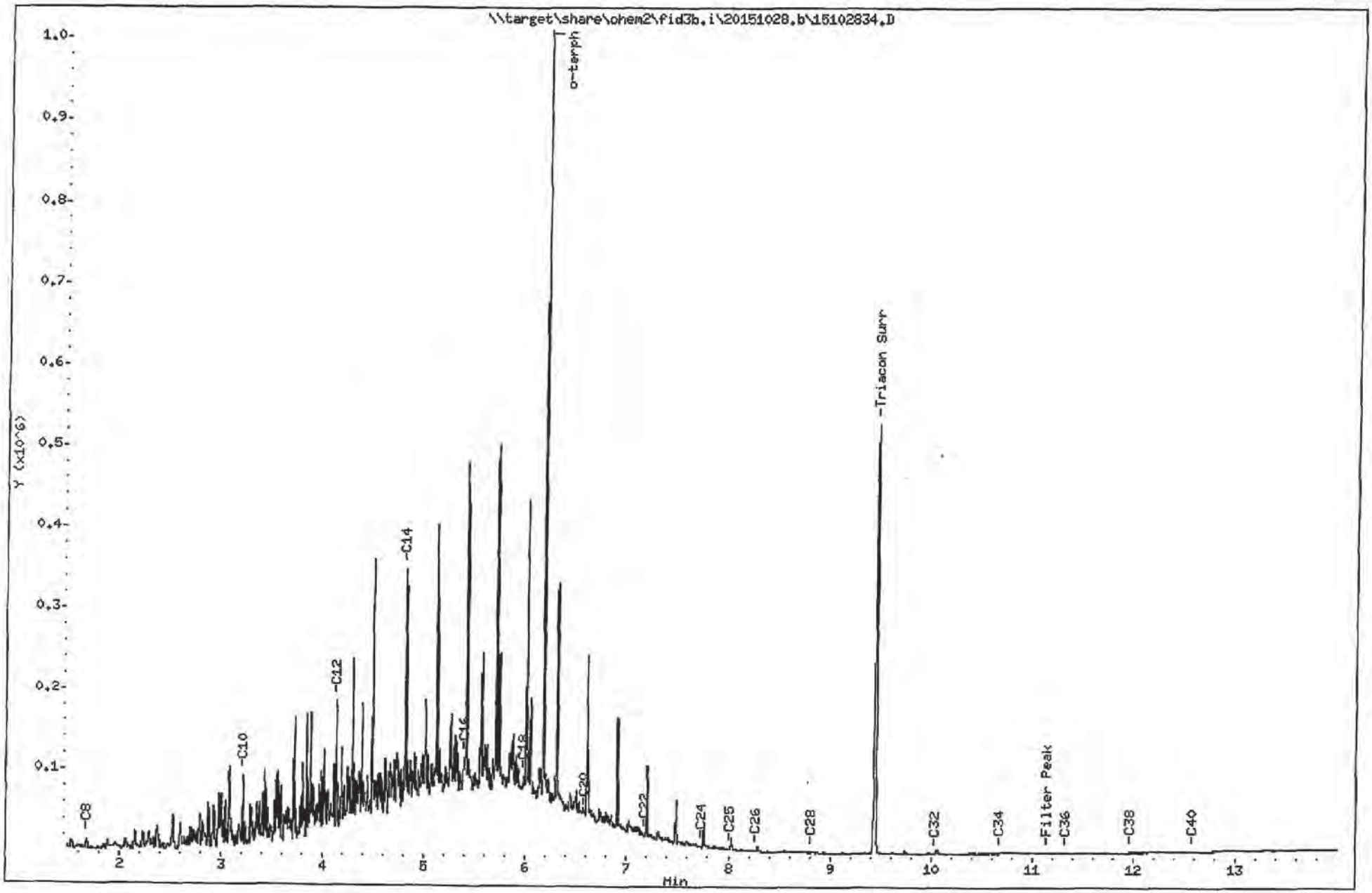
Analyst: MM Date: 10/29/15

Data File: \\target\share\ohem2\fid3b.i\20151028.b\15102834.D
Date : 28-OCT-2015 22:59
Client ID: AOV8LCSS1
Sample Info: AOV8LCSS1

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25



AOV9:00058

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102833.D

Date : 28-OCT-2015 22:38

Client ID: AOV8MBS1

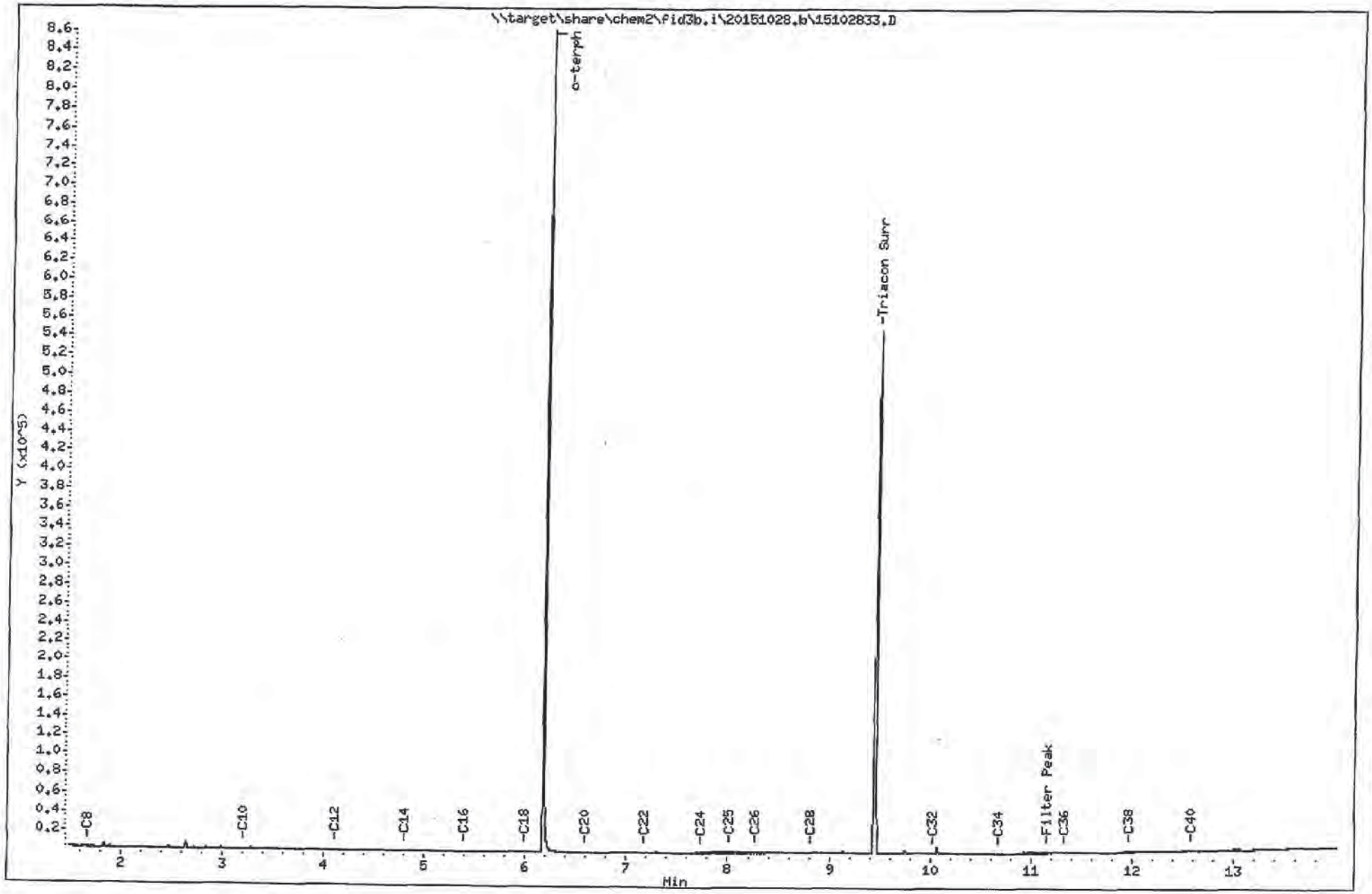
Sample Info: AOV8MBS1

Instrument: fid3b.i

Operator: ML

Column phase: RTX-1

Column diameter: 0.25



AOV9:00059

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR08b-SBSD
SAMPLE

Lab Sample ID: AOV9A
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Percent Total Solids: 66.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	20	**20**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.7	0.7	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	2	**40**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.7	**55.3**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	7	**10**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.03	**0.07**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	1	1	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	3	**75**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR26-SBSD
SAMPLE

Lab Sample ID: AOV9E
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Percent Total Solids: 48.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	9	**24**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	0.9	**39.3**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**55.9**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**11**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.09**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**75**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: AOW1MB
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	7440-38-2	Arsenic	5	5	U
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7440-47-3	Chromium	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	7440-50-8	Copper	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7439-92-1	Lead	2	2	U
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.02	0.02	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.3	0.3	U
3050B	11/02/15	6010C	11/03/15	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AOW1LCS
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	C
Arsenic	6010C	200	200	100%	
Cadmium	6010C	49.7	50.0	99.4%	
Chromium	6010C	50.9	50.0	102%	
Copper	6010C	47.6	50.0	95.2%	
Lead	6010C	197	200	98.5%	
Mercury	7471A	0.49	0.50	98.0%	
Silver	6010C	51.3	50.0	103%	
Zinc	6010C	47	50	94.0%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

October 30, 2015

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

Mark Harris
Analytical Resources, Incorporated
4611 S. 134th Place Suite 100
Tukwila, WA 98168

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1519447.00

Client Project: ARI Project AOV9 Seaport Landing
Location: N-A

Dear Mr. Harris,

Enclosed please find test results for the 1 sample(s) submitted to our laboratory for analysis on 10/23/2015.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

NVLAP
Lab Code: 102063-0

Enc.: Sample Results

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

AOV9 : 00064

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Analytical Resources, Incorporated
Address: 4611 S. 134th Place Suite 100
Tukwila, WA 98168

Attention: Mr. Mark Harris
Project Location: N-A

Batch #: 1519447.00
Client Project #: ARI Project AOV9 Seaport Landing
Date Received: 10/23/2015
Samples Received: 1
Samples Analyzed: 1
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 15116161 **Client Sample #: 15-19535-AOV9A**
Location: N-A
Comments: Qualitative analysis was conducted for the presence of asbestos fibers in this sample.

Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mineral grains	Cellulose	**None Detected ND**
	Glass fibers	

Sampled by: Client
Analyzed by: Fiona Chui **Date:** 10/28/2015
Reviewed by: Nick Ly **Date:** 10/30/2015

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

AOV9 : 00065

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

NVL LABS

Company Analytical Resources, Incorporated
Address 4611 S. 134th Place Suite 100
Tukwila, WA 98168
Project Manager Mr. Mark Harris
Phone (206) 695-6200

NVL Batch Number 1519447.00
TAT 5 Days **AH** No
Rush TAT
Due Date 10/30/2015 **Time** 12:15 PM
Email markh@arilabs.com
Fax (206) 695-6202

Project Name/Number: ARI Project AOV9 Seaport Landing **Project Location:** N-A

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	15116161	15-19535-AOV9A		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	UPS				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Maxwell Raymond		NVL	10/23/15	1215
Analyzed by	Fiona Chui		NVL	10/28/15	9:24 AM
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/23/2015
Time: 5:31 PM
Entered By: Justin Shearer

AOV9 : 00066

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 10/20/15

ANALYTICAL RESOURCES INCORPORATED

ARI Project: AOV9

Laboratory: NVL Laboratories, Inc
Lab Contact: Perry Cheston
Lab Address: 4708 Aurora Ave. N.
Seattle, WA 98103
Phone: 206-547-0100
Fax: 206-344-1878

ARI Client: Maul Foster & Alongi
Project ID: Seaport Landing
ARI PM: Mark Harris
Phone: 206-695-6210
Fax: 206-695-6201
Email: subdata@arilabs.com

Analytical Protocol: PSDDA
Special Instructions:

Requested Turn Around: **10/30/15**
Email Results (Y/N): **Yes**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
15-19535-AOV9A	CR08b-SBSD	10/15/15 15:07	Sediment	1	Asbestos (Sub)

Special Instructions: None

Carrier UPS		Airbill 12 832 695 03 55 76 9640		Date 10/22/15	
Relinquished by	Company ARI	Date 10/22/15	Time 921		
Received by	Company	Date 10/23/15	Time 1215 UPS		

Subcontractor Custody Form - **AOV9**
Page 1 of 1

1519447

AOV9 : 00067

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: AQV9 Client ID: Maui Foster & Alougi

Batch ID:

Parameter: BAN/SIM SVOA Client Project: Seaport Landing

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= A, E	RH 10/20/15
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions).	
Sample E lost due to GPC mal function.	
Sample pulled from freezer for re-extract.	SP 10/29/15
☒ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen= 11/12/15	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AOW1

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Nine sediment samples were received on October 16, 2015. Four samples were placed on hold as specified. The remaining samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx, TOC and total metals as requested.

The percent differences (%Ds) for benzoic acid and diethylphthalate were not within control limits for the CCAL that bracketed the 11/14/15 SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The %Ds for pentachlorophenol and the surrogate, d14-p-terphenyl, were not within control limits for the CCAL that bracketed the 11/5/15 SIM-SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

A matrix duplicate (MD) was prepared and analyzed for total metals in conjunction with sample CR-19F-SBSD. The RPD for mercury was high following the analysis of the MD. Since the percent recovery for mercury was within acceptable QC limits for the corresponding LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPD. No corrective actions were taken.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AOW1
Enclosures
MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: FOW01	Turn-around Requested:	Page: 1 of 3	
ARI Client Company: Maul Foster & Alongi, Inc.	Phone: (503) 501 3212	Date: 10/16	Ice Present? Yes
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport landing			
Client Project #: 1044.02.01-02	Samplers: KD & MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TOC	Phenol	PAH	PCB	Mercury	metals	TPH	Dioxin/Furan	Notes/Comments: Archive	
CR19F-SBSD	10/16	0940	Sed	2	X	X	X	X	X	X				
CR19F-SBSD-DUP	10/16	0945	Sed	2	X	X	X	X	X	X				
CR19F-SSD	10/16	0950	Sed	5	X	X	X	X	X	X	X	X		
~~CR19D-SSD-CONV~~	~~10/16~~	~~1110~~	~~Sed~~	~~4~~										
CR19G-0-10cm	10/16	0927	Sed	1									X	
CR19G-9.0	10/16	0930	Sed	1									X	
CR19F-5.0	10/16	0950	Sed	1									X	
CR19F-9.0	10/16	0945	Sed	1									X	
CR18B-SBSD	10/16	1200	Sed	2	X	X	X	X	X	X	~~X~~			NO TPH
CR18B-SSD	10/16	1205	Sed	4	X	X	X	X	X	X	X	X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive remaining volume.	Printed Name: Roxanne Degens	Printed Name: Emily Litwin	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 10/16 1520	Date & Time: 10/16/16 1520	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Mall foster

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.6 ___ ___ ___ ___

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00256S

Cooler Accepted by: ul Date: 10/16/15 Time: 1520

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: ul Date: 10/20/15 Time: 1420

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles < 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	• • •	● ● ●

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AOW1
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR19F-SBSD	AOW1A	15-19542	Sediment	10/16/15 09:40	10/16/15 15:20
2.	CR19F-SBSD-DUP	AOW1B	15-19543	Sediment	10/16/15 09:45	10/16/15 15:20
3.	CR19F-SSD	AOW1C	15-19544	Sediment	10/16/15 09:50	10/16/15 15:20
4.	CR19G-0-10CM	AOW1D	15-19545	Sediment	10/16/15 09:27	10/16/15 15:20
5.	CR19G-9.0	AOW1E	15-19546	Sediment	10/16/15 09:30	10/16/15 15:20
6.	CR19F-5.0	AOW1F	15-19547	Sediment	10/16/15 09:50	10/16/15 15:20
7.	CR19F-9.0	AOW1G	15-19548	Sediment	10/16/15 09:45	10/16/15 15:20
8.	CR18B-SBSD	AOW1H	15-19549	Sediment	10/16/15 12:00	10/16/15 15:20
9.	CR18B-SSD	AOW1I	15-19550	Sediment	10/16/15 12:05	10/16/15 15:20

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AOW1 : 00005

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AOW1 : 00006

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

AOW1 : 00007

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR19F-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 23:04
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.01 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 47.3%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**20**	**47**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	**Benzyl Alcohol**	**20**	**17 J**
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**230**
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	**Benzoic Acid**	**200**	**240**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**62**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**13 J**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	**Acenaphthene**	**20**	**27**
132-64-9	**Dibenzofuran**	**20**	**25**
84-66-2	**Diethylphthalate**	**20**	**24 B**
86-73-7	**Fluorene**	**20**	**29**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**110**
120-12-7	**Anthracene**	**20**	**30**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**94**
129-00-0	**Pyrene**	**20**	**83**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**21**
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	**Chrysene**	**20**	**30**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	**Total Benzofluoranthenes**	**40**	**27 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR19F-SBSD
SAMPLE

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Date Analyzed: 11/05/15 23:04

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	49.0%	2-Fluorobiphenyl	53.6%
d14-p-Terphenyl	68.4%	d4-1,2-Dichlorobenzene	46.0%
d5-Phenol	46.3%	2-Fluorophenol	41.6%
2,4,6-Tribromophenol	64.3%	d4-2-Chlorophenol	48.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR19F-SBSD-DUP SAMPLE

Lab Sample ID: AOW1B
LIMS ID: 15-19543
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 23:40
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 49.6%

CAS Number	Analyte	LOQ	Result	
108-95-2	**Phenol**	**20**	**68**	
106-46-7	1,4-Dichlorobenzene	20	< 20	U
100-51-6	**Benzyl Alcohol**	**20**	**26**	
95-50-1	1,2-Dichlorobenzene	20	< 20	U
95-48-7	2-Methylphenol	20	< 20	U
106-44-5	**4-Methylphenol**	**20**	**320**	
105-67-9	2,4-Dimethylphenol	99	< 99	U
65-85-0	**Benzoic Acid**	**200**	**370**	
120-82-1	1,2,4-Trichlorobenzene	20	< 20	U
91-20-3	**Naphthalene**	**20**	**98**	
87-68-3	Hexachlorobutadiene	20	< 20	U
91-57-6	**2-Methylnaphthalene**	**20**	**22**	
131-11-3	Dimethylphthalate	20	< 20	U
208-96-8	**Acenaphthylene**	**20**	**18**	**J**
83-32-9	**Acenaphthene**	**20**	**31**	
132-64-9	**Dibenzofuran**	**20**	**28**	
84-66-2	**Diethylphthalate**	**20**	**38**	**B**
86-73-7	**Fluorene**	**20**	**27**	
86-30-6	N-Nitrosodiphenylamine	20	< 20	U
118-74-1	Hexachlorobenzene	20	< 20	U
87-86-5	Pentachlorophenol	99	< 99	U
85-01-8	**Phenanthrene**	**20**	**140**	
120-12-7	**Anthracene**	**20**	**26**	
84-74-2	Di-n-Butylphthalate	20	< 20	U
206-44-0	**Fluoranthene**	**20**	**150**	
129-00-0	**Pyrene**	**20**	**130**	
85-68-7	Butylbenzylphthalate	20	< 20	U
56-55-3	**Benzo(a)anthracene**	**20**	**37**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**50**	**32**	**J**
218-01-9	**Chrysene**	**20**	**64**	
117-84-0	Di-n-Octyl phthalate	20	< 20	U
50-32-8	Benzo(a)pyrene	20	< 20	U
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**14**	**J**
53-70-3	Dibenz(a,h)anthracene	20	< 20	U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**15**	**J**
90-12-0	**1-Methylnaphthalene**	**20**	**13**	**J**
TOTBFA	**Total Benzofluoranthenes**	**40**	**60**	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR19F-SBSD-DUP SAMPLE

Lab Sample ID: AOW1B
LIMS ID: 15-19543
Matrix: Sediment
Date Analyzed: 11/05/15 23:40

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	65.8%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	89.6%	d4-1,2-Dichlorobenzene	60.4%
d5-Phenol	58.4%	2-Fluorophenol	58.1%
2,4,6-Tribromophenol	86.4%	d4-2-Chlorophenol	64.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR19F-SSD
SAMPLE

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/06/15 00:16
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.46 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 50.3%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**89**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	4-Methylphenol	19	< 19 U
105-67-9	2,4-Dimethylphenol	96	< 96 U
65-85-0	**Benzoic Acid**	**190**	**170 J**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**56**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	**2-Methylnaphthalene**	**19**	**10 J**
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	**Acenaphthene**	**19**	**12 J**
132-64-9	**Dibenzofuran**	**19**	**15 J**
84-66-2	**Diethylphthalate**	**19**	**22 B**
86-73-7	**Fluorene**	**19**	**12 J**
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	96	< 96 U
85-01-8	**Phenanthrene**	**19**	**36**
120-12-7	**Anthracene**	**19**	**15 J**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**41**
129-00-0	**Pyrene**	**19**	**35**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	**Benzo(a)anthracene**	**19**	**12 J**
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
218-01-9	**Chrysene**	**19**	**21**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
90-12-0	1-Methylnaphthalene	19	< 19 U
TOTBFA	**Total Benzofluoranthenes**	**38**	**19 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR19F-SSD
SAMPLE

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Date Analyzed: 11/06/15 00:16

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.6%	2-Fluorobiphenyl	66.8%
d14-p-Terphenyl	85.2%	d4-1,2-Dichlorobenzene	57.2%
d5-Phenol	58.3%	2-Fluorophenol	54.9%
2,4,6-Tribromophenol	82.5%	d4-2-Chlorophenol	61.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR18B-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1H
LIMS ID: 15-19549
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/14/15 22:24
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.07 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 52.1%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	99	< 99 U
65-85-0	**Benzoic Acid**	**200**	**210 Q**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**22**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**17 J**
83-32-9	**Acenaphthene**	**20**	**16 J**
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	**Diethylphthalate**	**20**	**20 QB**
86-73-7	**Fluorene**	**20**	**12 J**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**27**
120-12-7	**Anthracene**	**20**	**24**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**210**
129-00-0	**Pyrene**	**20**	**220**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**99**
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	**Chrysene**	**20**	**93**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	**Benzo(a)pyrene**	**20**	**68**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**27**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**27**
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	**Total Benzofluoranthenes**	**40**	**180**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR18B-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1H
LIMS ID: 15-19549
Matrix: Sediment
Date Analyzed: 11/14/15 22:24

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	69.0%	2-Fluorobiphenyl	56.0%
d14-p-Terphenyl	78.0%	d4-1,2-Dichlorobenzene	54.2%
d5-Phenol	42.0%	2-Fluorophenol	41.9%
2,4,6-Tribromophenol	73.5%	d4-2-Chlorophenol	51.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR18B-SSD
SAMPLE

Lab Sample ID: AOW1I
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/14/15 22:59
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.07 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 52.1%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**20**	**81**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**42**
105-67-9	2,4-Dimethylphenol	99	< 99 U
65-85-0	**Benzoic Acid**	**200**	**160 JQ**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**29**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	**Diethylphthalate**	**20**	**40 QB**
86-73-7	**Fluorene**	**20**	**11 J**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**26**
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**82**
129-00-0	**Pyrene**	**20**	**62**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**29**
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	**Chrysene**	**20**	**66**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	**Benzo(a)pyrene**	**20**	**12 J**
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	**Total Benzofluoranthenes**	**40**	**39 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR18B-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1I
LIMS ID: 15-19550
Matrix: Sediment
Date Analyzed: 11/14/15 22:59

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.8%	2-Fluorobiphenyl	62.2%
d14-p-Terphenyl	73.2%	d4-1,2-Dichlorobenzene	59.0%
d5-Phenol	48.8%	2-Fluorophenol	47.5%
2,4,6-Tribromophenol	75.7%	d4-2-Chlorophenol	56.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-103015
METHOD BLANK

Lab Sample ID: MB-103015
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	**Diethylphthalate**	**20**	**21**
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-103015
METHOD BLANK

Lab Sample ID: MB-103015
LIMS ID: 15-19542
Matrix: Sediment
Date Analyzed: 11/05/15 21:17

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.0%	2-Fluorobiphenyl	65.0%
d14-p-Terphenyl	94.2%	d4-1,2-Dichlorobenzene	65.0%
d5-Phenol	65.6%	2-Fluorophenol	61.7%
2,4,6-Tribromophenol	74.3%	d4-2-Chlorophenol	66.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-103015
LAB CONTROL

Lab Sample ID: LCS-103015
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:52
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	418	500	83.6%
1,4-Dichlorobenzene	339	500	67.8%
Benzyl Alcohol	401	500	80.2%
1,2-Dichlorobenzene	368	500	73.6%
2-Methylphenol	346	500	69.2%
4-Methylphenol	393	500	78.6%
2,4-Dimethylphenol	822	1500	54.8%
Benzoic Acid	2160	2750	78.5%
1,2,4-Trichlorobenzene	349	500	69.8%
Naphthalene	351	500	70.2%
Hexachlorobutadiene	390	500	78.0%
2-Methylnaphthalene	374	500	74.8%
Dimethylphthalate	372	500	74.4%
Acenaphthylene	356	500	71.2%
Acenaphthene	371	500	74.2%
Dibenzofuran	375	500	75.0%
Diethylphthalate	410 B	500	82.0%
Fluorene	342	500	68.4%
N-Nitrosodiphenylamine	368	500	73.6%
Hexachlorobenzene	350	500	70.0%
Pentachlorophenol	977	1500	65.1%
Phenanthrene	402	500	80.4%
Anthracene	405	500	81.0%
Di-n-Butylphthalate	446	500	89.2%
Fluoranthene	386	500	77.2%
Pyrene	371	500	74.2%
Butylbenzylphthalate	398	500	79.6%
Benzo(a)anthracene	401	500	80.2%
bis(2-Ethylhexyl)phthalate	372	500	74.4%
Chrysene	389	500	77.8%
Di-n-Octyl phthalate	353	500	70.6%
Benzo(a)pyrene	384	500	76.8%
Indeno(1,2,3-cd)pyrene	362	500	72.4%
Dibenz(a,h)anthracene	371	500	74.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-103015
LAB CONTROL

Lab Sample ID: LCS-103015
LIMS ID: 15-19542
Matrix: Sediment
Date Analyzed: 11/05/15 21:52

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	304	500	60.8%
1-Methylnaphthalene	350	500	70.0%
Total Benzofluoranthenes	806	1000	80.6%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	63.8%
2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	88.6%
d4-1,2-Dichlorobenzene	59.4%
d5-Phenol	65.6%
2-Fluorophenol	66.0%
2,4,6-Tribromophenol	70.7%
d4-2-Chlorophenol	66.8%

Reported in µg/kg (ppb)

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15111403.D
Analysis Type:
Lab Sample ID: ICV 5
Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

Injection Date: 14-NOV-2015 12:09
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.12958	0.98032	0.98032	0.010	-13.21370	20.00000	Averaged	
$ 2 Phenol-d5	1.36520	1.13439	1.13439	0.010	-16.90661	20.00000	Averaged	
3 Phenol	1.33180	1.10533	1.10533	0.100	-17.00502	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.33265	1.26674	1.26674	0.010	-4.94562	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.01930	0.79941	0.79941	0.700	-21.57225	20.00000	Averaged	<-
6 2-Chlorophenol	1.30689	1.28200	1.28200	0.800	-1.90460	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.60078	1.54397	1.54397	0.010	-3.54909	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.54535	1.45107	1.45107	0.010	-6.10132	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.99122	0.96956	0.96956	0.010	-2.18580	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44684	1.42493	1.42493	0.010	-1.51401	20.00000	Averaged	
11 Benzyl alcohol	0.63765	0.61868	0.61868	0.010	-2.97423	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.45840	0.43519	0.43519	0.010	-5.06371	20.00000	Averaged	
13 2-Methylphenol	0.99636	0.87219	0.87219	0.700	-12.46244	20.00000	Averaged	
17 Hexachloroethane	0.61781	0.68425	0.68425	0.300	10.75475	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.74117	0.73679	0.73679	0.500	-0.59170	20.00000	Averaged	
15 4-Methylphenol	1.00886	0.95885	0.95885	0.600	-4.95718	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.39605	0.41261	0.41261	0.010	4.18241	20.00000	Averaged	
19 Nitrobenzene	0.36379	0.38536	0.38536	0.200	5.92827	20.00000	Averaged	
20 Isophorone	0.57522	0.57445	0.57445	0.300	-0.13479	20.00000	Averaged	
21 2-Nitrophenol	0.21477	0.20907	0.20907	0.100	-2.65471	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39317	0.42421	0.42421	0.200	7.89512	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.32972	0.28007	0.28007	0.050	-15.05717	20.00000	Averaged	
24 Benzoic acid	20.00000	15.43857	0.18026	0.010	-22.80714	20.00000	Quadratic	<-
25 2,4-Dichlorophenol	0.32107	0.33912	0.33912	0.100	5.62338	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.37492	0.36985	0.36985	0.010	-1.35257	20.00000	Averaged	
28 Naphthalene	1.03606	0.92566	0.92566	0.100	-10.65624	20.00000	Averaged	
29 4-Chloroaniline	0.41428	0.37549	0.37549	0.010	-9.36314	20.00000	Averaged	
30 Hexachlorobutadiene	0.24781	0.27807	0.27807	0.010	12.21075	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.33608	0.34643	0.34643	0.200	3.07743	20.00000	Averaged	
32 2-Methylnaphthalene	0.74547	0.73816	0.73816	0.300	-0.98109	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.41843	0.48613	0.48613	0.001	16.17855	20.00000	Averaged	
34 2,4,6-Trichlorophenol	0.37961	0.42039	0.42039	0.200	10.74070	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.39251	0.45345	0.45345	0.200	15.52692	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.40765	1.33204	1.33204	0.010	-5.37119	20.00000	Averaged	
37 2-Chloronaphthalene	1.14337	1.14997	1.14997	0.700	0.57749	20.00000	Averaged	
38 2-Nitroaniline	0.31622	0.40203	0.40203	0.010	27.13477	20.00000	Averaged	<-
39 Dimethylphthalate	1.36783	1.52406	1.52406	0.010	11.42196	20.00000	Averaged	
40 Acenaphthylene	1.73670	1.75215	1.75215	0.900	0.88965	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.28981	0.32357	0.32357	0.100	11.64737	20.00000	Averaged	
43 3-Nitroaniline	0.28271	0.24382	0.24382	0.010	-13.75648	20.00000	Averaged	
44 Acenaphthene	1.04524	1.02061	1.02061	0.100	-2.35672	20.00000	Averaged	
45 2,4-Dinitrophenol	20.00000	19.95149	0.16875	0.030	-0.24255	20.00000	Quadratic	

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15111403.D
Analysis Type:
Lab Sample ID: ICV 5
Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

Injection Date: 14-NOV-2015 12:09
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
46 Dibenzofuran	1.57152	1.56593	1.56593	0.800	-0.35557	20.00000	Averaged	
47 4-Nitrophenol	10.00000	13.43358	0.35747	0.010	34.33584	20.00000	Quadratic	<-
48 2,4-Dinitrotoluene	0.39543	0.44242	0.44242	0.200	11.88253	20.00000	Averaged	
50 Diethylphthalate	1.32554	1.82004	1.82004	0.010	37.30561	20.00000	Averaged	<-
49 Fluorene	1.34379	1.20933	1.20933	0.100	-10.00593	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.68765	0.71361	0.71361	0.100	3.77493	20.00000	Averaged	
52 4-Nitroaniline	0.30110	0.27918	0.27918	0.010	-7.27836	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	20.00000	18.45121	0.13467	0.001	-7.74397	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.54831	0.50803	0.50803	0.010	-7.34588	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.34466	0.40646	0.40646	0.010	17.93047	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.27932	0.29241	0.29241	0.100	4.68494	20.00000	Averaged	
57 Hexachlorobenzene	0.36460	0.33543	0.33543	0.100	-8.00104	20.00000	Averaged	
58 Pentachlorophenol	10.00000	7.95604	0.16235	0.010	-20.43960	20.00000	Quadratic	<-
60 Phenanthrene	1.02053	0.95681	0.95681	0.700	-6.24361	20.00000	Averaged	
61 Anthracene	1.04166	1.02305	1.02305	0.700	-1.78690	20.00000	Averaged	
62 Carbazole	0.87135	0.79066	0.79066	0.010	-9.26048	20.00000	Averaged	
63 Di-n-butylphthalate	1.31288	1.40257	1.40257	0.010	6.83226	20.00000	Averaged	
64 Fluoranthene	1.11470	1.02121	1.02121	0.600	-8.38756	20.00000	Averaged	
65 Pyrene	1.18016	1.00630	1.00630	0.600	-14.73179	20.00000	Averaged	
$ 66 Terphenyl-d14	0.74289	0.66949	0.66949	0.010	-9.88103	20.00000	Averaged	
67 Butylbenzylphthalate	0.50597	0.53414	0.53414	0.010	5.56781	20.00000	Averaged	
68 Benzo(a)anthracene	1.12072	1.07562	1.07562	0.700	-4.02433	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.75137	0.72269	0.72269	0.010	-3.81794	20.00000	Averaged	
71 Chrysene	0.97701	0.91661	0.91661	0.700	-6.18140	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.52679	0.48036	0.48036	0.010	-8.81366	20.00000	Averaged	
73 Di-n-octylphthalate	1.07536	0.91915	0.91915	0.010	-14.52593	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.08810	1.03403	1.03403	0.700	-4.96944	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08482	0.99545	0.99545	0.700	-8.23784	20.00000	Averaged	
76 Benzo(a)pyrene	1.03138	0.99224	0.99224	0.700	-3.79407	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.37485	1.40557	1.40557	0.500	2.23424	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.13622	1.09199	1.09199	0.400	-3.89259	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.23143	1.18040	1.18040	0.500	-4.14398	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.53343	0.47585	0.47585	0.010	-10.79437	20.00000	Averaged	
91 Aniline	1.56324	1.29410	1.29410	0.010	-17.21667	20.00000	Averaged	
93 Benzidine	0.38521	0.16659	0.16659	0.010	-56.75226	20.00000	Averaged	<-
103 Pyridine	0.85366	0.79840	0.79840	0.010	-6.47352	20.00000	Averaged	
105 1-methylnaphthalene	0.76506	0.70658	0.70658	0.010	-7.64354	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	1.22084	1.62369	1.62369	0.010	32.99768	20.00000	Averaged	<-
187 Total Benzofluoranthenes	1.04123	0.97581	0.97581	0.010	-6.28350	20.00000	Averaged	
99 Perylene	0.99701	0.95088	0.95088	0.010	-4.62702	20.00000	Averaged	
98 Retene	++++	0.00066	0.00066	0.010	++++	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.35337	0.33535	0.33535	0.010	-5.09982	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-103015	61.0%	65.0%	94.2%	65.0%	65.6%	61.7%	74.3%	66.7%	0
LCS-103015	63.8%	65.2%	88.6%	59.4%	65.6%	66.0%	70.7%	66.8%	0
CR19F-SBSD	49.0%	53.6%	68.4%	46.0%	46.3%	41.6%	64.3%	48.0%	0
CR19F-SBSD-DUP	65.8%	70.8%	89.6%	60.4%	58.4%	58.1%	86.4%	64.1%	0
CR19F-SSD	58.6%	66.8%	85.2%	57.2%	58.3%	54.9%	82.5%	61.2%	0
CR18B-SBSD	69.0%	56.0%	78.0%	54.2%	42.0%	41.9%	73.5%	51.2%	0
CR18B-SSD	63.8%	62.2%	73.2%	59.0%	48.8%	47.5%	75.7%	56.3%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19542 to 15-19550

FORM-II SW8270

AOW1 : 00024

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-103015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-103015
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	57.9%
d14-p-Terphenyl	75.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR19F-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 23:04
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.01 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 47.3%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	**Butylbenzylphthalate**	**5.0**	**9.3**
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	**Benzyl Alcohol**	**20**	**27**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	40.8%
dl4-p-Terphenyl	55.0% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR19F-SBSD-DUP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1B
LIMS ID: 15-19543
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 23:40
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 49.6%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**5.0**	**3.1 J**
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	**Butylbenzylphthalate**	**5.0**	**7.4**
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	**Benzyl Alcohol**	**20**	**28**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	58.1%
d14-p-Terphenyl	70.4% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR19F-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/06/15 00:16
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.46 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 50.3%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	**Butylbenzylphthalate**	**4.8**	**8.1**
95-48-7	2-Methylphenol	4.8	< 4.8 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	Benzyl Alcohol	19	< 19 U
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	52.8%
d14-p-Terphenyl	67.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR18B-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1H
LIMS ID: 15-19549
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/14/15 22:24
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.07 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 52.1%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**5.0**	**8.0**
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	**Butylbenzylphthalate**	**5.0**	**2.8 J**
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	45.1%
d14-p-Terphenyl	70.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR18B-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW1I
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized: TMW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/14/15 22:59
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.07 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 52.1%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	**Butylbenzylphthalate**	**5.0**	**7.2**
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	45.7%
d14-p-Terphenyl	69.2%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
MB-103015	57.9%	75.6% Q	0
LCS-103015	60.9%	71.2% Q	0
CR19F-SBSD	40.8%	55.0% Q	0
CR19F-SBSD-DUP	58.1%	70.4% Q	0
CR19F-SSD	52.8%	67.6% Q	0
CR18B-SBSD	45.1%	70.0%	0
CR18B-SSD	45.7%	69.2%	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19542 to 15-19550

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-103015**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-103015
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed LCS: 11/05/15 21:52
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS		Spike Added	Recovery
Dibenz(a,h)anthracene	334		500	66.8%
1,4-Dichlorobenzene	316		500	63.2%
1,2,4-Trichlorobenzene	324		500	64.8%
Hexachlorobenzene	333		500	66.6%
Hexachlorobutadiene	364		500	72.8%
Dimethylphthalate	378		500	75.6%
Butylbenzylphthalate	416		500	83.2%
2-Methylphenol	317		500	63.4%
2,4-Dimethylphenol	770		1500	51.3%
N-Nitrosodiphenylamine	346		500	69.2%
Benzyl Alcohol	416		500	83.2%
Pentachlorophenol	1210	EQ	1500	80.7%
1,2-Dichlorobenzene	328		500	65.6%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	60.9%
d14-p-Terphenyl	71.2% Q

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: CC1105A.D
Analysis Type:
Lab Sample ID: CC1105A
Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

Injection Date: 05-NOV-2015 14:04
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:39
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.04543	0.98207	0.010	-6.06090	20.00000	Averaged	
3 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.78433	0.010	2.58940	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79485	0.010	-2.74242	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.72457	0.010	5.83701	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.81370	0.010	-12.87015	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81780	0.010	-10.72571	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57662	0.050	-6.38240	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33255	0.010	-15.58052	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.41910	0.010	6.21998	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.33208	0.010	9.37722	20.00000	Averaged	
39 Dimethylphthalate	1.14558	1.01470	0.010	-11.42453	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.13213	0.010	-8.55608	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.57444	0.010	-7.27995	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.46057	0.010	11.11164	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.15371	0.005	-27.87342	20.00000	Averaged	<-
$ 66 Terphenyl-d14	0.36942	0.25581	0.010	-30.75549	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39038	0.010	-5.48875	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.04200	0.010	-9.94423	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.46419	0.010	4.66003	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR19F-SSD

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 04:05
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.68	0.65-0.89		0.998	7.75	
2,3,7,8-TCDD	0.68	0.65-0.89		0.998	2.16	
1,2,3,7,8-PeCDF	1.28	1.32-1.78		0.998	0.613	JXEMPC
2,3,4,7,8-PeCDF	1.38	1.32-1.78		0.998	0.557	J
1,2,3,7,8-PeCDD	1.55	1.32-1.78		0.998	3.01	
1,2,3,4,7,8-HxCDF	1.11	1.05-1.43		0.998	1.37	
1,2,3,6,7,8-HxCDF	1.19	1.05-1.43		0.998	1.07	
2,3,4,6,7,8-HxCDF	1.17	1.05-1.43		0.998	1.73	
1,2,3,7,8,9-HxCDF	1.00	1.05-1.43		0.998	0.571	BJEMPC
1,2,3,4,7,8-HxCDD	1.18	1.05-1.43		0.998	1.35	
1,2,3,6,7,8-HxCDD	1.21	1.05-1.43		0.998	9.89	
1,2,3,7,8,9-HxCDD	1.22	1.05-1.43		0.998	8.91	
1,2,3,4,6,7,8-HpCDF	0.97	0.88-1.20		0.998	24.3	
1,2,3,4,7,8,9-HpCDF	0.91	0.88-1.20		0.998	1.04	
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20		0.998	141	
OCDF	0.83	0.76-1.02		2.00	36.8	
OCDD	0.88	0.76-1.02		9.98	1,010	

Homologue Group	EDL	RL	Result	
Total TCDF		0.998	25.6	EMPC
Total TCDD		0.998	20.6	EMPC
Total PeCDF		2.00	23.6	EMPC
Total PeCDD		0.998	26.4	EMPC
Total HxCDF		2.00	40.2	EMPC
Total HxCDD		2.00	93.0	EMPC
Total HpCDF		2.00	62.7	EMPC
Total HpCDD		2.00	340	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 10.6

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 10.6

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR19F-SSD

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 04:05
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	97.0	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	87.7	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	93.6	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	94.0	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	93.8	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	91.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	87.0	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	94.9	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	92.7	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	98.7	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	89.7	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	84.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	85.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	90.9	23-140	
13C-OCDD	0.90	0.76-1.02	82.0	17-157	
37Cl4-2,3,7,8-TCDD			94.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR18B-SSD**

Lab Sample ID: AOW1I
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 04:58
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.65	0.65-0.89		0.981	0.381	JEMPC
2,3,7,8-TCDD	0.72	0.65-0.89		0.981	2.36	
1,2,3,7,8-PeCDF	1.98	1.32-1.78		0.981	0.157	JEMPC
2,3,4,7,8-PeCDF	1.15	1.32-1.78		0.981	0.183	JEMPC
1,2,3,7,8-PeCDD	1.69	1.32-1.78		0.981	3.28	
1,2,3,4,7,8-HxCDF	0.90	1.05-1.43		0.981	0.424	JEMPC
1,2,3,6,7,8-HxCDF	1.64	1.05-1.43		0.981	0.294	JEMPC
2,3,4,6,7,8-HxCDF	1.09	1.05-1.43		0.981	0.469	J
1,2,3,7,8,9-HxCDF	1.07	1.05-1.43		0.981	0.226	BJ
1,2,3,4,7,8-HxCDD	1.19	1.05-1.43		0.981	0.758	J
1,2,3,6,7,8-HxCDD	1.23	1.05-1.43		0.981	2.46	
1,2,3,7,8,9-HxCDD	1.25	1.05-1.43		0.981	8.00	
1,2,3,4,6,7,8-HpCDF	0.97	0.88-1.20		0.981	7.34	
1,2,3,4,7,8,9-HpCDF	1.15	0.88-1.20		0.981	0.332	J
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20		0.981	30.9	
OCDF	0.80	0.76-1.02		1.96	10.9	
OCDD	0.90	0.76-1.02		9.81	189	

Homologue Group	EDL	RL	Result	
Total TCDF		0.981	4.57	EMPC
Total TCDD		0.981	15.9	EMPC
Total PeCDF		1.96	4.65	EMPC
Total PeCDD		0.981	20.5	EMPC
Total HxCDF		1.96	8.92	EMPC
Total HxCDD		1.96	46.9	EMPC
Total HpCDF		1.96	17.4	
Total HpCDD		1.96	73.7	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 7.45

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 7.45

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR18B-SSD

Lab Sample ID: AOW1I
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 04:58
Instrument/Analyst: AS1/PK

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	92.7	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	83.3	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	89.4	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	90.0	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	87.4	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	86.2	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	82.9	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	89.8	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	85.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	94.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	84.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	81.8	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	82.4	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	87.7	23-140	
13C-OCDD	0.90	0.76-1.02	78.9	17-157	
37Cl4-2,3,7,8-TCDD			91.3	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-102615**

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0500	1.00	< 0.0500	U
2,3,7,8-TCDD		0.65-0.89	0.0560	1.00	< 0.0560	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0580	1.00	< 0.0580	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0600	1.00	< 0.0600	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0980	1.00	< 0.0980	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0640	1.00	< 0.0640	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0580	1.00	< 0.0580	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0620	1.00	< 0.0620	U
1,2,3,7,8,9-HxCDF	1.11	1.05-1.43		1.00	0.116	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0840	1.00	< 0.0840	U
1,2,3,6,7,8-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,7,8,9-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,4,6,7,8-HpCDF	0.84	0.88-1.20		1.00	0.196	JEMPC
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0600	1.00	< 0.0600	U
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		1.00	1.99	
OCDF	0.72	0.76-1.02		2.00	0.776	JEMPC
OCDD	0.86	0.76-1.02		10.0	16.9	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0500	1.00	< 0.0500	U
Total TCDD	0.0560	1.00	0.0524	EMPC
Total PeCDF	0.0600	2.00	< 0.0600	U
Total PeCDD	0.0980	1.00	0.253	EMPC
Total HxCDF		2.00	0.117	
Total HxCDD	0.0880	2.00	1.31	EMPC
Total HpCDF		2.00	0.426	EMPC
Total HpCDD		2.00	5.27	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.15

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	99.6	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	95.8	25-164	
13C-1,2,3,7,8-PeCDF	1.59	1.32-1.78	103	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	96.9	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	98.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	99.9	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	101	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	99.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	92.8	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	103	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	99.0	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	90.7	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	91.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	98.5	23-140	
13C-OCDD	0.91	0.76-1.02	84.7	17-157	
37Cl4-2,3,7,8-TCDD			105	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-102615**

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.70	0.65-0.89	1.00	20.6
2,3,7,8-TCDD	0.74	0.65-0.89	1.00	21.4
1,2,3,7,8-PeCDF	1.43	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.44	1.32-1.78	1.00	104
1,2,3,7,8-PeCDD	1.56	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,6,7,8-HxCDF	1.14	1.05-1.43	1.00	105
2,3,4,6,7,8-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	1.00	102
1,2,3,6,7,8-HxCDD	1.19	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43	1.00	107
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	108
1,2,3,4,7,8,9-HpCDF	0.99	0.88-1.20	1.00	109
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.82	0.76-1.02	2.00	199
OCDD	0.90	0.76-1.02	10.0	212

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	21.4	EMPC
Total TCDD		1.00	22.0	EMPC
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	104	EMPC
Total HxCDF		2.00	421	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	217	
Total HpCDD		2.00	106	

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	93.5	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	89.2	25-164	
13C-1,2,3,7,8-PeCDF	1.55	1.32-1.78	97.5	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	92.4	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	93.9	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	90.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	88.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	89.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	84.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	95.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	89.2	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	82.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.43	0.37-0.51	82.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20	88.8	23-140	
13C-OCDD	0.90	0.76-1.02	77.0	17-157	
37Cl4-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.6	20.0	103	75-158
2,3,7,8-TCDD	21.4	20.0	107	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	104	100	104	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	105	100	105	72-134
1,2,3,6,7,8-HxCDF	105	100	105	84-130
2,3,4,6,7,8-HxCDF	105	100	105	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	102	100	102	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	107	100	107	64-162
1,2,3,4,6,7,8-HpCDF	108	100	108	82-132
1,2,3,4,7,8,9-HpCDF	109	100	109	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	199	200	99.5	63-170
OCDD	212	200	106	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR19F-SBSD
SAMPLE

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 23:26
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.29 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 47.3%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobipheny1	72.8%
Tetrachlorometaxylene	80.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR19F-SBSD-DUP
SAMPLE

Lab Sample ID: AOW1B
LIMS ID: 15-19543
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 23:47
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.06 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 49.6%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	66.2%
Tetrachlorometaxylene	76.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR19F-SSD
SAMPLE

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/30/15 00:08
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.49 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 50.3%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	65.0%
Tetrachlorometaxylene	73.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546

Sample ID: MB-102615
METHOD BLANK

Lab Sample ID: MB-102615
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 18:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.8%
Tetrachlorometaxylene	77.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-102615
LAB CONTROL

Lab Sample ID: LCS-102615
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 19:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	405	500	81.0%
Aroclor 1260	407	500	81.4%

PCB Surrogate Recovery

Decachlorobiphenyl	74.0%
Tetrachlorometaxylene	82.0%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-102615	71.8%	40-133	77.5%	53-120	0
LCS-102615	74.0%	40-133	82.0%	53-120	0
CR19F-SBSD	72.8%	40-133	80.5%	53-120	0
CR19F-SBSD-DUP	66.2%	40-133	76.5%	53-120	0
CR19F-SSD	65.0%	40-133	73.8%	53-120	0

Microwave (MARS) Control Limits PCBSMP
Prep Method: SW3546
Log Number Range: 15-19542 to 15-19544

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Sediment

Date Received: 10/16/15

Data Release Authorized:
Reported: 11/02/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-102315	Method Blank	10/23/15	10/28/15	1.00	Diesel Range	5.0	< 5.0 U
15-19544	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		74.0%
AOW1C	CR19F-SSD	10/23/15	10/29/15	1.00	**Diesel Range**	**10**	**93**
15-19544	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**20**	**240**
					o-Terphenyl		72.0%
AOW1I	CR18B-SSD	10/23/15	10/29/15	1.00	**Diesel Range**	**10**	**44**
15-19550	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**21**	**92**
					o-Terphenyl		70.8%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
102315MB	74.0%	0
102315LCS	74.6%	0
CR19F-SSD	72.0%	0
CR18B-SSD	70.8%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19544 to 15-19550

FORM-II TPHD

AOW1 : 00050

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized:
Reported: 11/02/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 10/28/15 22:59
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	109	150	72.7%

TPHD Surrogate Recovery

o-Terphenyl	74.6%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

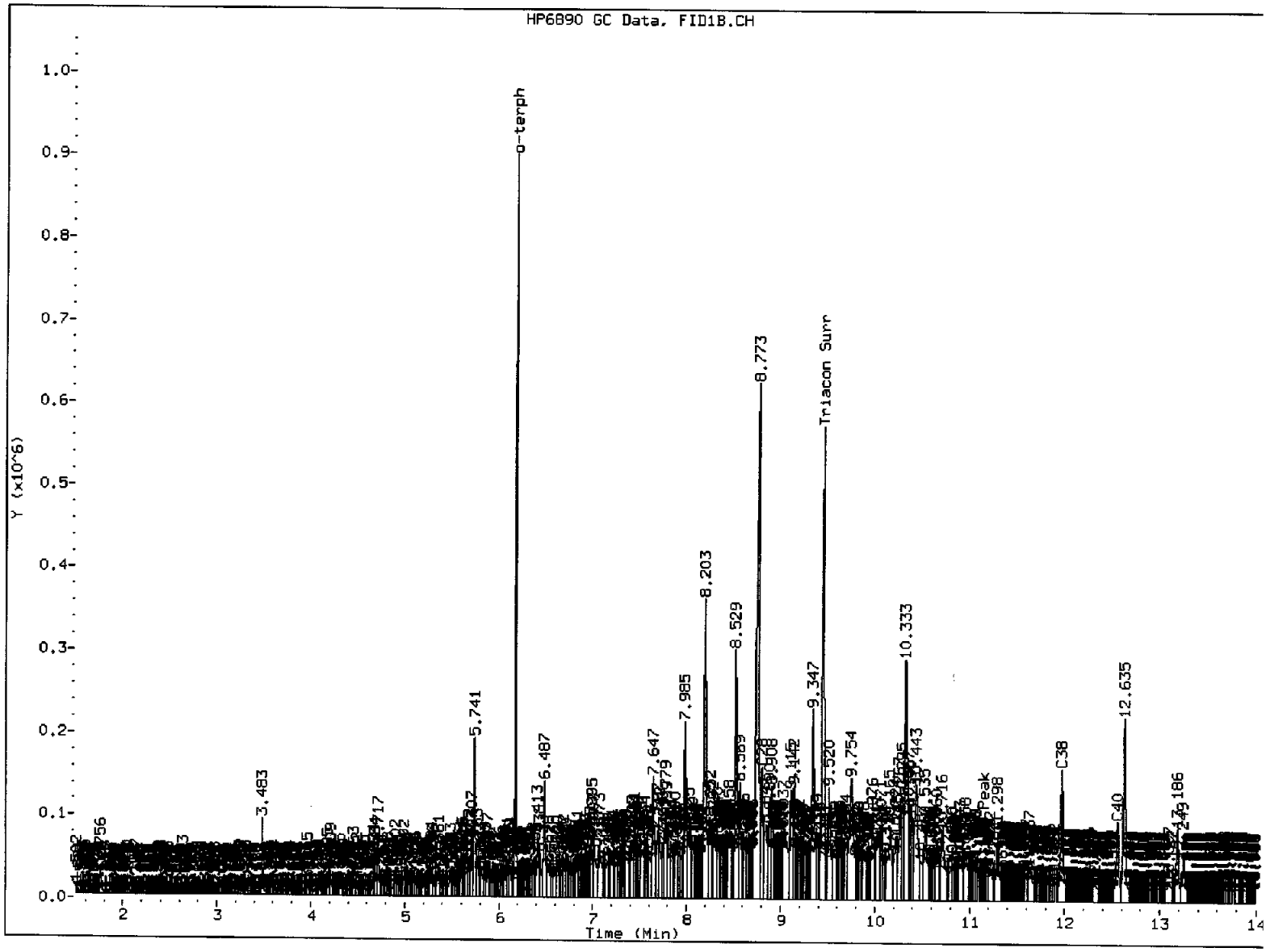
ARI Job: AOW1
Matrix: Sediment Project: Seaport Landing
Date Received: 10/16/15 1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19544-102315MB1	Method Blank	10.0 g	1.00 mL	-	10/23/15
15-19544-102315LCS1	Lab Control	10.0 g	1.00 mL	-	10/23/15
15-19544-AOW1C	CR19F-SSD	4.97 g	1.00 mL	D	10/23/15
15-19550-AOW1I	CR18B-SSD	4.80 g	1.00 mL	D	10/23/15

Basis: D=Dry Weight W=As Received

FID:3B-2C/RTX-1 AOW1C

FID:3B SIGNAL



MANUAL INTEGRATION

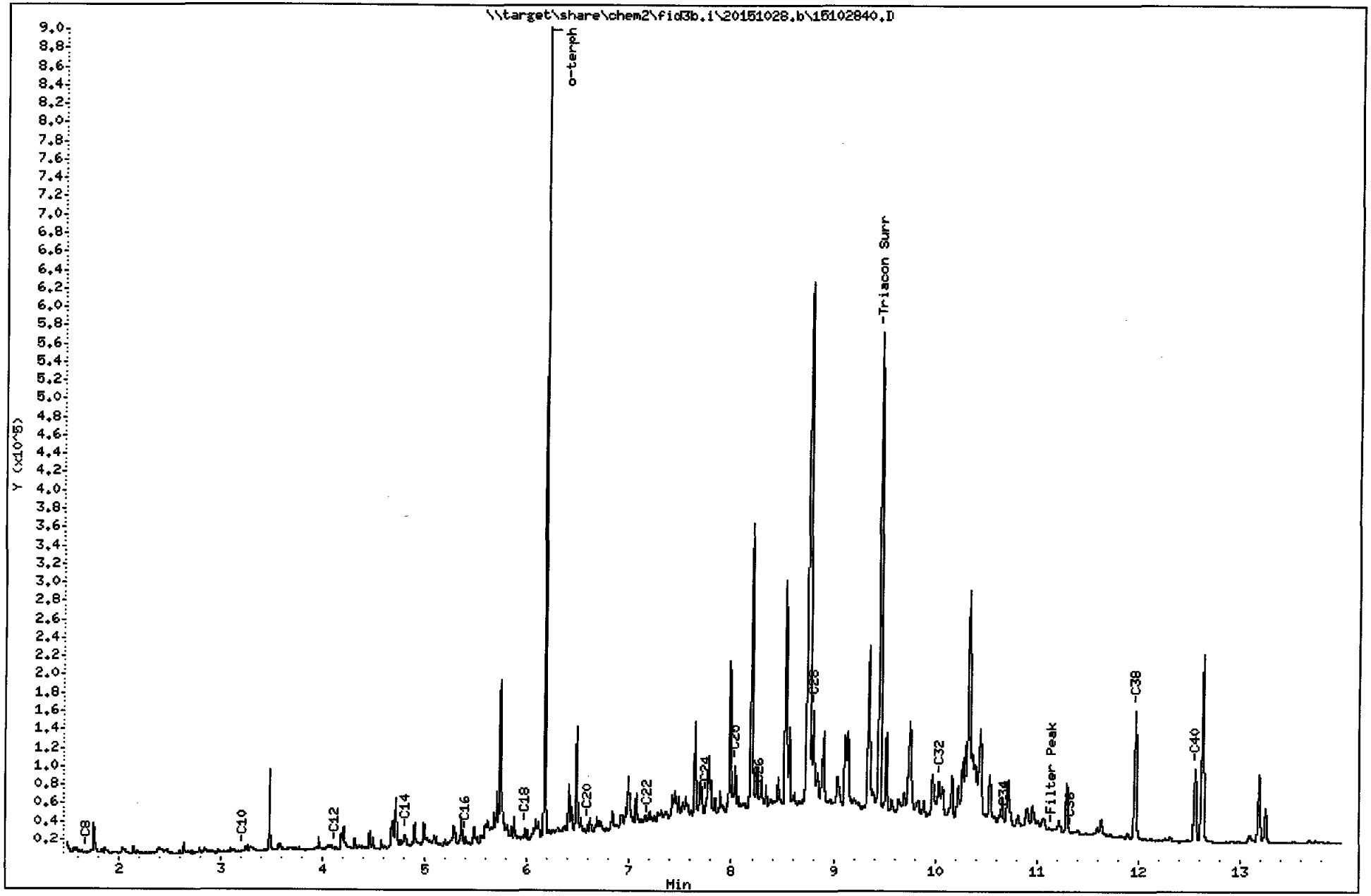
1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MW Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102840.D
Date : 29-OCT-2015 01:07
Client ID: CR19F-SSD
Sample Info: AOW1C

Instrument: fid3b.i
Operator: ML
Column diameter: 0.25

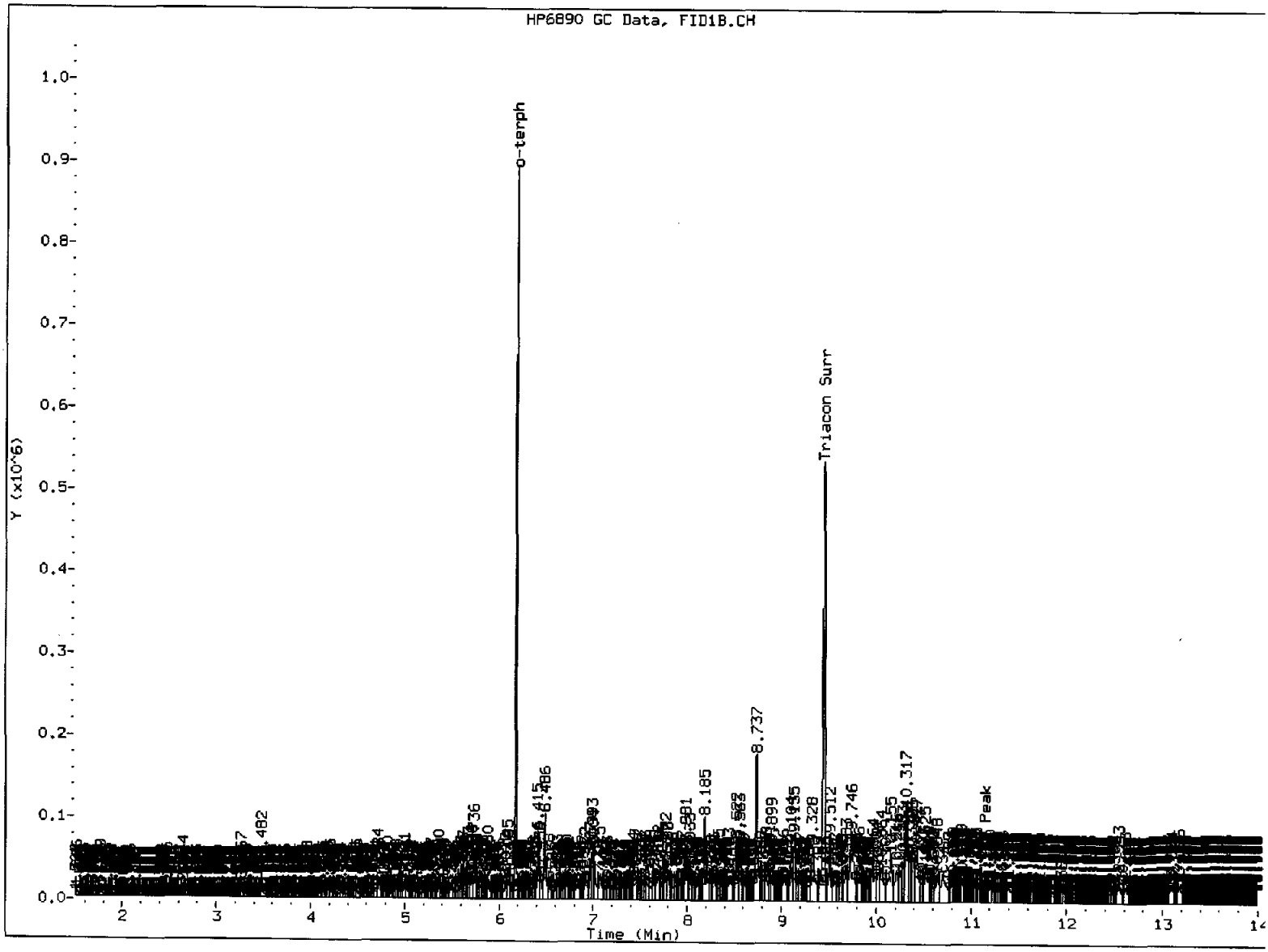
Column phase: RTX-1



AOW1 : 00054

FID:3B-2C/RTX-1 AOW1I

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MM Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102841.D

Date : 29-OCT-2015 01:28

Client ID: CR18B-SSD

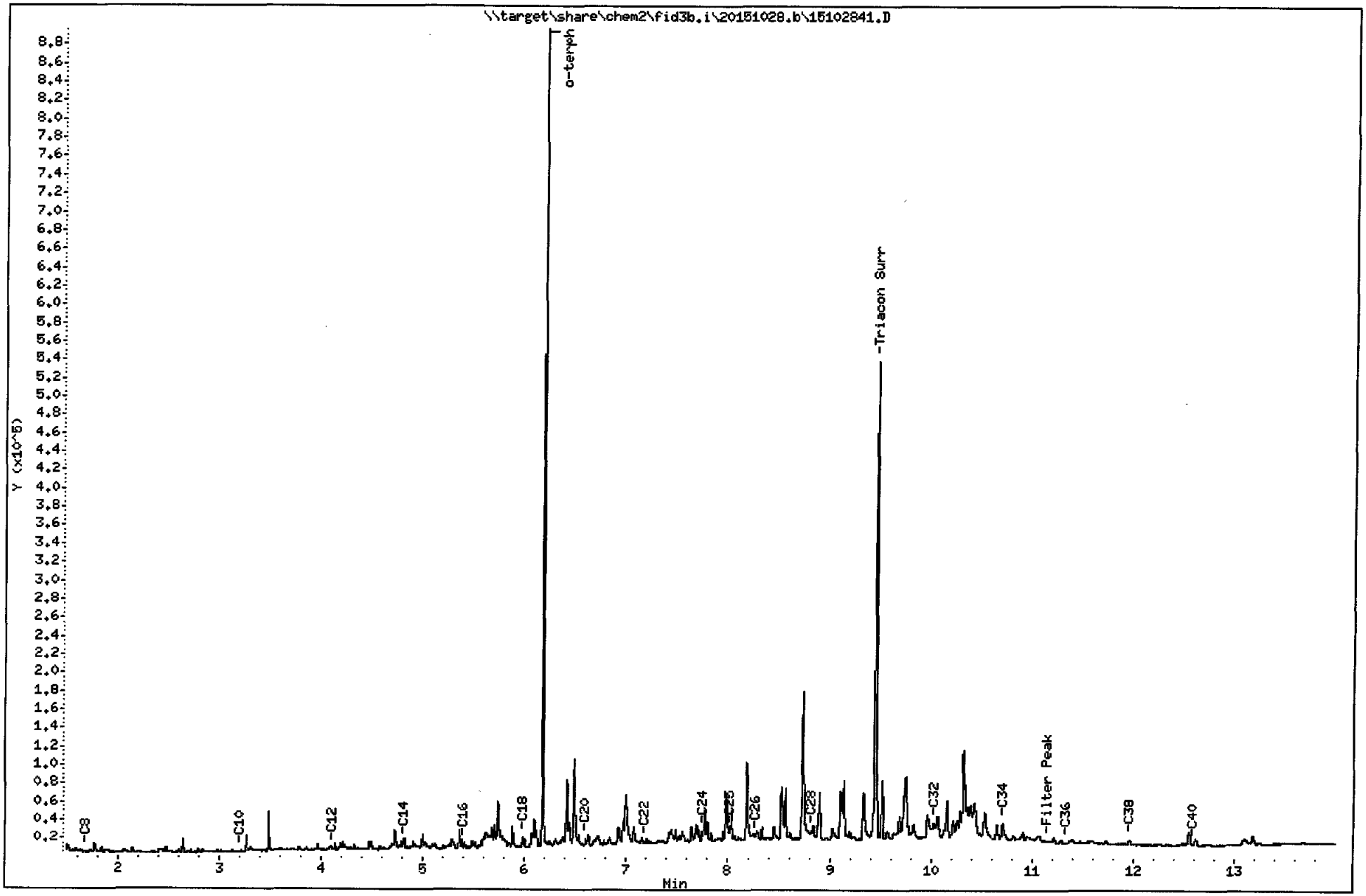
Sample Info: AOW1I

Column phase: RTX-1

Instrument: fid3b.i

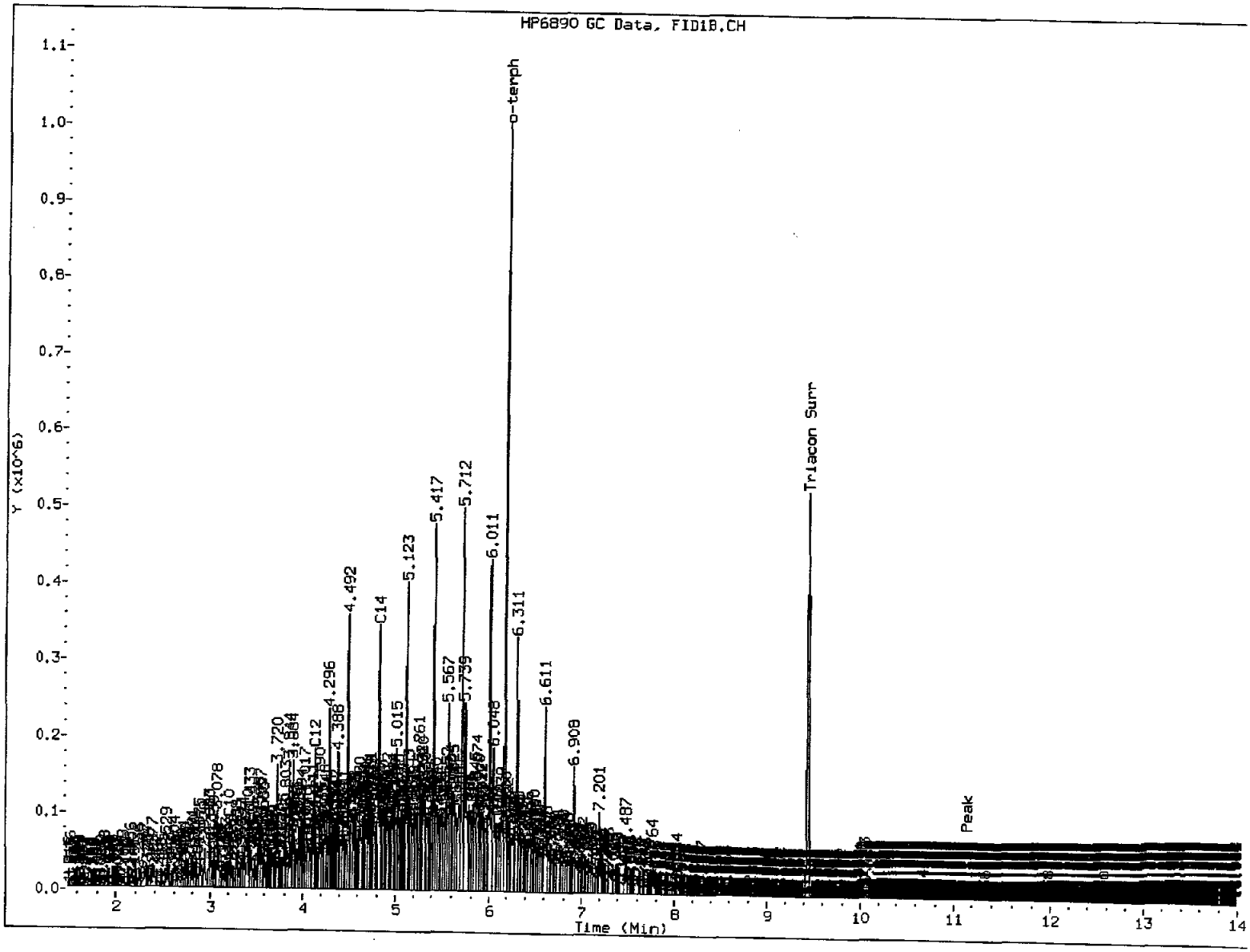
Operator: ML

Column diameter: 0.25



AOW1:00056

FID:3B-2C/RTX-1 AOV8LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MM Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102834.D

Date : 28-OCT-2015 22:59

Client ID: AOV8LCSS1

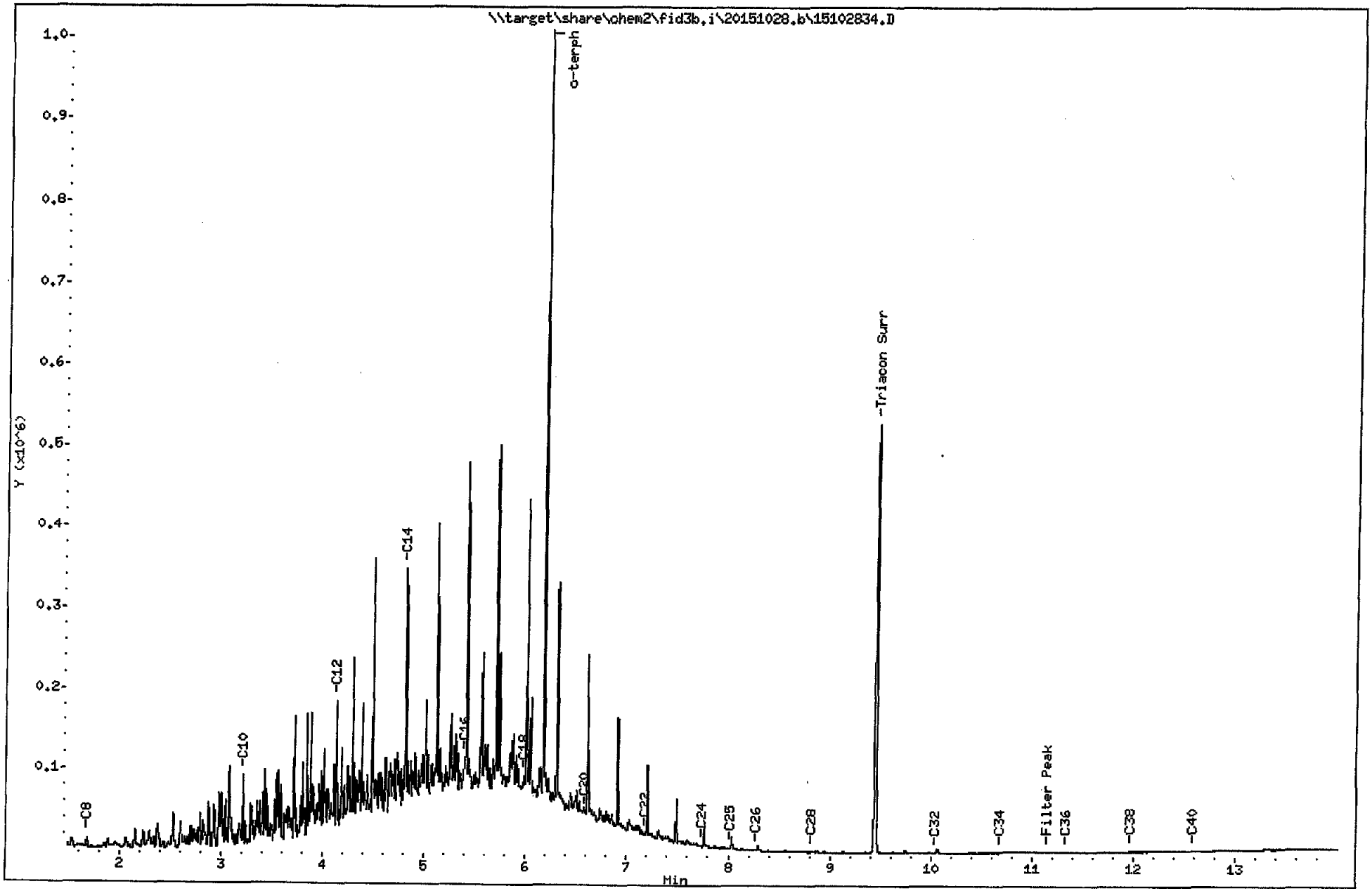
Sample Info: AOV8LCSS1

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML

Column diameter: 0.25



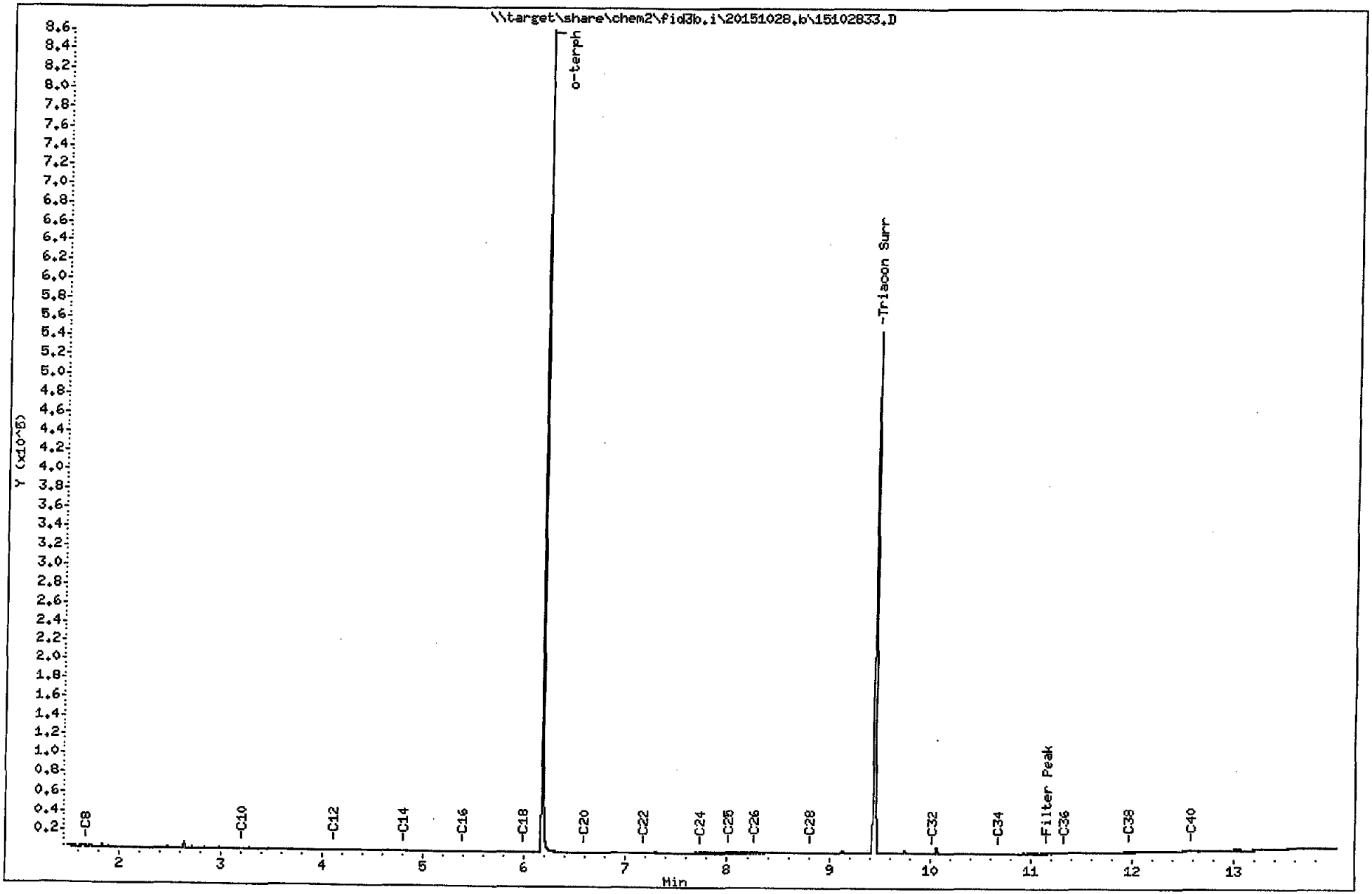
AOW1:00058

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102833.D
Date : 28-OCT-2015 22:38
Client ID: AOV8MBS1
Sample Info: AOV8MBS1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25

Column phase: RTX-1



AOW1:00059

SAMPLE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Client ID: CR19F-SBSD
ARI ID: 15-19542 AOW1A

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	50.30
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	2.76

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Client ID: CR19F-SBSD-DUP
ARI ID: 15-19543 AOW1B

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	51.43
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	2.59

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Client ID: CR19F-SSD
ARI ID: 15-19544 AOW1C

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	49.31
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	2.77

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Client ID: CR18B-SBSD
ARI ID: 15-19549 AOW1H

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	47.88
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	2.45

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: J
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Client ID: CR18B-SSD
ARI ID: 15-19550 AOW1I

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	46.44
Total Organic Carbon	11/11/15 111115#1	Plumb,1981	Percent	0.020	1.95

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: J
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/21/15	Percent	< 0.01 U	ICB
Total Organic Carbon	11/11/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: V
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	11/11/15	Percent	0.096	0.100	96.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: U
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST 1941B	11/11/15	Percent	3.05	2.99	102.0%

REPLICATE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: AOW1I Client ID: CR18B-SSD					
Total Solids	10/21/15	Percent	46.44	45.68 45.72	0.9%
Total Organic Carbon	11/11/15	Percent	1.95	2.04 1.73	8.4%

MS/MSD RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: AOW1I Client ID: CR18B-SSD						
Total Organic Carbon	11/11/15	Percent	1.95	4.57	3.34	78.4%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR19F-SBSD
SAMPLE

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Percent Total Solids: 52.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	9	**22**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	0.9	**50.5**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**60.0**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**13**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.05**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**80**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR19F-SBSD
DUPLICATE

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	22	21	4.7%	+/- 9	L
Cadmium	6010C	0.4 U	0.4 U	0.0%	+/- 0.4	L
Chromium	6010C	50.5	49.7	1.6%	+/- 20%	
Copper	6010C	60.0	57.4	4.4%	+/- 20%	
Lead	6010C	13	12	8.0%	+/- 4	L
Mercury	7471A	0.05	0.07	33.3%	+/- 0.04	L
Silver	6010C	0.6 U	0.6 U	0.0%	+/- 0.6	L
Zinc	6010C	80	79	1.3%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR19F-SBSD
MATRIX SPIKE

Lab Sample ID: AOW1A
LIMS ID: 15-19542
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	22	353	370	89.5%	
Cadmium	6010C	0.4 U	88.2	92.4	95.5%	
Chromium	6010C	50.5	135	92.4	91.5%	
Copper	6010C	60.0	142	92.4	88.7%	
Lead	6010C	13	349	370	90.8%	
Mercury	7471A	0.05	0.51	0.446	103%	
Silver	6010C	0.6 U	85.4	92.4	92.4%	
Zinc	6010C	80	159	92.4	85.5%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR19F-SBSD-DUP
SAMPLE

Lab Sample ID: AOW1B
LIMS ID: 15-19543
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Percent Total Solids: 53.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	9	**23**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.3	0.3	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	0.9	**51.3**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.3	**53.3**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	3	**14**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.05	**0.07**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**79**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR19F-SSD
SAMPLE

Lab Sample ID: AOW1C
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Percent Total Solids: 49.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**20**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**41**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**53.1**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**11**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.05**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**74**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR18B-SBSD
SAMPLE

Lab Sample ID: AOW1H
LIMS ID: 15-19549
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Percent Total Solids: 48.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**20**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**36**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**53.4**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**10**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.05	**0.07**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**73**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR18B-SSD
SAMPLE

Lab Sample ID: AOW1I
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Percent Total Solids: 45.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**30**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**41**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**62.7**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**10**	
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.05	0.05	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.6	0.6	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**76**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: AOW1MB
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	7440-38-2	Arsenic	5	5	U
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7440-47-3	Chromium	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	7440-50-8	Copper	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7439-92-1	Lead	2	2	U
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.02	0.02	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.3	0.3	U
3050B	11/02/15	6010C	11/03/15	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: AOW1LCS
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery
Arsenic	6010C	200	200	100%
Cadmium	6010C	49.7	50.0	99.4%
Chromium	6010C	50.9	50.0	102%
Copper	6010C	47.6	50.0	95.2%
Lead	6010C	197	200	98.5%
Mercury	7471A	0.49	0.50	98.0%
Silver	6010C	51.3	50.0	103%
Zinc	6010C	47	50	94.0%

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 November 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AOW2

Dear Madi:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above. Twenty sediment samples were received on October 16, 2015. Seventeen samples were placed on hold as specified. The remaining samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx, TOC, asbestos and total metals as requested. The analysis for asbestos was sub-contracted to NVL Laboratories in Seattle, WA.

The %Ds for pentachlorophenol and the surrogate, d14-p-terphenyl, were not within control limits for the CCAL that bracketed the 11/5/15 SIM-SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The percent differences (%Ds) for benzoic acid and diethylphthalate were not within control limits for the CCAL that bracketed the 11/14/15 SVOC analyses of these samples. All positive results for these compounds have been flagged with a "Q" qualifier to denote the high %Ds.

The remaining analyses proceeded without incident of note.

An electronic copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AOW2

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

AOW2 : 00002

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AOW2	Turn-around Requested: Standard	Page:	of
ARI Client Company: Mault Foster Alongi, Inc.	Phone: (503)501.5212	Date:	Ice Present?
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Scapa Landing			
Client Project #: 1044.02.01-02	Samplers: RD, JJP, MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: ARCHIVE	TOC	DAH	SVOA PAH only	PCB	Mercury	Metals	TPH	Notes/Comments: Dioxin/Furan
CR16A-5.0	~~10/15~~ 10/14	1415	Sed	1	X								
CR16A-14	10/14	1417	Sed	1	X								
CR16B-0-10cm	10/14	1440	Sed	1	X								
CR16B-10.0	10/14	1443	Sed	1	X								
CR16B-13.0	10/14	1445	Sed	1	X								
CR15C-SSD	10/14	1620	Sed	5	X	X	X	X	X	X	X	X	X
CR15C-5.0	10/14	1634	Sed	1	X								
CR15D-0-10cm	10/14	1641	Sed	1	X								
CR15C-SBSD	10/14	1640	Sed	3	X	X	X	X	X	X	X		
~~CR16C-SSD~~	~~10/14~~	~~16~~											

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Degens	Printed Name:	Printed Name:	Printed Name:
	Company: MFA	Company:	Company:	Company:
	Date & Time:	Date & Time:	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

AOM2 : 00003

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AOM2	Turn-around Requested: Standard	Page:	of
ARI Client Company: Maul Foster & Alongi, Inc.	Phone: (503) 501-5212	Date:	Ice Present?
Client Contact: Madi Norak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: RD MRM JJP		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: ARCHIVE	Asbestos	Dioxin/Furan	TPH	SVOA	TOC	Mercury	Metals	Notes/Comments: PAH	PCBs
FB05	10/14	1130	Sed	1	X									
FB06	10/14	1118	Sed	1	X									
FB07	10/14	1135	Sed	1	X									
FB08	10/14	1140	Sed	1	X									
CR08b-SSD-COMP	10/14	1145	Sed	16	X	X	X	X	X	X	X	X	X	X
CR15A-5	10/14	1300	Sed	1	X									
CR15A-11	10/14	1800	Sed	1	X									
CR15B-0-10cm	10/14	1540	Sed	1	X									
CR15B-5	10/14	1345	Sed	1	X									
CR16A-0-10cm	10/14	1410	Sed	1	X									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Roxanne Peyton	Printed Name:	Printed Name:	Printed Name:
	Company: MFA	Company:	Company:	Company:
	Date & Time:	Date & Time:	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Mall foster

Project Name: -

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.6

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00256S

Cooler Accepted by: WL Date: 10/16/15 Time: 1520

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ...	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: WL Date: 10/20/15 Time: 1408

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
cro8A-SSD-comp	cro8b-SSD-comp		

Additional Notes, Discrepancies, & Resolutions: * 3 of 5 jars missing from sample cr15C-SSD. 3 extra jars, labeled as cr16C-SSD (crossed out on COC). 1 of 3 jars missing from sample cr15C-SBSD. 6 of 6 jars missing from sample cro8b-SSD-comp. 6 extra jars labeled cro8A-SSD-comp.

By: WL Date: 10/20/15

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	● ● ●

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

Subject: RE: AON4-Seaport Landing
From: Roxanne Degens <rdegens@maulfoster.com>
Date: 10/20/2015 4:03 PM
To: Mark Harris <markh@arilabs.com>

Mark -
In looking through the COCs earlier, I noticed that I had miswritten/not included an analyte on some of the COCs. The following samples must additionally be analyzed for SVOAs:

CR17D-SSD
CR17D-SBSD
CR08A-SBSD
CR10-SSD-COMP
CR08A-SSD-COMP
CR08b-SBSD
CR26-SBSD
CR19F-SBSD
CR19F-SBSD-DUP
CR19F-SSD
CR18B-SBSD
CR18B-SSD

Please let me know if this will cause any issues. SVOAs is part of the SMS suite. Thanks!

ROXANNE DEGENS | MAUL FOSTER & ALONGI, INC.

d. 206.724.0612 | p. 206 858 7620 | c. 206.450.3396
411 First Avenue South, Suite 610, Seattle, WA 98104
www.maulfoster.com

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, October 20, 2015 2:27 PM
To: Madi Novak <mnovak@maulfoster.com>; Mike Murray <mmurray@maulfoster.com>; Mary Benzinger <mbenzinger@maulfoster.com>
Cc: Roxanne Degens <rdegens@maulfoster.com>
Subject: Re: AON4-Seaport Landing

Will do.

On 10/20/2015 2:21 PM, Madi Novak wrote:
> Thanks Mark,

Yes, please run NWTPH-Dx for B02-S-5.0 and B03-S-5.0. Thank you!

MADI NOVAK | MAUL FOSTER & ALONGI, INC.
direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060
|www.maulfoster.com
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, October 20, 2015 2:20 PM
To: Madi Novak; Mike Murray; Mary Benzinger
Cc: Roxanne Degens
Subject: Re: AON4-Seaport Landing

Here are the soil HCID results. Let me know if you'd like and TPH-Dx follow-ups.

Mark H.

On 10/19/2015 1:29 PM, Madi Novak wrote:

> Yes, please go ahead and trigger -Dx analysis for B02-GW-6 and B03-GW-10. Let's do -Gx for B02-GW-6 as well. Thank you.
>
> MADI NOVAK | MAUL FOSTER & ALONGI, INC.
> direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060
> |www.maulfoster.com
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
>
> -----Original Message-----
> From: Mark Harris [mailto:markh@arilabs.com]
> Sent: Monday, October 19, 2015 1:28 PM
> To: Madi Novak; Mike Murray; Mary Benzinger
> Subject: AON4-Seaport Landing
>
> All:
>
> One set of HCID analyses are done for some soil samples.

Let me know if you'd like us to trigger any NWTPH-Dx analyses based on these results.

Mark H.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey<https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

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--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

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Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AOW2
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR16A-5.0	AOW2A	15-19551	Sediment	10/14/15 14:15	10/16/15 15:20
2.	CR16A-14	AOW2B	15-19552	Sediment	10/14/15 14:17	10/16/15 15:20
3.	CR16B-0-10CM	AOW2C	15-19553	Sediment	10/14/15 14:40	10/16/15 15:20
4.	CR16B-10.0	AOW2D	15-19554	Sediment	10/14/15 14:43	10/16/15 15:20
5.	CR16B-13.0	AOW2E	15-19555	Sediment	10/14/15 14:45	10/16/15 15:20
6.	CR15C-SSD	AOW2F	15-19556	Sediment	10/14/15 16:26	10/16/15 15:20
7.	CR15C-5.0	AOW2G	15-19557	Sediment	10/14/15 16:34	10/16/15 15:20
8.	CR15D-0-10CM	AOW2H	15-19558	Sediment	10/14/15 16:41	10/16/15 15:20
9.	CR15C-SBSD	AOW2I	15-19559	Sediment	10/14/15 16:40	10/16/15 15:20
10.	CR16C-SSD	AOW2J	15-19560	Sediment	10/14/15	10/16/15 15:20
11.	FB05	AOW2K	15-19561	Sediment	10/14/15 11:30	10/16/15 15:20
12.	FB06	AOW2L	15-19562	Sediment	10/14/15 11:18	10/16/15 15:20
13.	FB07	AOW2M	15-19563	Sediment	10/14/15 11:35	10/16/15 15:20
14.	FB08	AOW2N	15-19564	Sediment	10/14/15 11:40	10/16/15 15:20
15.	CR08b-SSD-COMP	AOW2O	15-19565	Sediment	10/14/15 11:45	10/16/15 15:20
16.	CR15A-5	AOW2P	15-19566	Sediment	10/14/15 13:00	10/16/15 15:20
17.	CR15A-11	AOW2Q	15-19567	Sediment	10/14/15 13:00	10/16/15 15:20
18.	CR15B-0-10CM	AOW2R	15-19568	Sediment	10/14/15 13:40	10/16/15 15:20
19.	CR15B-5	AOW2S	15-19569	Sediment	10/14/15 13:45	10/16/15 15:20
20.	CR16A-0-10CM	AOW2T	15-19570	Sediment	10/14/15 14:10	10/16/15 15:20

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AOW2:00010

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AOW2 : 00011

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

AOW2:00012

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR15C-SSD
SAMPLE

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/14/15 23:35
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.19 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 60.8%

CAS Number	Analyte	LOQ	Result	
108-95-2	**Phenol**	**20**	**50**	
106-46-7	1,4-Dichlorobenzene	20	< 20	U
100-51-6	Benzyl Alcohol	20	< 20	U
95-50-1	1,2-Dichlorobenzene	20	< 20	U
95-48-7	2-Methylphenol	20	< 20	U
106-44-5	**4-Methylphenol**	**20**	**89**	
105-67-9	2,4-Dimethylphenol	98	< 98	U
65-85-0	**Benzoic Acid**	**200**	**250**	**Q**
120-82-1	1,2,4-Trichlorobenzene	20	< 20	U
91-20-3	**Naphthalene**	**20**	**64**	
87-68-3	Hexachlorobutadiene	20	< 20	U
91-57-6	**2-Methylnaphthalene**	**20**	**19**	**J**
131-11-3	Dimethylphthalate	20	< 20	U
208-96-8	**Acenaphthylene**	**20**	**15**	**J**
83-32-9	**Acenaphthene**	**20**	**38**	
132-64-9	**Dibenzofuran**	**20**	**24**	
84-66-2	**Diethylphthalate**	**20**	**21**	**QB**
86-73-7	**Fluorene**	**20**	**29**	
86-30-6	N-Nitrosodiphenylamine	20	< 20	U
118-74-1	Hexachlorobenzene	20	< 20	U
87-86-5	Pentachlorophenol	98	< 98	U
85-01-8	**Phenanthrene**	**20**	**91**	
120-12-7	**Anthracene**	**20**	**18**	**J**
84-74-2	Di-n-Butylphthalate	20	< 20	U
206-44-0	**Fluoranthene**	**20**	**120**	
129-00-0	**Pyrene**	**20**	**98**	
85-68-7	Butylbenzylphthalate	20	< 20	U
56-55-3	**Benzo(a)anthracene**	**20**	**56**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**49**	**29**	**J**
218-01-9	**Chrysene**	**20**	**61**	
117-84-0	Di-n-Octyl phthalate	20	< 20	U
50-32-8	**Benzo(a)pyrene**	**20**	**31**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**18**	**J**
53-70-3	Dibenz(a,h)anthracene	20	< 20	U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**23**	
90-12-0	**1-Methylnaphthalene**	**20**	**15**	**J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**100**	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR15C-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Date Analyzed: 11/14/15 23:35

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.4%	2-Fluorobiphenyl	60.6%
d14-p-Terphenyl	82.4%	d4-1,2-Dichlorobenzene	54.2%
d5-Phenol	50.9%	2-Fluorophenol	45.9%
2,4,6-Tribromophenol	81.1%	d4-2-Chlorophenol	58.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR15C-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW2I
LIMS ID: 15-19559
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/15/15 00:11
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.26 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 39.7%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**52**
105-67-9	2,4-Dimethylphenol	98	< 98 U
65-85-0	**Benzoic Acid**	**200**	**160 JQ**
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**35**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**18 J**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**15 J**
83-32-9	**Acenaphthene**	**20**	**37**
132-64-9	**Dibenzofuran**	**20**	**21**
84-66-2	**Diethylphthalate**	**20**	**26 QB**
86-73-7	**Fluorene**	**20**	**20**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	98	< 98 U
85-01-8	**Phenanthrene**	**20**	**69**
120-12-7	**Anthracene**	**20**	**20**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**110**
129-00-0	**Pyrene**	**20**	**80**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**64**
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49 U
218-01-9	**Chrysene**	**20**	**69**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	**Benzo(a)pyrene**	**20**	**35**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**17 J**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**14 J**
90-12-0	**1-Methylnaphthalene**	**20**	**18 J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**100**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR15C-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW2I
LIMS ID: 15-19559
Matrix: Sediment
Date Analyzed: 11/15/15 00:11

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	55.0%	2-Fluorobiphenyl	51.6%
d14-p-Terphenyl	61.0%	d4-1,2-Dichlorobenzene	45.0%
d5-Phenol	38.8%	2-Fluorophenol	35.2%
2,4,6-Tribromophenol	64.1%	d4-2-Chlorophenol	44.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR06b-SSD-COMP SAMPLE

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/15/15 00:47
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 54.8%

CAS Number	Analyte	LOQ	Result
108-95-2	**Phenol**	**19**	**71**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	**2-Methylphenol**	**19**	**14 J**
106-44-5	**4-Methylphenol**	**19**	**210**
105-67-9	2,4-Dimethylphenol	96	< 96 U
65-85-0	**Benzoic Acid**	**190**	**330 Q**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**170**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	**Acenaphthylene**	**19**	**51**
83-32-9	**Acenaphthene**	**19**	**51**
132-64-9	**Dibenzofuran**	**19**	**53**
84-66-2	**Diethylphthalate**	**19**	**36 QB**
86-73-7	**Fluorene**	**19**	**52**
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	96	< 96 U
85-01-8	**Phenanthrene**	**19**	**220**
120-12-7	**Anthracene**	**19**	**71**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**280**
129-00-0	**Pyrene**	**19**	**250**
85-68-7	**Butylbenzylphthalate**	**19**	**310**
56-55-3	**Benzo(a)anthracene**	**19**	**94**
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
218-01-9	**Chrysene**	**19**	**130**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	**Benzo(a)pyrene**	**19**	**67**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**46**
53-70-3	**Dibenz(a,h)anthracene**	**19**	**12 J**
191-24-2	**Benzo(g,h,i)perylene**	**19**	**54**
90-12-0	**1-Methylnaphthalene**	**19**	**29**
TOTBFA	**Total Benzofluoranthenes**	**38**	**220**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: CR08b-SSD-COMP SAMPLE

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Date Analyzed: 11/15/15 00:47

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.6%	2-Fluorobiphenyl	66.6%
d14-p-Terphenyl	76.2%	d4-1,2-Dichlorobenzene	66.8%
d5-Phenol	57.9%	2-Fluorophenol	61.2%
2,4,6-Tribromophenol	89.7%	d4-2-Chlorophenol	70.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: MB-103015
METHOD BLANK

Lab Sample ID: MB-103015
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	**Diethylphthalate**	**20**	**21**
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546

Sample ID: MB-103015
METHOD BLANK

Lab Sample ID: MB-103015
LIMS ID: 15-19556
Matrix: Sediment
Date Analyzed: 11/05/15 21:17

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

CAS Number	Analyte	LOQ	Result

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.0%	2-Fluorobiphenyl	65.0%
d14-p-Terphenyl	94.2%	d4-1,2-Dichlorobenzene	65.0%
d5-Phenol	65.6%	2-Fluorophenol	61.7%
2,4,6-Tribromophenol	74.3%	d4-2-Chlorophenol	66.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 2

Sample ID: LCS-103015
LAB CONTROL

Lab Sample ID: LCS-103015
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/18/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:52
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	418	500	83.6%
1,4-Dichlorobenzene	339	500	67.8%
Benzyl Alcohol	401	500	80.2%
1,2-Dichlorobenzene	368	500	73.6%
2-Methylphenol	346	500	69.2%
4-Methylphenol	393	500	78.6%
2,4-Dimethylphenol	822	1500	54.8%
Benzoic Acid	2160	2750	78.5%
1,2,4-Trichlorobenzene	349	500	69.8%
Naphthalene	351	500	70.2%
Hexachlorobutadiene	390	500	78.0%
2-Methylnaphthalene	374	500	74.8%
Dimethylphthalate	372	500	74.4%
Acenaphthylene	356	500	71.2%
Acenaphthene	371	500	74.2%
Dibenzofuran	375	500	75.0%
Diethylphthalate	410 B	500	82.0%
Fluorene	342	500	68.4%
N-Nitrosodiphenylamine	368	500	73.6%
Hexachlorobenzene	350	500	70.0%
Pentachlorophenol	977	1500	65.1%
Phenanthrene	402	500	80.4%
Anthracene	405	500	81.0%
Di-n-Butylphthalate	446	500	89.2%
Fluoranthene	386	500	77.2%
Pyrene	371	500	74.2%
Butylbenzylphthalate	398	500	79.6%
Benzo(a)anthracene	401	500	80.2%
bis(2-Ethylhexyl)phthalate	372	500	74.4%
Chrysene	389	500	77.8%
Di-n-Octyl phthalate	353	500	70.6%
Benzo(a)pyrene	384	500	76.8%
Indeno(1,2,3-cd)pyrene	362	500	72.4%
Dibenz(a,h)anthracene	371	500	74.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-103015
LAB CONTROL

Lab Sample ID: LCS-103015
LIMS ID: 15-19556
Matrix: Sediment
Date Analyzed: 11/05/15 21:52

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	304	500	60.8%
1-Methylnaphthalene	350	500	70.0%
Total Benzofluoranthenes	806	1000	80.6%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	63.8%
2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	88.6%
d4-1,2-Dichlorobenzene	59.4%
d5-Phenol	65.6%
2-Fluorophenol	66.0%
2,4,6-Tribromophenol	70.7%
d4-2-Chlorophenol	66.8%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-103015	61.0%	65.0%	94.2%	65.0%	65.6%	61.7%	74.3%	66.7%	0
LCS-103015	63.8%	65.2%	88.6%	59.4%	65.6%	66.0%	70.7%	66.8%	0
CR15C-SSD	72.4%	60.6%	82.4%	54.2%	50.9%	45.9%	81.1%	58.8%	0
CR15C-SBSD	55.0%	51.6%	61.0%	45.0%	38.8%	35.2%	64.1%	44.1%	0
CR08b-SSD-COMP	74.6%	66.6%	76.2%	66.8%	57.9%	61.2%	89.7%	70.1%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(30-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(37-120)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(32-120)	(32-120)
(PHL) = d5-Phenol	(29-120)	(29-120)
(2FP) = 2-Fluorophenol	(27-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(24-134)	(24-134)
(2CP) = d4-2-Chlorophenol	(31-120)	(31-120)

Prep Method: SW3546
Log Number Range: 15-19556 to 15-19565

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15111403.D
Analysis Type:
Lab Sample ID: ICV 5
Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

Injection Date: 14-NOV-2015 12:09
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.12958	0.98032	0.98032	0.010	-13.21370	20.00000	Averaged	
$ 2 Phenol-d5	1.36520	1.13439	1.13439	0.010	-16.90661	20.00000	Averaged	
3 Phenol	1.33180	1.10533	1.10533	0.100	-17.00502	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.33265	1.26674	1.26674	0.010	-4.94562	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.01930	0.79941	0.79941	0.700	-21.57225	20.00000	Averaged	<-
6 2-Chlorophenol	1.30689	1.28200	1.28200	0.800	-1.90460	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.60078	1.54397	1.54397	0.010	-3.54909	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.54535	1.45107	1.45107	0.010	-6.10132	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.99122	0.96956	0.96956	0.010	-2.18580	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44684	1.42493	1.42493	0.010	-1.51401	20.00000	Averaged	
11 Benzyl alcohol	0.63765	0.61868	0.61868	0.010	-2.97423	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.45840	0.43519	0.43519	0.010	-5.06371	20.00000	Averaged	
13 2-Methylphenol	0.99636	0.87219	0.87219	0.700	-12.46244	20.00000	Averaged	
17 Hexachloroethane	0.61781	0.68425	0.68425	0.300	10.75475	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.74117	0.73679	0.73679	0.500	-0.59170	20.00000	Averaged	
15 4-Methylphenol	1.00886	0.95885	0.95885	0.600	-4.95718	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.39605	0.41261	0.41261	0.010	4.18241	20.00000	Averaged	
19 Nitrobenzene	0.36379	0.38536	0.38536	0.200	5.92827	20.00000	Averaged	
20 Isophorone	0.57522	0.57445	0.57445	0.300	-0.13479	20.00000	Averaged	
21 2-Nitrophenol	0.21477	0.20907	0.20907	0.100	-2.65471	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39317	0.42421	0.42421	0.200	7.89512	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.32972	0.28007	0.28007	0.050	-15.05717	20.00000	Averaged	
24 Benzoic acid	20.00000	15.43857	0.18026	0.010	-22.80714	20.00000	Quadratic	<-
25 2,4-Dichlorophenol	0.32107	0.33912	0.33912	0.100	5.62338	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.37492	0.36985	0.36985	0.010	-1.35257	20.00000	Averaged	
28 Naphthalene	1.03606	0.92566	0.92566	0.100	-10.65624	20.00000	Averaged	
29 4-Chloroaniline	0.41428	0.37549	0.37549	0.010	-9.36314	20.00000	Averaged	
30 Hexachlorobutadiene	0.24781	0.27807	0.27807	0.010	12.21075	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.33608	0.34643	0.34643	0.200	3.07743	20.00000	Averaged	
32 2-Methylnaphthalene	0.74547	0.73816	0.73816	0.300	-0.98109	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.41843	0.48613	0.48613	0.001	16.17855	20.00000	Averaged	
34 2,4,6-Trichlorophenol	0.37961	0.42039	0.42039	0.200	10.74070	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.39251	0.45345	0.45345	0.200	15.52692	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.40765	1.33204	1.33204	0.010	-5.37119	20.00000	Averaged	
37 2-Chloronaphthalene	1.14337	1.14997	1.14997	0.700	0.57749	20.00000	Averaged	
38 2-Nitroaniline	0.31622	0.40203	0.40203	0.010	27.13477	20.00000	Averaged	<-
39 Dimethylphthalate	1.36783	1.52406	1.52406	0.010	11.42196	20.00000	Averaged	
40 Acenaphthylene	1.73670	1.75215	1.75215	0.900	0.88965	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.28981	0.32357	0.32357	0.100	11.64737	20.00000	Averaged	
43 3-Nitroaniline	0.28271	0.24382	0.24382	0.010	-13.75648	20.00000	Averaged	
44 Acenaphthene	1.04524	1.02061	1.02061	0.100	-2.35672	20.00000	Averaged	
45 2,4-Dinitrophenol	20.00000	19.95149	0.16875	0.030	-0.24255	20.00000	Quadratic	

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: 15111403.D
Analysis Type:
Lab Sample ID: ICV 5
Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

Injection Date: 14-NOV-2015 12:09
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:03
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
46 Dibenzofuran	1.57152	1.56593	1.56593	0.800	-0.35557	20.00000	Averaged	
47 4-Nitrophenol	10.00000	13.43358	0.35747	0.010	34.33584	20.00000	Quadratic	<-
48 2,4-Dinitrotoluene	0.39543	0.44242	0.44242	0.200	11.88253	20.00000	Averaged	
50 Diethylphthalate	1.32554	1.82004	1.82004	0.010	37.30561	20.00000	Averaged	<-
49 Fluorene	1.34379	1.20933	1.20933	0.100	-10.00593	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.68765	0.71361	0.71361	0.100	3.77493	20.00000	Averaged	
52 4-Nitroaniline	0.30110	0.27918	0.27918	0.010	-7.27836	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	20.00000	18.45121	0.13467	0.001	-7.74397	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.54831	0.50803	0.50803	0.010	-7.34588	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.34466	0.40646	0.40646	0.010	17.93047	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.27932	0.29241	0.29241	0.100	4.68494	20.00000	Averaged	
57 Hexachlorobenzene	0.36460	0.33543	0.33543	0.100	-8.00104	20.00000	Averaged	
58 Pentachlorophenol	10.00000	7.95604	0.16235	0.010	-20.43960	20.00000	Quadratic	<-
60 Phenanthrene	1.02053	0.95681	0.95681	0.700	-6.24361	20.00000	Averaged	
61 Anthracene	1.04166	1.02305	1.02305	0.700	-1.78690	20.00000	Averaged	
62 Carbazole	0.87135	0.79066	0.79066	0.010	-9.26048	20.00000	Averaged	
63 Di-n-butylphthalate	1.31288	1.40257	1.40257	0.010	6.83226	20.00000	Averaged	
64 Fluoranthene	1.11470	1.02121	1.02121	0.600	-8.38756	20.00000	Averaged	
65 Pyrene	1.18016	1.00630	1.00630	0.600	-14.73179	20.00000	Averaged	
$ 66 Terphenyl-d14	0.74289	0.66949	0.66949	0.010	-9.88103	20.00000	Averaged	
67 Butylbenzylphthalate	0.50597	0.53414	0.53414	0.010	5.56781	20.00000	Averaged	
68 Benzo(a)anthracene	1.12072	1.07562	1.07562	0.700	-4.02433	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.75137	0.72269	0.72269	0.010	-3.81794	20.00000	Averaged	
71 Chrysene	0.97701	0.91661	0.91661	0.700	-6.18140	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.52679	0.48036	0.48036	0.010	-8.81366	20.00000	Averaged	
73 Di-n-octylphthalate	1.07536	0.91915	0.91915	0.010	-14.52593	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.08810	1.03403	1.03403	0.700	-4.96944	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08482	0.99545	0.99545	0.700	-8.23784	20.00000	Averaged	
76 Benzo(a)pyrene	1.03138	0.99224	0.99224	0.700	-3.79407	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.37485	1.40557	1.40557	0.500	2.23424	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.13622	1.09199	1.09199	0.400	-3.89259	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.23143	1.18040	1.18040	0.500	-4.14398	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.53343	0.47585	0.47585	0.010	-10.79437	20.00000	Averaged	
91 Aniline	1.56324	1.29410	1.29410	0.010	-17.21667	20.00000	Averaged	
93 Benzidine	0.38521	0.16659	0.16659	0.010	-56.75226	20.00000	Averaged	<-
103 Pyridine	0.85366	0.79840	0.79840	0.010	-6.47352	20.00000	Averaged	
105 1-methylnaphthalene	0.76506	0.70658	0.70658	0.010	-7.64354	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	1.22084	1.62369	1.62369	0.010	32.99768	20.00000	Averaged	<-
187 Total Benzofluoranthenes	1.04123	0.97581	0.97581	0.010	-6.28350	20.00000	Averaged	
99 Perylene	0.99701	0.95088	0.95088	0.010	-4.62702	20.00000	Averaged	
98 Retene	++++	0.00066	0.00066	0.010	++++	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.35337	0.33535	0.33535	0.010	-5.09982	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-103015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-103015
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed: 11/05/15 21:17
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	57.9%
d14-p-Terphenyl	75.6% Q

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR15C-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/14/15 23:35
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.19 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 60.8%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**4.0 J**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	48.0%
d14-p-Terphenyl	73.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR15C-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW2I
LIMS ID: 15-19559
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/15/15 00:11
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.26 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 39.7%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**4.3 J**
106-46-7	1,4-Dichlorobenzene	4.9	< 4.9 U
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	Dimethylphthalate	4.9	< 4.9 U
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	33.7%
d14-p-Terphenyl	61.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR08b-SSD-COMP**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Data Release Authorized:
Reported: 11/19/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/30/15
Date Analyzed: 11/15/15 00:47
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 54.8%
Sulfur Cleanup: No

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**12**
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	**Butylbenzylphthalate**	**4.8**	**320**
95-48-7	2-Methylphenol	4.8	< 4.8 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	Benzyl Alcohol	19	< 19 U
87-86-5	**Pentachlorophenol**	**19**	**11 JQ**
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	56.3%
d14-p-Terphenyl	78.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-103015**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-103015
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/19/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/30/15
Date Analyzed LCS: 11/05/15 21:52
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Dibenz(a,h)anthracene	334	500	66.8%
1,4-Dichlorobenzene	316	500	63.2%
1,2,4-Trichlorobenzene	324	500	64.8%
Hexachlorobenzene	333	500	66.6%
Hexachlorobutadiene	364	500	72.8%
Dimethylphthalate	378	500	75.6%
Butylbenzylphthalate	416	500	83.2%
2-Methylphenol	317	500	63.4%
2,4-Dimethylphenol	770	1500	51.3%
N-Nitrosodiphenylamine	346	500	69.2%
Benzyl Alcohol	416	500	83.2%
Pentachlorophenol	1210 EQ	1500	80.7%
1,2-Dichlorobenzene	328	500	65.6%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	60.9%
d14-p-Terphenyl	71.2% Q

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	FPH	TER	TOT OUT
MB-103015	57.9%	75.6% Q	0
LCS-103015	60.9%	71.2% Q	0
CR15C-SSD	48.0%	73.8%	0
CR15C-SBSD	33.7%	61.2%	0
CR08b-SSD-COMP	56.3%	78.6%	0

	QC LIMITS	
(FPH) = 2-Fluorophenol	(27-120)	(27-120)
(TER) = d14-p-Terphenyl	(37-120)	(37-120)

Prep Method: SW3546
Log Number Range: 15-19556 to 15-19565

ARI Labs, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: CC1105A.D
Analysis Type:
Lab Sample ID: CC1105A
Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

Injection Date: 05-NOV-2015 14:04
Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
Init. Cal. Times: 11:52 16:39
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
S 1 2-Fluorophenol	1.04543	0.98207	0.010	-6.06090	20.00000	Averaged	
3 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.73930	1.78433	0.010	2.58940	20.00000	Averaged	
11 Benzyl alcohol	0.81726	0.79485	0.010	-2.74242	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.62946	1.72457	0.010	5.83701	20.00000	Averaged	
13 2-Methylphenol	0.93390	0.81370	0.010	-12.87015	20.00000	Averaged	
15 4-Methylphenol	0.91605	0.81780	0.010	-10.72571	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61594	0.57662	0.050	-6.38240	20.00000	Averaged	
22 2,4-Dimethylphenol	0.39393	0.33255	0.010	-15.58052	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.39456	0.41910	0.010	6.21998	20.00000	Averaged	
30 Hexachlorobutadiene	0.30361	0.33208	0.010	9.37722	20.00000	Averaged	
39 Dimethylphthalate	1.14558	1.01470	0.010	-11.42453	20.00000	Averaged	
50 Diethylphthalate	1.23806	1.13213	0.010	-8.55608	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.61955	0.57444	0.010	-7.27995	20.00000	Averaged	
57 Hexachlorobenzene	0.41451	0.46057	0.010	11.11164	20.00000	Averaged	
58 Pentachlorophenol	0.21311	0.15371	0.005	-27.87342	20.00000	Averaged	<-
S 66 Terphenyl-d14	0.36942	0.25581	0.010	-30.75549	20.00000	Averaged	<-
67 Butylbenzylphthalate	0.41305	0.39038	0.010	-5.48875	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.15706	1.04200	0.010	-9.94423	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.44352	0.46419	0.010	4.66003	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR15C-SSD**
Page 1 of 1

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 05:51
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.69	0.65-0.89		0.995	1.55	
2,3,7,8-TCDD	0.71	0.65-0.89		0.995	2.70	
1,2,3,7,8-PeCDF	1.58	1.32-1.78		0.995	0.408	J
2,3,4,7,8-PeCDF	1.26	1.32-1.78		0.995	0.505	JEMPC
1,2,3,7,8-PeCDD	1.57	1.32-1.78		0.995	3.65	
1,2,3,4,7,8-HxCDF	1.02	1.05-1.43		0.995	1.25	EMPC
1,2,3,6,7,8-HxCDF	1.27	1.05-1.43		0.995	0.806	J
2,3,4,6,7,8-HxCDF	1.01	1.05-1.43		0.995	1.21	EMPC
1,2,3,7,8,9-HxCDF	1.25	1.05-1.43		0.995	0.338	BJ
1,2,3,4,7,8-HxCDD	1.41	1.05-1.43		0.995	1.22	
1,2,3,6,7,8-HxCDD	1.29	1.05-1.43		0.995	5.48	
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43		0.995	10.0	
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20		0.995	25.3	
1,2,3,4,7,8,9-HpCDF	0.87	0.88-1.20		0.995	0.959	JEMPC
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20		0.995	100	
OCDF	0.86	0.76-1.02		1.99	33.1	
OCDD	0.90	0.76-1.02		9.95	790	

Homologue Group	EDL	RL	Result	
Total TCDF		0.995	13.7	EMPC
Total TCDD		0.995	20.3	EMPC
Total PeCDF		1.99	12.6	EMPC
Total PeCDD		0.995	26.5	
Total HxCDF		1.99	28.1	EMPC
Total HxCDD		1.99	76.1	EMPC
Total HpCDF		1.99	60.7	EMPC
Total HpCDD		1.99	275	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 10.2

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 10.2

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR15C-SSD

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 05:51
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	90.3	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	84.7	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	91.8	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	91.0	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	89.4	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	86.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	83.7	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	92.0	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	89.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	94.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	86.9	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	82.7	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	82.4	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	88.4	23-140	
13C-OCDD	0.88	0.76-1.02	81.8	17-157	
37Cl4-2,3,7,8-TCDD			92.6	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR08b-SSD-COMP**
Page 1 of 1

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Data Release Authorized:
Reported: 11/11/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 06:44
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.69	0.65-0.89		0.984	2.48	
2,3,7,8-TCDD	0.78	0.65-0.89		0.984	2.79	
1,2,3,7,8-PeCDF	1.61	1.32-1.78		0.984	0.978	J
2,3,4,7,8-PeCDF	1.48	1.32-1.78		0.984	1.06	
1,2,3,7,8-PeCDD	1.64	1.32-1.78		0.984	4.81	
1,2,3,4,7,8-HxCDF	1.10	1.05-1.43		0.984	4.39	
1,2,3,6,7,8-HxCDF	1.15	1.05-1.43		0.984	2.13	
2,3,4,6,7,8-HxCDF	1.18	1.05-1.43		0.984	3.84	
1,2,3,7,8,9-HxCDF	1.17	1.05-1.43		0.984	1.62	
1,2,3,4,7,8-HxCDD	1.18	1.05-1.43		0.984	2.96	
1,2,3,6,7,8-HxCDD	1.28	1.05-1.43		0.984	22.3	
1,2,3,7,8,9-HxCDD	1.28	1.05-1.43		0.984	13.9	
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20		0.984	75.8	
1,2,3,4,7,8,9-HpCDF	0.94	0.88-1.20		0.984	3.72	
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20		0.984	955	
OCDF	0.83	0.76-1.02		1.97	128	
OCDD	0.89	0.76-1.02		9.84	22,200	E

Homologue Group	EDL	RL	Result	
Total TCDF		0.984	21.7	EMPC
Total TCDD		0.984	25.0	EMPC
Total PeCDF		1.97	35.9	EMPC
Total PeCDD		0.984	38.2	
Total HxCDF		1.97	119	EMPC
Total HxCDD		1.97	321	
Total HpCDF		1.97	243	EMPC
Total HpCDD		1.97	4,120	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 30.4

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 30.4

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR08b-SSD-COMP

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Data Release Authorized: AW
Reported: 11/11/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/18
Date Analyzed: 11/05/15 06:44
Instrument/Analyst: AS1/PK

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	92.6	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	85.4	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	92.5	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	91.9	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	91.5	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	87.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	83.7	26-123	
13C-2,3,4,6,7,8-HxCDF	0.51	0.43-0.59	90.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	85.8	29-147	
13C-1,2,3,4,7,8-HxCDD	1.28	1.05-1.43	93.6	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	87.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	80.9	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	80.5	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	87.2	23-140	
13C-OCDD	0.89	0.76-1.02	86.1	17-157	
37Cl4-2,3,7,8-TCDD			94.2	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0500	1.00	< 0.0500	U
2,3,7,8-TCDD		0.65-0.89	0.0560	1.00	< 0.0560	U
1,2,3,7,8-PeCDF		1.32-1.78	0.0580	1.00	< 0.0580	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0600	1.00	< 0.0600	U
1,2,3,7,8-PeCDD		1.32-1.78	0.0980	1.00	< 0.0980	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0640	1.00	< 0.0640	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0580	1.00	< 0.0580	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0620	1.00	< 0.0620	U
1,2,3,7,8,9-HxCDF	1.11	1.05-1.43		1.00	0.116	J
1,2,3,4,7,8-HxCDD		1.05-1.43	0.0840	1.00	< 0.0840	U
1,2,3,6,7,8-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,7,8,9-HxCDD		1.05-1.43	0.0880	1.00	< 0.0880	U
1,2,3,4,6,7,8-HpCDF	0.84	0.88-1.20		1.00	0.196	JEMPC
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0600	1.00	< 0.0600	U
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		1.00	1.99	
OCDF	0.72	0.76-1.02		2.00	0.776	JEMPC
OCDD	0.86	0.76-1.02		10.0	16.9	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0500	1.00	< 0.0500	U
Total TCDD	0.0560	1.00	0.0524	EMPC
Total PeCDF	0.0600	2.00	< 0.0600	U
Total PeCDD	0.0980	1.00	0.253	EMPC
Total HxCDF		2.00	0.117	
Total HxCDD	0.0880	2.00	1.31	EMPC
Total HpCDF		2.00	0.426	EMPC
Total HpCDD		2.00	5.27	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.15

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 00:25
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	99.6	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	95.8	25-164	
13C-1,2,3,7,8-PeCDF	1.59	1.32-1.78	103	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	96.9	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	98.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	99.9	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	101	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	99.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	92.8	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	103	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	99.0	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	90.7	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	91.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.07	0.88-1.20	98.5	23-140	
13C-OCDD	0.91	0.76-1.02	84.7	17-157	
37Cl4-2,3,7,8-TCDD			105	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.70	0.65-0.89	1.00	20.6
2,3,7,8-TCDD	0.74	0.65-0.89	1.00	21.4
1,2,3,7,8-PeCDF	1.43	1.32-1.78	1.00	103
2,3,4,7,8-PeCDF	1.44	1.32-1.78	1.00	104
1,2,3,7,8-PeCDD	1.56	1.32-1.78	1.00	104
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43	1.00	105
1,2,3,6,7,8-HxCDF	1.14	1.05-1.43	1.00	105
2,3,4,6,7,8-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43	1.00	105
1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	1.00	102
1,2,3,6,7,8-HxCDD	1.19	1.05-1.43	1.00	104
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43	1.00	107
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	108
1,2,3,4,7,8,9-HpCDF	0.99	0.88-1.20	1.00	109
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20	1.00	104
OCDF	0.82	0.76-1.02	2.00	199
OCDD	0.90	0.76-1.02	10.0	212

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	21.4	EMPC
Total TCDD		1.00	22.0	EMPC
Total PeCDF		2.00	211	EMPC
Total PeCDD		1.00	104	EMPC
Total HxCDF		2.00	421	EMPC
Total HxCDD		2.00	314	EMPC
Total HpCDF		2.00	217	
Total HpCDD		2.00	106	

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	93.5	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	89.2	25-164	
13C-1,2,3,7,8-PeCDF	1.55	1.32-1.78	97.5	24-185	
13C-2,3,4,7,8-PeCDF	1.55	1.32-1.78	92.4	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	93.9	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	90.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	88.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	89.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	84.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	95.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	89.2	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	82.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.43	0.37-0.51	82.6	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20	88.8	23-140	
13C-OCDD	0.90	0.76-1.02	77.0	17-157	
37Cl4-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/11/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 11/05/15 01:26
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	20.6	20.0	103	75-158
2,3,7,8-TCDD	21.4	20.0	107	67-158
1,2,3,7,8-PeCDF	103	100	103	80-134
2,3,4,7,8-PeCDF	104	100	104	68-160
1,2,3,7,8-PeCDD	104	100	104	70-142
1,2,3,4,7,8-HxCDF	105	100	105	72-134
1,2,3,6,7,8-HxCDF	105	100	105	84-130
2,3,4,6,7,8-HxCDF	105	100	105	70-156
1,2,3,7,8,9-HxCDF	105	100	105	78-130
1,2,3,4,7,8-HxCDD	102	100	102	70-164
1,2,3,6,7,8-HxCDD	104	100	104	76-134
1,2,3,7,8,9-HxCDD	107	100	107	64-162
1,2,3,4,6,7,8-HpCDF	108	100	108	82-132
1,2,3,4,7,8,9-HpCDF	109	100	109	78-138
1,2,3,4,6,7,8-HpCDD	104	100	104	70-140
OCDF	199	200	99.5	63-170
OCDD	212	200	106	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR15C-SSD
SAMPLE

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/30/15 00:29
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.10 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 60.8%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.8%
Tetrachlorometaxylene	80.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR15C-SBSD
SAMPLE

Lab Sample ID: AOW2I
LIMS ID: 15-19559
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/30/15 00:50
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.45 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 39.7%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.5%
Tetrachlorometaxylene	79.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR08b-SSD-COMP
SAMPLE

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Date Extracted: 10/26/15
Date Analyzed: 10/30/15 01:11
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.44 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 54.8%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	**Aroclor 1260**	**18**	**14 J**
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	64.2%
Tetrachlorometaxylene	74.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102615
METHOD BLANK

Lab Sample ID: MB-102615
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 18:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.8%
Tetrachlorometaxylene	77.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-102615
LAB CONTROL

Lab Sample ID: LCS-102615
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/03/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/26/15
Date Analyzed: 10/29/15 19:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	405	500	81.0%
Aroclor 1260	407	500	81.4%

PCB Surrogate Recovery

Decachlorobiphenyl	74.0%
Tetrachlorometaxylene	82.0%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-102615	71.8%	40-133	77.5%	53-120	0
LCS-102615	74.0%	40-133	82.0%	53-120	0
CR15C-SSD	71.8%	40-133	80.5%	53-120	0
CR15C-SBSD	70.5%	40-133	79.0%	53-120	0
CR08b-SSD-COMP	64.2%	40-133	74.0%	53-120	0

Microwave (MARS) Control Limits PCBSMP
Prep Method: SW3546
Log Number Range: 15-19556 to 15-19565

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Matrix: Sediment

Date Received: 10/16/15

Data Release Authorized:
Reported: 11/02/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-102315	Method Blank	10/23/15	10/28/15	1.00	Diesel Range	5.0	< 5.0 U
15-19556	HC ID: ---		FID3B	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		74.0%
AOW2F	CR15C-SSD	10/23/15	10/29/15	1.00	**Diesel Range**	**13**	**77**
15-19556	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**25**	**190**
					o-Terphenyl		74.8%
AOW2O	CR08b-SSD-COMP	10/23/15	10/29/15	1.00	**Diesel Range**	**11**	**130**
15-19565	HC ID: **DIESEL/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**22**	**320**
					o-Terphenyl		68.1%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/02/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 10/28/15 22:59
Instrument/Analyst: FID3B/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	109	150	72.7%

TPHD Surrogate Recovery

o-Terphenyl	74.6%

Results reported in mg/kg

FORM III

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	OTER	TOT OUT
102315MB	74.0%	0
102315LCS	74.6%	0
CR15C-SSD	74.8%	0
CR08b-SSD-COMP	68.1%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19556 to 15-19565

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

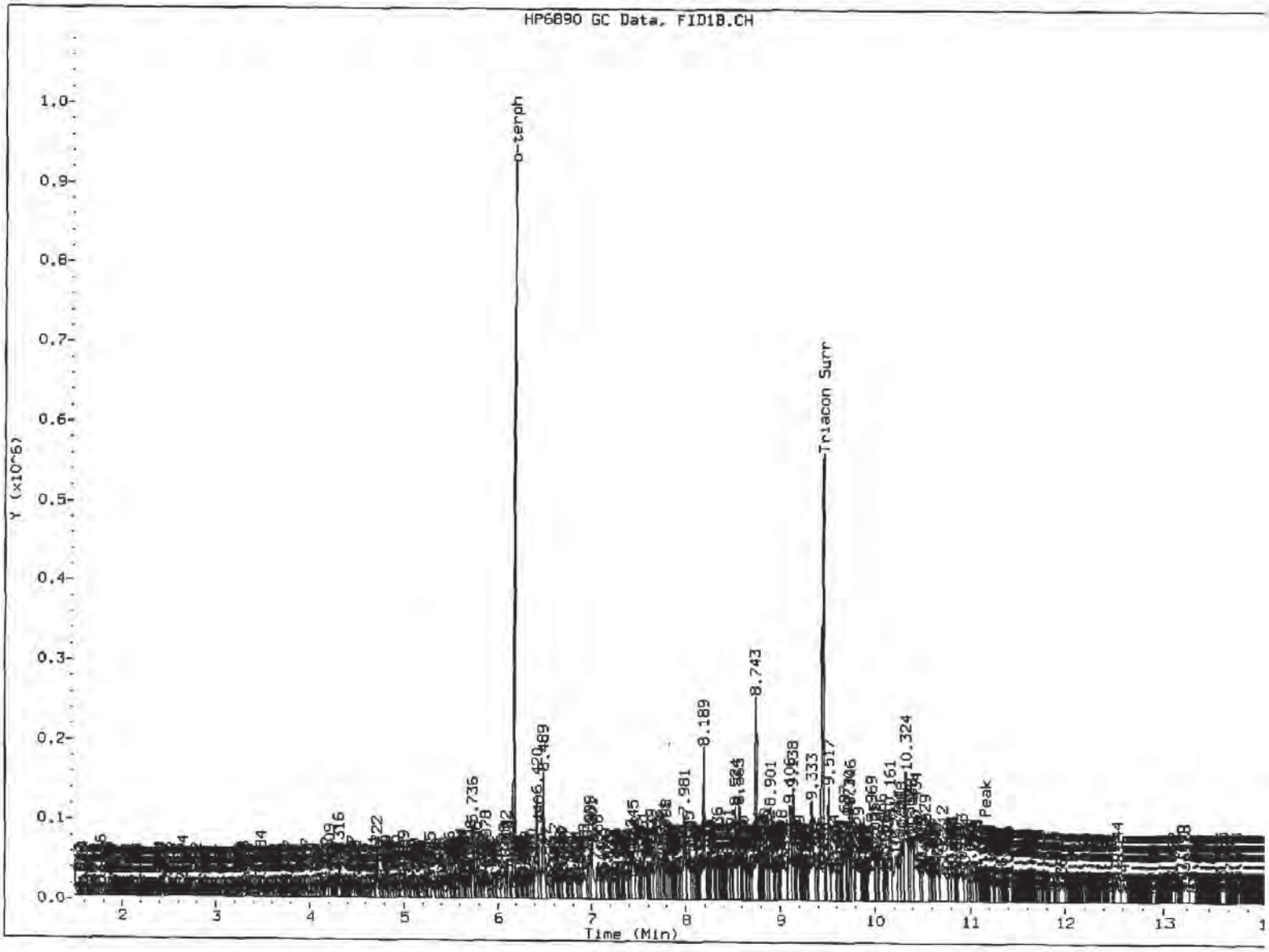
Matrix: Sediment
Date Received: 10/16/15

ARI Job: AOW2
Project: Seaport Landing
1044.02.01-02

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19556-102315MB1	Method Blank	10.0 g	1.00 mL	-	10/23/15
15-19556-102315LCS1	Lab Control	10.0 g	1.00 mL	-	10/23/15
15-19556-AOW2F	CR15C-SSD	3.94 g	1.00 mL	D	10/23/15
15-19565-AOW2O	CR08b-SSD-COMP	4.53 g	1.00 mL	D	10/23/15

Basis: D=Dry Weight W=As Received

FID:3B-2C/RTX-1 AOW2F FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: MM Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102842.D

Page 1

Date : 29-OCT-2015 01:49

Client ID: CR15C-SSD

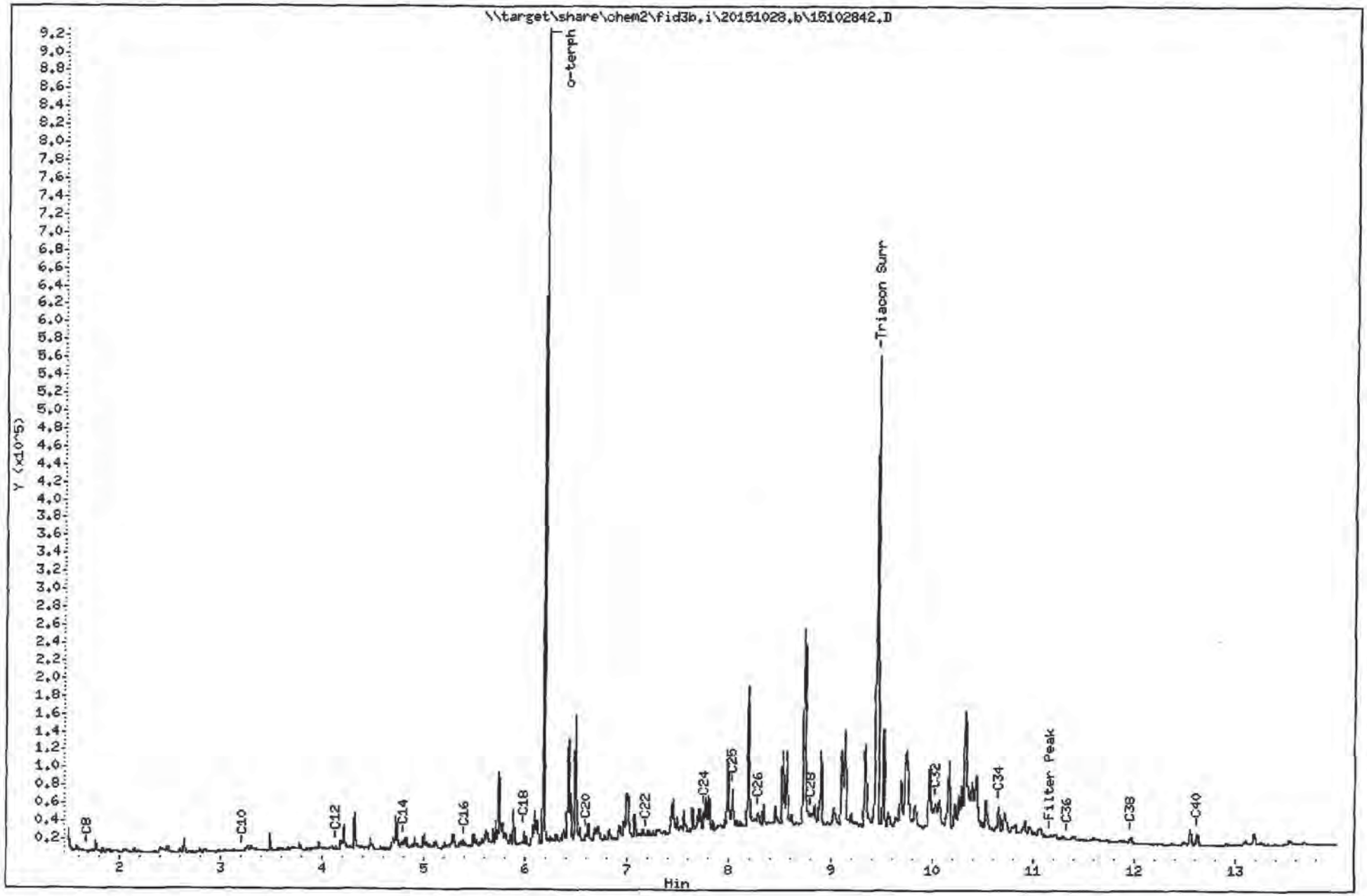
Instrument: fid3b.i

Sample Info: AOW2F

Operator: ML

Column phase: RTX-1

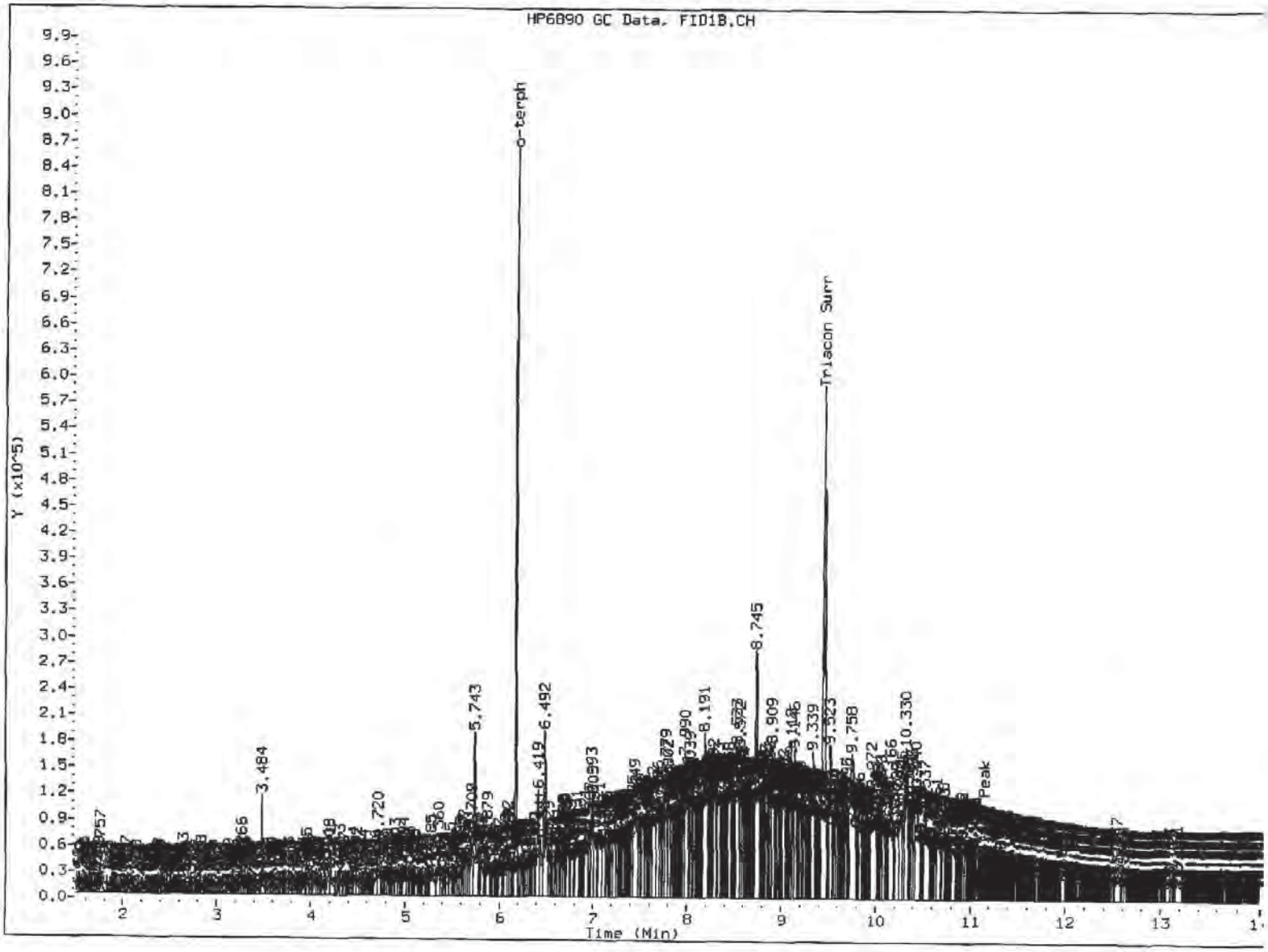
Column diameter: 0.25



AOW2:00053

FID:3B-2C/RTX-1 AOW2O

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5.) Skimmed surrogate

Analyst: ML Date: 10/29/15

AOW2:00054

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102843.D

Date : 29-OCT-2015 02:10

Client ID: CR08b-SSD-COMP

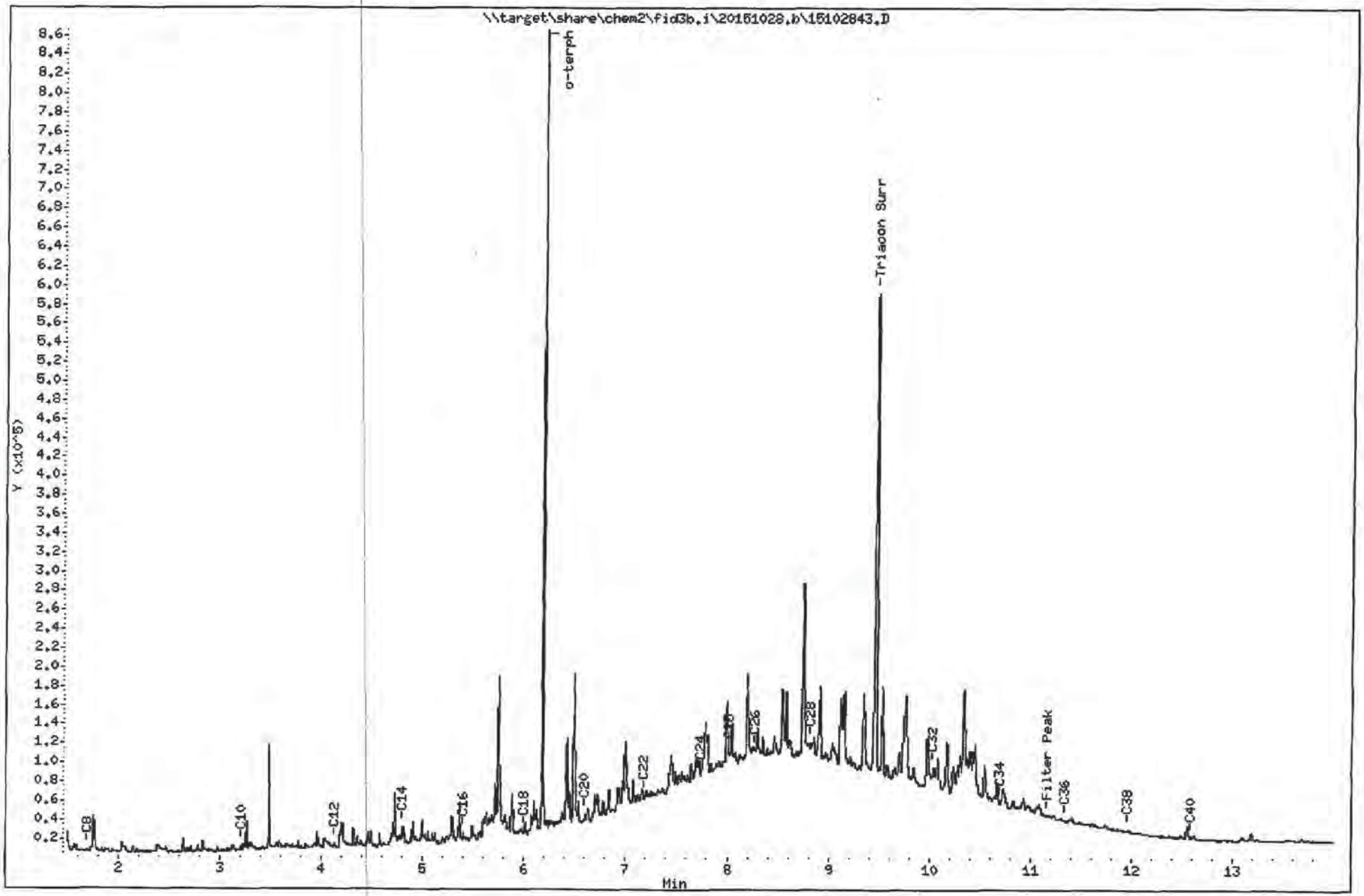
Sample Info: AOW20

Column phase: RTX-1

Instrument: fid3b.i

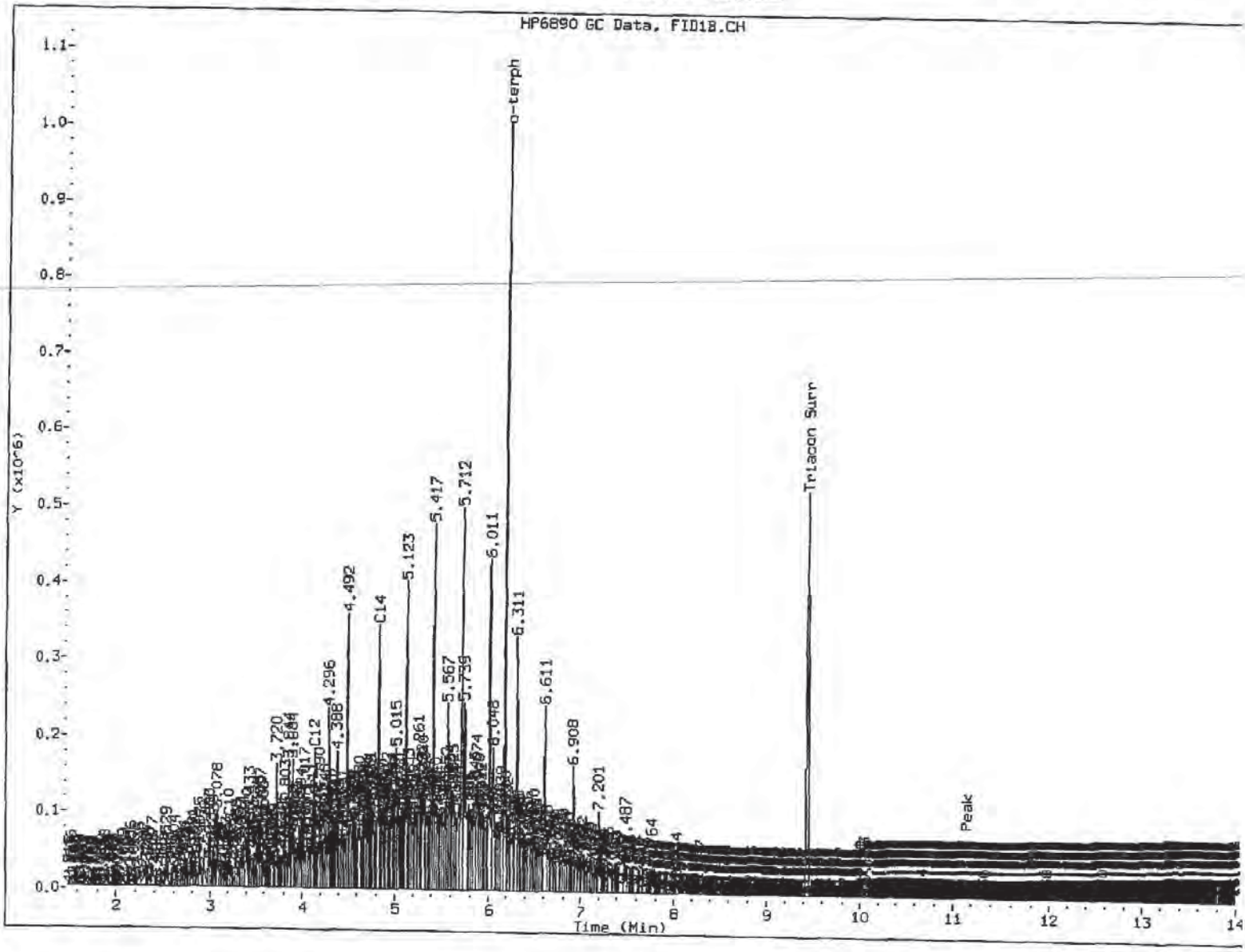
Operator: ML

Column diameter: 0.25



AOW2:00055

FID:3B-2C/RTX-1 AOV8LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

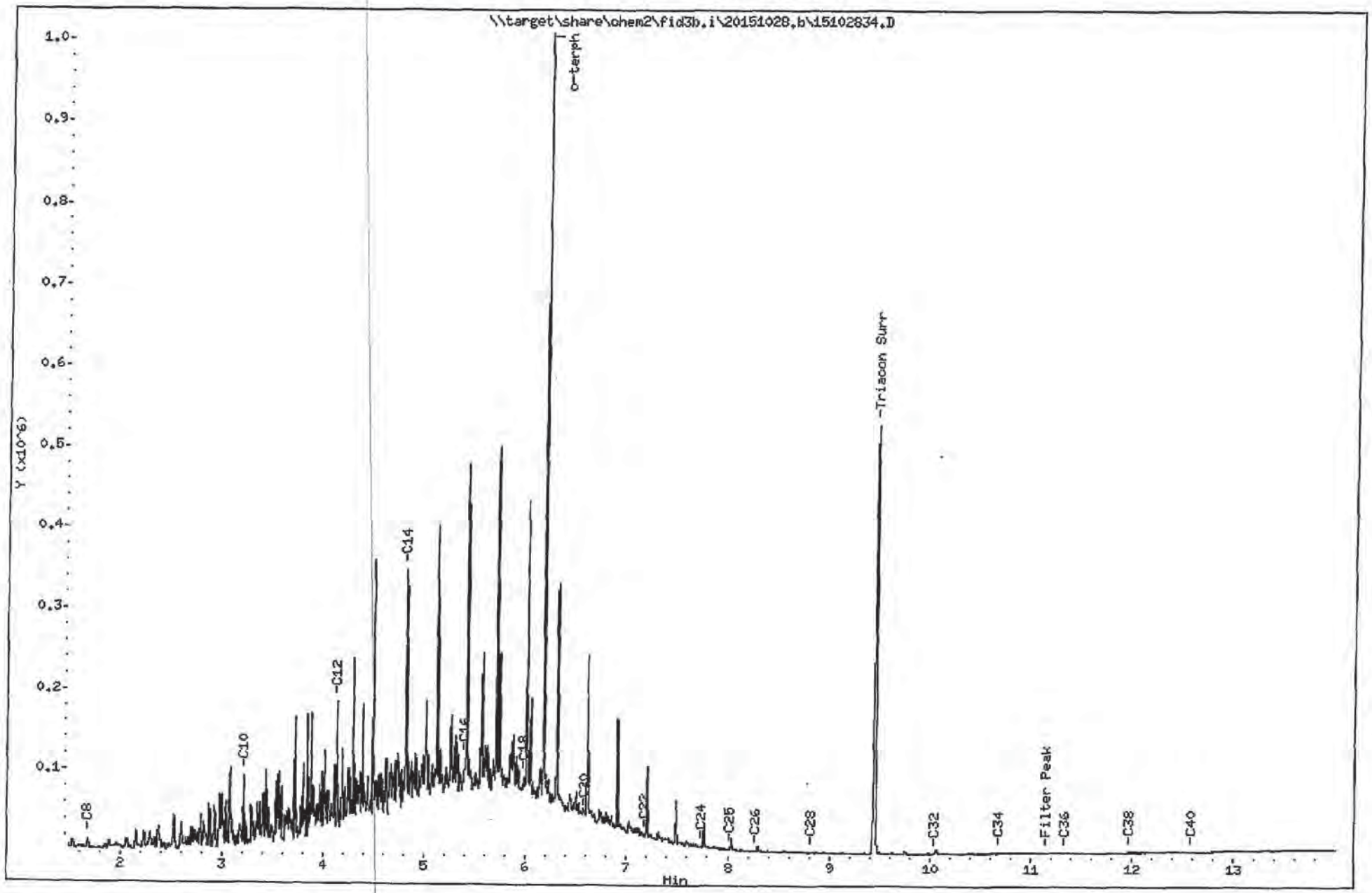
Analyst: MM Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102834.D
Date : 28-OCT-2015 22:59
Client ID: AOV8LCSS1
Sample Info: AOV8LCSS1

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25



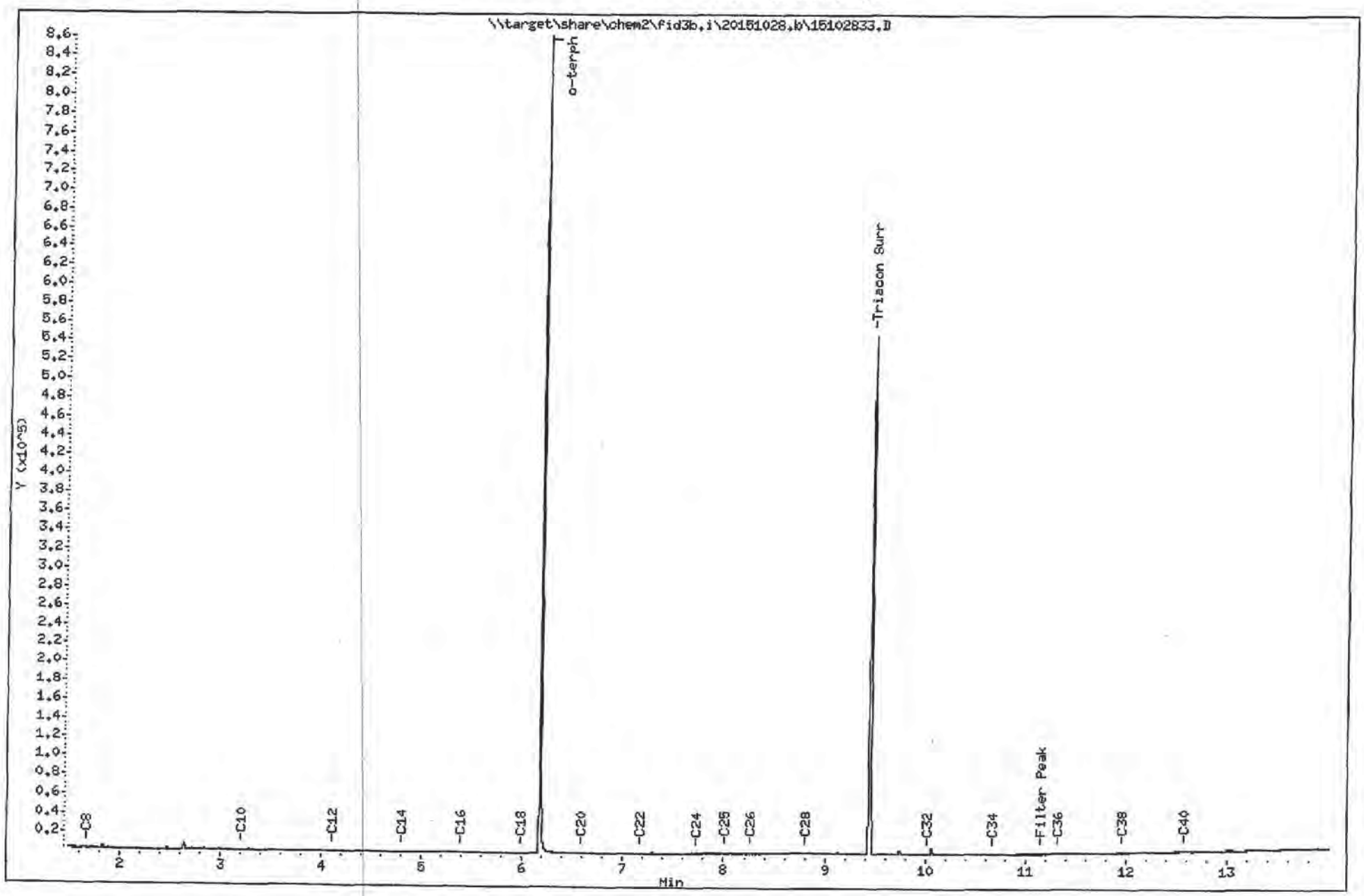
AOW2:00057

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102833.D
Date : 28-OCT-2015 22:38
Client ID: AOV8MBS1
Sample Info: AOV8MBS1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25

Column phase: RTX-1



SAMPLE RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Client ID: CR15C-SSD
ARI ID: 15-19556 AOW2F

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	35.10
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	3.17

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: JJ
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Client ID: CR15C-SBSD
ARI ID: 15-19559 AOW2I

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	57.47
Total Organic Carbon	11/09/15 110915#1	Plumb,1981	Percent	0.020	1.73

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: JJ
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Client ID: CR08b-SSD-COMP
ARI ID: 15-19565 AOW20

Analyte	Date	Method	Units	RL	Sample
Total Solids	10/21/15 102115#1	SM2540G	Percent	0.01	44.38
Total Organic Carbon	11/10/15 111015#1	Plumb,1981	Percent	0.020	2.05

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	10/21/15	Percent	< 0.01 U	ICB
Total Organic Carbon	11/09/15	Percent	< 0.020 U	ICB
	11/10/15		< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: LJ
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon	ICVL	11/09/15	Percent	0.096	0.100	96.0%
Plumb,1981	ICVL	11/10/15		0.092	0.100	92.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 11/12/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon	11/09/15	Percent	3.03	2.99	101.3%
NIST 1941B	11/10/15		2.89	2.99	96.7%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR15C-SSD
SAMPLE

Lab Sample ID: AOW2F
LIMS ID: 15-19556
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Percent Total Solids: 36.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**20**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**40**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.5	**51.9**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	5	**11**	
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.06	0.06	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.8	0.8	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	3	**77**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR15C-SBSD
SAMPLE

Lab Sample ID: AOW2I
LIMS ID: 15-19559
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Percent Total Solids: 57.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	8	**21**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.3	0.3	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	0.8	**34.5**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.3	**54.7**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	3	**9**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.04	**0.04**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**69**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR08b-SSD-COMP
SAMPLE

Lab Sample ID: AOW20
LIMS ID: 15-19565
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/14/15
Date Received: 10/16/15

Percent Total Solids: 43.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	**7440-38-2**	**Arsenic**	10	**20**	
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.4	0.4	U
3050B	11/02/15	6010C	11/03/15	**7440-47-3**	**Chromium**	1	**42**	
3050B	11/02/15	6010C	11/03/15	**7440-50-8**	**Copper**	0.4	**61.1**	
3050B	11/02/15	6010C	11/03/15	**7439-92-1**	**Lead**	4	**14**	
CLP	11/02/15	7471A	11/06/15	**7439-97-6**	**Mercury**	0.05	**0.06**	
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.7	0.7	U
3050B	11/02/15	6010C	11/03/15	**7440-66-6**	**Zinc**	2	**90**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AOW1MB
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/02/15	6010C	11/03/15	7440-38-2	Arsenic	5	5	U
3050B	11/02/15	6010C	11/03/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7440-47-3	Chromium	0.5	0.5	U
3050B	11/02/15	6010C	11/03/15	7440-50-8	Copper	0.2	0.2	U
3050B	11/02/15	6010C	11/03/15	7439-92-1	Lead	2	2	U
CLP	11/02/15	7471A	11/06/15	7439-97-6	Mercury	0.02	0.02	U
3050B	11/02/15	6010C	11/03/15	7440-22-4	Silver	0.3	0.3	U
3050B	11/02/15	6010C	11/03/15	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AOW1LCS
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	200	200	100%	
Cadmium	6010C	49.7	50.0	99.4%	
Chromium	6010C	50.9	50.0	102%	
Copper	6010C	47.6	50.0	95.2%	
Lead	6010C	197	200	98.5%	
Mercury	7471A	0.49	0.50	98.0%	
Silver	6010C	51.3	50.0	103%	
Zinc	6010C	47	50	94.0%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

October 28, 2015

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

Mark Harris
Analytical Resources, Incorporated
4611 S. 134th Place Suite 100
Tukwila, WA 98168

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1519448.00

Client Project: ARI Project AOW2 Seaport Landing
Location: N-A

Dear Mr. Harris,

Enclosed please find test results for the 1 sample(s) submitted to our laboratory for analysis on 10/23/2015.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

AOW2 : 00070

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Analytical Resources, Incorporated
Address: 4611 S. 134th Place Suite 100
Tukwila, WA 98168

Attention: Mr. Mark Harris
Project Location: N-A

Batch #: 1519448.00
Client Project #: ARI Project AOW2 Seaport Landing
Date Received: 10/23/2015
Samples Received: 1
Samples Analyzed: 1
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 15116162 **Client Sample #: 15-19565-AOW2O**

Location: N-A

Comments: Sample was dried prior to analysis. Qualitative analysis was conducted for presence of asbestos.

Layer 1 of 1 **Description:** Black wet sludge sample

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Fine particles, Paint, Rusted metal	Cellulose	**None Detected ND**
Mica		

Sampled by: Client
Analyzed by: Nadezhda Prysyazhnyuk **Date:** 10/28/2015
Reviewed by: Nick Ly **Date:** 10/28/2015

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

AOW2 : 00071

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

NVL LABS

Company Analytical Resources, Incorporated
Address 4611 S. 134th Place Suite 100
Tukwila, WA 98168
Project Manager Mr. Mark Harris
Phone (206) 695-6200

NVL Batch Number 1519448.00
TAT 5 Days **AH** No
Rush TAT
Due Date 10/30/2015 **Time** 12:10 PM
Email markh@arilabs.com
Fax (206) 695-6202

Project Name/Number: ARI Project AOW2 Seaport Landing **Project Location:** N-A

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	15116162	15-19565-AOW2O		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	UPS				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Maxwell Raymond		NVL	10/23/15	1210
Analyzed by	Nadezhda		NVL	10/28/15	4:37 PM
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/23/2015
Time: 5:37 PM
Entered By: Justin Shearer

AOW2 : 00072

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 10/20/15

ANALYTICAL RESOURCES INCORPORATED

1519448

Laboratory: NVL Laboratories, Inc
Lab Contact: Perry Cheston
Lab Address: 4708 Aurora Ave. N.
Seattle, WA 98103
Phone: 206-547-0100
Fax: 206-344-1878

Analytical Protocol: PSDDA
Special Instructions:

ARI Client: Maul Foster & Alongi
Project ID: Seaport Landing
ARI PM: Mark Harris
Phone: 206-695-6210
Fax: 206-695-6201
Email: subdata@arilabs.com

Requested Turn Around: **10/30/15**
Email Results (Y/N): **Yes**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
15-19565-AOW20	CR08b-SSD-COMP	10/14/15 11:45	Sediment	1	Asbestos (Sub)

Special Instructions: None

Carrier UPS		Airbill 1Z 832 695 03 5570 9540		Date 10/22/15	
Relinquished by W	Company ARI	Date 10/22/15		Time 927	
Received by	Company NVL	Date 10/23/		Time 1210 UPS	

Subcontractor Custody Form - **AOW2**
Page 1 of 1

AOW2 : 00073

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: ACW2 (RE) Client ID: Navi Foster & Alaugi

Batch ID:

Parameter: BAN/SIM SVOA Client Project: Seaport Landing

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)=	RH 10/21/15
☐ Standing Water Decanted (Not shared)= F O	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)= I, G	RH 10/21/15
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions). Original Extracts	
Samples F, I, O lost due to GPC malfunction. Samples pulled from freezer to re-extract.	SP 10/29/15
☐ Share Samples Y / N	
☐ Multiple Jars (Y) N O7	RH 10/21/15
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	11/18/15

Analytical Resources, Incorporated
Analytical Chemists and Consultants

7 December 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: ART5

Dear Madi:

Please find enclosed the final results for the samples from the project referenced above. These samples were originally received on October 16, 2015. These samples were analyzed for PCBs as requested.

These analyses proceeded without incident of note.

An electronic copy of these reports will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file ART5

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 7091	Turn-around Requested:	Page: 1 of 2	
ARI Client Company: Maul Foster & Alongi, Inc.	Phone: (503) 501 3212	Date: 10/16	Ice Present? Yes
Client Contact: Madi Norak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.0201-02	Samplers: RDJ MRH		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TOC	Phenol	PAH	PCB	Mercury	metals	TPH	Dioxin/Furan	Notes/Comments: Archive
CR19F-SBSD	10/16	0940	Sed	2	X	X	X	X	X	X			
CR19F-SBSD-DUP	10/16	0945	Sed	2	X	X	X	X	X	X			
CR19F-SSD	10/16	0950	Sed	5	X	X	X	X	X	X	X	X	
~~CR19D-SSD-COMP~~	~~10/16~~	~~0940~~	~~Sed~~	~~4~~									
CR19G-0-10cm	10/16	0927	Sed	1									X
CR19G-9.0	10/16	0930	Sed	1									X
CR19F-5.0	10/16	0950	Sed	1									X
CR19F-9.0	10/16	0945	Sed	1									X
CR18B-SBSD	10/16	1200	Sed	2	X	X	X	X	X	X	X		NO TPH
CR18B-SSD	10/16	1205	Sed	4	X	X	X	X	X	X	X	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive remaining volume.	Printed Name: Roxanne Degens	Printed Name: Emily Litwin	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 10/16 1520	Date & Time: 10/16/16 1520	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Mail foster

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.6

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00256S

Cooler Accepted by: ul Date: 10/16/15 Time: 1520

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ...	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

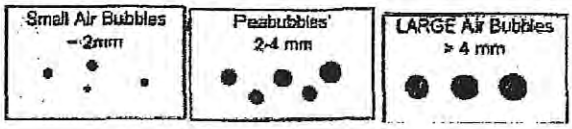
Samples Logged by: ul Date: 10/20/15 Time: 1420

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ART5
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR18B-SBSD	ART5A	15-23180	Sediment	10/16/15 12:00	10/16/15 15:20
2.	CR18B-SSD	ART5B	15-23181	Sediment	10/16/15 12:05	10/16/15 15:20

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-120315
METHOD BLANK

Lab Sample ID: MB-120315
LIMS ID: 15-23180
Matrix: Sediment
Data Release Authorized:
Reported: 12/07/15

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 12/03/15
Date Analyzed: 12/04/15 14:26
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U
11100-14-4	Aroclor 1268	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	81.0%
Tetrachlorometaxylene	65.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: CR18B-SBSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: ART5A
LIMS ID: 15-23180
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 12/03/15
Date Analyzed: 12/04/15 13:43
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.35 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 46.7%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U
11100-14-4	Aroclor 1268	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	66.8%
Tetrachlorometaxylene	61.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: CR18B-SSD**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: ART5B
LIMS ID: 15-23181
Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/16/15
Date Received: 10/16/15

Date Extracted: 12/03/15
Date Analyzed: 12/04/15 14:05
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.50 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 45.4%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.0%
Tetrachlorometaxylene	65.8%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
CR18B-SBSD	66.8%	40-133	61.2%	53-120	0
CR18B-SSD	75.0%	40-133	65.8%	53-120	0

Microwave (MARS) Control Limits PCBSMP
Prep Method: SW3546
Log Number Range: 15-23180 to 15-23181

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-120315
LAB CONTROL

Lab Sample ID: LCS-120315
LIMS ID: 15-23180
Matrix: Sediment
Data Release Authorized:
Reported: 12/07/15

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Date Extracted: 12/03/15
Date Analyzed: 12/04/15 14:48
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	407	500	81.4%
Aroclor 1260	470	500	94.0%

PCB Surrogate Recovery

Decachlorobiphenyl	80.5%
Tetrachlorometaxylene	66.0%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-120315	81.0%	40-133	65.2%	53-120	0
LCS-120315	80.5%	40-133	66.0%	53-120	0
CR18B-SBSD	66.8%	40-133	61.2%	53-120	0
CR18B-SSD	75.0%	40-133	65.8%	53-120	0

Microwave (MARS) Control Limits PCBSMP
Prep Method: SW3546
Log Number Range: 15-23180 to 15-23181

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16 December 2015

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: ASF7

Dear Madi:

Please find enclosed the final results for the samples from the project referenced above. These samples were originally received on October 16, 2015. These samples were analyzed for TOC as requested.

These analyses proceeded without incident of note.

An electronic copy of these reports will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file ASF7

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Subject: AOV9 - new test request
From: Mary Benzinger <mbenzinger@maulfoster.com>
Date: 12/4/2015 1:21 PM
To: Mark Harris <markh@arilabs.com>
CC: Roxanne Degens <rdegens@maulfoster.com>, Madi Novak <mnovak@maulfoster.com>

Hi Mark,
We would like to request TOC analysis for the following samples from workorder AOV9:
CR08b-SBSD
CR26-SBSD

Could you let us know when we could expect TOC results on a standard TAT? Depending on the date, we may need to request rush, in which case we'll need to find out what capacity ARI has for rushing these two.

Thank you!

Mary Benzinger | MAUL FOSTER & ALONGI, INC.

d. 503 501 5247 | p. 971 544 2139 | c. 503 319 7132
2001 NW 19th Avenue, Suite 200, Portland, OR 97209
www.maulfoster.com

From: Mark Harris [mailto:markh@arilabs.com]
Sent: Thursday, December 03, 2015 2:27 PM
To: Mary Benzinger <mbenzinger@maulfoster.com>
Subject: Re: AOV9 - pages needed

Can do.

On 12/3/2015 2:24 PM, Mary Benzinger wrote:

> Alright, hopefully it's a straightforward analysis.
>
> Could you send AOV9 today? This is the one with 3 missing pages. Thanks,
>
> **Mary Benzinger** | MAUL FOSTER & ALONGI, INC.
>
> d. 503 501 5247 | p. 971 544 2139 | c. 503 319 7132
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
> www.maulfoster.com
>
> ---
>
> **From:** Mark Harris [mailto:markh@arilabs.com]
> **Sent:** Thursday, December 03, 2015 2:09 PM
> **To:** Mary Benzinger <mbenzinger@maulfoster.com>
> **Subject:** Re: AOW1 - missing PCB, AOV9 - pages needed, CR19D-SSD-CONV report

ASF7 : 00002 12/4/2015 1:42 I

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ASF7
Client: Maul Foster & Alongi
Project Event: 1044.02.01-02
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR08b-SBSD	ASF7A	15-23755	Sediment	10/15/15 15:07	10/16/15 11:16
2.	CR26-SBSD	ASF7B	15-23756	Sediment	10/15/15 16:23	10/16/15 11:16

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

ASF7 : 00004

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

ASF7 : 00005

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ASF7 : 00006

SAMPLE RESULTS-CONVENTIONALS
ASF7-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: CJ
Reported: 12/16/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Client ID: CR08b-SBSD
ARI ID: 15-23755 ASF7A

Analyte	Date	Method	Units	RL	Sample
Total Solids	12/10/15 121015#1	SM2540G	Percent	0.01	55.76
Total Organic Carbon	12/15/15 121515#1	Plumb,1981	Percent	0.020	3.08

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
ASF7-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 12/16/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: 10/15/15
Date Received: 10/16/15

Client ID: CR26-SBSD
ARI ID: 15-23756 ASF7B

Analyte	Date	Method	Units	RL	Sample
Total Solids	12/10/15 121015#1	SM2540G	Percent	0.01	46.69
Total Organic Carbon	12/15/15 121515#1	Plumb,1981	Percent	0.020	1.52

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
ASF7-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: ✓
Reported: 12/16/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	12/10/15	Percent	< 0.01 U	ICB
Total Organic Carbon	12/15/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
ASF7-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: W
Reported: 12/16/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	12/15/15	Percent	0.105	0.100	105.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
ASF7-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized: J
Reported: 12/16/15

Project: Seaport Landing
Event: 1044.02.01-02
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST 1941B	12/15/15	Percent	2.95	2.99	98.7%

Chain of Custody Record & Laboratory Analysis Request

20000.604

ARI Assigned Number: AOV9	Turn-around Requested: Standard	Page: 3 of 3	
ARI Client Company: Mail Foster & Alongi	Phone: (503) 501-5212	Date: 10/15/15	Ice Present? yes
Client Contact: Madi Novak		No. of Coolers:	Cooler Temps:
Client Project Name: Seaport Landing			
Client Project #: 1044.02.01-02	Samplers: RD + MRM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Archive	PAH	PCB	Phenol	Metals	Dioxin/Furan	Asbestos	Mercury	Notes/Comments
CR026-SBSD	10/15/15	1507	Sed	6	X	X	X	X	X	X	X	X	
CR25-0-10cm	10/15/15	1553	sed	1	X								
CR25.5.0	10/15/15	1555	sed	1	X								
CR26-SSD	10/15/15	1620	sed	5	X								
CR26-SBSD	10/15/15	1623	sed	3	X	X	X	X	X			X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Archive all remaining volume.	Printed Name: Roxanne Rogers	Printed Name: Archie Triggs	Printed Name:	Printed Name: Chris Arndt
	Company: MFA	Company: M.C. DL	Company:	Company: ARI
	Date & Time: 10/15/15	Date & Time: 10/16/15 8:35	Date & Time:	Date & Time: 10/16/15 1114

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster & Alongi

COC No(s): _____ NA

Assigned ARI Job No: AOV9

Project Name: _____

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	5.1	4.8
Time: _____		

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00265

Cooler Accepted by: CA Date: 10/22/15 Time: 1116

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

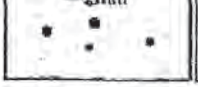
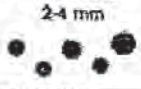
Samples Logged by: VL Date: 10/20/15 Time: 1237

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles >4 mm
		

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

27 January 2016

Madi Novak
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: Seaport Landing
ARI Job No.: AUD1

Dear Madi:

Please find enclosed the original chain of custody record and the final results for the sample from the project referenced above. One water sample was received on January 14, 2016. The sample was analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx and total and dissolved metals as requested. It was noted upon sample receipt that no bottle was received for TSS analysis. This analysis was canceled as instructed.

The percent difference (%D) for benzoic acid was not within control limits for the CCAL that bracketed the SVOC analysis of this sample. All positive results for this compound have been flagged with a "Q" qualifier to denote the high %D.

The remaining analyses proceeded without incident of note.

An electronic copy of these reports will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file AUD1

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AUD1	Turn-around Requested:	Page: 1 of 1	
ARI Client Company: MFA	Phone: 503 544 2139	Date: 1-14-16	Ice Present? Yes
Client Contact: Madi Novak		No. of Coolers: 1	Cooler Temps: 0.4
Client Project Name: Seaport Authority			
Client Project #:	Samplers: Madi Novak		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Dx	PAHs 8270	SVOAs 8270	TSS SM 2540D	Hg 7470	* Metals 200.8/6010	PCBs Aroclors 8082		Notes/Comments
Storm-01	1/12/16	8:30	W	6	X	X	X	X	X	X	X		* Metals = Total and Dissolved As, Cd, Cr, Cu, Pb, Hg, Ag, Zn Lab to filter for diss

Comments/Special Instructions: See attached for reporting limit requirements. No hardcopy report, please issue electronic report + EDD	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Erik Naylor	Printed Name: Tyler Rankin	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 1100 1/13/16	Date & Time: 1-14-16 1022	Date & Time:	Date & Time:

AUD1:08982

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: MFA

Project Name: Seaport Authority

COC No(s): _____ NA

Delivered by: Fed-Ex (UPS) Courier Hand Delivered Other: _____

Assigned ARI Job No: AUD1

Tracking No: 1Z87V5210194585688 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 0.4 ___ ___ ___ ___ ___

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: Dec5276

Cooler Accepted by: TR Date: 1-14-16 Time: 1022

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	(Bubble Wrap) (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		TR (YES)	(NO)
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		_____

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TR Date: 1-14-16 Time: 1335

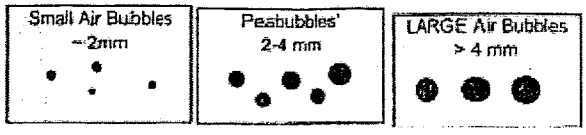
***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Client requested TSS analysis on COC but did not receive a bottle for TSS. Did not log for TSS.

By: Date:



Small → "sm" (< 2 mm)	
Peabubbles → "pb" (2 to < 4 mm)	
Large → "lg" (4 to < 6 mm)	
Headspace → "hs" (> 6 mm)	

PRESERVATION VERIFICATION 01/14/16
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **AUD1**

PC: Mark
VTSR: 01/14/16

Inquiry Number: NONE
Analysis Requested: 01/14/16
Contact: Novak, Madi
Client: Maul Foster & Alongi
Logged by: TR
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #:
Project: Seaport Authority
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
16-500 **AUD1A**	Storm-01						TOT Pass															
16-501 **AUD1B**	Storm-01						DIS Fail									N						

AUD1 : 16000

Checked By TR Date 1-14-16

Subject: RE: Incoming Seaport Stormwater
From: Madi Novak <mnovak@maulfoster.com>
Date: 1/14/2016 1:47 PM
To: Mark Harris <markh@arilabs.com>, Mary Benzinger <mbenzinger@maulfoster.com>
CC: Erik Naylor <enaylor@maulfoster.com>

Yeah. . .I was afraid of that. Let's not do TSS. Thank you.

From: Mark Harris [mailto:markh@arilabs.com]
Sent: Thursday, January 14, 2016 1:47 PM
To: Mary Benzinger <mbenzinger@maulfoster.com>
Cc: Madi Novak <mnovak@maulfoster.com>; Erik Naylor <enaylor@maulfoster.com>
Subject: Re: Incoming Seaport Stormwater

This sample arrived and we're logging it but we did not receive a TSS bottle and there are no additional ambers for the organics so we don't have extra volume that we can use...

On 1/13/2016 10:24 AM, Mary Benzinger wrote:

> Hi Mark,
> We are shipping one stormwater sample (sample name Storm-01) to ARI today. This sample is associated with the Seaport project (1044.02.01). It will need to be analyzed for SMS parameters, Dioxins/Furans, TPH, and TSS. The COC includes an attachment that indicates the SVOC list and target reporting limits.
>
> For SVOCs, we only need to report the compounds listed on this attachment.
>
> For PCB Aroclors, we need to include Aroclor 1268.
>
> Could you send a login confirmation to myself and Madi Novak once this sample has been logged in? Let us know if you have any questions.
>
> Thank you!
>
> **Mary Benzinger** | MAUL FOSTER & ALONGI, INC.
>
> d. 503 501 5247 | p. 971 544 2139| c. 503 319 7132
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209
> www.maulfoster.com



--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey <https://www.surveymonkey.com/s/WPDBVJK>.

AUD1 : 00005

This correspondence contains confidential information from Analytical Resources, Inc. (ARI) The information contained herein is intended solely for the use of the individual(s) named above. If you are not the intended recipient, any copying, distribution, disclosure, or use of the text and/or attached document(s) is strictly prohibited.

If you have received this correspondence in error, please notify sender immediately. Thank you.

AUD1 : 00006

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AUD1
Client: Maul Foster & Alongi
Project Event: N/A
Project Name: Seaport Authority

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	Storm-01	AUD1A	16-500	Water	01/12/16 08:30	01/14/16 10:22
2.	Storm-01	AUD1B	16-501	Water	01/12/16 08:30	01/14/16 10:22

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

AUD1 : 00008

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

AUD1 : 00003

Geotechnical Data

A — The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F — Samples were frozen prior to particle size determination

SM — Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS — Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W — Weight of sample in some pipette aliquots was below the level required for accurate weighting

AUD1 : 00010

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: Storm-01
SAMPLE

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/20/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: 01/12/16
Date Received: 01/14/16

Date Extracted: 01/18/16
Date Analyzed: 01/19/16 17:09
Instrument/Analyst: NT6/JZ

Sample Amount: 460 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.1	< 1.1 U
106-46-7	1,4-Dichlorobenzene	1.1	< 1.1 U
100-51-6	Benzyl Alcohol	2.2	< 2.2 U
95-50-1	1,2-Dichlorobenzene	1.1	< 1.1 U
95-48-7	2-Methylphenol	1.1	< 1.1 U
106-44-5	4-Methylphenol	2.2	< 2.2 U
105-67-9	2,4-Dimethylphenol	3.3	< 3.3 U
65-85-0	Benzoic Acid	22	< 22 U
120-82-1	1,2,4-Trichlorobenzene	1.1	< 1.1 U
91-20-3	Naphthalene	1.1	< 1.1 U
87-68-3	Hexachlorobutadiene	3.3	< 3.3 U
91-57-6	2-Methylnaphthalene	1.1	< 1.1 U
131-11-3	Dimethylphthalate	1.1	< 1.1 U
208-96-8	Acenaphthylene	1.1	< 1.1 U
83-32-9	Acenaphthene	1.1	< 1.1 U
132-64-9	Dibenzofuran	1.1	< 1.1 U
84-66-2	Diethylphthalate	1.1	< 1.1 U
86-73-7	Fluorene	1.1	< 1.1 U
86-30-6	N-Nitrosodiphenylamine	1.1	< 1.1 U
118-74-1	Hexachlorobenzene	1.1	< 1.1 U
87-86-5	Pentachlorophenol	11	< 11 U
85-01-8	Phenanthrene	1.1	< 1.1 U
120-12-7	Anthracene	1.1	< 1.1 U
84-74-2	Di-n-Butylphthalate	1.1	< 1.1 U
206-44-0	Fluoranthene	1.1	< 1.1 U
129-00-0	Pyrene	1.1	< 1.1 U
85-68-7	Butylbenzylphthalate	1.1	< 1.1 U
56-55-3	Benzo(a)anthracene	1.1	< 1.1 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.3	< 3.3 U
218-01-9	Chrysene	1.1	< 1.1 U
117-84-0	Di-n-Octyl phthalate	1.1	< 1.1 U
50-32-8	Benzo(a)pyrene	1.1	< 1.1 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.1	< 1.1 U
53-70-3	Dibenz(a,h)anthracene	1.1	< 1.1 U
191-24-2	Benzo(g,h,i)perylene	1.1	< 1.1 U
TOTBFA	Total Benzofluoranthenes	2.2	< 2.2 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	68.8%	2-Fluorobiphenyl	76.8%
d14-p-Terphenyl	85.2%	d4-1,2-Dichlorobenzene	72.4%
d5-Phenol	68.0%	2-Fluorophenol	68.5%
2,4,6-Tribromophenol	89.9%	d4-2-Chlorophenol	70.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MB-011816
METHOD BLANK

Lab Sample ID: MB-011816
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/20/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/18/16
Date Analyzed: 01/19/16 16:03
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
84-66-2	Diethylphthalate	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.6%	2-Fluorobiphenyl	76.0%
d14-p-Terphenyl	88.8%	d4-1,2-Dichlorobenzene	65.6%
d5-Phenol	68.0%	2-Fluorophenol	68.8%
2,4,6-Tribromophenol	78.4%	d4-2-Chlorophenol	70.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-011816
LAB CONTROL

Lab Sample ID: LCS-011816
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/20/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

Date Extracted: 01/18/16
Date Analyzed: 01/19/16 16:36
Instrument/Analyst: NT6/JZ
GPC Cleanup: NO

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Phenol	14.2	25.0	56.8%
1,4-Dichlorobenzene	15.7	25.0	62.8%
Benzyl Alcohol	18.3	25.0	73.2%
1,2-Dichlorobenzene	16.0	25.0	64.0%
2-Methylphenol	13.8	25.0	55.2%
4-Methylphenol	14.6	25.0	58.4%
2,4-Dimethylphenol	42.0	75.0	56.0%
Benzoic Acid	85.4 Q	138	61.9%
1,2,4-Trichlorobenzene	16.4	25.0	65.6%
Naphthalene	17.4	25.0	69.6%
Hexachlorobutadiene	13.0	25.0	52.0%
2-Methylnaphthalene	19.3	25.0	77.2%
Dimethylphthalate	24.4	25.0	97.6%
Acenaphthylene	19.9	25.0	79.6%
Acenaphthene	20.7	25.0	82.8%
Dibenzofuran	20.5	25.0	82.0%
Diethylphthalate	22.6	25.0	90.4%
Fluorene	20.2	25.0	80.8%
N-Nitrosodiphenylamine	22.2	25.0	88.8%
Hexachlorobenzene	25.6	25.0	102%
Pentachlorophenol	52.5	75.0	70.0%
Phenanthrene	20.5	25.0	82.0%
Anthracene	20.4	25.0	81.6%
Di-n-Butylphthalate	22.6	25.0	90.4%
Fluoranthene	21.8	25.0	87.2%
Pyrene	21.2	25.0	84.8%
Butylbenzylphthalate	23.9	25.0	95.6%
Benzo(a)anthracene	21.6	25.0	86.4%
bis(2-Ethylhexyl)phthalate	24.8	25.0	99.2%
Chrysene	21.6	25.0	86.4%
Di-n-Octyl phthalate	23.4	25.0	93.6%
Benzo(a)pyrene	23.1	25.0	92.4%
Indeno(1,2,3-cd)pyrene	22.3	25.0	89.2%
Dibenz(a,h)anthracene	22.5	25.0	90.0%
Benzo(g,h,i)perylene	21.6	25.0	86.4%
Total Benzofluoranthenes	43.2	50.0	86.4%

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.2%	2-Fluorobiphenyl	76.4%
d14-p-Terphenyl	92.8%	d4-1,2-Dichlorobenzene	64.0%
d5-Phenol	69.3%	2-Fluorophenol	65.9%
2,4,6-Tribromophenol	102%	d4-2-Chlorophenol	69.9%

Results reported in µg/L

FORM III

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-011816	67.6%	76.0%	88.8%	65.6%	68.0%	68.8%	78.4%	70.9%	0
LCS-011816	67.2%	76.4%	92.8%	64.0%	69.3%	65.9%	102%	69.9%	0
Storm-01	68.8%	76.8%	85.2%	72.4%	68.0%	68.5%	89.9%	70.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(27-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(33-120)	(33-120)
(TPH) = d14-p-Terphenyl	(28-120)	(28-120)
(DCB) = d4-1,2-Dichlorobenzene	(20-120)	(20-120)
(PHL) = d5-Phenol	(38-120)	(38-120)
(2FP) = 2-Fluorophenol	(33-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(52-120)	(52-120)
(2CP) = d4-2-Chlorophenol	(41-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 16-500 to 16-500

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 19-JAN-2016 10:47
Lab File ID: 16011901.d Init. Cal. Date(s): 13-NOV-2015 13-NOV-2015
Analysis Type: Init. Cal. Times: 09:35 12:56
Lab Sample ID: ICV160119 Quant Type: ISTD
Method: /chem2/nt6.i/20160119.b/SW846151113.m

01/19/16

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
$ 1 2-Fluorophenol	1.27351	1.18512	1.18512	0.010	-6.94068	20.00000	Averaged
$ 2 Phenol-d5	1.55455	1.41951	1.41951	0.010	-8.68630	20.00000	Averaged
3 Phenol	2.08784	1.81695	1.81695	0.800	-12.97460	20.00000	Averaged
$ 5 2-Chlorophenol-d4	1.19548	1.11857	1.11857	0.010	-6.43352	20.00000	Averaged
4 Bis(2-Chloroethyl)ether	1.21538	1.13330	1.13330	0.700	-6.75361	20.00000	Averaged
6 2-Chlorophenol	1.45829	1.38582	1.38582	0.800	-4.97002	20.00000	Averaged
7 1,3-Dichlorobenzene	1.30509	1.25857	1.25857	0.010	-3.56431	20.00000	Averaged
9 1,4-Dichlorobenzene	1.25644	1.19836	1.19836	0.010	-4.62257	20.00000	Averaged
$ 10 1,2-Dichlorobenzene-d4	0.84356	0.82564	0.82564	0.010	-2.12445	20.00000	Averaged
12 1,2-Dichlorobenzene	1.20831	1.15403	1.15403	0.010	-4.49221	20.00000	Averaged
11 Benzyl alcohol	0.90601	0.79420	0.79420	0.010	-12.34075	20.00000	Averaged
14 2,2'-oxybis(1-Chloropropane	1.27312	1.08198	1.08198	0.010	-15.01342	20.00000	Averaged
13 2-Methylphenol	1.48137	1.26494	1.26494	0.700	-14.61026	20.00000	Averaged
17 Hexachloroethane	0.53246	0.43899	0.43899	0.300	-17.55331	20.00000	Averaged
16 N-Nitroso-di-n-propylamine	0.96878	0.77894	0.77894	0.500	-19.59652	20.00000	Averaged
15 4-Methylphenol	1.50906	1.32576	1.32576	0.600	-12.14652	20.00000	Averaged
$ 18 Nitrobenzene-d5	0.45557	0.38465	0.38465	0.010	-15.56772	20.00000	Averaged
19 Nitrobenzene	0.42823	0.36285	0.36285	0.200	-15.26781	20.00000	Averaged
20 Isophorone	0.74609	0.60829	0.60829	0.400	-18.46963	20.00000	Averaged
21 2-Nitrophenol	0.20385	0.24322	0.24322	0.100	19.31309	20.00000	Averaged
22 2,4-Dimethylphenol	0.46628	0.42416	0.42416	0.200	-9.03256	20.00000	Averaged
23 Bis(2-Chloroethoxy)methane	0.42153	0.38656	0.38656	0.300	-8.29543	20.00000	Averaged
24 Benzoic acid	53.05805	75.00000	0.26538	0.010	-29.25593	20.00000	Linear <-
25 2,4-Dichlorophenol	0.38278	0.37904	0.37904	0.200	-0.97572	20.00000	Averaged
26 1,2,4-Trichlorobenzene	0.36588	0.36276	0.36276	0.010	-0.85381	20.00000	Averaged
28 Naphthalene	0.93617	0.88461	0.88461	0.700	-5.50761	20.00000	Averaged
29 4-Chloroaniline	0.39867	0.39123	0.39123	0.010	-1.86707	20.00000	Averaged
30 Hexachlorobutadiene	0.25930	0.24095	0.24095	0.010	-7.07980	20.00000	Averaged
31 4-Chloro-3-methylphenol	0.37958	0.36694	0.36694	0.200	-3.32958	20.00000	Averaged
32 2-Methylnaphthalene	0.51267	0.54079	0.54079	0.400	5.48543	20.00000	Averaged
33 Hexachlorocyclopentadiene	0.38935	0.34591	0.34591	0.050	-11.15616	20.00000	Averaged
34 2,4,6-Trichlorophenol	0.52518	0.54035	0.54035	0.200	2.88736	20.00000	Averaged
35 2,4,5-Trichlorophenol	0.54622	0.57934	0.57934	0.200	6.06288	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.27890	1.26161	1.26161	0.010	-1.35204	20.00000	Averaged
37 2-Chloronaphthalene	0.99481	0.97261	0.97261	0.800	-2.23207	20.00000	Averaged

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 19-JAN-2016 10:47
Lab File ID: 16011901.d Init. Cal. Date(s): 13-NOV-2015 13-NOV-2015
Analysis Type: Init. Cal. Times: 09:35 12:56
Lab Sample ID: ICV160119 Quant Type: ISTD
Method: /chem2/nt6.i/20160119.b/SW846151113.m

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.33640	0.31201	0.31201	0.010	-7.24911	20.00000	Averaged	
39 Dimethylphthalate	1.11709	1.12104	1.12104	0.010	0.35305	20.00000	Averaged	
40 Acenaphthylene	1.58334	1.56661	1.56661	0.900	-1.05648	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.25021	0.30390	0.30390	0.100	21.45890	20.00000	Averaged	<-
43 3-Nitroaniline	0.23344	0.28110	0.28110	0.010	20.41476	20.00000	Averaged	<-
44 Acenaphthene	1.00987	1.04829	1.04829	0.900	3.80427	20.00000	Averaged	
45 2,4-Dinitrophenol	78.73641	75.00000	0.21892	0.010	4.98188	20.00000	Quadratic	
46 Dibenzofuran	1.50813	1.48891	1.48891	0.080	-1.27490	20.00000	Averaged	
47 4-Nitrophenol	14.21450	25.00000	0.17744	0.010	-43.14202	20.00000	Linear	<-
48 2,4-Dinitrotoluene	0.33386	0.39893	0.39893	0.200	19.48944	20.00000	Averaged	
50 Diethylphthalate	1.16750	1.04223	1.04223	0.010	-10.73000	20.00000	Averaged	
49 Fluorene	1.35471	1.30378	1.30378	0.900	-3.75977	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.73392	0.70424	0.70424	0.400	-4.04498	20.00000	Averaged	
52 4-Nitroaniline	0.23089	0.28051	0.28051	0.010	21.49054	20.00000	Averaged	<-
53 4,6-Dinitro-2-methylphenol	76.57041	75.00000	0.16526	0.010	2.09389	20.00000	Linear	
54 N-Nitrosodiphenylamine	0.44433	0.42710	0.42710	0.010	-3.87775	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.21421	0.24961	0.24961	0.010	16.52802	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.21834	0.22846	0.22846	0.100	4.63160	20.00000	Averaged	
57 Hexachlorobenzene	0.23056	0.25123	0.25123	0.100	8.96540	20.00000	Averaged	
58 Pentachlorophenol	0.20668	0.20127	0.20127	0.050	-2.61748	20.00000	Averaged	
60 Phenanthrene	0.93735	0.87411	0.87411	0.700	-6.74729	20.00000	Averaged	
61 Anthracene	0.94283	0.88593	0.88593	0.700	-6.03535	20.00000	Averaged	
62 Carbazole	0.69141	0.64475	0.64475	0.010	-6.74907	20.00000	Averaged	
63 Di-n-butylphthalate	0.85780	0.78845	0.78845	0.010	-8.08476	20.00000	Averaged	
64 Fluoranthene	1.06567	1.02508	1.02508	0.600	-3.80832	20.00000	Averaged	
65 Pyrene	1.03095	0.96803	0.96803	0.600	-6.10309	20.00000	Averaged	
$ 66 Terphenyl-d14	0.74273	0.73828	0.73828	0.010	-0.59924	20.00000	Averaged	
67 Butylbenzylphthalate	0.37745	0.34988	0.34988	0.010	-7.30569	20.00000	Averaged	
68 Benzo(a)anthracene	1.08873	0.99758	0.99758	0.800	-8.37178	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.40423	0.44759	0.44759	0.010	10.72561	20.00000	Averaged	
71 Chrysene	0.97429	0.93612	0.93612	0.700	-3.91775	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.48712	0.48698	0.48698	0.010	-0.02868	20.00000	Averaged	
73 Di-n-octylphthalate	0.82996	0.79198	0.79198	0.010	-4.57719	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.02526	1.04086	1.04086	0.700	1.52161	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.00067	0.92421	0.92421	0.700	-7.64141	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 19-JAN-2016 10:47
Lab File ID: 16011901.d Init. Cal. Date(s): 13-NOV-2015 13-NOV-2015
Analysis Type: Init. Cal. Times: 09:35 12:56
Lab Sample ID: ICV160119 Quant Type: ISTD
Method: /chem2/nt6.i/20160119.b/SW846151113.m

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
187 Total Benzofluoranthenes	0.96018	0.92346	0.92346	0.010	-3.82444	20.00000	Averaged
76 Benzo(a)pyrene	0.89244	0.86935	0.86935	0.700	-2.58765	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.18486	1.16946	1.16946	0.500	-1.29941	20.00000	Averaged
79 Dibenzo(a,h)anthracene	0.98618	0.95893	0.95893	0.400	-2.76319	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.00028	0.96234	0.96234	0.500	-3.79347	20.00000	Averaged
90 N-Nitrosodimethylamine	0.85199	0.72581	0.72581	0.010	-14.80965	20.00000	Averaged
103 Pyridine	1.43320	1.16760	1.16760	0.010	-18.53205	20.00000	Averaged
105 1-methylnaphthalene	0.53657	0.56284	0.56284	0.010	4.89682	20.00000	Averaged
144 alpha-Terpineol	0.25594	0.22187	0.22187	0.010	-13.31274	20.00000	Averaged
133 Butylatedhydroxytoluene	1.15402	1.09832	1.09832	0.010	-4.82726	20.00000	Averaged
115 Tributyl Phosphate	0.70385	0.63439	0.63439	0.010	-9.86911	20.00000	Averaged
116 Dibutyl Phenyl Phosphate	0.48471	0.45654	0.45654	0.010	-5.81327	20.00000	Averaged
117 Butyl Diphenyl Phosphate	0.16459	0.14052	0.14052	0.010	-14.62661	20.00000	Averaged

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

Sample ID: MB-012116

Lab Sample ID: MB-012116
LIMS ID: 16-500
Matrix: Water
Data Release Authorized: MW
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 12:27
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 1000 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.68	0.65-0.89		10.0	0.230	J
2,3,7,8-TCDD		0.65-0.89	0.260	10.0	< 0.260	U
1,2,3,7,8-PeCDF	0.96	1.32-1.78		10.0	0.460	JEMPC
2,3,4,7,8-PeCDF		1.32-1.78	0.340	10.0	< 0.340	U
1,2,3,7,8-PeCDD		1.32-1.78	0.360	10.0	< 0.360	U
1,2,3,4,7,8-HxCDF		1.05-1.43	0.300	10.0	< 0.300	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.280	10.0	< 0.280	U
2,3,4,6,7,8-HxCDF	1.48	1.05-1.43		10.0	0.220	JEMPC
1,2,3,7,8,9-HxCDF	1.63	1.05-1.43		10.0	1.04	JEMPC
1,2,3,4,7,8-HxCDD		1.05-1.43	0.300	10.0	< 0.300	U
1,2,3,6,7,8-HxCDD	0.90	1.05-1.43		10.0	0.340	JEMPC
1,2,3,7,8,9-HxCDD		1.05-1.43	0.320	10.0	< 0.320	U
1,2,3,4,6,7,8-HpCDF	0.86	0.88-1.20		10.0	0.620	JEMPC
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.460	10.0	< 0.460	U
1,2,3,4,6,7,8-HpCDD	1.11	0.88-1.20		10.0	2.88	J
OCDF	0.84	0.76-1.02		20.0	4.53	J
OCDD	0.93	0.76-1.02		20.0	47.2	

Homologue Group	EDL	RL	Result	
Total TCDF		10.0	0.230	
Total TCDD	0.260	10.0	0.698	EMPC
Total PeCDF		20.0	0.451	EMPC
Total PeCDD	0.360	10.0	< 0.360	U
Total HxCDF		20.0	1.25	EMPC
Total HxCDD		20.0	0.838	EMPC
Total HpCDF		20.0	2.29	EMPC
Total HpCDD		20.0	5.49	EMPC

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.25

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.67

Reported in pg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-012116**

Lab Sample ID: MB-012116
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 12:27
Instrument/Analyst: AS1/PK

Sample Amount: 1000 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.79	0.65-0.89	99.8	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	87.4	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	99.6	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	97.6	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	91.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	96.6	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	95.5	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	96.0	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	90.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.29	1.05-1.43	91.6	32-141	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	85.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	89.1	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	88.7	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	86.2	23-140	
13C-OCDD	0.90	0.76-1.02	71.5	17-157	
37Cl4-2,3,7,8-TCDD			101	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-012116**

Lab Sample ID: OPR-012116
LIMS ID: 16-500
Matrix: Water
Data Release Authorized: MW
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 14:12
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 1000 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.73	0.65-0.89	10.0	239
2,3,7,8-TCDD	0.76	0.65-0.89	10.0	241
1,2,3,7,8-PeCDF	1.52	1.32-1.78	10.0	1,190
2,3,4,7,8-PeCDF	1.50	1.32-1.78	10.0	1,180
1,2,3,7,8-PeCDD	1.54	1.32-1.78	10.0	1,140
1,2,3,4,7,8-HxCDF	1.18	1.05-1.43	10.0	1,180
1,2,3,6,7,8-HxCDF	1.19	1.05-1.43	10.0	1,150
2,3,4,6,7,8-HxCDF	1.19	1.05-1.43	10.0	1,180
1,2,3,7,8,9-HxCDF	1.19	1.05-1.43	10.0	1,150
1,2,3,4,7,8-HxCDD	1.24	1.05-1.43	10.0	1,160
1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	10.0	1,150
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43	10.0	1,170
1,2,3,4,6,7,8-HpCDF	0.99	0.88-1.20	10.0	1,220
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	10.0	1,170
1,2,3,4,6,7,8-HpCDD	1.01	0.88-1.20	10.0	1,150
OCDF	0.87	0.76-1.02	20.0	2,310
OCDD	0.89	0.76-1.02	20.0	2,260

Homologue Group	EDL	RL	Result	
Total TCDF		10.0	251	EMPC
Total TCDD		10.0	248	
Total PeCDF		20.0	2,420	EMPC
Total PeCDD		10.0	1,150	EMPC
Total HxCDF		20.0	4,670	EMPC
Total HxCDD		20.0	3,480	EMPC
Total HpCDF		20.0	2,400	EMPC
Total HpCDD		20.0	1,160	

Reported in pg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: OPR-012116

Lab Sample ID: OPR-012116
LIMS ID: 16-500
Matrix: Water
Data Release Authorized: MW
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 14:12
Instrument/Analyst: AS1/PK

Sample Amount: 1000 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	98.1	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	86.3	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	99.2	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	99.0	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	91.3	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	97.1	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	95.3	26-123	
13C-2,3,4,6,7,8-HxCDF	0.53	0.43-0.59	96.8	28-136	
13C-1,2,3,7,8,9-HxCDF	0.53	0.43-0.59	92.2	29-147	
13C-1,2,3,4,7,8-HxCDD	1.29	1.05-1.43	90.3	32-141	
13C-1,2,3,6,7,8-HxCDD	1.26	1.05-1.43	85.4	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	91.8	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	92.4	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	89.0	23-140	
13C-OCDD	0.90	0.76-1.02	75.4	17-157	
37C14-2,3,7,8-TCDD			98.6	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-012116**

Lab Sample ID: OPR-012116
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 14:12
Instrument/Analyst: AS1/PK

Sample Amount: 1000 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	239	200	120	75-158
2,3,7,8-TCDD	241	200	120	67-158
1,2,3,7,8-PeCDF	1190	1000	119	80-134
2,3,4,7,8-PeCDF	1180	1000	118	68-160
1,2,3,7,8-PeCDD	1140	1000	114	70-142
1,2,3,4,7,8-HxCDF	1180	1000	118	72-134
1,2,3,6,7,8-HxCDF	1150	1000	115	84-130
2,3,4,6,7,8-HxCDF	1180	1000	118	70-156
1,2,3,7,8,9-HxCDF	1150	1000	115	78-130
1,2,3,4,7,8-HxCDD	1160	1000	116	70-164
1,2,3,6,7,8-HxCDD	1150	1000	115	76-134
1,2,3,7,8,9-HxCDD	1170	1000	117	64-162
1,2,3,4,6,7,8-HpCDF	1220	1000	122	82-132
1,2,3,4,7,8,9-HpCDF	1170	1000	117	78-138
1,2,3,4,6,7,8-HpCDD	1150	1000	115	70-140
OCDF	2310	2000	116	63-170
OCDD	2260	2000	113	78-144

Reported in pg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: Storm-01

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized: MW
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: 01/12/16
Date Received: 01/14/16

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 13:19
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 780 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.43	0.65-0.89		12.8	0.872	BJEMPC
2,3,7,8-TCDD		0.65-0.89	0.564	12.8	< 0.564	U
1,2,3,7,8-PeCDF	1.14	1.32-1.78		12.8	1.13	BJEMPC
2,3,4,7,8-PeCDF		1.32-1.78	0.615	12.8	< 0.615	U
1,2,3,7,8-PeCDD	1.75	1.32-1.78		12.8	1.58	J
1,2,3,4,7,8-HxCDF	1.09	1.05-1.43		12.8	1.64	J
1,2,3,6,7,8-HxCDF	1.74	1.05-1.43		12.8	1.38	JEMPC
2,3,4,6,7,8-HxCDF	0.89	1.05-1.43		12.8	2.26	BJEMPC
1,2,3,7,8,9-HxCDF	0.93	1.05-1.43		12.8	0.949	BJEMPC
1,2,3,4,7,8-HxCDD	3.18	1.05-1.43		12.8	0.795	JEMPC
1,2,3,6,7,8-HxCDD	1.37	1.05-1.43		12.8	15.8	
1,2,3,7,8,9-HxCDD	1.38	1.05-1.43		12.8	3.01	J
1,2,3,4,6,7,8-HpCDF	0.97	0.88-1.20		12.8	35.1	
1,2,3,4,7,8,9-HpCDF	0.75	0.88-1.20		12.8	2.67	JEMPC
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20		12.8	164	
OCDF	0.90	0.76-1.02		25.6	91.5	
OCDD	0.88	0.76-1.02		25.6	1,000	

Homologue Group	EDL	RL	Result	
Total TCDF		12.8	9.23	EMPC
Total TCDD	0.564	12.8	39.8	EMPC
Total PeCDF		25.6	30.1	EMPC
Total PeCDD		12.8	18.6	EMPC
Total HxCDF		25.6	88.0	EMPC
Total HxCDD		25.6	100	EMPC
Total HpCDF		25.6	130	EMPC
Total HpCDD		25.6	290	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 6.63

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 7.00

Reported in pg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: Storm-01**

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/26/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
NA
Date Sampled: 01/12/16
Date Received: 01/14/16

Date Extracted: 01/21/16
Date Analyzed: 01/25/16 13:19
Instrument/Analyst: AS1/PK

Sample Amount: 780 mL
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	94.5	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	81.3	25-164	
13C-1,2,3,7,8-PeCDF	1.59	1.32-1.78	92.4	24-185	
13C-2,3,4,7,8-PeCDF	1.59	1.32-1.78	89.3	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	83.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	92.3	26-152	
13C-1,2,3,6,7,8-HxCDF	0.53	0.43-0.59	91.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	93.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	87.7	29-147	
13C-1,2,3,4,7,8-HxCDD	1.30	1.05-1.43	88.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	82.6	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	89.9	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.46	0.37-0.51	88.4	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	87.1	23-140	
13C-OCDD	0.90	0.76-1.02	75.3	17-157	
37Cl4-2,3,7,8-TCDD			93.9	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-011516
METHOD BLANK

Lab Sample ID: MB-011516
LIMS ID: 16-500
Matrix: Water
Data Release Authorized: MW
Reported: 01/20/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
Date Sampled: NA
Date Received: NA

Date Extracted: 01/15/16
Date Analyzed: 01/18/16 14:19
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	60.8%
Tetrachlorometaxylene	80.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C

Sample ID: Storm-01
SAMPLE

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/20/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

Date Extracted: 01/15/16
Date Analyzed: 01/18/16 15:00
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.8%
Tetrachlorometaxylene	81.8%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-011516	60.8%	29-120	80.2%	35-120	0
LCS-011516	77.8%	29-120	81.8%	35-120	0
Storm-01	86.8%	29-120	81.8%	35-120	0

Prep Method: SW3510C
Log Number Range: 16-500 to 16-500

FORM-II SW8082

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-011516
LAB CONTROL

Lab Sample ID: LCS-011516
LIMS ID: 16-500
Matrix: Water
Data Release Authorized: MW
Reported: 01/20/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority
Date Sampled: NA
Date Received: NA

Date Extracted: 01/15/16
Date Analyzed: 01/18/16 14:40
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	4.25	5.00	85.0%
Aroclor 1260	4.56	5.00	91.2%

PCB Surrogate Recovery

Decachlorobiphenyl	77.8%
Tetrachlorometaxylene	81.8%

Results reported in µg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 1

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Matrix: Water

Date Received: 01/14/16

Data Release Authorized:
Reported: 01/18/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-011516	Method Blank	01/15/16	01/15/16	1.00	Diesel Range	0.10	< 0.10 U
16-500	HC ID: ---		FID3B	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		98.9%
AUD1A	Storm-01	01/15/16	01/15/16	1.00	Diesel Range	0.10	< 0.10 U
16-500	HC ID: ---		FID3B	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		98.7%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-011516
LAB CONTROL

Lab Sample ID: LCS-011516
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/18/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: NA
Date Received: NA

Date Extracted: 01/15/16
Date Analyzed: 01/15/16 19:41
Instrument/Analyst: FID3B/JLW

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.70	3.00	90.0%

TPHD Surrogate Recovery

o-Terphenyl	97.1%

Results reported in mg/L

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: AUD1
Matrix: Water Project: Seaport Authority
Date Received: 01/14/16

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
16-500-011516MB1	Method Blank	500 mL	1.00 mL	01/15/16
16-500-011516LCS1	Lab Control	500 mL	1.00 mL	01/15/16
16-500-AUD1A	Storm-01	500 mL	1.00 mL	01/15/16

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Client ID	OTER	TOT OUT
MB-011516	98.9%	0
LCS-011516	97.1%	0
Storm-01	98.7%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 16-500 to 16-500

FORM-II TPHD

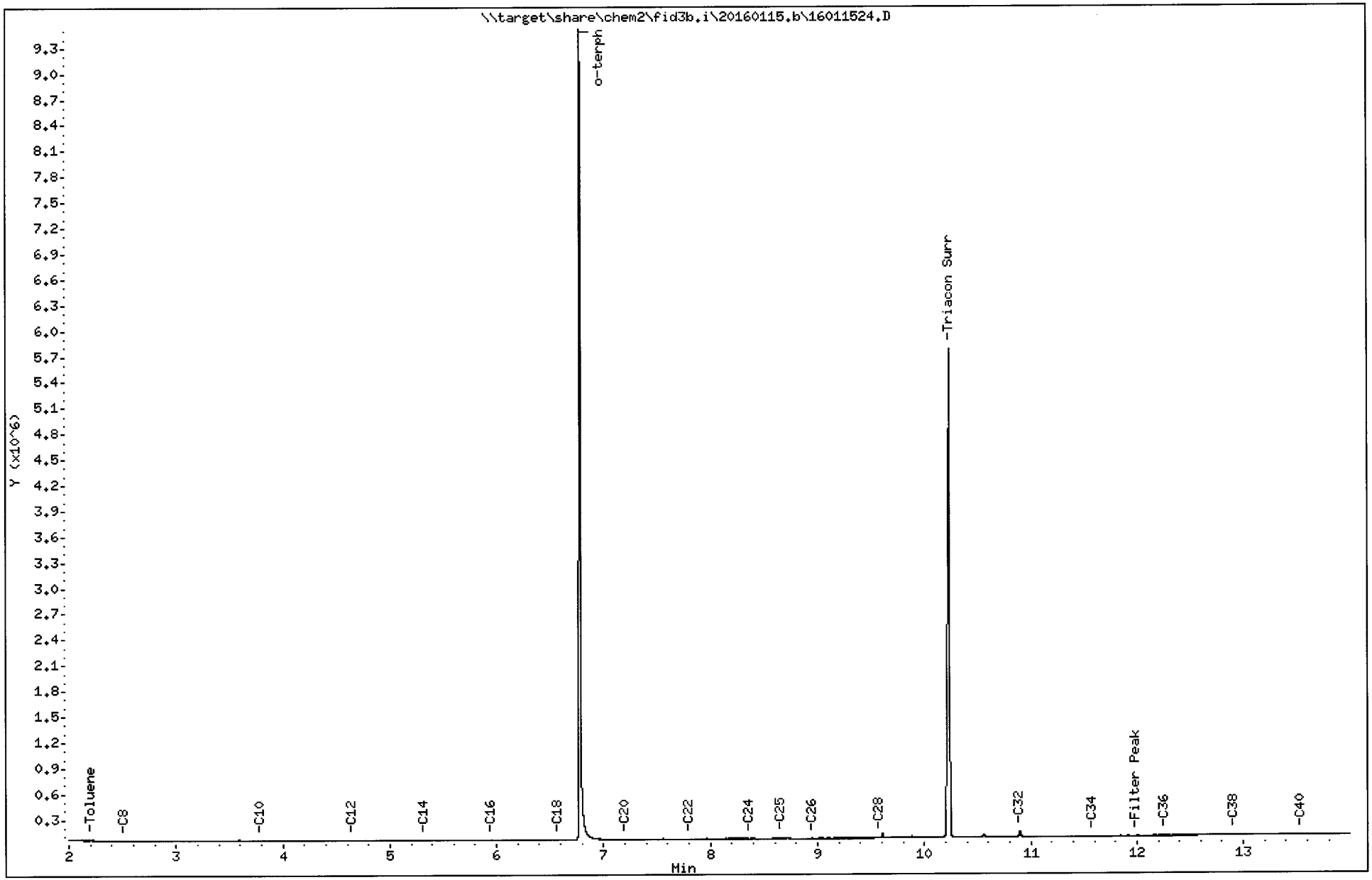
Data File: \\target\share\chem2\fid3b.i\20160115.b\16011524.D
Date : 15-JAN-2016 19:20
Client ID: AUD1MBW1
Sample Info: AUD1MBW1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25

Column phase: RTX-1

AUD1 : 99633

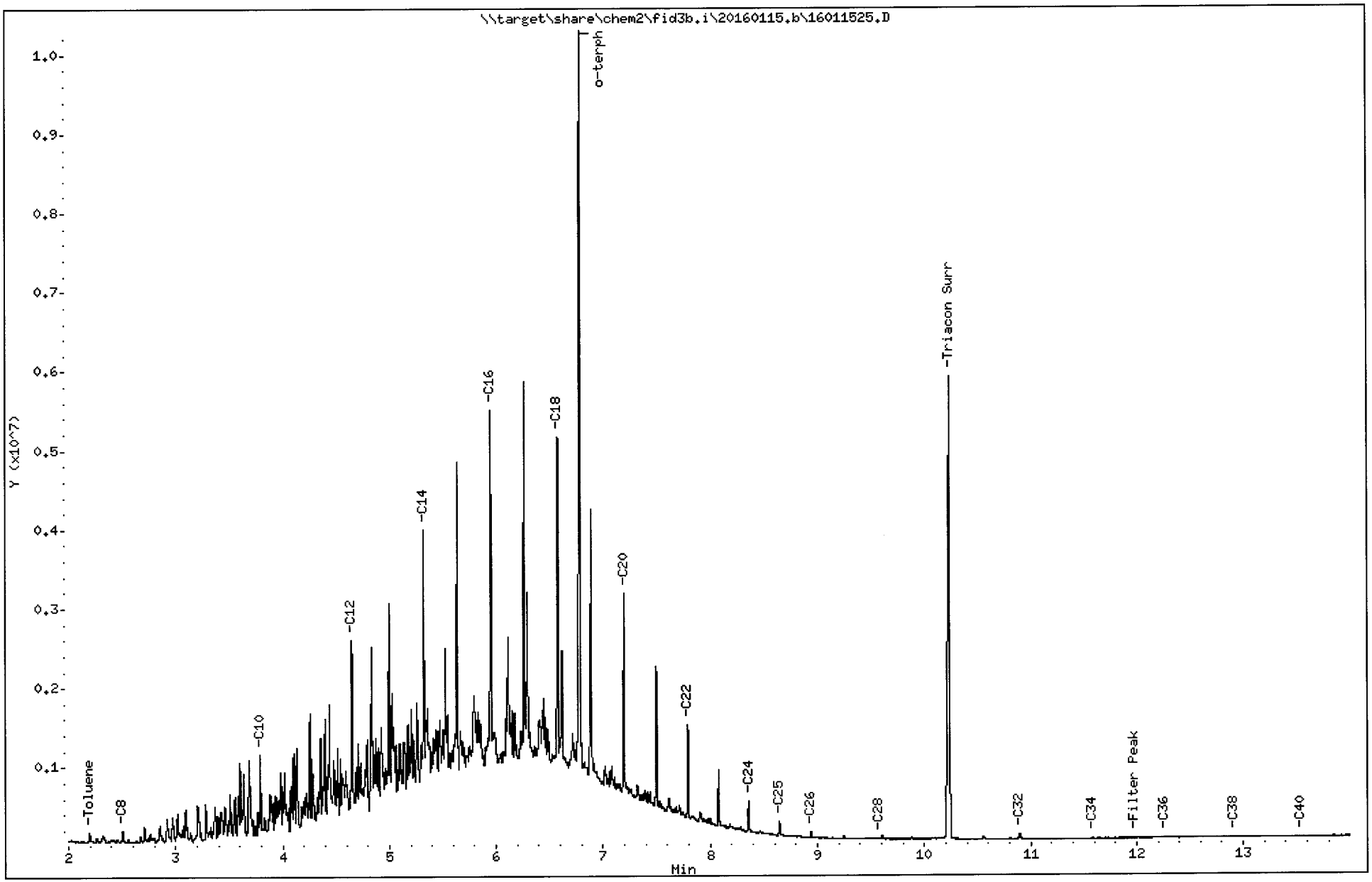


Data File: \\target\share\chem2\fid3b.i\20160115.b\16011525.D
Date : 15-JAN-2016 19:41
Client ID: AUD1LCSW1
Sample Info: AUD1LCSW1

Instrument: fid3b.i

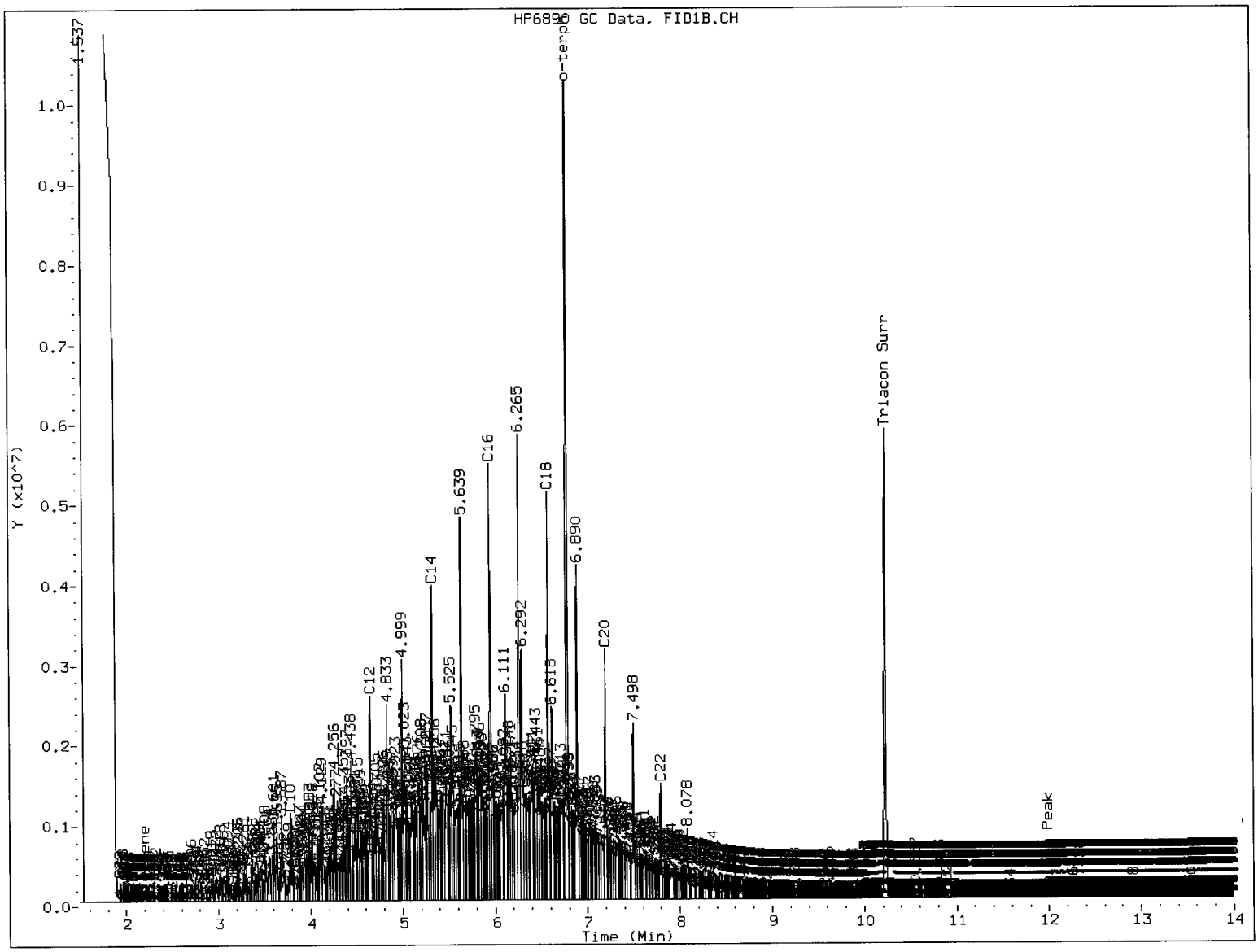
Operator: ML
Column diameter: 0.25

Column phase: RTX-1



AUD1 : 099631

FID:3B-2C/RTX-1 AUD1LCSW1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

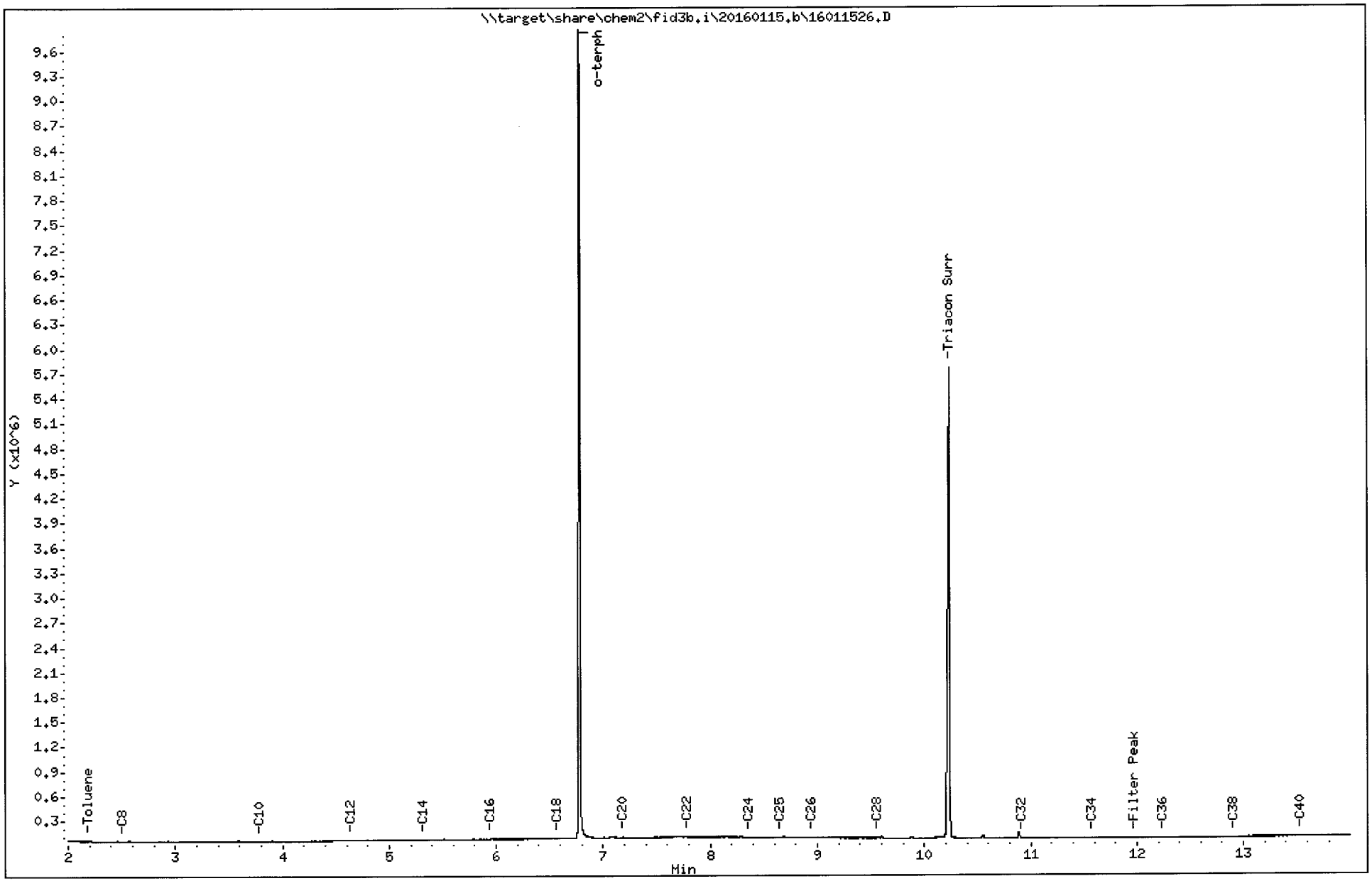
Analyst: _____ Date: 1/15/14

Data File: \\target\share\chem2\fid3b.i\20160115.b\16011526.D
Date : 15-JAN-2016 20:03
Client ID: Storm-01
Sample Info: AUD1A

Column phase: RTX-1

Instrument: fid3b.i

Operator: ML
Column diameter: 0.25



AUD1 : 66036

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: Storm-01
SAMPLE

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	01/19/16	200.8	01/20/16	**7440-38-2**	**Arsenic**	0.2	**0.6**	
200.8	01/19/16	200.8	01/20/16	7440-43-9	Cadmium	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	**7440-47-3**	**Chromium**	0.5	**1.2**	
200.8	01/19/16	200.8	01/20/16	**7440-50-8**	**Copper**	0.5	**4.3**	
200.8	01/19/16	200.8	01/20/16	**7439-92-1**	**Lead**	0.1	**2.0**	
7470A	01/18/16	7470A	01/20/16	**7439-97-6**	**Mercury**	0.1	**0.2**	
200.8	01/19/16	200.8	01/20/16	7440-22-4	Silver	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	**7440-66-6**	**Zinc**	4	**60**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: Storm-01
DUPLICATE

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	0.6	0.7	15.4%	+/- 0.2	L
Cadmium	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Chromium	200.8	1.2	1.4	15.4%	+/- 0.5	L
Copper	200.8	4.3	4.3	0.0%	+/- 20%	
Lead	200.8	2.0	2.1	4.9%	+/- 20%	
Mercury	7470A	0.2	0.0 U	66.7%	+/- 0.1	L
Silver	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	200.8	60	59	1.7%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: Storm-01
MATRIX SPIKE

Lab Sample ID: AUD1A
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	0.6	23.4	25.0	91.2%	
Cadmium	200.8	0.1 U	20.7	25.0	82.8%	
Chromium	200.8	1.2	23.7	25.0	90.0%	
Copper	200.8	4.3	26.9	25.0	90.4%	
Lead	200.8	2.0	24.6	25.0	90.4%	
Mercury	7470A	0.2	1.1	1.0	90.0%	
Silver	200.8	0.2 U	21.2	25.0	84.8%	
Zinc	200.8	60	131	80	88.8%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: Storm-01
SAMPLE

Lab Sample ID: AUD1B
LIMS ID: 16-501
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	01/19/16	200.8	01/20/16	7440-38-2	Arsenic	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	7440-43-9	Cadmium	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	**7440-47-3**	**Chromium**	0.5	**1.0**	
200.8	01/19/16	200.8	01/20/16	7440-50-8	Copper	0.5	0.5	U
200.8	01/19/16	200.8	01/20/16	7439-92-1	Lead	0.1	0.1	U
7470A	01/18/16	7470A	01/20/16	7439-97-6	Mercury	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	7440-22-4	Silver	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	**7440-66-6**	**Zinc**	4	**37**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: Storm-01 DUPLICATE

Lab Sample ID: AUD1B
LIMS ID: 16-501
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Cadmium	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Chromium	200.8	1.0	0.9	10.5%	+/- 0.5	L
Copper	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Lead	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Mercury	7470A	0.1 U	0.1 U	0.0%	+/- 0.1	L
Silver	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	200.8	37	37	0.0%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: Storm-01
MATRIX SPIKE

Lab Sample ID: AUD1B
LIMS ID: 16-501
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: 01/12/16
Date Received: 01/14/16

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	0.2 U	22.7	25.0	90.8%	
Cadmium	200.8	0.1 U	19.8	25.0	79.2%	
Chromium	200.8	1.0	24.7	25.0	94.8%	
Copper	200.8	0.5 U	23.2	25.0	92.8%	
Lead	200.8	0.1 U	22.6	25.0	90.4%	
Mercury	7470A	0.1 U	1.0	1.0	100%	
Silver	200.8	0.2 U	21.5	25.0	86.0%	
Zinc	200.8	37	103	80	82.5%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: AUD1MB
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	01/19/16	200.8	01/20/16	7440-38-2	Arsenic	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	7440-43-9	Cadmium	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	7440-47-3	Chromium	0.5	0.5	U
200.8	01/19/16	200.8	01/20/16	7440-50-8	Copper	0.5	0.5	U
200.8	01/19/16	200.8	01/20/16	7439-92-1	Lead	0.1	0.1	U
7470A	01/18/16	7470A	01/20/16	7439-97-6	Mercury	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	7440-22-4	Silver	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: AUD1LCS
LIMS ID: 16-500
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	22.7	25.0	90.8%	
Cadmium	200.8	24.1	25.0	96.4%	
Chromium	200.8	26.2	25.0	105%	
Copper	200.8	24.9	25.0	99.6%	
Lead	200.8	26.0	25.0	104%	
Mercury	7470A	2.0	2.0	100%	
Silver	200.8	25.2	25.0	101%	
Zinc	200.8	77	80	96.2%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AUD1MB
LIMS ID: 16-501
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	01/19/16	200.8	01/20/16	7440-38-2	Arsenic	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	7440-43-9	Cadmium	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	7440-47-3	Chromium	0.5	0.5	U
200.8	01/19/16	200.8	01/20/16	7440-50-8	Copper	0.5	0.5	U
200.8	01/19/16	200.8	01/20/16	7439-92-1	Lead	0.1	0.1	U
7470A	01/18/16	7470A	01/20/16	7439-97-6	Mercury	0.1	0.1	U
200.8	01/19/16	200.8	01/20/16	7440-22-4	Silver	0.2	0.2	U
200.8	01/19/16	200.8	01/20/16	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AUD1LCS
LIMS ID: 16-501
Matrix: Water
Data Release Authorized:
Reported: 01/21/16

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	23.3	25.0	93.2%	
Cadmium	200.8	23.7	25.0	94.8%	
Chromium	200.8	26.1	25.0	104%	
Copper	200.8	24.8	25.0	99.2%	
Lead	200.8	25.8	25.0	103%	
Mercury	7470A	2.0	2.0	100%	
Silver	200.8	25.0	25.0	100%	
Zinc	200.8	80	80	100%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

2 December 2013

Mike Murray
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: GHHSA
ARI Job Nos.: XN64, XO00

Dear Mike:

Please find enclosed the original chain of custody records and the final results for the samples from the project referenced above.

Analytical Resources, Inc. (ARI) accepted fourteen sediment samples on November 8, 2013. Six samples were placed on hold as instructed. The remaining samples were analyzed for NWTPH-G, SVOCs, dioxins/furans, PCBs, NWTPH-Dx, total metals, porewater salinity and conventional parameters as requested. No porewater was extracted from samples CR04, CR05 or CR06. Porewater salinity is not available for these samples.

The percent recovery for the surrogates, bromobenzene and trifluorotoluene, were low following the initial NWTPH-G analysis of sample CR06-2.5. This sample was re-extracted and re-analyzed. The percent recoveries for both surrogates were low for the re-analysis. Since the percent recoveries for all spikes and surrogates were within established QC limits for the corresponding MB and LCS, it was concluded that the sample matrix was the cause of the low surrogate recoveries. No further corrective actions were taken. The results for the original analysis only have been submitted.

The percent differences (%Ds) for two compounds were high for the CCALs that bracketed the SIM-SVOA analyses of these samples. All positive results have been flagged with a "Q" qualifier to denote the high %Ds.

The percent recovery for the surrogate, TCMX, was low following the initial PCB analysis of sample CR01-10cm. Since the percent recovery for the surrogate, DCBP, was within established QC limits for this sample, no corrective actions were taken.

A small amount of contamination was detected in the method blank associated with the sulfide analyses of these samples. Sulfide was detected in all samples associated with this blank. The concentrations of sulfide measured in all samples associated with this blank were significantly greater than the concentration found in the blank for all samples except CR04-10cm. This sample only was re-prepared and re-analyzed. The re-analysis proceeded without incident of note. The result for the re-analysis only has been submitted for this sample. The results for the original analyses have been submitted for all other samples.

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Murray, MFA
GHHSA
XN64, XO00
Sediment

2 December 2013

A matrix duplicate (MD) was prepared and analyzed for sulfide in conjunction with sample CR04-10cm. The RPD was high following the analysis of the MD. Since the percent recovery for sulfide was within acceptable QC limits for the corresponding LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPD. No corrective actions were taken.

A matrix spike (MS) was prepared and analyzed for TOC in conjunction with sample CR04-10cm. The percent recovery was low following the analysis of the MS. The MS was re-prepared and re-analyzed. The percent recovery was low for the re-analysis. Since the percent recovery for TOC was within acceptable QC limits for the corresponding SRM and LCS, it was concluded that the sample matrix was the cause of the low MS recoveries. No further corrective actions were taken. The result for the original analysis only has been submitted for the MS.

An MD was prepared and analyzed for total metals in conjunction with sample CR06-2.5. The RPDs for chromium, copper and mercury were high following the analysis of the MD. Since the percent recoveries for all elements were within acceptable QC limits for the corresponding LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPDs. No corrective actions were taken.

An MS was prepared and analyzed for total metals in conjunction with sample CR06-2.5. The percent recovery for mercury was low following the analysis of the MS. Since the percent recovery for mercury was within acceptable QC limits for the corresponding LCS, it was concluded that the sample matrix was the cause of the low MS recovery. No corrective actions were taken.

The remaining analyses proceeded without incident of note.

An electronic copy of this report and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: files XN64, XO00

Enclosures

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN64	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Maul Foster & Alongi	Phone: 9715442139	Date: 11/8/13	Ice Present? Y
Client Contact: Mike Murray		No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2
Client Project Name: GHHSA			
Client Project #: 0863.01.01	Samplers: MRM/MN		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: Dioxin/Furan	Butyl-Benzyl-Phthalate, Beta Chlorophenol	Mercury	SMS compounds with marine criteria	TOC	Conventionals TOC, TVS, Total NH4, TS, PNWS, % fines	Archive	Salinity for pore water	Notes/Comments
CR06-10cm	11/7/13	12:00	Sed.	8	X	X	X			X	X		"Conventionals" include: TOC, TVS, total solids, NH4, TS, pore water sulfides, % fines
CR06-1		12:15		4							X		Archive all remaining sample volume
CR06-2.5		12:30		8							X		
CR06-4		12:45		8							X		
CR04-10cm		13:00		8	X	X	X			X	X		
CR04-1		13:30		3							X		
CR05-10cm	11/8/13	8:25	Sed	8	X	X	X			X	X		
CR05-2.5		8:45		8							X		
CR05-3.5		9:00		2							X		
CR04-2.5		9:40		8							X		

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Millsap	Printed Name	Printed Name
	Company: MFA	Company: ARI	Company	Company
	Date & Time: 11/8/13 2:00 pm	Date & Time: 11/8/13 1830	Date & Time	Date & Time

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN164	Turn-around Requested: standard
ARI Client Company: Maul Foster + Alongi	Phone: 9715442139
Client Contact: Mike Murray	
Client Project Name: DHS GHHSA	
Client Project #: 0863.01.01	Samplers: MRM/MN

Page: 2 of 2	
Date: 11/8/13	Ice Present? Y
No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: Dioxin/Furan	Bulk benzyl butyl phthalate, pentachlorophenol	Mercury	SMS comp. w/ Marine Criteria	TOC	Conventionals	Archive	Salinity for grain size	Notes/Comments
CR04-5	11/8/13	10:00	Sed	4							X		Archive all remaining sample volume ↓
CR01-10cm	↓	11.15	↓	5	X			X	X		X	X	
CR02-10cm		11:30		5	X			X	X		X	X	
CR03-10cm		12:00		5	X			X	X		X	X	

Conventionals = TOC, TVS, total solids, NH_4, TS, pore water sulfides, % fines

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Millsap	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 11/8/13 2 pm	Date & Time: 11/8/13 1830	Date & Time:	Date & Time:

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Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

XN164 : 11SNA

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number: XN64	Turn-around Requested: Standard
ARI Client Company: Maul Foster & Alongi	Phone: 971 544 2139
Client Contact: Mike Murray	
Client Project Name: GHHSA	
Client Project #: 0863.01.01	Samplers: MRM/MN
Page: 1 of 2	
Date: 11/8/13	Ice Present? Y
No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2

Sample ID	Date	Time	Matrix	No. Containers	Dioxin/Furans	Butyl-Benzyl-Phthalate, Pentachlorophenol	Mercury	SMS compounds with marked criteria	TOC	Conventionals (TOC, TVS, Total NH4, TS, PWS, %fines)	Archive	Salinity in pore water	Notes/Comments
CR06-10cm	11/7/13	12:00	Sed.	8	X	X	X	phenol		X	X		"Conventionals" include: TOC, TVS, total solids, NH4, TS, pore water sulfides, %fines
CR06-1		12:15		4	X			X	tphg, tplhc		X		Archive all remaining sample volume
CR06-2.5		12:30		8	X			X	tphg, tplhc		X		
CR06-4		12:45		8							X		
CR04-10cm		13:00		8	X	X	X	phenol		X	X		
CR04-1		13:30		3							X		
CR05-10cm	11/8/13	8:25	Sed	8	X	X	X	phenol		X	X		
CR05-2.5		8:45		8							X		
CR05-3.5		9:00		2							X		
CR04-2.5		9:40		8							X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Millsap	Printed Name:	Printed Name
	Company: MFA	Company: ARI	Company	Company
	Date & Time: 11/8/13 2:00 pm	Date & Time: 11/8/13 1830	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN64	Turn-around Requested: standard	Page: 2 of 2	
ARI Client Company: Maul Foster + Alongi	Phone: 9715442139	Date: 11/8/13	Ice Present? Y
Client Contact: Mike Murray		No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2
Client Project Name: EHS GHHSN			
Client Project #: 0863.01.01	Samplers: MRM/MN		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Dioxin/Furan	Butylbenzyl Phthalate, Pentachlorophenol	Mercury	SMS Conventionals 33/Marine Criteria	TOC	Conventionals	Archive	Sulfides, % Fines	Notes/Comments
CR04-5	11/8/13	10:00	Sed	4		phenol				X (NO3)	X		Archive all remaining sample volume
CR01-10cm		11:15		5	X			X	X		X	X	
CR02-10cm		11:30		5	X			X	X		X	X	
CR03-10cm	↓	12:00	↓	5	X			X	X		X	X	↓

Analysis Requested

Conventionals = TOC, TVS, total solids, NH4, TS, pore water sulfides, % fines

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Millsap	Printed Name	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 11/8/13 2 pm	Date & Time: 11/8/13 1830	Date & Time.	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

SAMPLE LABEL

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client Maul Foster & Alongi Project Name GHH3A

COC No(s): _____ (NA) Delivered by Fed-Ex UPS Courier Hand Delivered Other: MC Delivery

Assigned ARI Job No: XN64 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) 3.2 0.4 5.2

Time: 1830

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by: JM Date 11/8/13 Time 1830

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment _____ Split by: _____

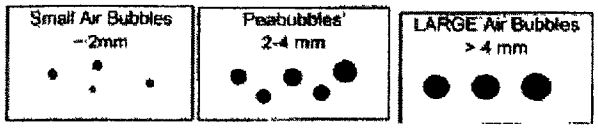
Samples Logged by: JM Date. 11/12/13 Time 1240

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By _____ Date. _____



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

XNGU : 00007

Subject: RE: GHHSA
From: "Mike Murray" <mmurray@maulfoster.com>
Date: 11/11/2013 3:40 PM
To: "Mark Harris" <markh@arilabs.com>
CC: <mnovak@maulfoster.com>

Hi Mark, you are correct on all statements. The SMS marine chemicals we want analyzed are in Table 2 of the attached (should be the same table we circulated in August). Table 3 includes a summary of the methods we discussed.

Please let us know if you have any questions.
Thanks,
MRM

MICHAEL R. MURRAY RG | MAUL FOSTER & ALONGI, INC.

d. 503 501 5226 | p. 971 544 2139 | c. 503 310 0435 | f. 971 544 2140 |
www.maulfoster.com
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

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-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Monday, November 11, 2013 8:42 AM
To: Mike Murray
Subject: GHHSA

Mike:

I just have a few items to clarify on these samples:

1) For those samples that request 'butylbenzylphthalate and PCP' only, we are to only do those two compounds, not the full SMS SVOC list, correct?

2) Is the request for 'SMS compounds' the full list of compounds in the table you sent in August?

3) Is '% fines' the same as grain size?

I think that's all we need. We'll get them logged and started as soon as possible.

Mark H.

--

Mark Harris
Project Manager
Analytical Resources, Inc.

206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey <https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

Attachments

T-SAP.xlsx 24.8 KB

Subject: RE: GHHSA
From: "Madi Novak" <mnovak@maulfoster.com>
Date: 11/12/2013 12:55 PM
To: "Mark Harris" <markh@arilabs.com>
CC: "Mike Murray" <mmurray@maulfoster.com>

Thanks Mark,

1) just plain phenol
2) that is fine
3) that works

MADI NOVAK | MAUL FOSTER & ALONGI, INC.

direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060 |www.maulfoster.com
2001 NW 19th Avenue, Suite 200, Portland, OR 97209
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-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, November 12, 2013 12:53 PM
To: Madi Novak
Subject: Re: GHHSA

Madi:

Okay, there are a couple of questions:

1) Is 'phenol' just plain phenol (by 8270), or PCP?

2) For CR04-5, we didn't receive large jars for porewater extraction. We received 4-8oz, 1-4oz and 1-2oz. We can us the 8oz but it won't leave much leftover.

3) For CR06-2.5, we didn't receive "VOA" jars. We can use the 4oz conventionals jar here and then give it to the conventionals lab if that works for you.

Mark H.

On 11/12/2013 12:28 PM, Madi Novak wrote:
> Thanks! Note the 06 sample appears to be pretty impacted. . .
>
> MADI NOVAK | MAUL FOSTER & ALONGI, INC.
>
> direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060
> |www.maulfoster.com
> 2001 NW 19th Avenue, Suite 200, Portland, OR 97209 Please consider the environment before printing this email.
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-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, November 12, 2013 12:22 PM
To: Madi Novak
Cc: Mike Murray
Subject: Re: GHHSA

Madi:

Got it. We'll get these tests added.

Mark H.

On 11/12/2013 12:20 PM, Madi Novak wrote:

Hi Mark,

I'd like to add analyses beyond what is already noted on the COC as follows:

CR04-10cm analyze for phenol
CR05-10cm analyze for phenol
CR06-10cm analyze for phenol
CR04-5 please analyze for conventionals (toc, tvs, total solids, ammonia, total sulfides, pore water sulfides) and phenol.
CR06-2.5 please analyze for SMS constituents, dioxins/furans, NWTPH-Gx and NWTPH-Dx

Please let me know if you have any questions.

Thank you,

MADI NOVAK | MAUL FOSTER & ALONGI, INC.

direct. 503 501 5212 | main. 971 544 2139 | cell. 971 227 1060
|www.maulfoster.com
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-----Original Message-----

From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, November 12, 2013 6:25 AM
To: Mike Murray
Cc: Madi Novak
Subject: Re: GHHSA

We'll get them logged this morning.

On 11/11/2013 3:40 PM, Mike Murray wrote:
> Hi Mark, you are correct on all statements. The SMS marine chemicals we want analyzed are in Table 2 of the attached (should be the same table we circulated in August). Table 3 includes a summary of the methods we discussed.
>
> Please let us know if you have any questions.
> Thanks,
> MRM
>
> MICHAEL R. MURRAY RG | MAUL FOSTER & ALONGI, INC.
>
> d. 503 501 5226 | p. 971 544 2139 | c. 503 310 0435 | f. 971 544 2140
> | www.maulfoster.com
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>
> -----Original Message-----
> From: Mark Harris [mailto:markh@arilabs.com]
> Sent: Monday, November 11, 2013 8:42 AM
> To: Mike Murray
> Subject: GHHSA
>
> Mike:
>
> I just have a few items to clarify on these samples:
>
> 1) For those samples that request 'butylbenzylphthalate and PCP' only, we are to only do those two compounds, not the full SMS SVOC list, correct?
>
> 2) Is the request for 'SMS compounds' the full list of compounds in the table you sent in August?
>
> 3) Is '% fines' the same as grain size?
>
> I think that's all we need. We'll get them logged and started as soon as

possible.

Mark H.

--

Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey <https://www.surveymonkey.com/s/WPDBVJK>.

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If you have received this correspondence in error, please notify sender immediately. Thank you.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Client: Maul Foster & Alongi	**ARI Job No.:** XN64
Client Project: GHHSA	**Client Project No.:** 0863.01.01

Case Narrative

1. Seven samples were submitted for testing and preparation on November 12, 2013 and were in good condition.
2. The samples were submitted for pore water extraction by the United States Army Corp of Engineers draft interim guidelines. Four samples to be submitted for sulfide analysis would not yield the required pore water volume. The three pore water samples to be submitted for salinity analysis did yield sufficient volume for analysis. All centrifuge bottles were decontaminated, pre-rinsed with hexane and allowed to dry completely. All spoons were decontaminated, pre-rinsed with dichloromethane and allowed to air dry completely. All samples were centrifuged in a pre-cooled centrifuge (4°C) at 3,000 x g for 30 minutes, decanted and then placed in another pre-cooled centrifuge (4°C) and spun at 7,000-x g for 30 minutes. The samples were decanted into small HDPE sample bottles with no preservation.
3. Four samples were submitted for grain size analysis according to Puget Sound Estuary Protocol (PSEP) methodology. The samples were originally split under the required volume required in PSEP. The samples were resplit, and the original bench sheets are included in the raw data. The samples were run in a single batch and one sample from another job was chosen for triplicate analysis. The triplicate data is reported on the QA summary. The samples contained woody or other organic matter which may have broken down during the sieving process, affecting grain size analysis. The samples displayed an oil-like sheen and left an oil-like residue on the equipment after processing.
4. The data is reported in summary tables and plots.
5. There were no other noted anomalies in the samples or methods on this project.

Released by: _____ Date: 11/25/13
Geotechnical Laboratory Manager

Reviewed by: _____ Date: November 25, 2013
Lead Technician

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XN64
Client: Maul Foster & Alongi
Project Event: 0863.01.01
Project Name: GHHSA

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR06-10cm	XN64A	13-24853	Sediment	11/07/13 12:00	11/08/13 18:30
2.	CR04-10cm	XN64B	13-24854	Sediment	11/07/13 13:00	11/08/13 18:30
3.	CR05-10cm	XN64C	13-24855	Sediment	11/08/13 08:25	11/08/13 18:30
4.	CR06-2.5	XN64D	13-24856	Sediment	11/07/13 12:30	11/08/13 18:30
5.	CR04-5	XN64E	13-24857	Sediment	11/08/13 10:00	11/08/13 18:30
6.	CR01-10cm	XN64F	13-24858	Sediment	11/08/13 11:15	11/08/13 18:30
7.	CR02-10cm	XN64G	13-24859	Sediment	11/08/13 11:30	11/08/13 18:30
8.	CR03-10cm	XN64H	13-24860	Sediment	11/08/13 11:30	11/08/13 18:30
9.	CR06-1	XN64I	13-24861	Sediment	11/07/13 12:15	11/08/13 18:30
10.	CR06-4	XN64J	13-24862	Sediment	11/07/13 12:30	11/08/13 18:30
11.	CR04-1	XN64K	13-24863	Sediment	11/07/13 13:30	11/08/13 18:30
12.	CR05-2.5	XN64L	13-24864	Sediment	11/08/13 08:45	11/08/13 18:30
13.	CR05-3.5	XN64M	13-24865	Sediment	11/08/13 09:00	11/08/13 18:30
14.	CR04-2.5	XN64N	13-24866	Sediment	11/08/13 09:40	11/08/13 18:30

XN64: 00015

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

YNSU : 000015

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

XNGU : 00017

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

YNGH : 00019

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01

Data Release Authorized:
Reported: 11/14/13

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-111313	Method Blank	11/13/13	Dry	Gasoline	< 5.0 U
13-24856		PID1		HC ID	---
				Trifluorotoluene	93.3%
				Bromobenzene	89.6%
XN64D	CR06-2.5	11/13/13	Dry	Gasoline	< 54 U
13-24856		PID1		HC ID	---
				Trifluorotoluene	26.8%
				Bromobenzene	21.6%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-111313
LAB CONTROL SAMPLE

Lab Sample ID: LCS-111313
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/14/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 11/13/13 11:16
LCSD: 11/13/13 11:46
Instrument/Analyst LCS: PID1/PKC
LCSD: PID1/PKC

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	121	125	96.8%	121	125	96.8%	0.0%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	107%	113%
Bromobenzene	93.3%	99.7%

ANALYTICAL RESOURCES INCORPORATED

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: XN64
Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01

Client ID	BFB	TFT	BBZ	TOT OUT
MB-111313	NA	93.3%	89.6%	0
LCS-111313	NA	107%	93.3%	0
LCSD-111313	NA	113%	99.7%	0
CR06-2.5	NA	26.8%*	21.6%*	2

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(65-128)
(BBZ) = Bromobenzene	(80-120)	(52-149)

Log Number Range: 13-24856 to 13-24856

FORM II TPHG

XN64 : 00021

Data File: /chem3/pid1.i/20131113-1.b/1113a008.d

Date : 13-NOV-2013 15:59

Client ID: CR06-2.5

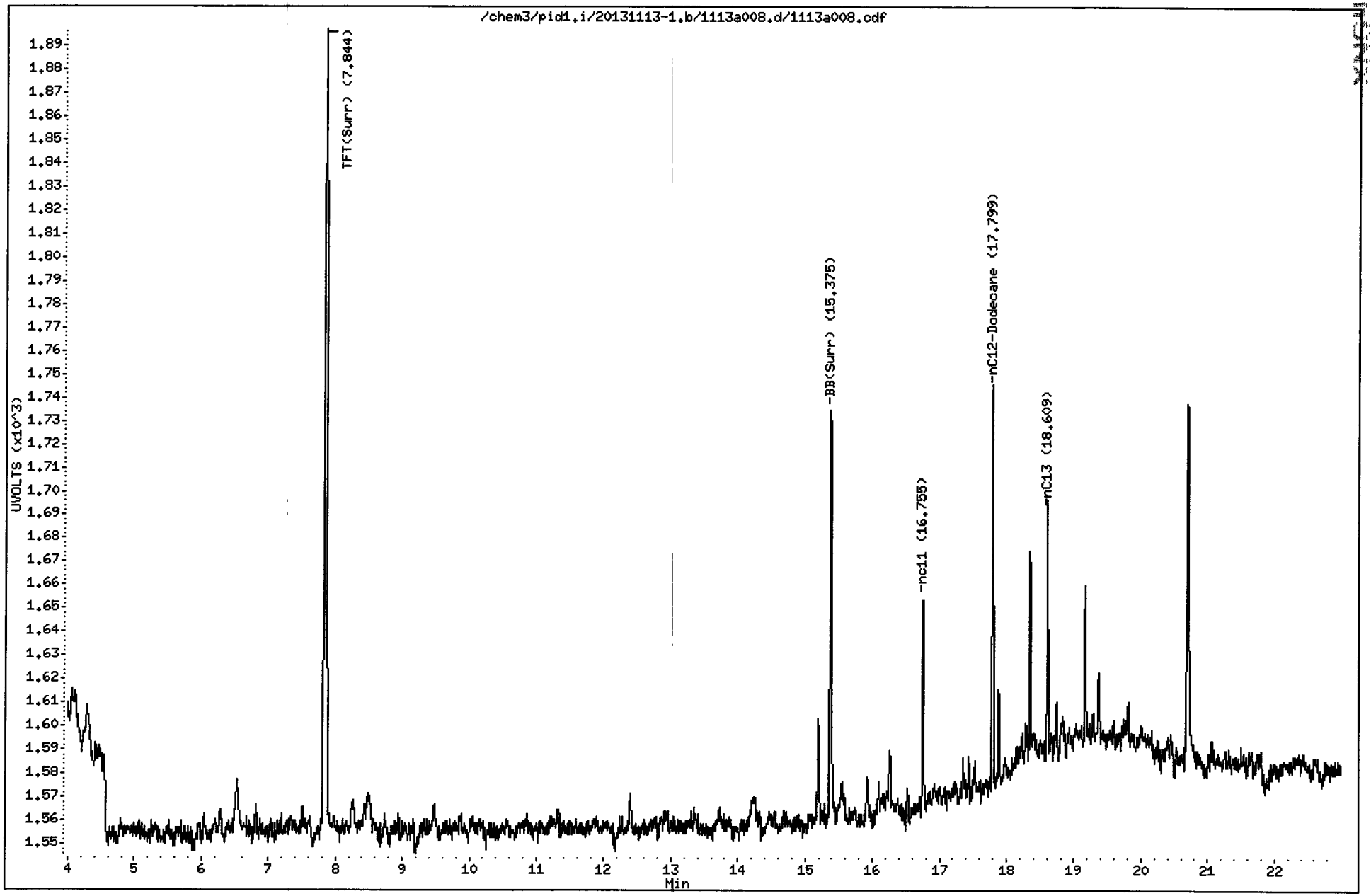
Sample Info: XN64D

Column phase: RTX 502-2 FID

Instrument: pid1.i

Operator: PC

Column diameter: 0.18



Data File: /chem3/pid1.i/20131113-1.b/1113a004.d

Date : 13-NOV-2013 11:16

Client ID:

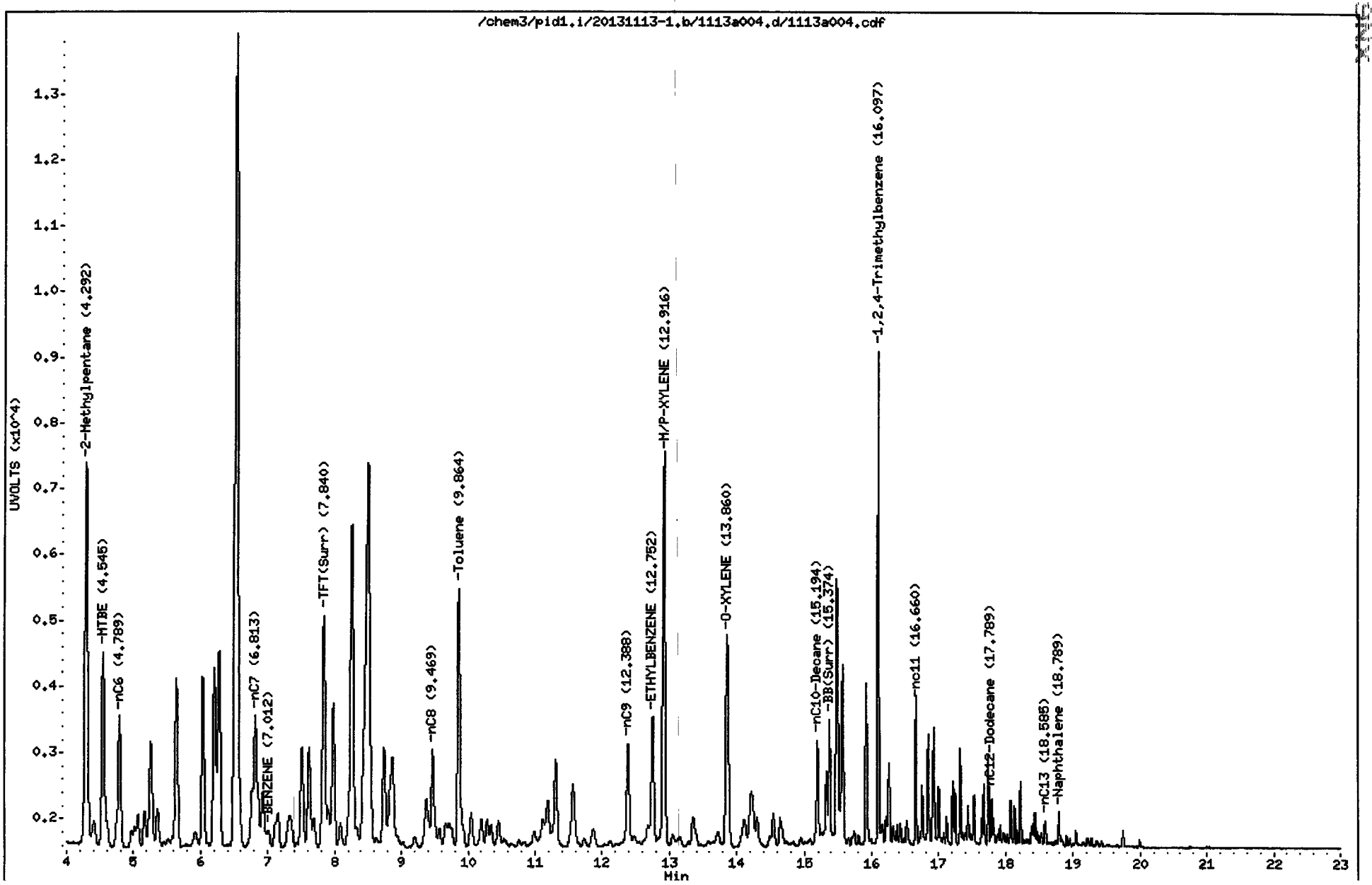
Sample Info: LCS1113

Instrument: pid1.i

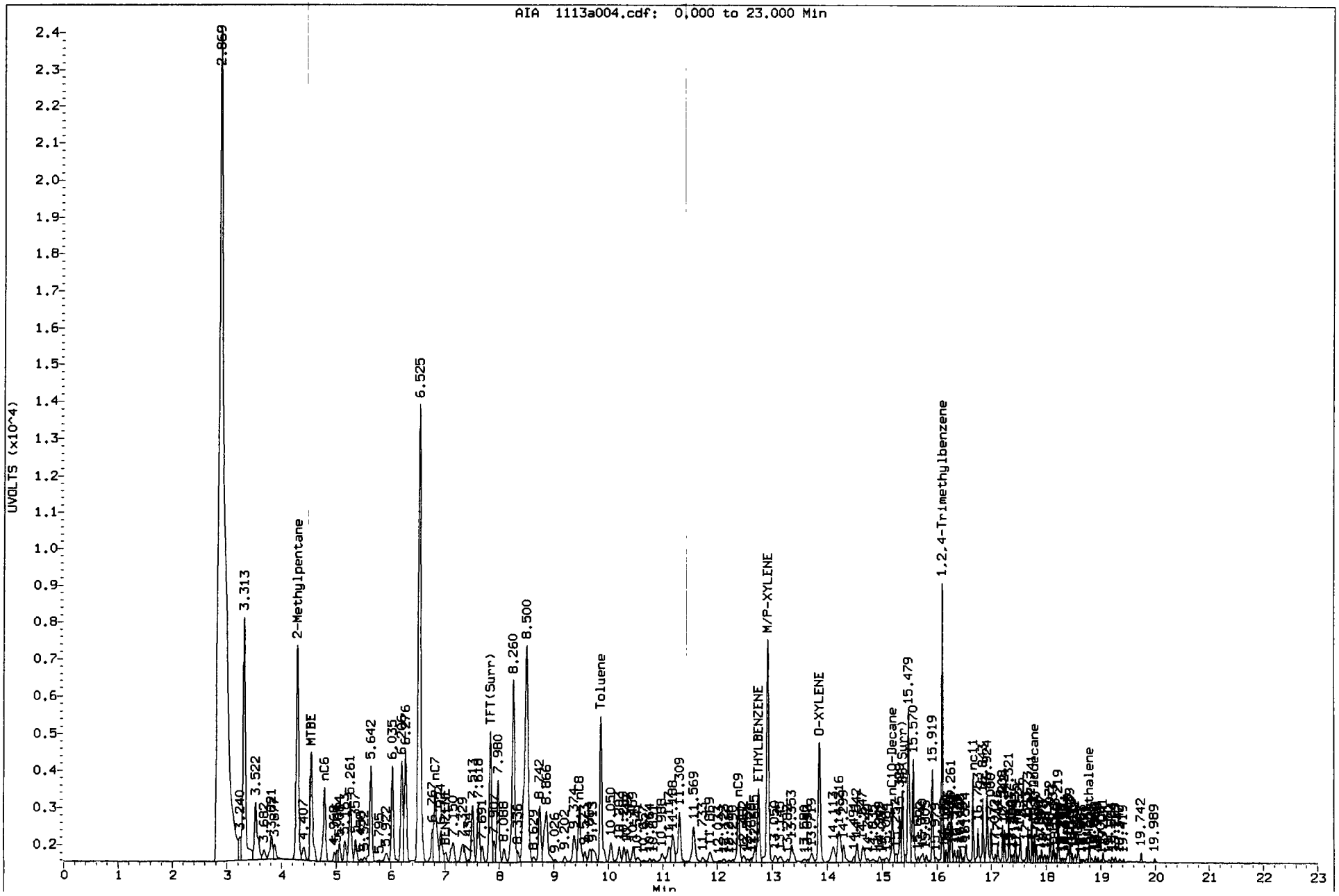
Operator: PC

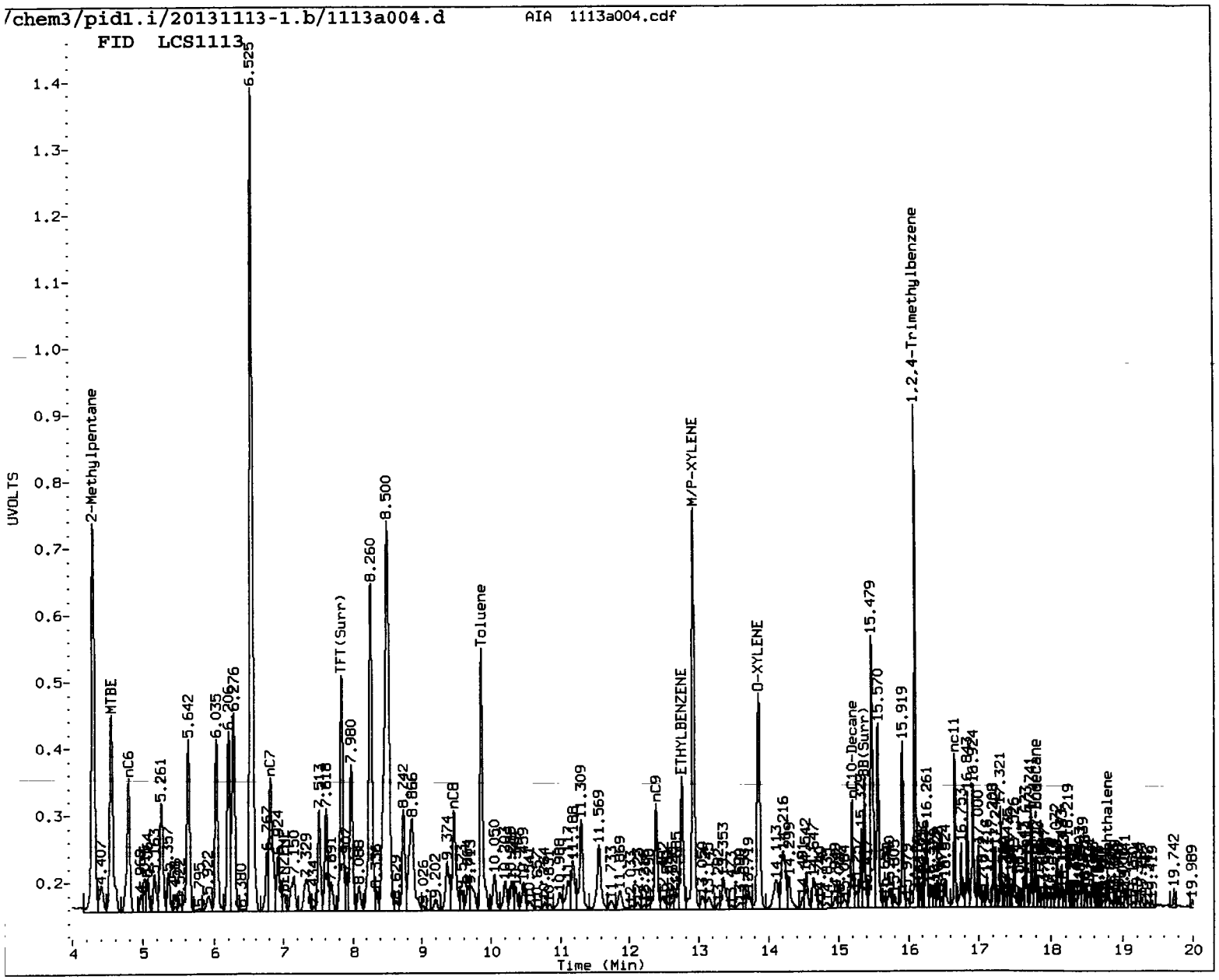
Column phase: RTX 502-2 FID

Column diameter: 0.18



Data File: /chem3/pid1.i/20131113-1.b/1113a004.d/1113a004.cdf
Injection Date: 13-NOV-2013 11:16
Instrument: pid1.i
Client Sample ID:





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 4/14/13

Data File: /chem3/pid1.i/20131113-1.b/1113a005.d

Date : 13-NOV-2013 11:46

Client ID:

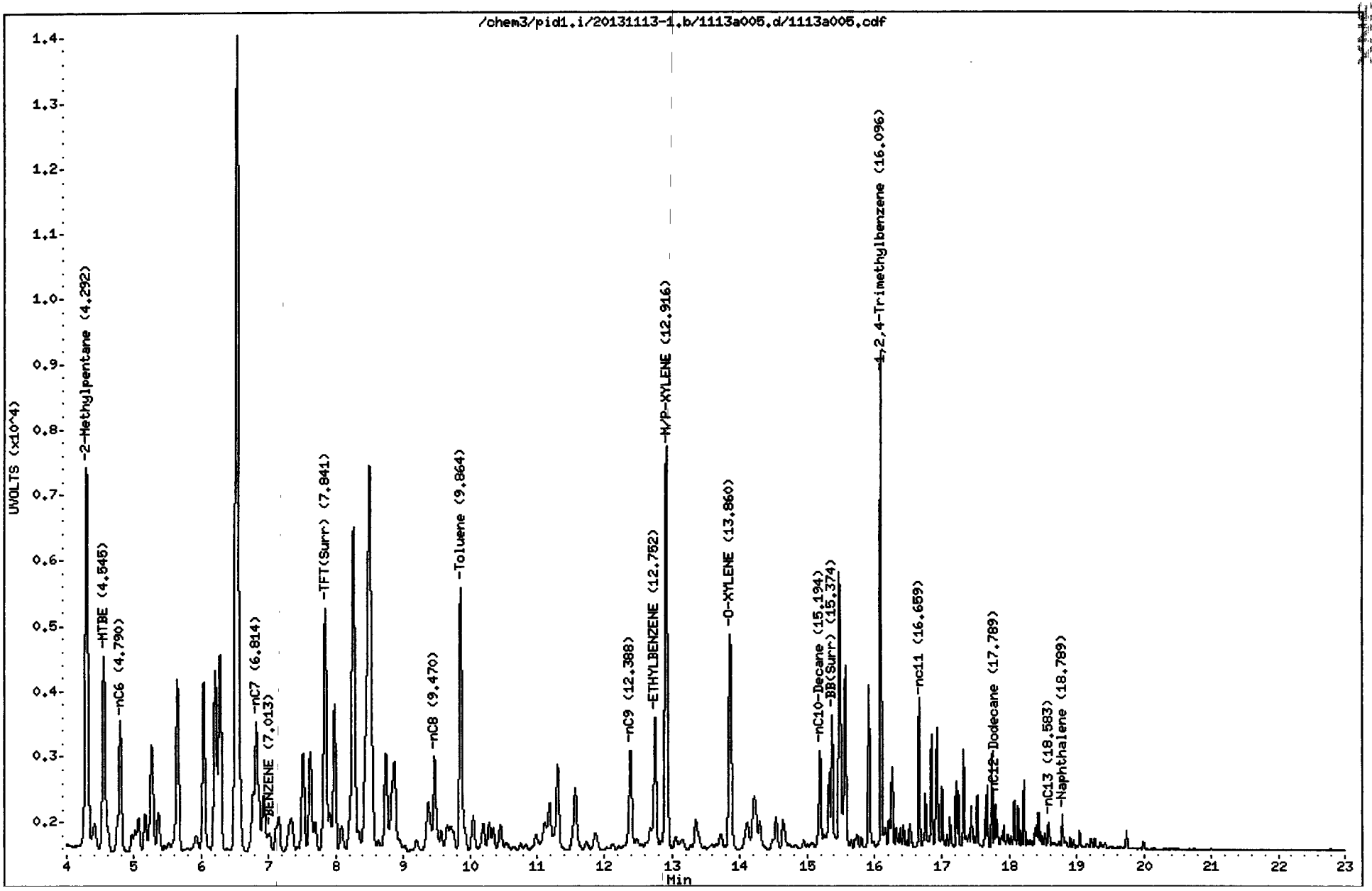
Sample Info: LCSD1113

Column phase: RTX 502-2 FID

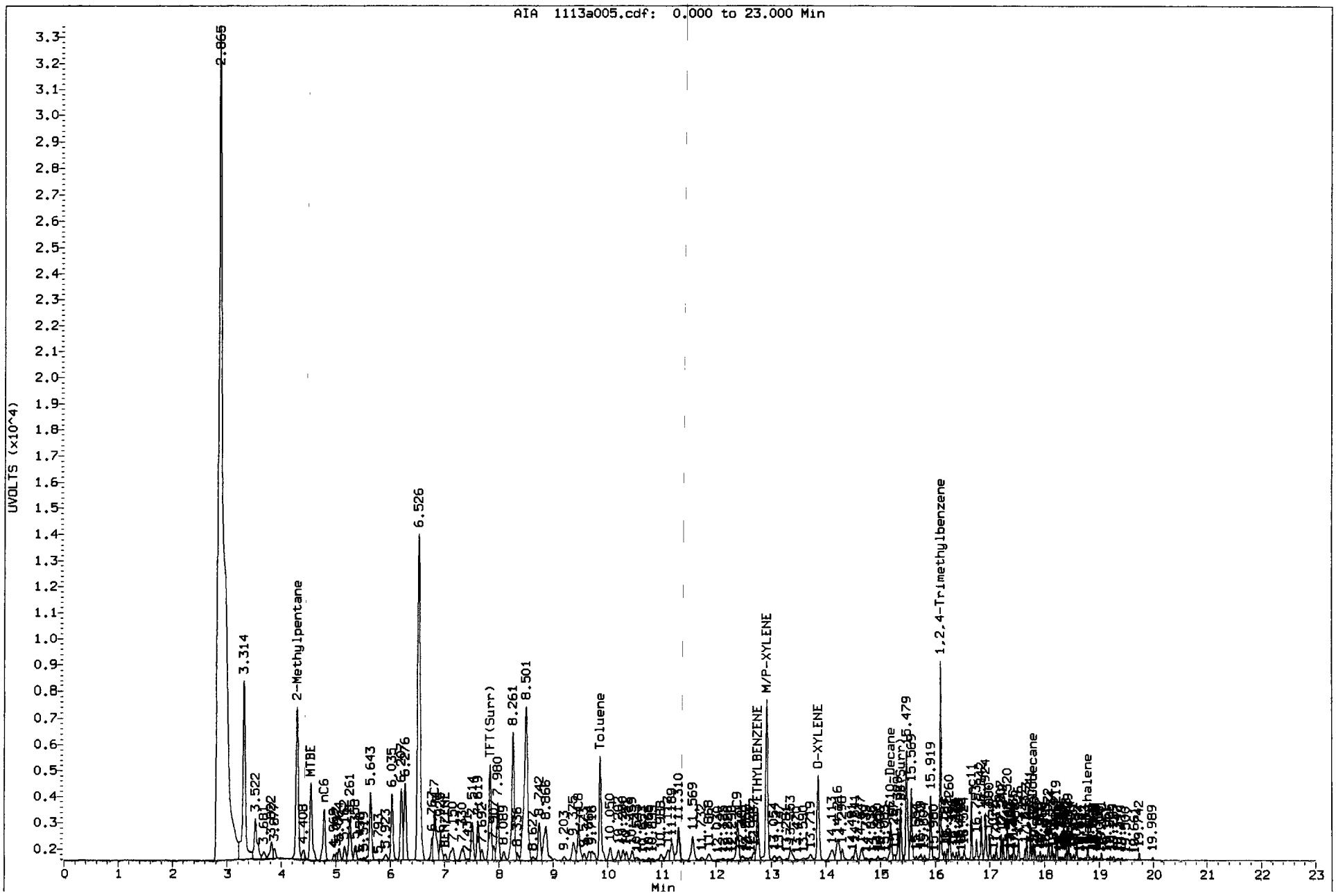
Instrument: pid1.i

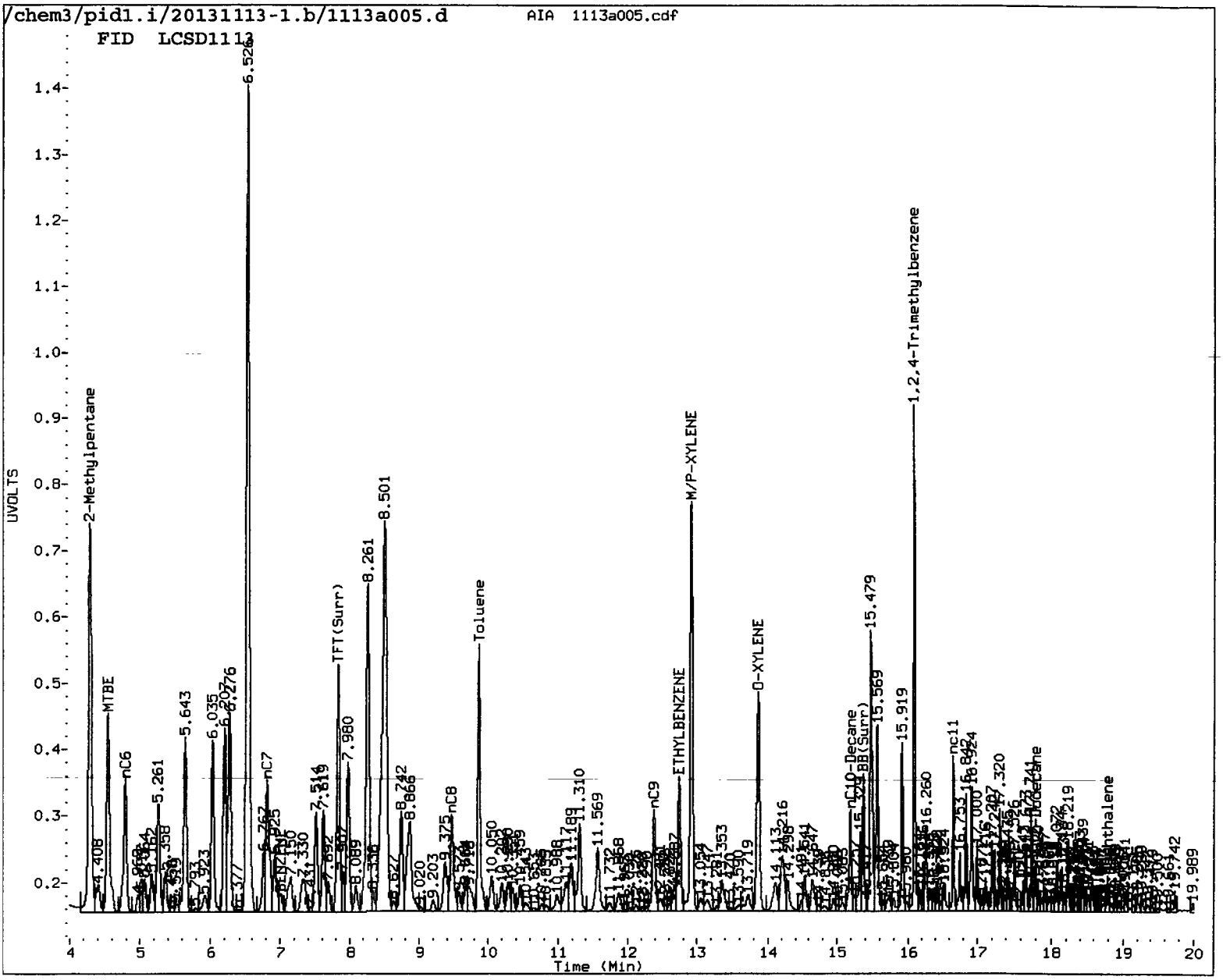
Operator: PC

Column diameter: 0.18



Data File: /chem3/pid1.i/20131113-1.b/1113a005.d/1113a005.cdf
Injection Date: 13-NOV-2013 11:46
Instrument: pid1.i
Client Sample ID:





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: KC Date: 11/14/13

XNSH : 00028

Data File: /chem3/pid1.i/20131113-1.b/1113a007.d

Date : 13-NOV-2013 12:57

Client ID:

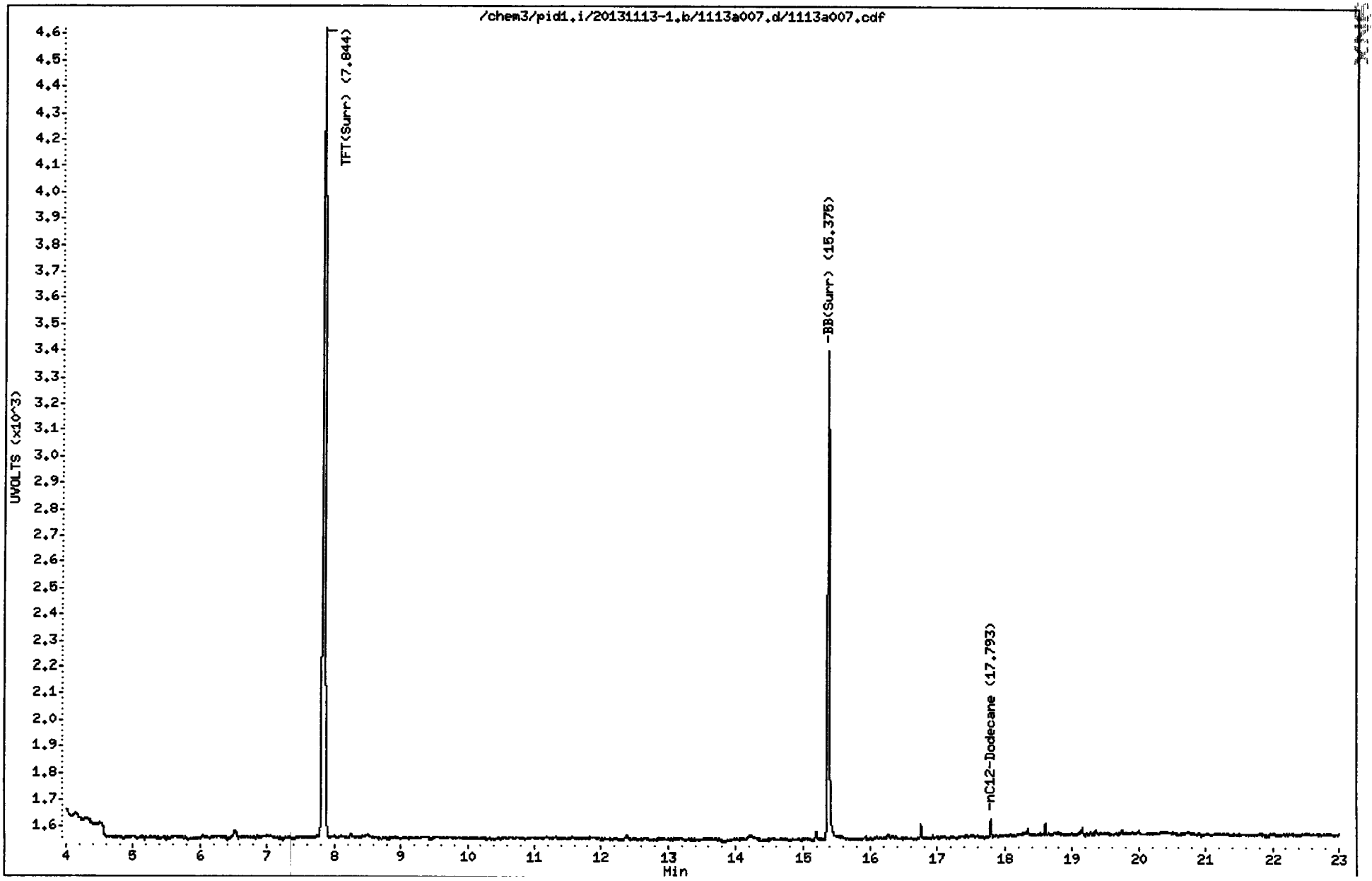
Sample Info: MB1113A

Column phase: RTX 502-2 FID

Instrument: pid1.i

Operator: PC

Column diameter: 0.18



ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-111513
METHOD BLANK

Lab Sample ID: MB-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 14:58
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.6%	2-Fluorobiphenyl	64.0%
d14-p-Terphenyl	79.8%	d4-1,2-Dichlorobenzene	66.4%
d5-Phenol	56.9%	2-Fluorophenol	60.8%
2,4,6-Tribromophenol	61.5%	d4-2-Chlorophenol	64.1%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR06-2.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 16:09
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 0.71 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 77.0%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**280**	**240 J**
106-46-7	1,4-Dichlorobenzene	280	< 280 U
100-51-6	Benzyl Alcohol	280	< 280 U
95-50-1	1,2-Dichlorobenzene	280	< 280 U
95-48-7	2-Methylphenol	280	< 280 U
106-44-5	**4-Methylphenol**	**280**	**420**
105-67-9	2,4-Dimethylphenol	1,400	< 1,400 U
65-85-0	**Benzoic Acid**	**2,800**	**860 J**
120-82-1	1,2,4-Trichlorobenzene	280	< 280 U
91-20-3	**Naphthalene**	**280**	**1,800**
87-68-3	Hexachlorobutadiene	280	< 280 U
91-57-6	**2-Methylnaphthalene**	**280**	**780**
131-11-3	Dimethylphthalate	280	< 280 U
208-96-8	**Acenaphthylene**	**280**	**520**
83-32-9	**Acenaphthene**	**280**	**490**
132-64-9	**Dibenzofuran**	**280**	**490**
84-66-2	**Diethylphthalate**	**280**	**270 J**
86-73-7	**Fluorene**	**280**	**650**
86-30-6	N-Nitrosodiphenylamine	280	< 280 U
118-74-1	Hexachlorobenzene	280	< 280 U
87-86-5	Pentachlorophenol	1,400	< 1,400 U
85-01-8	**Phenanthrene**	**280**	**3,600**
120-12-7	**Anthracene**	**280**	**750**
84-74-2	Di-n-Butylphthalate	280	< 280 U
206-44-0	**Fluoranthene**	**280**	**3,200**
129-00-0	**Pyrene**	**280**	**3,600**
85-68-7	Butylbenzylphthalate	280	< 280 U
56-55-3	**Benzo(a)anthracene**	**280**	**1,300**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**700**	**1,900**
218-01-9	**Chrysene**	**280**	**1,600**
117-84-0	Di-n-Octyl phthalate	280	< 280 U
50-32-8	**Benzo(a)pyrene**	**280**	**1,200**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**280**	**490**
53-70-3	Dibenz(a,h)anthracene	280	< 280 U
191-24-2	**Benzo(g,h,i)perylene**	**280**	**590**
TOTBFA	**Total Benzofluoranthenes**	**560**	**2,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.6%	2-Fluorobiphenyl	70.0%
d14-p-Terphenyl	76.4%	d4-1,2-Dichlorobenzene	63.0%
d5-Phenol	55.6%	2-Fluorophenol	59.9%
2,4,6-Tribromophenol	72.9%	d4-2-Chlorophenol	61.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR01-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64F
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 16:45
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.30 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.2%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**19**	**24**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	Benzyl Alcohol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	**4-Methylphenol**	**19**	**30**
105-67-9	2,4-Dimethylphenol	97	< 97 U
65-85-0	Benzoic Acid	190	< 190 U
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**25**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	**Acenaphthene**	**19**	**14 J**
132-64-9	**Dibenzofuran**	**19**	**12 J**
84-66-2	**Diethylphthalate**	**19**	**56**
86-73-7	**Fluorene**	**19**	**14 J**
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	97	< 97 U
85-01-8	**Phenanthrene**	**19**	**47**
120-12-7	**Anthracene**	**19**	**14 J**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**100**
129-00-0	**Pyrene**	**19**	**110**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	**Benzo(a)anthracene**	**19**	**28**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**48**	**29 J**
218-01-9	**Chrysene**	**19**	**35**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	**Benzo(a)pyrene**	**19**	**21**
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	**Benzo(g,h,i)perylene**	**19**	**14 J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**52**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.0%	2-Fluorobiphenyl	66.4%
d14-p-Terphenyl	71.6%	d4-1,2-Dichlorobenzene	57.6%
d5-Phenol	57.1%	2-Fluorophenol	57.2%
2,4,6-Tribromophenol	72.1%	d4-2-Chlorophenol	59.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR02-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64G
LIMS ID: 13-24859
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 17:20
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.20 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 46.9%

CAS Number	Analyte	RL	Result	
108-95-2	**Phenol**	**20**	**94**	
106-46-7	**1,4-Dichlorobenzene**	**20**	**19**	**J**
100-51-6	**Benzyl Alcohol**	**20**	**31**	
95-50-1	1,2-Dichlorobenzene	20	< 20	U
95-48-7	2-Methylphenol	20	< 20	U
106-44-5	**4-Methylphenol**	**20**	**730**	
105-67-9	2,4-Dimethylphenol	98	< 98	U
65-85-0	**Benzoic Acid**	**200**	**240**	
120-82-1	1,2,4-Trichlorobenzene	20	< 20	U
91-20-3	**Naphthalene**	**20**	**280**	
87-68-3	Hexachlorobutadiene	20	< 20	U
91-57-6	**2-Methylnaphthalene**	**20**	**28**	
131-11-3	Dimethylphthalate	20	< 20	U
208-96-8	**Acenaphthylene**	**20**	**68**	
83-32-9	**Acenaphthene**	**20**	**20**	
132-64-9	**Dibenzofuran**	**20**	**20**	
84-66-2	**Diethylphthalate**	**20**	**20**	
86-73-7	**Fluorene**	**20**	**15**	**J**
86-30-6	N-Nitrosodiphenylamine	20	< 20	U
118-74-1	Hexachlorobenzene	20	< 20	U
87-86-5	Pentachlorophenol	98	< 98	U
85-01-8	**Phenanthrene**	**20**	**89**	
120-12-7	**Anthracene**	**20**	**16**	**J**
84-74-2	Di-n-Butylphthalate	20	< 20	U
206-44-0	**Fluoranthene**	**20**	**63**	
129-00-0	**Pyrene**	**20**	**61**	
85-68-7	Butylbenzylphthalate	20	< 20	U
56-55-3	**Benzo(a)anthracene**	**20**	**11**	**J**
117-81-7	bis(2-Ethylhexyl)phthalate	49	< 49	U
218-01-9	**Chrysene**	**20**	**17**	**J**
117-84-0	Di-n-Octyl phthalate	20	< 20	U
50-32-8	Benzo(a)pyrene	20	< 20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20	U
53-70-3	Dibenz(a,h)anthracene	20	< 20	U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**15**	**J**
TOTBFA	**Total Benzofluoranthenes**	**39**	**22**	**J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	52.6%	2-Fluorobiphenyl	60.0%
d14-p-Terphenyl	64.8%	d4-1,2-Dichlorobenzene	51.6%
d5-Phenol	55.3%	2-Fluorophenol	53.7%
2,4,6-Tribromophenol	66.5%	d4-2-Chlorophenol	56.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR03-10cm
SAMPLE

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 17:55
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.41 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 61.6%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**19**	**43**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
100-51-6	**Benzyl Alcohol**	**19**	**36**
95-50-1	1,2-Dichlorobenzene	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
106-44-5	**4-Methylphenol**	**19**	**60**
105-67-9	2,4-Dimethylphenol	96	< 96 U
65-85-0	**Benzoic Acid**	**190**	**180 J**
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**23**
87-68-3	Hexachlorobutadiene	19	< 19 U
91-57-6	2-Methylnaphthalene	19	< 19 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	Acenaphthylene	19	< 19 U
83-32-9	Acenaphthene	19	< 19 U
132-64-9	Dibenzofuran	19	< 19 U
84-66-2	**Diethylphthalate**	**19**	**36**
86-73-7	Fluorene	19	< 19 U
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-86-5	Pentachlorophenol	96	< 96 U
85-01-8	**Phenanthrene**	**19**	**19**
120-12-7	Anthracene	19	< 19 U
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**25**
129-00-0	**Pyrene**	**19**	**21**
85-68-7	Butylbenzylphthalate	19	< 19 U
56-55-3	Benzo(a)anthracene	19	< 19 U
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
218-01-9	Chrysene	19	< 19 U
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	Benzo(a)pyrene	19	< 19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19	< 19 U
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	Benzo(g,h,i)perylene	19	< 19 U
TOTBFA	**Total Benzofluoranthenes**	**38**	**13 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.8%	2-Fluorobiphenyl	66.8%
d14-p-Terphenyl	72.6%	d4-1,2-Dichlorobenzene	56.2%
d5-Phenol	61.5%	2-Fluorophenol	56.9%
2,4,6-Tribromophenol	72.1%	d4-2-Chlorophenol	60.7%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-111513	64.6%	64.0%	79.8%	66.4%	56.9%	60.8%	61.5%	64.1%	0
LCS-111513	67.0%	66.8%	79.0%	63.4%	63.9%	64.1%	71.5%	64.3%	0
CR06-2.5	63.6%	70.0%	76.4%	63.0%	55.6%	59.9%	72.9%	61.9%	0
CR01-10cm	58.0%	66.4%	71.6%	57.6%	57.1%	57.2%	72.1%	59.1%	0
CR02-10cm	52.6%	60.0%	64.8%	51.6%	55.3%	53.7%	66.5%	56.0%	0
CR03-10cm	60.8%	66.8%	72.6%	56.2%	61.5%	56.9%	72.1%	60.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(33-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(42-124)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(37-120)	(32-120)
(PHL) = d5-Phenol	(32-120)	(29-120)
(2FP) = 2-Fluorophenol	(32-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(23-133)	(24-134)
(2CP) = d4-2-Chlorophenol	(36-120)	(31-120)

Prep Method: SW3546
Log Number Range: 13-24856 to 13-24860

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-111513
LAB CONTROL

Lab Sample ID: LCS-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 15:34
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	324	500	64.8%
1,4-Dichlorobenzene	345	500	69.0%
Benzyl Alcohol	312	500	62.4%
1,2-Dichlorobenzene	348	500	69.6%
2-Methylphenol	282	500	56.4%
4-Methylphenol	583	1000	58.3%
2,4-Dimethylphenol	908	1500	60.5%
Benzoic Acid	1810	2750	65.8%
1,2,4-Trichlorobenzene	347	500	69.4%
Naphthalene	329	500	65.8%
Hexachlorobutadiene	362	500	72.4%
2-Methylnaphthalene	360	500	72.0%
Dimethylphthalate	404	500	80.8%
Acenaphthylene	387	500	77.4%
Acenaphthene	350	500	70.0%
Dibenzofuran	376	500	75.2%
Diethylphthalate	412	500	82.4%
Fluorene	359	500	71.8%
N-Nitrosodiphenylamine	406	500	81.2%
Hexachlorobenzene	407	500	81.4%
Pentachlorophenol	1110	1500	74.0%
Phenanthrene	404	500	80.8%
Anthracene	383	500	76.6%
Di-n-Butylphthalate	470	500	94.0%
Fluoranthene	406	500	81.2%
Pyrene	410	500	82.0%
Butylbenzylphthalate	484	500	96.8%
Benzo(a)anthracene	393	500	78.6%
bis(2-Ethylhexyl)phthalate	466	500	93.2%
Chrysene	384	500	76.8%
Di-n-Octyl phthalate	427	500	85.4%
Benzo(a)pyrene	399	500	79.8%
Indeno(1,2,3-cd)pyrene	373	500	74.6%
Dibenz(a,h)anthracene	264	500	52.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS **Sample ID: LCS-111513**
 LAB CONTROL

Lab Sample ID: LCS-111513 QC Report No: XN64-Maul Foster & Alongi
LIMS ID: 13-24856 Project: GHHSA
Matrix: Sediment 0863.01.01
Date Analyzed: 11/20/13 15:34

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	324	500	64.8%
Total Benzofluoranthenes	801	1000	80.1%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	67.0%
2-Fluorobiphenyl	66.8%
d14-p-Terphenyl	79.0%
d4-1,2-Dichlorobenzene	63.4%
d5-Phenol	63.9%
2-Fluorophenol	64.1%
2,4,6-Tribromophenol	71.5%
d4-2-Chlorophenol	64.3%

Reported in µg/kg (ppb)

XN64 : 00037

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-111513**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 14:58
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U
541-73-1	1,3-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	58.0%
d14-p-Terphenyl	76.0%

XN64 : 00039

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR06-2.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 16:09
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 0.71 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 77.0%

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**70**	**150**
106-46-7	1,4-Dichlorobenzene	70	< 70 U
120-82-1	1,2,4-Trichlorobenzene	70	< 70 U
118-74-1	Hexachlorobenzene	70	< 70 U
87-68-3	Hexachlorobutadiene	70	< 70 U
131-11-3	Dimethylphthalate	70	< 70 U
85-68-7	Butylbenzylphthalate	70	< 70 U
95-48-7	**2-Methylphenol**	**70**	**45 J**
105-67-9	2,4-Dimethylphenol	350	< 350 U
86-30-6	N-Nitrosodiphenylamine	70	< 70 U
100-51-6	Benzyl Alcohol	280	< 280 U
87-86-5	**Pentachlorophenol**	**280**	**240 J**
95-50-1	1,2-Dichlorobenzene	70	< 70 U
541-73-1	1,3-Dichlorobenzene	70	< 70 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	57.2%
d14-p-Terphenyl	76.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR01-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64F
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 16:45
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.30 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.2%

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**3.0 J**
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	Dimethylphthalate	4.8	< 4.8 U
85-68-7	Butylbenzylphthalate	4.8	< 4.8 U
95-48-7	2-Methylphenol	4.8	< 4.8 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	**Benzyl Alcohol**	**19**	**15 J**
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U
541-73-1	1,3-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	55.2%
d14-p-Terphenyl	70.4%

XN64I : 0863.01

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR02-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64G
LIMS ID: 13-24859
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 17:20
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.20 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 46.9%

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
106-46-7	**1,4-Dichlorobenzene**	**4.9**	**16**
120-82-1	1,2,4-Trichlorobenzene	4.9	< 4.9 U
118-74-1	Hexachlorobenzene	4.9	< 4.9 U
87-68-3	Hexachlorobutadiene	4.9	< 4.9 U
131-11-3	**Dimethylphthalate**	**4.9**	**3.1 J**
85-68-7	Butylbenzylphthalate	4.9	< 4.9 U
95-48-7	2-Methylphenol	4.9	< 4.9 U
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.9	< 4.9 U
100-51-6	**Benzyl Alcohol**	**20**	**43 Q**
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	4.9	< 4.9 U
541-73-1	1,3-Dichlorobenzene	4.9	< 4.9 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	52.9%
d14-p-Terphenyl	61.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR03-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/20/13 17:55
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.41 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 61.6%

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
106-46-7	1,4-Dichlorobenzene	4.8	< 4.8 U
120-82-1	1,2,4-Trichlorobenzene	4.8	< 4.8 U
118-74-1	Hexachlorobenzene	4.8	< 4.8 U
87-68-3	Hexachlorobutadiene	4.8	< 4.8 U
131-11-3	**Dimethylphthalate**	**4.8**	**2.5 J**
85-68-7	Butylbenzylphthalate	4.8	< 4.8 U
95-48-7	**2-Methylphenol**	**4.8**	**3.3 J**
105-67-9	2,4-Dimethylphenol	24	< 24 U
86-30-6	N-Nitrosodiphenylamine	4.8	< 4.8 U
100-51-6	**Benzyl Alcohol**	**19**	**43 Q**
87-86-5	Pentachlorophenol	19	< 19 U
95-50-1	1,2-Dichlorobenzene	4.8	< 4.8 U
541-73-1	1,3-Dichlorobenzene	4.8	< 4.8 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	56.5%
d14-p-Terphenyl	67.8%

XN64H : 08012

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	FPH	TER	TOT OUT
MB-111513	58.0%	76.0%	0
LCS-111513	62.8%	74.8%	0
CR06-2.5	57.2%	76.6%	0
CR01-10cm	55.2%	70.4%	0
CR02-10cm	52.9%	61.2%	0
CR03-10cm	56.5%	67.8%	0

	LCS/MB LIMITS	QC LIMITS
(FPH) = 2-Fluorophenol	(32-120)	(27-120)
(TER) = d14-p-Terphenyl	(42-124)	(37-120)

Prep Method: SW3546
Log Number Range: 13-24856 to 13-24860

XN64I : 080413

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-111513**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/15/13
Date Analyzed LCS: 11/20/13 15:34
Instrument/Analyst LCS: NT10/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS		Spike Added	Recovery
Dibenz(a,h)anthracene	268		500	53.6%
1,4-Dichlorobenzene	323		500	64.6%
1,2,4-Trichlorobenzene	337		500	67.4%
Hexachlorobenzene	389		500	77.8%
Hexachlorobutadiene	345		500	69.0%
Dimethylphthalate	395		500	79.0%
Butylbenzylphthalate	497	Q	500	99.4%
2-Methylphenol	287		500	57.4%
2,4-Dimethylphenol	898		1500	59.9%
N-Nitrosodiphenylamine	405		500	81.0%
Benzyl Alcohol	369	Q	500	73.8%
Pentachlorophenol	1140	E	1500	76.0%
1,2-Dichlorobenzene	335		500	67.0%
1,3-Dichlorobenzene	325		500	65.0%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	62.8%
d14-p-Terphenyl	74.8%

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 20-NOV-2013 13:25
Lab File ID: cc1120.d Init. Cal. Date(s): 18-NOV-2013 18-NOV-2013
Analysis Type: Init. Cal. Times: 12:57 17:06
Lab Sample ID: CC1120 Quant Type: ISTD
Method: /chem1/nt10.i/20131120.b/SIM.b/SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.38322	1.30899	0.010	-5.36686	20.00000	Averaged	
3 Phenol	1.61320	1.38756	0.010	-13.98709	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.56138	1.49622	0.010	-4.17358	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.52875	1.43658	0.010	-6.02923	20.00000	Averaged	
11 Benzyl alcohol	0.77619	0.54595	0.010	-29.66251	20.00000	Averaged	<-
12 1,2-Dichlorobenzene	1.44302	1.37869	0.010	-4.45818	20.00000	Averaged	
13 2-Methylphenol	1.29978	1.15552	0.010	-11.09903	20.00000	Averaged	
15 4-Methylphenol	1.35246	1.11087	0.010	-17.86342	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.61576	0.60800	0.050	-1.26034	20.00000	Averaged	
22 2,4-Dimethylphenol	0.38359	0.36366	0.010	-5.19602	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.40429	0.38951	0.010	-3.65675	20.00000	Averaged	
30 Hexachlorobutadiene	0.23352	0.22840	0.010	-2.19038	20.00000	Averaged	
39 Dimethylphthalate	1.32454	1.33403	0.010	0.71718	20.00000	Averaged	
50 Diethylphthalate	1.47908	1.50022	0.010	1.42921	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.49786	0.50051	0.010	0.53071	20.00000	Averaged	
57 Hexachlorobenzene	0.32846	0.32612	0.010	-0.71223	20.00000	Averaged	
58 Pentachlorophenol	0.22846	0.22091	0.005	-3.30315	20.00000	Averaged	
$ 66 Terphenyl-d14	0.50821	0.49737	0.010	-2.13243	20.00000	Averaged	
67 Butylbenzylphthalate	0.38795	0.46893	0.010	20.87418	20.00000	Averaged	<-
79 Dibenzo(a,h)anthracene	1.10683	1.13862	0.010	2.87234	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.56255	0.61737	0.010	9.74446	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR06-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64A
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized:
Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/27/13
Date Analyzed: 11/30/13 16:35
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 0.65 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 78.7%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**310**	**370**
87-86-5	Pentachlorophenol	1,500	< 1,500 U
85-68-7	Butylbenzylphthalate	310	< 310 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.0%	2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	67.2%	d4-1,2-Dichlorobenzene	60.2%
d5-Phenol	62.0%	2-Fluorophenol	58.1%
2,4,6-Tribromophenol	61.1%	d4-2-Chlorophenol	62.1%

XNGU : 0863.01.01

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR04-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64B
LIMS ID: 13-24854
Matrix: Sediment
Data Release Authorized:
Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/27/13
Date Analyzed: 11/30/13 17:10
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 3.44 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 71.5%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**58**	**290**
87-86-5	Pentachlorophenol	290	< 290 U
85-68-7	Butylbenzylphthalate	58	< 58 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	66.0%	2-Fluorobiphenyl	71.4%
d14-p-Terphenyl	61.8%	d4-1,2-Dichlorobenzene	51.0%
d5-Phenol	56.9%	2-Fluorophenol	50.8%
2,4,6-Tribromophenol	69.1%	d4-2-Chlorophenol	56.4%

XN64B : 0863A17

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR05-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64C
LIMS ID: 13-24855
Matrix: Sediment
Data Release Authorized:
Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/27/13
Date Analyzed: 11/30/13 17:46
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 3.38 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 74.1%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**59**	**570**
87-86-5	Pentachlorophenol	300	< 300 U
85-68-7	Butylbenzylphthalate	59	< 59 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.4%	2-Fluorobiphenyl	65.6%
d14-p-Terphenyl	64.0%	d4-1,2-Dichlorobenzene	55.2%
d5-Phenol	62.0%	2-Fluorophenol	54.9%
2,4,6-Tribromophenol	64.8%	d4-2-Chlorophenol	60.8%

XN64C : 0604L8

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: CR04-5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64E
LIMS ID: 13-24857
Matrix: Sediment
Data Release Authorized:
Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/27/13
Date Analyzed: 11/30/13 18:21
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 4.15 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 80.3%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**48**	**980**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	62.3%
2-Fluorophenol	50.8%
2,4,6-Tribromophenol	60.5%
d4-2-Chlorophenol	55.5%

XN64H : 8808

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-112713**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-112713
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized:
Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/27/13
Date Analyzed: 11/30/13 15:25
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-68-7	Butylbenzylphthalate	20	< 20 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.0%	2-Fluorobiphenyl	59.4%
d14-p-Terphenyl	71.2%	d4-1,2-Dichlorobenzene	62.0%
d5-Phenol	62.7%	2-Fluorophenol	60.1%
2,4,6-Tribromophenol	55.5%	d4-2-Chlorophenol	64.0%

XN64 : 00050

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-112713
LAB CONTROL

Lab Sample ID: LCS-112713
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized:
Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/27/13
Date Analyzed: 11/30/13 16:00
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	322	500	64.4%
Pentachlorophenol	726 Q	1500	48.4%
Butylbenzylphthalate	470	500	94.0%

Semivolatile Surrogate Recovery

d5-Nitrobenzene	59.4%
2-Fluorobiphenyl	58.8%
d14-p-Terphenyl	72.2%
d4-1,2-Dichlorobenzene	54.4%
d5-Phenol	61.5%
2-Fluorophenol	58.0%
2,4,6-Tribromophenol	62.8%
d4-2-Chlorophenol	59.5%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-112713	61.0%	59.4%	71.2%	62.0%	62.7%	60.1%	55.5%	64.0%	0
LCS-112713	59.4%	58.8%	72.2%	54.4%	61.5%	58.0%	62.8%	59.5%	0
CR06-10cm	64.0%	65.2%	67.2%	60.2%	62.0%	58.1%	61.1%	62.1%	0
CR04-10cm	66.0%	71.4%	61.8%	51.0%	56.9%	50.8%	69.1%	56.4%	0
CR05-10cm	71.4%	65.6%	64.0%	55.2%	62.0%	54.9%	64.8%	60.8%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(33-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(42-124)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(37-120)	(32-120)
(PHL) = d5-Phenol	(32-120)	(29-120)
(2FP) = 2-Fluorophenol	(32-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(23-133)	(24-134)
(2CP) = d4-2-Chlorophenol	(36-120)	(31-120)

Prep Method: SW3546
Log Number Range: 13-24853 to 13-24855

FORM-II SW8270

XN64 : 00052

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	PHL	2FP	TBP	2CP	TOT OUT
CR04-5	62.3%	50.8%	60.5%	55.5%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(32-120)	(29-120)
(2FP) = 2-Fluorophenol	(32-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(23-133)	(24-134)
(2CP) = d4-2-Chlorophenol	(36-120)	(31-120)

Prep Method: SW3546
Log Number Range: 13-24857 to 13-24857

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 30-NOV-2013 14:15
Lab File ID: cc1130.d Init. Cal. Date(s): 18-NOV-2013 18-NOV-2013
Analysis Type: Init. Cal. Times: 12:57 17:06
Lab Sample ID: ABN 5 Quant Type: ISTD
Method: /chem1/nt10.i/20131130.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.33752	1.34316	1.34316	0.010	0.42122	20.00000	Averaged	
$ 2 Phenol-d5	1.67903	1.76680	1.76680	0.010	5.22762	20.00000	Averaged	
3 Phenol	1.64980	1.69868	1.69868	0.100	2.96273	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.46461	1.46737	1.46737	0.010	0.18817	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.13893	1.18807	1.18807	0.700	4.31473	20.00000	Averaged	
6 2-Chlorophenol	1.46555	1.50423	1.50423	0.800	2.63963	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.50753	1.45671	1.45671	0.010	-3.37073	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.45615	1.42731	1.42731	0.010	-1.98057	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	1.05860	1.03186	1.03186	0.010	-2.52571	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.40987	1.36328	1.36328	0.010	-3.30494	20.00000	Averaged	
11 Benzyl alcohol	0.75201	0.68021	0.68021	0.010	-9.54771	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.43859	0.42280	0.42280	0.010	-3.60025	20.00000	Averaged	
13 2-Methylphenol	1.30286	1.31369	1.31369	0.700	0.83087	20.00000	Averaged	
17 Hexachloroethane	0.56357	0.54992	0.54992	0.300	-2.42211	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.66921	0.73985	0.73985	0.500	10.55710	20.00000	Averaged	
15 4-Methylphenol	1.35046	1.37131	1.37131	0.600	1.54365	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.37070	0.37690	0.37690	0.010	1.66998	20.00000	Averaged	
19 Nitrobenzene	0.31004	0.32068	0.32068	0.200	3.43116	20.00000	Averaged	
20 Isophorone	0.55731	0.58888	0.58888	0.300	5.66490	20.00000	Averaged	
21 2-Nitrophenol	0.24272	0.24399	0.24399	0.100	0.52330	20.00000	Averaged	
22 2,4-Dimethylphenol	0.38529	0.37385	0.37385	0.200	-2.96952	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.35632	0.37333	0.37333	0.050	4.77269	20.00000	Averaged	
24 Benzoic acid	0.30601	0.26338	0.26338	0.010	-13.93292	20.00000	Averaged	
25 2,4-Dichlorophenol	0.36046	0.41793	0.41793	0.100	15.94310	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.38026	0.35588	0.35588	0.010	-6.41096	20.00000	Averaged	
28 Naphthalene	1.04402	1.01224	1.01224	0.100	-3.04360	20.00000	Averaged	
29 4-Chloroaniline	0.40752	0.43494	0.43494	0.010	6.73065	20.00000	Averaged	
30 Hexachlorobutadiene	0.23172	0.21277	0.21277	0.010	-8.17927	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.32584	0.34666	0.34666	0.200	6.39045	20.00000	Averaged	
32 2-Methylnaphthalene	0.73051	0.73095	0.73095	0.300	0.05998	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.50700	0.29528	0.29528	0.001	-41.75949	20.00000	Averaged	<-
34 2,4,6-Trichlorophenol	0.48707	0.47548	0.47548	0.200	-2.37996	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.50939	0.50924	0.50924	0.200	-0.02896	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.55155	1.51018	1.51018	0.010	-2.66625	20.00000	Averaged	
37 2-Chloronaphthalene	1.16558	1.13475	1.13475	0.700	-2.64502	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i
Lab File ID: cc1130.d
Analysis Type:
Lab Sample ID: ABN 5
Method: /chem1/nt10.i/20131130.b/ABN.m

Injection Date: 30-NOV-2013 14:15
Init. Cal. Date(s): 18-NOV-2013 18-NOV-2013
Init. Cal. Times: 12:57 17:06
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.23475	0.24809	0.24809	0.010	5.68109	20.00000	Averaged	
39 Dimethylphthalate	1.27144	1.23018	1.23018	0.010	-3.24557	20.00000	Averaged	
40 Acenaphthylene	1.93144	1.70905	1.70905	0.900	-11.51387	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.29938	0.30586	0.30586	0.100	2.16402	20.00000	Averaged	
43 3-Nitroaniline	0.26355	0.27431	0.27431	0.010	4.08108	20.00000	Averaged	
44 Acenaphthene	1.10793	1.08908	1.08908	0.100	-1.70133	20.00000	Averaged	
45 2,4-Dinitrophenol	16.88949	20.00000	0.23757	0.030	-15.55253	20.00000	Quadratic	
46 Dibenzofuran	1.61373	1.57411	1.57411	0.800	-2.45529	20.00000	Averaged	
47 4-Nitrophenol	0.15330	0.14702	0.14702	0.010	-4.09852	20.00000	Averaged	
48 2,4-Dinitrotoluene	0.39663	0.40616	0.40616	0.200	2.40385	20.00000	Averaged	
50 Diethylphthalate	1.21570	1.17752	1.17752	0.010	-3.14028	20.00000	Averaged	
49 Fluorene	1.39934	1.36129	1.36129	0.100	-2.71971	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.72393	0.68927	0.68927	0.100	-4.78774	20.00000	Averaged	
52 4-Nitroaniline	0.25521	0.28063	0.28063	0.010	9.96049	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	0.19322	0.22219	0.22219	0.001	14.99232	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.49888	0.48789	0.48789	0.010	-2.20376	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.32583	0.30139	0.30139	0.010	-7.50140	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.27481	0.26681	0.26681	0.100	-2.91384	20.00000	Averaged	
57 Hexachlorobenzene	0.30461	0.28307	0.28307	0.100	-7.06893	20.00000	Averaged	
58 Pentachlorophenol	0.24013	0.15990	0.15990	0.010	-33.41037	20.00000	Averaged	<-
60 Phenanthrene	1.07912	1.04348	1.04348	0.700	-3.30326	20.00000	Averaged	
61 Anthracene	1.13273	1.13095	1.13095	0.700	-0.15729	20.00000	Averaged	
62 Carbazole	0.80682	0.78067	0.78067	0.010	-3.24134	20.00000	Averaged	
63 Di-n-butylphthalate	1.13123	1.22086	1.22086	0.010	7.92264	20.00000	Averaged	
64 Fluoranthene	1.38260	1.37203	1.37203	0.600	-0.76422	20.00000	Averaged	
65 Pyrene	1.28185	1.36007	1.36007	0.600	6.10263	20.00000	Averaged	
$ 66 Terphenyl-d14	0.78868	0.79464	0.79464	0.010	0.75639	20.00000	Averaged	
67 Butylbenzylphthalate	0.41048	0.46207	0.46207	0.010	12.56816	20.00000	Averaged	
68 Benzo(a)anthracene	1.24366	1.21618	1.21618	0.700	-2.20941	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.55098	0.51627	0.51627	0.010	-6.30086	20.00000	Averaged	
71 Chrysene	1.10420	1.08574	1.08574	0.700	-1.67179	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.48960	0.49585	0.49585	0.010	1.27708	20.00000	Averaged	
73 Di-n-octylphthalate	1.00124	0.93208	0.93208	0.010	-6.90672	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.18784	1.14841	1.14841	0.700	-3.31942	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.19134	1.20474	1.20474	0.700	1.12484	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt10.i Injection Date: 30-NOV-2013 14:15
Lab File ID: cc1130.d Init. Cal. Date(s): 18-NOV-2013 18-NOV-2013
Analysis Type: Init. Cal. Times: 12:57 17:06
Lab Sample ID: ABN 5 Quant Type: ISTD
Method: /chem1/nt10.i/20131130.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
76 Benzo(a)pyrene	1.04130	1.02577	1.02577	0.700	-1.49136	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.31830	1.22128	1.22128	0.500	-7.35969	20.00000	Averaged	
79 Dibenzo(a,h)anthracene	1.03965	0.92626	0.92626	0.400	-10.90674	20.00000	Averaged	
80 Benzo(g,h,i)perylene	1.13505	1.05475	1.05475	0.500	-7.07445	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.59522	0.70862	0.70862	0.010	19.05172	20.00000	Averaged	
91 Aniline	3.20010	3.08583	3.08583	0.010	-3.57071	20.00000	Averaged	
93 Benzidine	0.26426	0.11931	0.11931	0.010	-54.85056	20.00000	Averaged	<-
103 Pyridine	0.58020	0.52374	0.52374	0.010	-9.73196	20.00000	Averaged	
105 1-methylnaphthalene	0.66247	0.67212	0.67212	0.010	1.45537	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	0.92896	0.88274	0.88274	0.010	-4.97580	20.00000	Averaged	
187 Total Benzofluoranthenes	1.17065	1.14890	1.14890	0.010	-1.85796	20.00000	Averaged	
99 Perylene	1.00589	0.97543	0.97543	0.010	-3.02855	20.00000	Averaged	
98 Retene	0.00018	0.00031	0.00031	0.010	77.41910	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.41983	0.37849	0.37849	0.010	-9.84831	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-111813**
Page 1 of 1

Lab Sample ID: MB-111813
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 08:06
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0360	1.00	< 0.0360	U
2,3,7,8-TCDD	0.26	0.65-0.89		1.00	0.136	JEMPC
1,2,3,7,8-PeCDF	0.83	1.32-1.78		1.00	0.0300	JEMPC
2,3,4,7,8-PeCDF		1.32-1.78	0.0320	1.00	< 0.0320	U
1,2,3,7,8-PeCDD	1.47	1.32-1.78		1.00	0.0940	J
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0300	1.00	< 0.0300	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0300	1.00	< 0.0300	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0320	1.00	< 0.0320	U
1,2,3,7,8,9-HxCDF		1.05-1.43	0.0380	1.00	< 0.0380	U
1,2,3,4,7,8-HxCDD	1.08	1.05-1.43		1.00	0.162	J
1,2,3,6,7,8-HxCDD	0.74	1.05-1.43		1.00	0.148	JEMPC
1,2,3,7,8,9-HxCDD	1.50	1.05-1.43		1.00	0.214	JEMPC
1,2,3,4,6,7,8-HpCDF		0.88-1.20	0.0280	1.00	< 0.0280	U
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.0420	1.00	< 0.0420	U
1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20		1.00	3.93	
OCDF		0.76-1.02	0.0640	2.00	< 0.0640	U
OCDD	0.87	0.76-1.02		2.00	21.7	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0360	1.00	< 0.0360	U
Total TCDD		1.00	0.243	EMPC
Total PeCDF		2.00	0.0575	EMPC
Total PeCDD		1.00	1.08	EMPC
Total HxCDF	0.0380	2.00	< 0.0380	U
Total HxCDD		2.00	3.93	EMPC
Total HpCDF	0.0420	2.00	< 0.0420	U
Total HpCDD		2.00	11.4	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.33

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.34

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-111813**

Lab Sample ID: MB-111813
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 08:06
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	101	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	103	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	131	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	129	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	135	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	100	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	94.6	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	98.0	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	98.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	106	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	96.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	89.2	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	100	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	105	23-140	
13C-OCDD	0.89	0.76-1.02	92.0	17-157	
37Cl4-2,3,7,8-TCDD			104	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-111813**

Lab Sample ID: OPR-111813
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 12:52
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.71	0.65-0.89	1.00	21.7
2,3,7,8-TCDD	0.78	0.65-0.89	1.00	22.0
1,2,3,7,8-PeCDF	1.44	1.32-1.78	1.00	110
2,3,4,7,8-PeCDF	1.47	1.32-1.78	1.00	107
1,2,3,7,8-PeCDD	1.55	1.32-1.78	1.00	110
1,2,3,4,7,8-HxCDF	1.16	1.05-1.43	1.00	109
1,2,3,6,7,8-HxCDF	1.20	1.05-1.43	1.00	126
2,3,4,6,7,8-HxCDF	1.17	1.05-1.43	1.00	112
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43	1.00	108
1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	1.00	107
1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	1.00	119
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43	1.00	112
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20	1.00	119
1,2,3,4,7,8,9-HpCDF	0.95	0.88-1.20	1.00	109
1,2,3,4,6,7,8-HpCDD	1.02	0.88-1.20	1.00	110
OCDF	0.87	0.76-1.02	2.00	219
OCDD	0.91	0.76-1.02	2.00	228

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	22.8	EMPC
Total TCDD		1.00	22.9	EMPC
Total PeCDF		2.00	223	EMPC
Total PeCDD		1.00	111	EMPC
Total HxCDF		2.00	456	EMPC
Total HxCDD		2.00	340	EMPC
Total HpCDF		2.00	228	
Total HpCDD		2.00	114	

Reported in pg/g

VNCH : 00059

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-111813**

Lab Sample ID: OPR-111813
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 12:52
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	108	22-152	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	102	20-175	
13C-1,2,3,7,8-PeCDF	1.62	1.32-1.78	118	21-192	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	109	13-328	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	113	21-227	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	111	19-202	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	97.3	21-159	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	106	22-176	
13C-1,2,3,7,8,9-HxCDF	0.50	0.43-0.59	105	17-205	
13C-1,2,3,4,7,8-HxCDD	1.25	1.05-1.43	113	21-193	
13C-1,2,3,6,7,8-HxCDD	1.23	1.05-1.43	101	25-163	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	96.4	21-158	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	103	20-186	
13C-1,2,3,4,6,7,8-HpCDD	1.08	0.88-1.20	107	26-166	
13C-OCDD	0.89	0.76-1.02	92.4	13-198	
37Cl4-2,3,7,8-TCDD			101	31-191	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-111813**

Lab Sample ID: OPR-111813
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 12:52
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	21.7	20.0	108	75-158
2,3,7,8-TCDD	22.0	20.0	110	67-158
1,2,3,7,8-PeCDF	110	100	110	80-134
2,3,4,7,8-PeCDF	107	100	107	68-160
1,2,3,7,8-PeCDD	110	100	110	70-142
1,2,3,4,7,8-HxCDF	109	100	109	72-134
1,2,3,6,7,8-HxCDF	126	100	126	84-130
2,3,4,6,7,8-HxCDF	112	100	112	70-156
1,2,3,7,8,9-HxCDF	108	100	108	78-130
1,2,3,4,7,8-HxCDD	107	100	107	70-164
1,2,3,6,7,8-HxCDD	119	100	119	76-134
1,2,3,7,8,9-HxCDD	112	100	112	64-162
1,2,3,4,6,7,8-HpCDF	119	100	119	82-132
1,2,3,4,7,8,9-HpCDF	109	100	109	78-138
1,2,3,4,6,7,8-HpCDD	110	100	110	70-140
OCDF	219	200	110	63-170
OCDD	228	200	114	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR06-10cm**

Lab Sample ID: XN64A
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 23:04
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.66	0.65-0.89		1.00	4.87	
2,3,7,8-TCDD	0.69	0.65-0.89		1.00	2.09	
1,2,3,7,8-PeCDF	1.44	1.32-1.78		1.00	3.28	
2,3,4,7,8-PeCDF	1.58	1.32-1.78		1.00	5.96	
1,2,3,7,8-PeCDD	1.52	1.32-1.78		1.00	9.35	
1,2,3,4,7,8-HxCDF	1.15	1.05-1.43		1.00	18.1	
1,2,3,6,7,8-HxCDF	1.14	1.05-1.43		1.00	8.90	
2,3,4,6,7,8-HxCDF	1.15	1.05-1.43		1.00	16.9	
1,2,3,7,8,9-HxCDF	1.19	1.05-1.43		1.00	4.79	
1,2,3,4,7,8-HxCDD	1.19	1.05-1.43		1.00	12.7	
1,2,3,6,7,8-HxCDD	1.23	1.05-1.43		1.00	63.8	
1,2,3,7,8,9-HxCDD	1.22	1.05-1.43		1.00	16.5	
1,2,3,4,6,7,8-HpCDF	0.97	0.88-1.20		1.00	258	
1,2,3,4,7,8,9-HpCDF	0.94	0.88-1.20		1.00	13.2	
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		1.00	1,080	
OCDF	0.86	0.76-1.02		2.00	680	
OCDD	0.89	0.76-1.02		2.00	7,830	E

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	82.8	EMPC
Total TCDD		1.00	42.6	EMPC
Total PeCDF		2.00	203	EMPC
Total PeCDD		1.00	88.7	
Total HxCDF		2.00	463	EMPC
Total HxCDD		2.00	742	EMPC
Total HpCDF		2.00	950	
Total HpCDD		2.00	2,480	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 44.0

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 44.0

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR06-10cm**

Lab Sample ID: XN64A
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 23:04
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	53.0	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	64.4	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	71.8	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	72.1	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	77.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	63.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	58.2	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	61.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	62.8	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	66.8	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	60.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.43	0.37-0.51	54.2	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	67.9	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	65.5	23-140	
13C-OCDD	0.89	0.76-1.02	53.1	17-157	
37Cl4-2,3,7,8-TCDD			85.7	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR04-10cm**

Lab Sample ID: XN64B
LIMS ID: 13-24854
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 00:01
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.68	0.65-0.89		0.999	3.53	
2,3,7,8-TCDD	0.62	0.65-0.89		0.999	1.14	BEMPC
1,2,3,7,8-PeCDF	1.34	1.32-1.78		0.999	2.06	
2,3,4,7,8-PeCDF	1.44	1.32-1.78		0.999	3.43	
1,2,3,7,8-PeCDD	1.57	1.32-1.78		0.999	4.34	
1,2,3,4,7,8-HxCDF	1.21	1.05-1.43		0.999	7.26	
1,2,3,6,7,8-HxCDF	1.22	1.05-1.43		0.999	3.38	
2,3,4,6,7,8-HxCDF	1.16	1.05-1.43		0.999	5.09	
1,2,3,7,8,9-HxCDF	1.21	1.05-1.43		0.999	2.45	
1,2,3,4,7,8-HxCDD	1.23	1.05-1.43		0.999	4.26	
1,2,3,6,7,8-HxCDD	1.26	1.05-1.43		0.999	54.5	
1,2,3,7,8,9-HxCDD	1.26	1.05-1.43		0.999	10.2	
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20		0.999	165	
1,2,3,4,7,8,9-HpCDF	0.89	0.88-1.20		0.999	7.55	EMPC
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.999	817	
OCDF	0.85	0.76-1.02		2.00	476	
OCDD	0.89	0.76-1.02		2.00	5,340	E

Homologue Group	EDL	RL	Result	
Total TCDF		0.999	27.9	EMPC
Total TCDD		0.999	17.5	EMPC
Total PeCDF		2.00	101	EMPC
Total PeCDD		0.999	68.7	EMPC
Total HxCDF		2.00	301	EMPC
Total HxCDD		2.00	350	EMPC
Total HpCDF		2.00	678	EMPC
Total HpCDD		2.00	1,530	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 27.3

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 27.3

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR04-10cm**

Lab Sample ID: XN64B
LIMS ID: 13-24854
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 00:01
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	50.7	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	75.7	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	88.0	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	87.7	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	93.0	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	79.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	71.2	26-123	
13C-2,3,4,6,7,8-HxCDF	0.53	0.43-0.59	76.7	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	80.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.25	1.05-1.43	78.1	32-141	
13C-1,2,3,6,7,8-HxCDD	1.22	1.05-1.43	75.4	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	66.9	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	84.1	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	80.2	23-140	
13C-OCDD	0.89	0.76-1.02	64.9	17-157	
37Cl4-2,3,7,8-TCDD			84.3	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR05-10cm**

Lab Sample ID: XN64C
LIMS ID: 13-24855
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 00:55
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.77	0.65-0.89		0.999	6.30	
2,3,7,8-TCDD	0.73	0.65-0.89		0.999	3.00	
1,2,3,7,8-PeCDF	1.49	1.32-1.78		0.999	4.73	
2,3,4,7,8-PeCDF	1.52	1.32-1.78		0.999	5.82	
1,2,3,7,8-PeCDD	1.60	1.32-1.78		0.999	13.9	
1,2,3,4,7,8-HxCDF	1.12	1.05-1.43		0.999	15.3	
1,2,3,6,7,8-HxCDF	1.17	1.05-1.43		0.999	10.9	
2,3,4,6,7,8-HxCDF	1.18	1.05-1.43		0.999	11.1	
1,2,3,7,8,9-HxCDF	1.11	1.05-1.43		0.999	6.11	
1,2,3,4,7,8-HxCDD	1.26	1.05-1.43		0.999	11.2	
1,2,3,6,7,8-HxCDD	1.24	1.05-1.43		0.999	136	
1,2,3,7,8,9-HxCDD	1.25	1.05-1.43		0.999	29.9	
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20		0.999	437	
1,2,3,4,7,8,9-HpCDF	1.05	0.88-1.20		0.999	19.8	
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.999	1,820	
OCDF	0.86	0.76-1.02		2.00	863	
OCDD	0.89	0.76-1.02		2.00	10,300	E

Homologue Group	EDL	RL	Result	
Total TCDF		0.999	78.1	EMPC
Total TCDD		0.999	73.6	EMPC
Total PeCDF		2.00	281	EMPC
Total PeCDD		0.999	334	EMPC
Total HxCDF		2.00	853	
Total HxCDD		2.00	1,010	EMPC
Total HpCDF		2.00	1,560	
Total HpCDD		2.00	3,750	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 67.6

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 67.6

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR05-10cm**

Lab Sample ID: XN64C
LIMS ID: 13-24855
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 00:55
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	67.0	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	86.8	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	102	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	97.1	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	104	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	88.7	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	78.9	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	83.3	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	80.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.24	1.05-1.43	88.0	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	81.4	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	69.6	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	86.7	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	82.4	23-140	
13C-OCDD	0.89	0.76-1.02	66.5	17-157	
37Cl4-2,3,7,8-TCDD			86.6	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR06-2.5**

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 01:49
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.75	0.65-0.89		0.999	4.95	
2,3,7,8-TCDD	0.72	0.65-0.89		0.999	2.11	
1,2,3,7,8-PeCDF	1.42	1.32-1.78		0.999	3.24	
2,3,4,7,8-PeCDF	1.52	1.32-1.78		0.999	5.87	
1,2,3,7,8-PeCDD	1.45	1.32-1.78		0.999	8.27	
1,2,3,4,7,8-HxCDF	1.16	1.05-1.43		0.999	21.7	
1,2,3,6,7,8-HxCDF	1.18	1.05-1.43		0.999	8.35	
2,3,4,6,7,8-HxCDF	1.18	1.05-1.43		0.999	16.3	
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43		0.999	4.66	
1,2,3,4,7,8-HxCDD	1.21	1.05-1.43		0.999	8.21	
1,2,3,6,7,8-HxCDD	1.25	1.05-1.43		0.999	72.8	
1,2,3,7,8,9-HxCDD	1.28	1.05-1.43		0.999	15.4	
1,2,3,4,6,7,8-HpCDF	0.99	0.88-1.20		0.999	276	
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20		0.999	15.5	
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20		0.999	1,090	
OCDF	0.87	0.76-1.02		2.00	652	
OCDD	0.88	0.76-1.02		2.00	6,810	E

Homologue Group	EDL	RL	Result	
Total TCDF		0.999	62.3	EMPC
Total TCDD		0.999	28.7	
Total PeCDF		2.00	147	EMPC
Total PeCDD		0.999	67.0	EMPC
Total HxCDF		2.00	518	EMPC
Total HxCDD		2.00	783	EMPC
Total HpCDF		2.00	1,120	EMPC
Total HpCDD		2.00	2,050	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 43.5

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 43.5

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR06-2.5**

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 01:49
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	52.4	24-169	
13C-2,3,7,8-TCDD	0.80	0.65-0.89	65.4	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	76.0	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	76.5	21-178	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	80.6	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	66.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	60.5	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	64.1	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	67.0	29-147	
13C-1,2,3,4,7,8-HxCDD	1.29	1.05-1.43	69.2	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	64.1	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	63.3	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	83.3	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	77.5	23-140	
13C-OCDD	0.89	0.76-1.02	70.3	17-157	
37Cl4-2,3,7,8-TCDD			84.5	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR01-10cm**

Lab Sample ID: XN64F
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 02:43
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.70	0.65-0.89		0.995	1.96	
2,3,7,8-TCDD	0.70	0.65-0.89		0.995	2.62	
1,2,3,7,8-PeCDF	1.48	1.32-1.78		0.995	0.683	J
2,3,4,7,8-PeCDF	1.74	1.32-1.78		0.995	0.814	J
1,2,3,7,8-PeCDD	1.60	1.32-1.78		0.995	3.93	
1,2,3,4,7,8-HxCDF	1.21	1.05-1.43		0.995	2.77	
1,2,3,6,7,8-HxCDF	1.17	1.05-1.43		0.995	1.19	
2,3,4,6,7,8-HxCDF	1.11	1.05-1.43		0.995	1.80	
1,2,3,7,8,9-HxCDF	1.05	1.05-1.43		0.995	0.778	JEMPC
1,2,3,4,7,8-HxCDD	1.18	1.05-1.43		0.995	1.76	
1,2,3,6,7,8-HxCDD	1.24	1.05-1.43		0.995	9.98	
1,2,3,7,8,9-HxCDD	1.28	1.05-1.43		0.995	11.1	
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20		0.995	31.9	
1,2,3,4,7,8,9-HpCDF	1.00	0.88-1.20		0.995	1.59	
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.995	211	
OCDF	0.86	0.76-1.02		1.99	51.0	
OCDD	0.89	0.76-1.02		1.99	1,690	

Homologue Group	EDL	RL	Result	
Total TCDF		0.995	12.4	EMPC
Total TCDD		0.995	17.4	EMPC
Total PeCDF		1.99	18.0	EMPC
Total PeCDD		0.995	25.8	
Total HxCDF		1.99	52.5	EMPC
Total HxCDD		1.99	97.0	
Total HpCDF		1.99	87.1	EMPC
Total HpCDD		1.99	485	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 12.9

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 12.9

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR01-10cm**

Lab Sample ID: XN64F
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 02:43
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	73.1	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	84.6	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	115	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	115	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	119	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	89.7	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	82.2	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	87.7	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	87.9	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	90.8	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	84.5	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	79.5	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	98.3	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	93.8	23-140	
13C-OCDD	0.89	0.76-1.02	90.0	17-157	
37Cl4-2,3,7,8-TCDD			85.0	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR02-10cm**

Lab Sample ID: XN64G
LIMS ID: 13-24859
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 03:37
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.71	0.65-0.89		0.998	2.18	
2,3,7,8-TCDD	0.75	0.65-0.89		0.998	2.89	
1,2,3,7,8-PeCDF	1.33	1.32-1.78		0.998	0.804	J
2,3,4,7,8-PeCDF	1.63	1.32-1.78		0.998	1.13	
1,2,3,7,8-PeCDD	1.50	1.32-1.78		0.998	4.53	
1,2,3,4,7,8-HxCDF	1.11	1.05-1.43		0.998	4.60	
1,2,3,6,7,8-HxCDF	1.20	1.05-1.43		0.998	3.22	
2,3,4,6,7,8-HxCDF	1.17	1.05-1.43		0.998	5.58	
1,2,3,7,8,9-HxCDF	1.14	1.05-1.43		0.998	0.886	J
1,2,3,4,7,8-HxCDD	1.18	1.05-1.43		0.998	1.96	
1,2,3,6,7,8-HxCDD	1.24	1.05-1.43		0.998	10.4	
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43		0.998	12.4	
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20		0.998	113	
1,2,3,4,7,8,9-HpCDF	0.97	0.88-1.20		0.998	4.94	
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20		0.998	201	
OCDF	0.85	0.76-1.02		2.00	211	
OCDD	0.89	0.76-1.02		2.00	1,550	

Homologue Group	EDL	RL	Result	
Total TCDF		0.998	33.0	EMPC
Total TCDD		0.998	28.1	EMPC
Total PeCDF		2.00	47.6	EMPC
Total PeCDD		0.998	34.9	
Total HxCDF		2.00	125	
Total HxCDD		2.00	114	
Total HpCDF		2.00	310	
Total HpCDD		2.00	433	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 15.6

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 15.6

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR02-10cm**

Lab Sample ID: XN64G
LIMS ID: 13-24859
Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 03:37
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	94.6	24-169	
13C-2,3,7,8-TCDD	0.77	0.65-0.89	92.5	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	119	24-185	
13C-2,3,4,7,8-PeCDF	1.56	1.32-1.78	120	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	125	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	87.6	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	81.5	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	89.2	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	91.3	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	93.6	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	85.4	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	86.1	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	105	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	103	23-140	
13C-OCDD	0.89	0.76-1.02	101	17-157	
37Cl4-2,3,7,8-TCDD			92.5	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR03-10cm**

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 04:31
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF	0.77	0.65-0.89		0.993	1.34	
2,3,7,8-TCDD	0.73	0.65-0.89		0.993	3.56	
1,2,3,7,8-PeCDF	1.55	1.32-1.78		0.993	0.508	J
2,3,4,7,8-PeCDF	1.70	1.32-1.78		0.993	0.594	J
1,2,3,7,8-PeCDD	1.61	1.32-1.78		0.993	5.08	
1,2,3,4,7,8-HxCDF	1.18	1.05-1.43		0.993	1.02	
1,2,3,6,7,8-HxCDF	1.13	1.05-1.43		0.993	0.862	J
2,3,4,6,7,8-HxCDF	1.25	1.05-1.43		0.993	0.785	J
1,2,3,7,8,9-HxCDF	1.36	1.05-1.43		0.993	0.268	J
1,2,3,4,7,8-HxCDD	1.28	1.05-1.43		0.993	1.42	B
1,2,3,6,7,8-HxCDD	1.27	1.05-1.43		0.993	4.81	
1,2,3,7,8,9-HxCDD	1.23	1.05-1.43		0.993	12.9	
1,2,3,4,6,7,8-HpCDF	0.96	0.88-1.20		0.993	24.7	
1,2,3,4,7,8,9-HpCDF	0.92	0.88-1.20		0.993	0.894	J
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		0.993	66.1	
OCDF	0.86	0.76-1.02		1.99	36.4	
OCDD	0.89	0.76-1.02		1.99	489	

Homologue Group	EDL	RL	Result	
Total TCDF		0.993	16.7	EMPC
Total TCDD		0.993	24.7	EMPC
Total PeCDF		1.99	13.2	EMPC
Total PeCDD		0.993	30.6	
Total HxCDF		1.99	24.4	EMPC
Total HxCDD		1.99	80.8	EMPC
Total HpCDF		1.99	55.9	
Total HpCDD		1.99	167	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 12.2

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 12.2

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR03-10cm**

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/18/13
Date Analyzed: 11/23/13 04:31
Instrument/Analyst: AS1/PK

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	83.5	24-169	
13C-2,3,7,8-TCDD	0.78	0.65-0.89	90.3	25-164	
13C-1,2,3,7,8-PeCDF	1.57	1.32-1.78	113	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	116	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	118	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	90.1	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	82.5	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	87.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	89.6	29-147	
13C-1,2,3,4,7,8-HxCDD	1.25	1.05-1.43	91.8	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	83.1	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.44	0.37-0.51	82.9	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	101	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	96.1	23-140	
13C-OCDD	0.90	0.76-1.02	94.1	17-157	
37Cl4-2,3,7,8-TCDD			91.2	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: MB-111513**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/15/13
Date Analyzed: 11/21/13 17:41
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	77.2%
Tetrachlorometaxylene	64.8%

XN64 : 00076

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: CR06-2.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/21/13 18:42
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.06 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 77.0%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	99	< 99 Y
11097-69-1	Aroclor 1254	200	< 200 Y
11096-82-5	**Aroclor 1260**	**20**	**690**
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	92.2%
Tetrachlorometaxylene	60.5%

XN64I : 00077

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: CR01-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XN64F
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/21/13 19:02
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.39 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 51.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	18	< 18 U
11097-69-1	Aroclor 1254	18	< 18 U
11096-82-5	Aroclor 1260	18	< 18 U
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	23	< 23 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	57.0%
Tetrachlorometaxylene	55.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR02-10cm
SAMPLE

Lab Sample ID: XN64G
LIMS ID: 13-24859
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/21/13 19:22
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.32 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 46.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	**Aroclor 1254**	**19**	**12 J**
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	38	< 38 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	60.0%
Tetrachlorometaxylene	59.5%

XN64 : 00079

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: CR03-10cm**
Extraction Method: SW3546 **SAMPLE**
Page 1 of 1

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 11/15/13
Date Analyzed: 11/21/13 19:42
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.38 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: 61.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	Aroclor 1254	19	< 19 U
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	46	< 46 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	68.8%
Tetrachlorometaxylene	67.2%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-111513	77.2%	61-114	64.8%	52-117	0
LCS-111513	77.2%	61-114	64.5%	52-117	0
CR06-2.5	92.2%	54-115	60.5%	57-109	0
CR01-10cm	57.0%	54-115	55.5%*	57-109	1
CR02-10cm	60.0%	54-115	59.5%	57-109	0
CR03-10cm	68.8%	54-115	67.2%	57-109	0

Microwave (MARS) Control Limits PCBSMM
Prep Method: SW3546
Log Number Range: 13-24856 to 13-24860

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-111513
LAB CONTROL

Lab Sample ID: LCS-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: MW
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/15/13
Date Analyzed: 11/21/13 18:01
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	345	500	69.0%
Aroclor 1260	369	500	73.8%

PCB Surrogate Recovery

Decachlorobiphenyl	77.2%
Tetrachlorometaxylene	64.5%

Results reported in µg/kg (ppb)

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS

NWTPHD by GC/FID
Extraction Method: SW3546

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Matrix: Sediment

Date Received: 11/08/13

Data Release Authorized:
Reported: 11/19/13

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-111413	Method Blank	11/14/13	11/15/13	10.0	Diesel Range	50	< 50 U
13-24856	HC ID: ---		FID9	1.0	Motor Oil Range	100	< 100 U
					o-Terphenyl		77.0%
XN64D	CR06-2.5	11/14/13	11/15/13	10.0	**Diesel Range**	**220**	**18,000 E**
13-24856	HC ID: **DIESEL/MOTOR OIL**		FID9	1.0	**Motor Oil Range**	**430**	**61,000 E**
					o-Terphenyl		66.6%
XN64D DL	CR06-2.5	11/14/13	11/18/13	10.0	**Diesel Range**	**2,200**	**20,000**
13-24856	HC ID: **DIESEL/MOTOR OIL**		FID9	10	**Motor Oil Range**	**4,300**	**60,000**
					o-Terphenyl		63.3%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

XN64J 00023

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-111413
LAB CONTROL

Lab Sample ID: LCS-111413
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/19/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 11/14/13
Date Analyzed: 11/15/13 13:34
Instrument/Analyst: FID9/JLW

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	1,240	1,500	82.7%

TPHD Surrogate Recovery

o-Terphenyl	77.1%

Results reported in mg/kg

XN64 : 000811

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Sediment
Date Received: 11/08/13

ARI Job: XN64
Project: GHHSA
0863.01.01

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
13-24856-111413MB1	Method Blank	10.0 g	10.0 mL	-	11/14/13
13-24856-111413LCS1	Lab Control	10.0 g	10.0 mL	-	11/14/13
13-24856-XN64D	CR06-2.5	2.31 g	10.0 mL	D	11/14/13

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	OTER	TOT OUT
111413MBS	77.0%	0
111413LCS	77.1%	0
CR06-2.5	66.6%	0
CR06-2.5 DL	63.3%	0

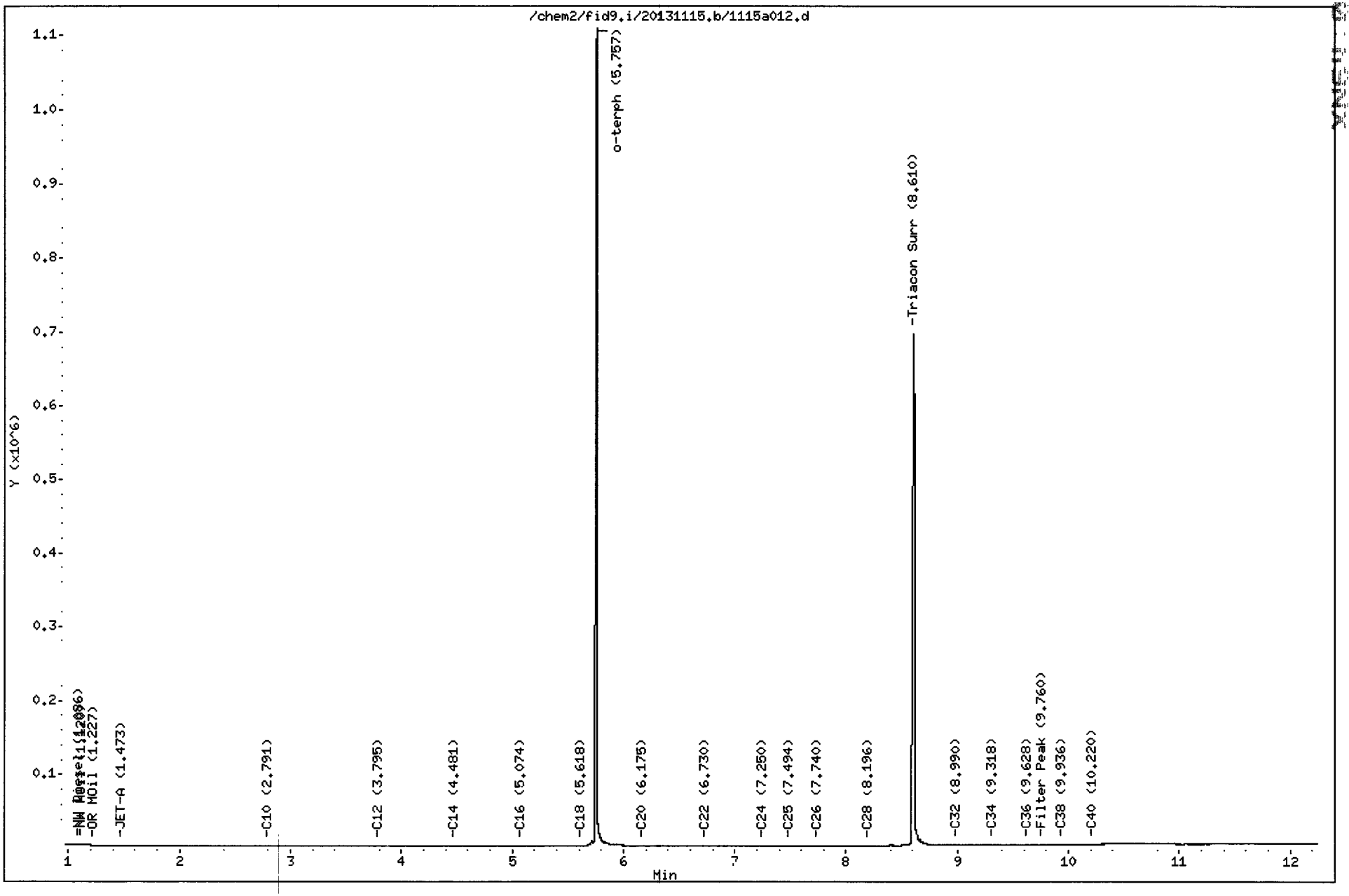
	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: DL
Log Number Range: 13-24856 to 13-24856

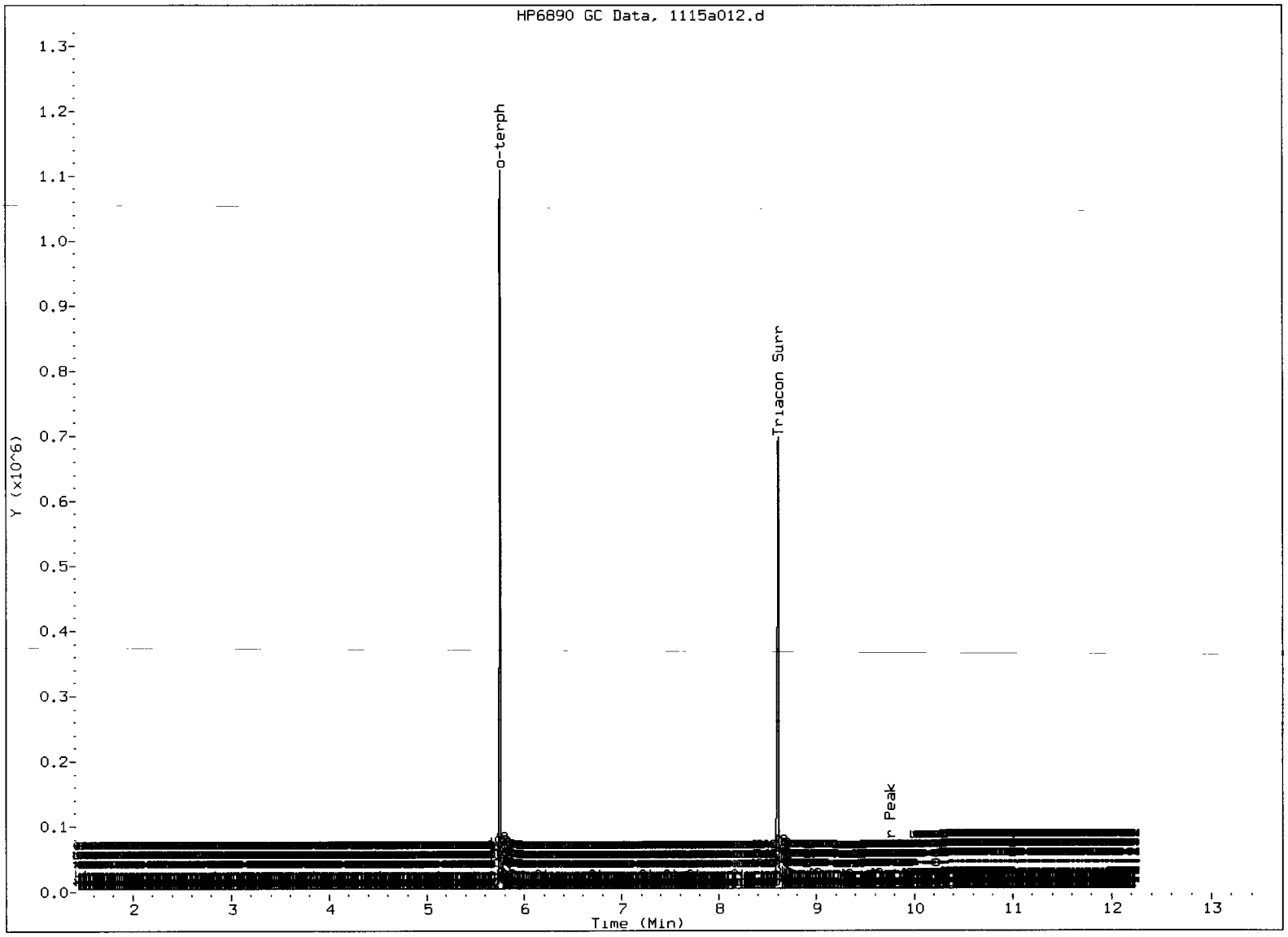
Data File: /chem2/fid9.i/20131115.b/1115a012.d
Date : 15-NOV-2013 13:13
Client ID: XN64MBS1
Sample Info: XN64MBS1

Instrument: fid9.i
Operator: JW
Column diameter: 0.25

Column phase: RTX-1



FID:9A-2C/RTX-1 XN64MBS1 FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Surrogate Skimmed

Analyst: _____ Date: 11/19/17

Data File: /chem2/fid9.i/20131115.b/1115a013.d

Date : 15-NOV-2013 13:34

Client ID: XN64LCSS1

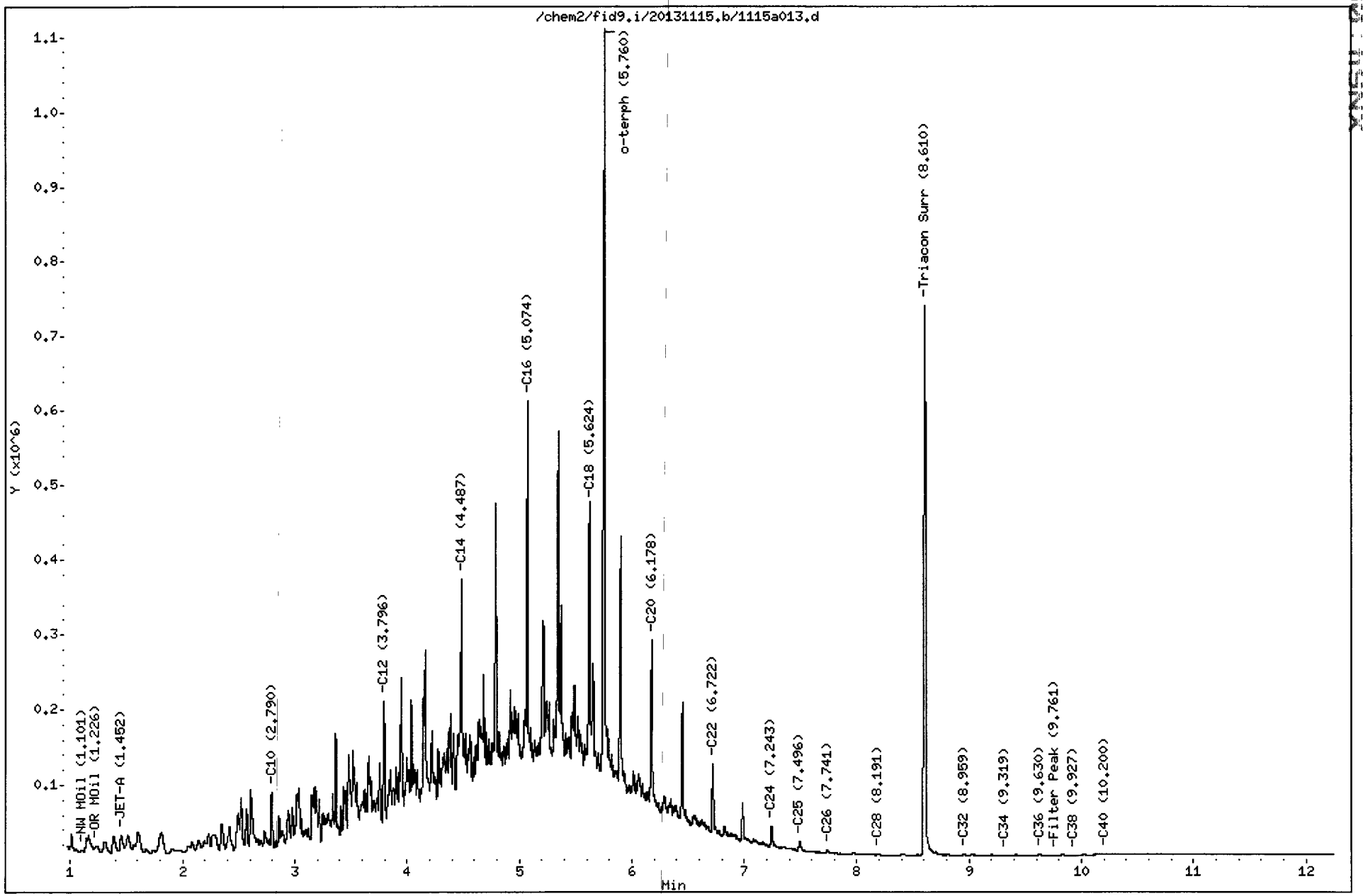
Sample Info: XN64LCSS1

Column phase: RTX-1

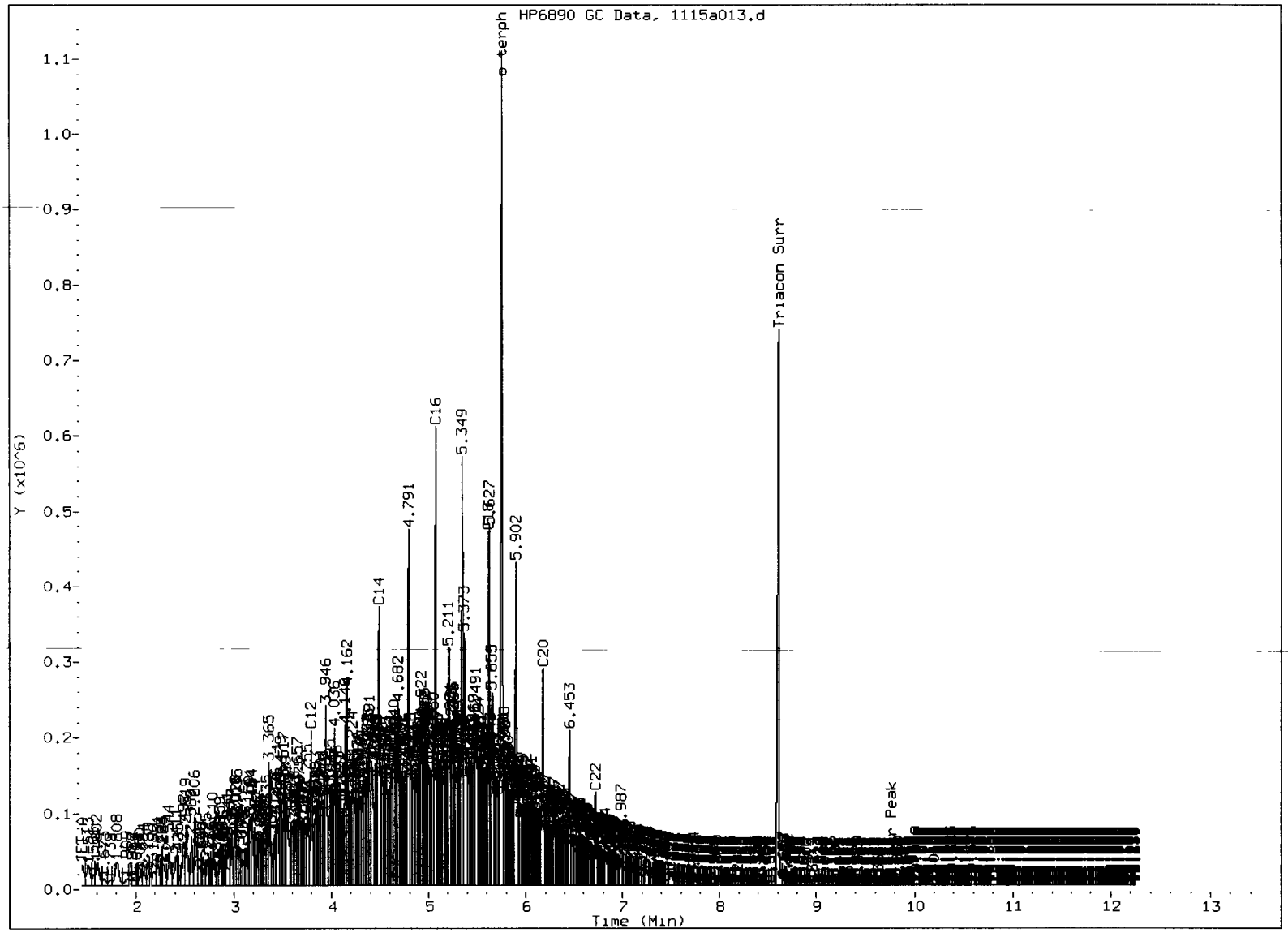
Instrument: fid9.i

Operator: JW

Column diameter: 0.25



FID:9A-2C/RTX-1 XN64LCSS1 FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Surrogate Skimmed

(5)

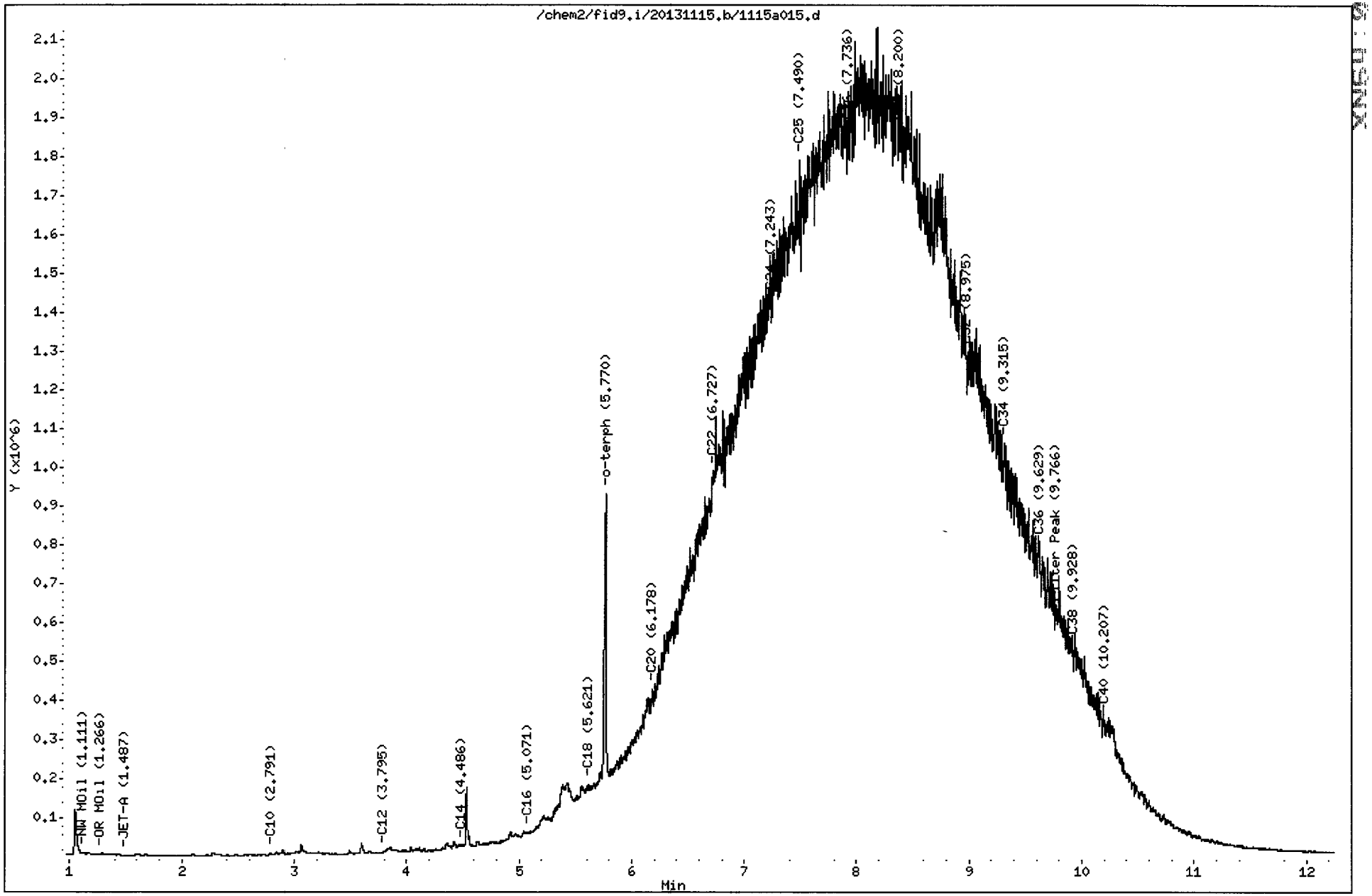
Analyst: JW Date: 11/19/12

XNGU : 00000

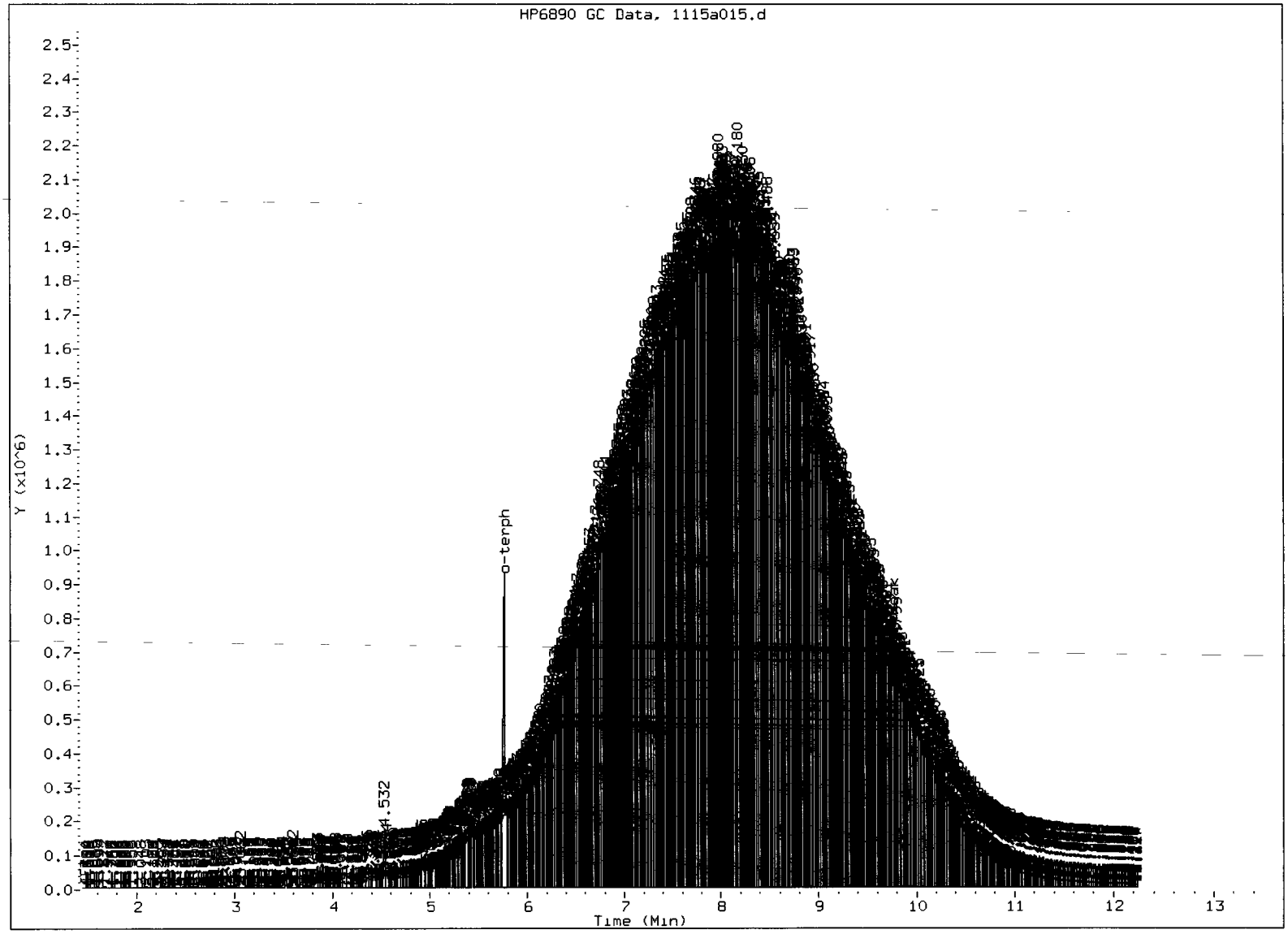
Data File: /chem2/fid9.i/20131115.b/1115a015.d
Date : 15-NOV-2013 14:16
Client ID: CR06-2.5
Sample Info: XN64D

Instrument: fid9.i
Operator: JW
Column diameter: 0.25

Column phase: RTX-1



FID:9A-2C/RTX-1 XN64D FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Surrogate Skimmed

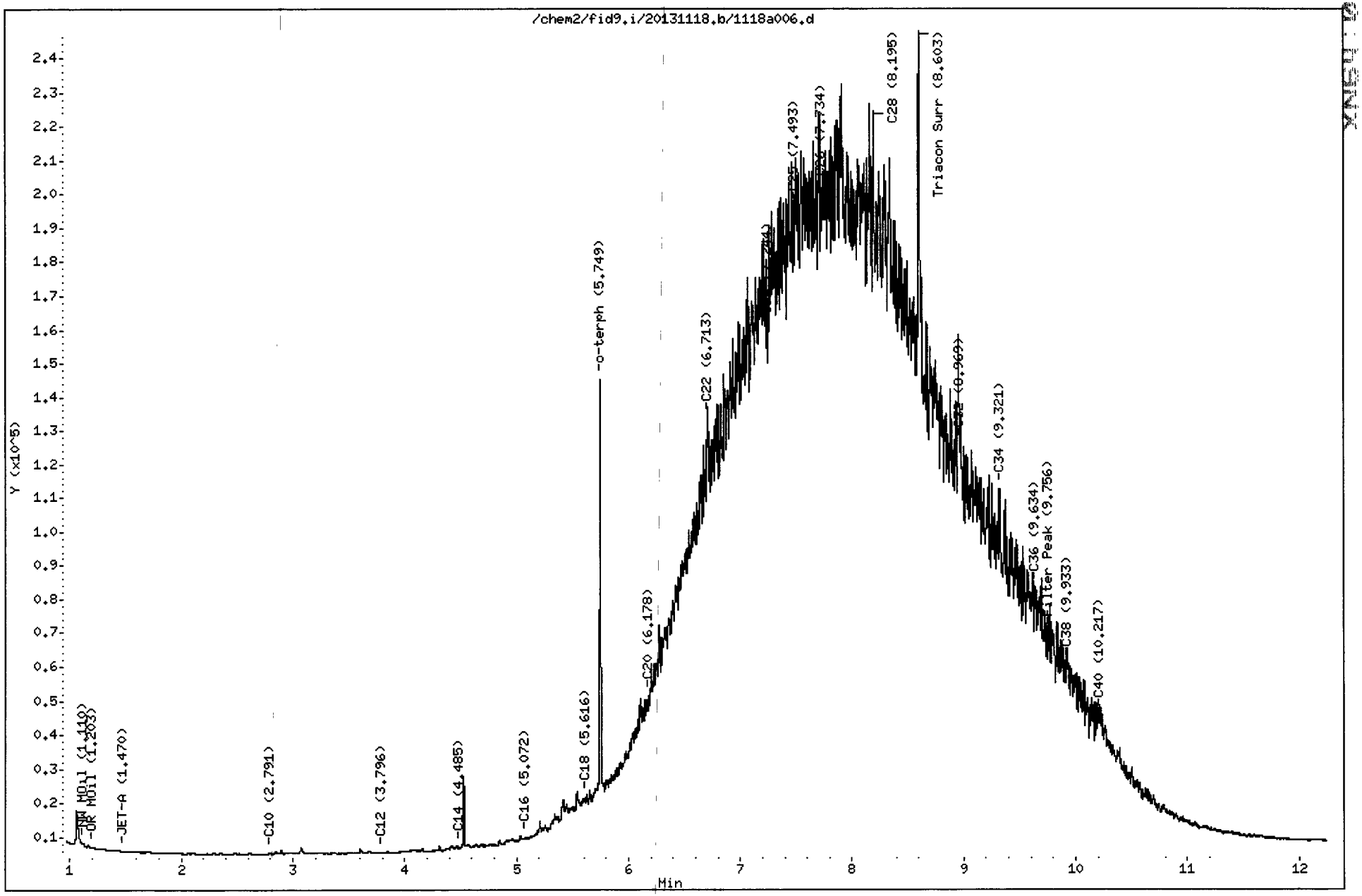
Analyst: JW Date: 11/19/15

Data File: /chem2/fid9.i/20131118.b/1118a006.d
Date : 18-NOV-2013 12:29
Client ID: CR06-2.5
Sample Info: XN64D,10

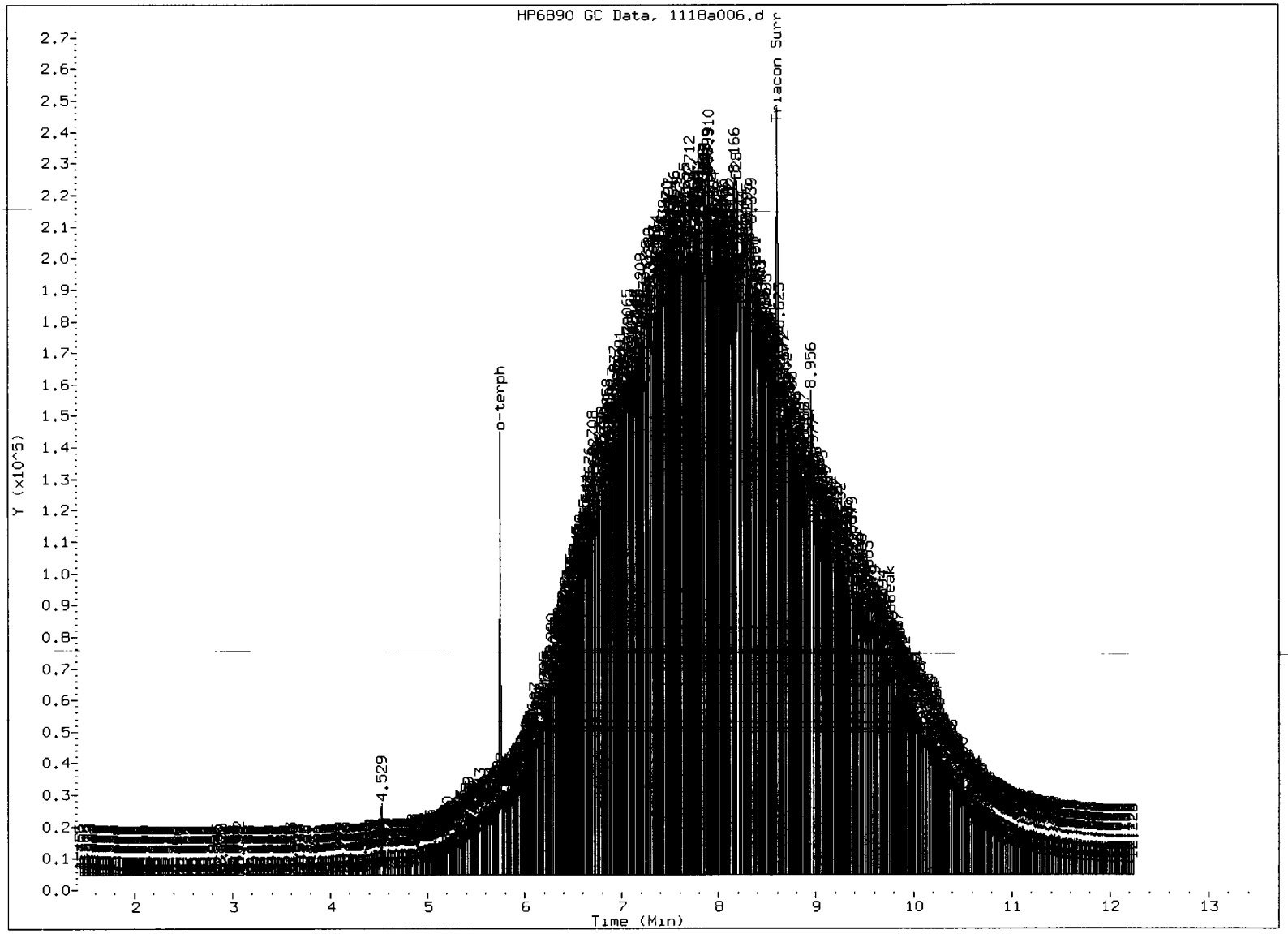
Column phase: RTX-1

Instrument: fid9.i

Operator: JW
Column diameter: 0.25



FID:9A-2C/RTX-1 XN64D FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Surrogate Skimmed

Analyst: JU Date: 11/19/12

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Client ID: CR06-10cm
ARI ID: 13-24853 XN64A

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	21.40
Preserved Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	19.81
Total Volatile Solids	11/13/13 111313#1	SM2540E	Percent	0.01	60.05
N-Ammonia	11/13/13 111313#1	EPA 350.1M	mg-N/kg	0.46	1.37
Sulfide	11/12/13 111213#1	EPA 376.2	mg/kg	50.2	906
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.198	35.6

RL Analytical reporting limit
U Undetected at reported detection limit

Ammonia determined on 2N KCl extracts.

XNGU : 00005

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Client ID: CR04-10cm
ARI ID: 13-24854 XN64B

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	20.62
Preserved Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	22.16
Total Volatile Solids	11/13/13 111313#1	SM2540E	Percent	0.01	59.91
N-Ammonia	11/13/13 111313#1	EPA 350.1M	mg-N/kg	0.47	< 0.47 U
Sulfide	11/14/13 111413#1	EPA 376.2	mg/kg	4.49	6.46
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.196	31.4

RL Analytical reporting limit
U Undetected at reported detection limit

Ammonia determined on 2N KCl extracts.

XN64 : 00000

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Client ID: CR05-10cm
ARI ID: 13-24855 XN64C

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	30.32
Preserved Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	31.81
Total Volatile Solids	11/13/13 111313#1	SM2540E	Percent	0.01	36.49
N-Ammonia	11/13/13 111313#1	EPA 350.1M	mg-N/kg	0.31	7.21
Sulfide	11/12/13 111213#1	EPA 376.2	mg/kg	31.1	320
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.200	13.6

RL Analytical reporting limit
U Undetected at reported detection limit

Ammonia determined on 2N KCl extracts.

XN64 : 00097

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Client ID: CR06-2.5
ARI ID: 13-24856 XN64D

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	21.59
Preserved Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	21.85
Total Volatile Solids	11/13/13 111313#1	SM2540E	Percent	0.01	69.23
N-Ammonia	11/13/13 111313#1	EPA 350.1M	mg-N/kg	0.42	14.0
Sulfide	11/12/13 111213#1	EPA 376.2	mg/kg	225	2,910
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.198	49.5

RL Analytical reporting limit
U Undetected at reported detection limit

Ammonia determined on 2N KCl extracts.

XN64 : 000058

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Client ID: CR04-5
ARI ID: 13-24857 XN64E

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	19.98
Preserved Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	24.44
Total Volatile Solids	11/13/13 111313#1	SM2540E	Percent	0.01	38.20
N-Ammonia	11/13/13 111313#1	EPA 350.1M	mg-N/kg	0.45	15.2
Sulfide	11/12/13 111213#1	EPA 376.2	mg/kg	20.1	179
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.196	16.5

RL Analytical reporting limit
U Undetected at reported detection limit

Ammonia determined on 2N KCl extracts.

XN64I : 00099

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Client ID: CR01-10cm
ARI ID: 13-24858 XN64F

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	44.09
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.020	2.06

RL Analytical reporting limit
U Undetected at reported detection limit

XN64U : 0601 0a

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Client ID: CR02-10cm
ARI ID: 13-24859 XN64G

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	51.80
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.020	3.21

RL Analytical reporting limit
U Undetected at reported detection limit

XNGU : 00101

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Client ID: CR03-10cm
ARI ID: 13-24860 XN64H

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	36.40
Total Organic Carbon	11/26/13 112613#1	Plumb,1981	Percent	0.020	2.91

RL Analytical reporting limit
U Undetected at reported detection limit

XN64:00102

METHOD BLANK RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank	QC ID
Total Solids	11/13/13	Percent	< 0.01 U	ICB
Preserved Total Solids	11/13/13	Percent	< 0.01 U	ICB
Total Volatile Solids	11/13/13	Percent	< 0.01 U	ICB
N-Ammonia	11/13/13	mg-N/kg	< 0.10 U	PREP
Sulfide	11/12/13	mg/kg	0.17	PREP
	11/14/13		< 0.05 U	PREP
Total Organic Carbon	11/26/13	Percent	< 0.020 U	ICB

XN64:00103

LAB CONTROL RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Sulfide	PREP	11/12/13	mg/kg	6.37	6.79	93.8%
EPA 376.2	PREP	11/14/13		6.20	6.31	98.3%
Total Organic Carbon Plumb,1981	ICVL	11/26/13	Percent	0.098	0.100	98.0%

XN64 : 0001 QU

STANDARD REFERENCE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
N-Ammonia ERA #040912	11/13/13	mg-N/kg	102	100	102.0%
Total Organic Carbon NIST 1941B	11/26/13	Percent	3.36	2.99	112.4%

XNSU : 001165

REPLICATE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: XN64A Client ID: CR06-10cm					
Total Solids	11/13/13	Percent	21.40	22.11 21.57	1.7%
Preserved Total Solids	11/13/13	Percent	19.81	21.39	7.7%
Total Volatile Solids	11/13/13	Percent	60.05	59.01 59.81	0.9%
Total Organic Carbon	11/26/13	Percent	35.6	33.7 31.3	6.4%
ARI ID: XN64B Client ID: CR04-10cm					
Sulfide	11/14/13	mg/kg	6.46	0.67	162.4%

XNSU:0016

MS/MSD RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: XN64A Client ID: CR06-10cm						
Total Organic Carbon	11/26/13	Percent	35.6	64.5	45.5	63.4%
ARI ID: XN64B Client ID: CR04-10cm						
Sulfide	11/14/13	mg/kg	6.46	525	566	91.6%

XN64 : 00107

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR06-10cm
SAMPLE

Lab Sample ID: XN64A
LIMS ID: 13-24853
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Percent Total Solids: 23.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.08	**0.55**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XN64A : 00198

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR04-10cm
SAMPLE

Lab Sample ID: XN64B
LIMS ID: 13-24854
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Percent Total Solids: 20.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.1	**6.2**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XN64H : 022409

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR05-10cm
SAMPLE

Lab Sample ID: XN64C
LIMS ID: 13-24855
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Percent Total Solids: 26.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.09	**0.16**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR06-2.5
SAMPLE

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Percent Total Solids: 20.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/14/13	6010C	11/19/13	7440-38-2	Arsenic	20	20	U
3050B	11/14/13	6010C	11/19/13	7440-43-9	Cadmium	1	1	U
3050B	11/14/13	6010C	11/19/13	**7440-47-3**	**Chromium**	2	**26**	
3050B	11/14/13	6010C	11/19/13	**7440-50-8**	**Copper**	1	**96**	
3050B	11/14/13	6010C	11/19/13	**7439-92-1**	**Lead**	10	**110**	
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.08	**0.53**	
3050B	11/14/13	6010C	11/19/13	7440-22-4	Silver	1	1	U
3050B	11/14/13	6010C	11/19/13	**7440-66-6**	**Zinc**	5	**237**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XN64I : 0001 1 1

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR06-2.5
DUPLICATE

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	20 U	20 U	0.0%	+/- 20	L
Cadmium	6010C	1 U	1 U	0.0%	+/- 1	L
Chromium	6010C	26	91	111%	+/- 20%	*
Copper	6010C	96	237	84.7%	+/- 20%	*
Lead	6010C	110	120	8.7%	+/- 20%	
Mercury	7471A	0.53	0.41	25.5%	+/- 0.08	L*
Silver	6010C	1 U	1 U	0.0%	+/- 1	L
Zinc	6010C	237	211	11.6%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

XN64D : 00412

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR06-2.5
MATRIX SPIKE

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample		Spike	Spike Added	% Recovery	Q
Arsenic	6010C	20	U	970	979	99.1%	
Cadmium	6010C	1	U	242	245	98.8%	
Chromium	6010C	26		276	245	102%	
Copper	6010C	96		389	245	120%	
Lead	6010C	110		1,090	979	100%	
Mercury	7471A	0.53		1.66	0.854	132%	N
Silver	6010C	1	U	237	245	96.7%	
Zinc	6010C	237		476	245	97.6%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

XNS4: 80113

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: CR01-10cm
SAMPLE

Lab Sample ID: XN64F
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Percent Total Solids: 43.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/14/13	6010C	11/19/13	7440-38-2	Arsenic	10	10	U
3050B	11/14/13	6010C	11/19/13	**7440-43-9**	**Cadmium**	0.5	**0.5**	
3050B	11/14/13	6010C	11/19/13	**7440-47-3**	**Chromium**	1	**40**	
3050B	11/14/13	6010C	11/19/13	**7440-50-8**	**Copper**	0.5	**58.0**	
3050B	11/14/13	6010C	11/19/13	**7439-92-1**	**Lead**	5	**7**	
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.04	**0.05**	
3050B	11/14/13	6010C	11/19/13	7440-22-4	Silver	0.7	0.7	U
3050B	11/14/13	6010C	11/19/13	**7440-66-6**	**Zinc**	2	**87**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XN64I : 0001 1 U

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR02-10cm
SAMPLE

Lab Sample ID: XN64G
LIMS ID: 13-24859
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Percent Total Solids: 50.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/14/13	6010C	11/19/13	7440-38-2	Arsenic	9	9	U
3050B	11/14/13	6010C	11/19/13	**7440-43-9**	**Cadmium**	0.4	**0.4**	
3050B	11/14/13	6010C	11/19/13	**7440-47-3**	**Chromium**	0.9	**38.5**	
3050B	11/14/13	6010C	11/19/13	**7440-50-8**	**Copper**	0.4	**56.3**	
3050B	11/14/13	6010C	11/19/13	**7439-92-1**	**Lead**	4	**9**	
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.04	**0.10**	
3050B	11/14/13	6010C	11/19/13	7440-22-4	Silver	0.6	0.6	U
3050B	11/14/13	6010C	11/19/13	**7440-66-6**	**Zinc**	2	**79**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XN64H : 0001 15

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR03-10cm
SAMPLE

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Percent Total Solids: 35.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/14/13	6010C	11/19/13	7440-38-2	Arsenic	10	10	U
3050B	11/14/13	6010C	11/19/13	7440-43-9	Cadmium	0.5	0.5	U
3050B	11/14/13	6010C	11/19/13	**7440-47-3**	**Chromium**	1	**48**	
3050B	11/14/13	6010C	11/19/13	**7440-50-8**	**Copper**	0.5	**65.4**	
3050B	11/14/13	6010C	11/19/13	**7439-92-1**	**Lead**	5	**8**	
CLP	11/14/13	7471A	11/18/13	**7439-97-6**	**Mercury**	0.06	**0.09**	
3050B	11/14/13	6010C	11/19/13	7440-22-4	Silver	0.8	0.8	U
3050B	11/14/13	6010C	11/19/13	**7440-66-6**	**Zinc**	3	**91**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: XN64MB
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	11/14/13	6010C	11/19/13	7440-38-2	Arsenic	5	5	U
3050B	11/14/13	6010C	11/19/13	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/14/13	6010C	11/19/13	7440-47-3	Chromium	0.5	0.5	U
3050B	11/14/13	6010C	11/19/13	7440-50-8	Copper	0.2	0.2	U
3050B	11/14/13	6010C	11/19/13	7439-92-1	Lead	2	2	U
CLP	11/14/13	7471A	11/18/13	7439-97-6	Mercury	0.02	0.02	U
3050B	11/14/13	6010C	11/19/13	7440-22-4	Silver	0.3	0.3	U
3050B	11/14/13	6010C	11/19/13	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: XN64LCS
LIMS ID: 13-24858
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	194	200	97.0%	
Cadmium	6010C	48.4	50.0	96.8%	
Chromium	6010C	50.5	50.0	101%	
Copper	6010C	49.2	50.0	98.4%	
Lead	6010C	195	200	97.5%	
Mercury	7471A	0.51	0.50	102%	
Silver	6010C	50.5	50.0	101%	
Zinc	6010C	48	50	96.0%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

XN64 · QA19

Maul Foster & Alongi
GHHSA
0863.01.01

Apparent Grain Size Distribution Summary
Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4 (4750)	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (63)	31.00	15.60	7.80	3.90	2.00	1.00
XN50 B	100.0	86.0	69.2	55.5	40.6	22.8	12.5	9.0	8.5	7.5	6.4	5.2	3.5	2.8
	100.0	89.7	71.9	59.5	43.7	25.3	14.7	11.4	9.3	8.1	7.1	5.5	4.3	3.0
	100.0	82.2	66.7	54.2	39.7	22.5	12.4	9.1	8.6	7.6	6.6	5.2	3.8	2.8
CR06-10cm	100.0	87.1	77.3	64.3	48.7	36.7	31.6	29.7	25.5	20.5	15.9	12.2	9.5	7.4
CR04-10cm	100.0	84.3	77.2	63.4	49.2	40.7	37.0	35.6	28.5	22.6	16.4	11.6	8.7	6.1
CR05-10cm	100.0	89.8	79.8	68.4	55.2	44.7	38.8	35.3	27.2	19.4	14.3	9.9	7.8	5.4
CR04-5	100.0	87.8	76.4	63.5	52.8	46.7	43.5	42.1	40.9	30.3	21.3	15.2	10.9	7.2

Notes to the Testing:

1. Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Maul Foster & Alongi
GHHSA
0863.01.01

Apparent Grain Size Distribution Summary
Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay			Total Fines
Phi Size	< -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	> 10	> 4
Sieve Size (microns)	> #10 (2000)	10 to 18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31 0-15.6	15 6-7.8	7 8-3 9	3 9-2.0	2.0-1.0	<1.0	<230 (<62)
XN50 B	30.8	13.7	14.9	17.8	10.4	3.4	0.5	1.0	1.0	1.3	1.7	0.6	2.8	9.0
	28.1	12.4	15.8	18.4	10.6	3.4	2.1	1.2	1.0	1.6	1.3	1.3	3.0	11.4
	33.3	12.5	14.5	17.2	10.1	3.3	0.5	1.1	1.0	1.4	1.4	1.0	2.8	9.1
CR06-10cm	22.7	13.0	15.7	11.9	5.1	2.0	4.1	5.1	4.5	3.7	2.7	2.1	7.4	29.7
CR04-10cm	22.8	13.8	14.2	8.5	3.7	1.4	7.2	5.9	6.2	4.8	2.9	2.6	6.1	35.6
CR05-10cm	20.2	11.4	13.2	10.5	6.0	3.5	8.1	7.7	5.1	4.5	2.1	2.4	5.4	35.3
CR04-5	23.6	13.0	10.7	6.1	3.2	1.4	1.3	10.6	8.9	6.1	4.3	3.7	7.2	42.1

Notes to the Testing:

1. Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

QA SUMMARY

Client:	Maul Foster & Alongi	Client Project:	GHHSA
ARI Trip. Sample ID:	XN50 B	Client Project No.:	0863 01 01
		Batch No.:	XN64-1

Relative Standard Deviation, By Phi Size

Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
XN50 B	100.0	86.0	69 2	55.5	40.6	22.8	12.5	9.0	8 5	7.5	6 4	5.2	3.5	2.8
	100.0	89.7	71.9	59.5	43.7	25.3	14 7	11.4	9.3	8.1	7.1	5.5	4.3	3.0
	100.0	82.2	66.7	54.2	39 7	22 5	12.4	9.1	8.6	7 6	6 6	5.2	3.8	2.8
AVE	100.0	86.0	69 3	56.4	41.3	23 5	13.2	9.8	8.8	7.7	6 7	5.3	3.8	2.9
STDEV	0.0	3.8	2.6	2 8	2 1	1.6	1.3	1.3	0.4	0.3	0 3	0.2	0.4	0.1
%RSD	0 0	4.4	3.8	4.9	5.1	6.6	10 0	13.5	4.6	4.4	4.9	3.6	10 3	3.5

The Triplicate Applies To The Following Samples

Client ID	Date Sampled	Date Extracted	Date Complete	QA Ratio (95-105)	Data Qualifiers	Pipette Portion (5.0-25.0g)
XN50 B	11/8/2013	11/12/2013	11/14/2013	99.0		6.6
	11/8/2013	11/12/2013	11/14/2013	100.8		8.5
	11/8/2013	11/12/2013	11/14/2013	99 0		6.6
CR06-10cm	11/7/2013	11/15/2013	11/22/2013	100.1		12.4
CR04-10cm	11/7/2013	11/15/2013	11/22/2013	96.0		13.7
CR05-10cm	11/8/2013	11/15/2013	11/22/2013	101.6		13 0
CR04-5	11/8/2013	11/15/2013	11/22/2013	97.4		14.0

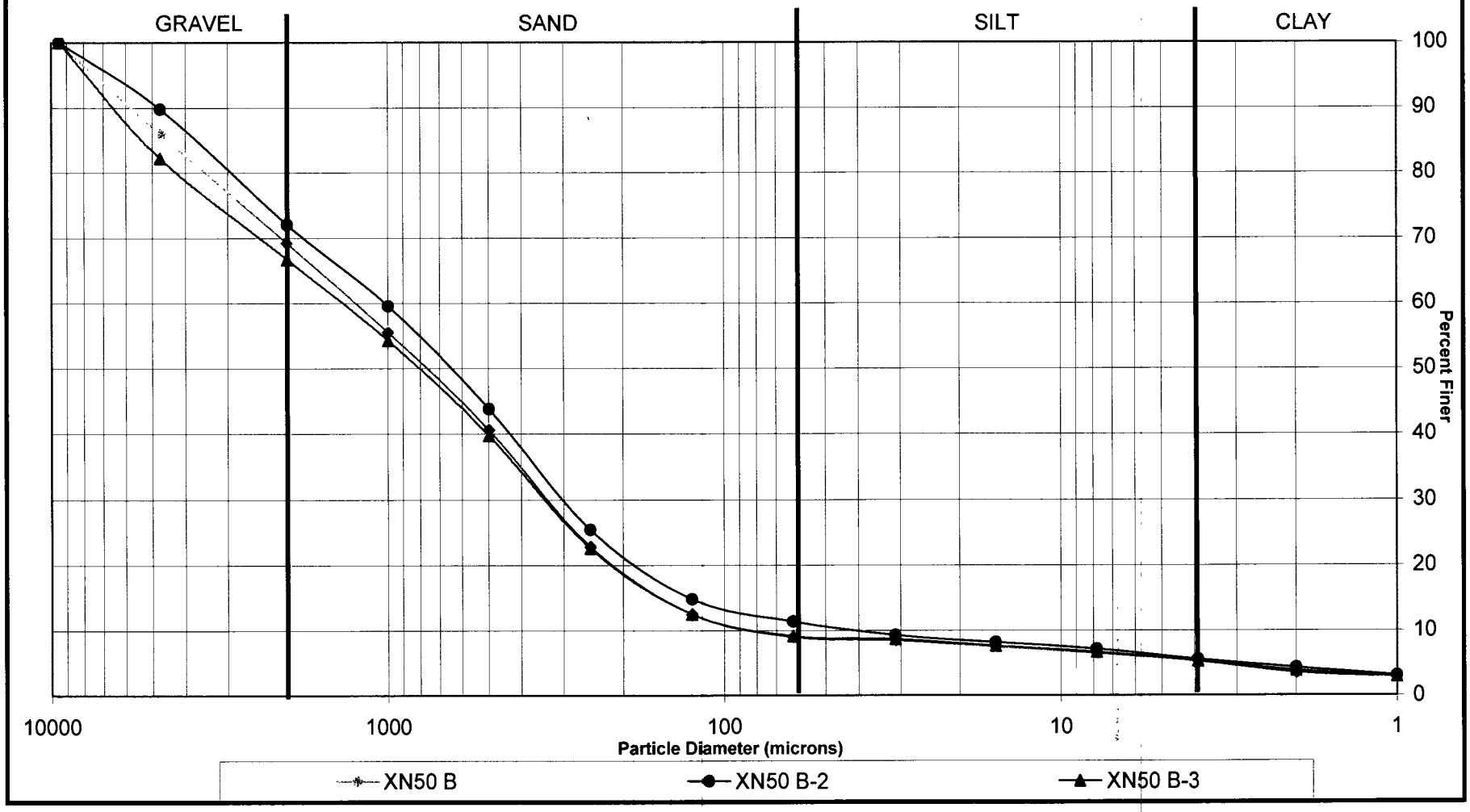
* ARI Internal QA limits = 95-105%

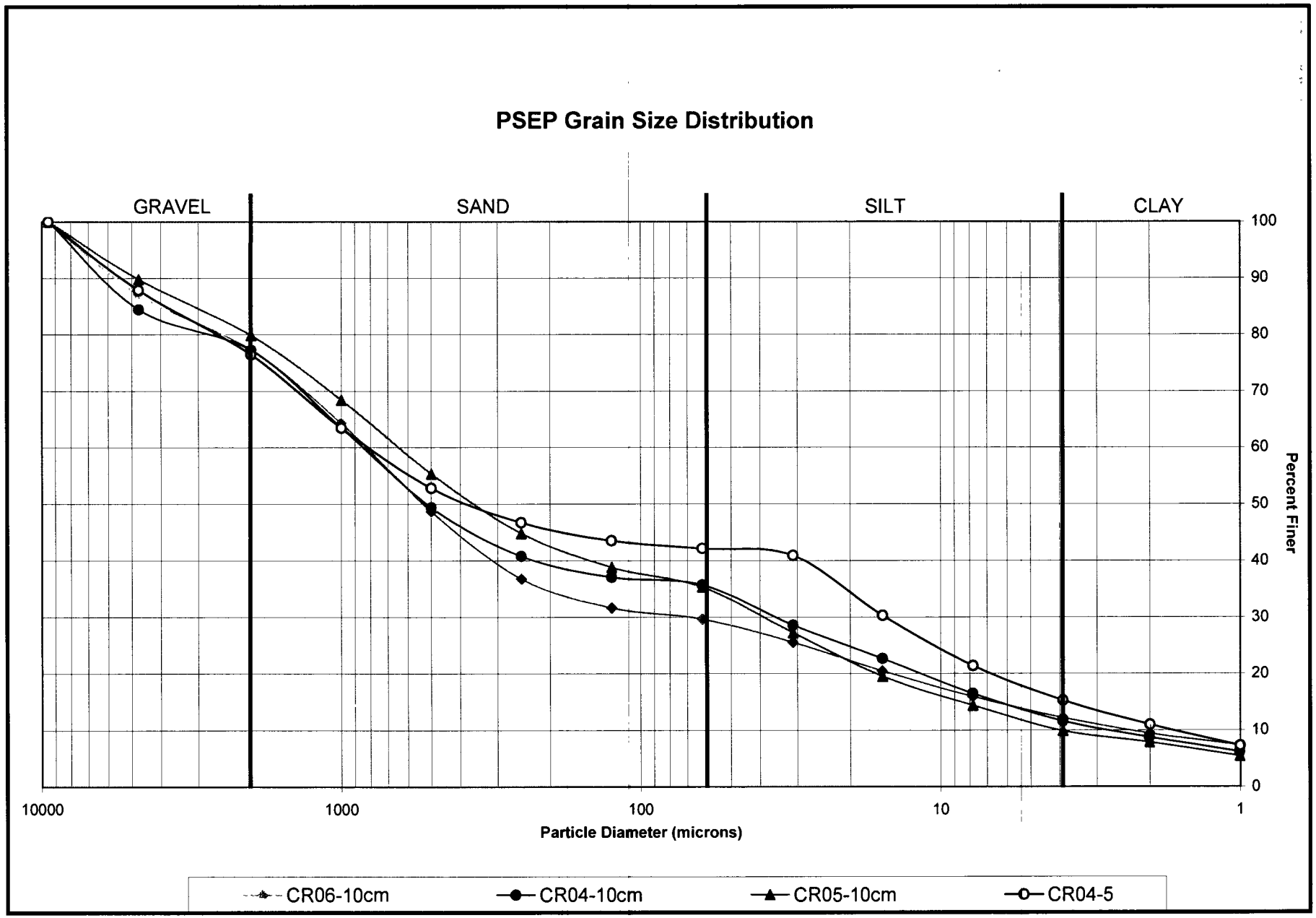
Notes to the Testing:

1 Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

PSEP Grain Size Distribution

Triplicate Sample Plot




PSEP Grain Size Distribution
GRAVEL
SAND
SILT
CLAY
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
10000
1000
100
10
1
Particle Diameter (microns)
CR06-10cm
CR04-10cm
CR05-10cm
CR04-5

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: X000	Turn-around Requested:	Page: 1 of 1	
ARI Client Company: Maul Foster & Alongi	Phone:	Date: 11/14/13	Ice Present? NO
Client Contact: Murray, Mike		No. of Coolers: NA	Cooler Temps: NA
Client Project Name: GHHSA			
Client Project #: 0463.01.01	Samplers: ML		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Sulfide	Notes/Comments
CR01-10cm	11/14/13	11:45 ML	H_2O	1	✓	
CR02-10cm	11/14/13	11:25	H_2O	1	✓	
CR02-10cm 3	11/14/13	11:25	H_2O	1	✓	

Comments/Special Instructions	Relinquished by (Signature)	Received by: (Signature)	Relinquished by (Signature)	Received by: (Signature)
	Printed Name: Max Litwin	Printed Name: Jennifer Millsap	Printed Name:	Printed Name
	Company: ARI	Company: ARI	Company:	Company:
	Date & Time: 11/14/13	Date & Time: 11/14/13 1145	Date & Time:	Date & Time.

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Revised 12/05, ITEM X

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XO00
Client: Maul Foster & Alongi
Project Event: 0863.01.01
Project Name: GHHSA

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR01-10CM	XO00A	13-25167	Pore Water	11/14/13 11:25	11/14/13 11:45
2.	CR02-10CM	XO00B	13-25168	Pore Water	11/14/13 11:25	11/14/13 11:45
3.	CR03-10CM	XO00C	13-25169	Pore Water	11/14/13 11:25	11/14/13 11:45

XNGU : 0P125

SAMPLE RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Client ID: CR01-10cm
ARI ID: 13-25167 XO00A

Analyte	Date Batch	Method	Units	RL	Sample
Conductivity	11/15/13 111513#1	EPA 120.1	umhos/cm	1.00	18,700
Salinity	11/15/13 111513#1	SM 2520.B	ppt	0.10	11.0

RL Analytical reporting limit
U Undetected at reported detection limit

XNSU:00125

SAMPLE RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Client ID: CR02-10cm
ARI ID: 13-25168 XO00B

Analyte	Date Batch	Method	Units	RL	Sample
Conductivity	11/15/13 111513#1	EPA 120.1	umhos/cm	1.00	12,200
Salinity	11/15/13 111513#1	SM 2520.B	ppt	0.10	6.90

RL Analytical reporting limit
U Undetected at reported detection limit

XNGU:00127

SAMPLE RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Client ID: CR03-10cm
ARI ID: 13-25169 XO00C

Analyte	Date Batch	Method	Units	RL	Sample
Conductivity	11/15/13 111513#1	EPA 120.1	umhos/cm	1.00	17,500
Salinity	11/15/13 111513#1	SM 2520.B	ppt	0.10	10.2

RL Analytical reporting limit
U Undetected at reported detection limit

XMGU:00128

METHOD BLANK RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Conductivity	EPA 120.1	11/15/13	umhos/cm	< 1.00 U	
Salinity	SM 2520.B	11/15/13	ppt	< 0.10 U	

XNSV : 0812S

LAB CONTROL RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Salinity SM 2520.B	ICVL	11/15/13	ppt	46,700	47,600	98.1%

XNS11:00130

STANDARD REFERENCE RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Conductivity Ricca #4110724	EPA 120.1	11/15/13	umhos/cm	974	1,000	97.4%

XNSU 00131

REPLICATE RESULTS-CONVENTIONALS
XO00-Maul Foster & Alongi

ANALYTICAL RESOURCES INCORPORATED

Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: XO00A	**Client ID: CR01-10cm**					
Conductivity	EPA 120.1	11/15/13	umhos/cm	18,700	18,700	0.0%
Salinity	SM 2520.B	11/15/13	ppt	11.0	11.0	0.0%

XNCU:00122

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 December 2013

Mike Murray
Maul, Foster and Alongi, Inc
2001 NW 19th Avenue
Suite 200
Portland, OR 97209

RE: Project: GHHSA
ARI Job No.: XQ70

Dear Mike:

Please find enclosed copies of the original chain of custody records and the final results for the samples from the project referenced above. These samples were originally accepted on November 8, 2013. These samples were analyzed for SVOCs, dioxins/furans, PCBs, NWTPH-Dx and total mercury as requested on 12/6/13.

The percent differences (%Ds) for several compounds were high for the CCALs that bracketed the SVOA and SIM-SVOA analyses of these samples. All positive results have been flagged with a "Q" qualifier to denote the high %Ds.

All samples were initially analyzed for SVOAs and SIM-SVOAs on 12/16/13. The areas for the internal standards were not within control limits following the analyses of these samples. All samples were diluted and re-analyzed on 12/19/13. The re-analyses proceeded without incident of note. The results for the re-analyses only have been submitted.

The remaining analyses proceeded without incident of note.

An electronic copy of this report and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

cc: file XQ70

Enclosures

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Subject: RE: XN64-GHHSA
From: "Mike Murray" <mmurray@maulfoster.com>
Date: 12/6/2013 11:22 AM
To: "Mark Harris" <markh@arilabs.com>
CC: "Madi Novak" <mnovak@maulfoster.com>, "Mary Benzinger" <mbenzinger@maulfoster.com>

Hi Mark, we finished our initial evaluation and would like to run some follow-up analysis.

Since we are up against the hold time for mercury, the mercury analysis would have to happen pretty soon.

We would like to run archived samples: CR04-2.5 and CR05-2.5 for dioxin/furans and mercury.

We would like to run archived samples: CR04-10cm, CR04-2.5, CR05-10cm, and CR05-2.5 for SVOCs, PCBs and TPH-Dx.

Standard TAT is fine.

Lastly could you provide us with a cost for this follow-up analysis for our budget?

Let me know if you have any questions.

Thanks and have a nice weekend.
Mike

MICHAEL R. MURRAY RG | MAUL FOSTER & ALONGI, INC.

d. 503 501 5226 | p. 971 544 2139 | c. 503 310 0435 | f. 971 544 2140 |
www.maulfoster.com
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

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-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, December 03, 2013 8:32 AM
To: Mary Benzinger
Cc: Madi Novak; Mike Murray
Subject: Re: XN64-GHHSA

Mary:

No problem. It's in 2 parts due to the size of the file.

This is one of two and the EDD for XN64.

Mark H.

On 12/2/2013 5:30 PM, Mary Benzinger wrote:

Hi Mark,
Thanks for the final EDD and cover letter.
Since there are so many parts to this report, and I don't want to miss anything, could you send these as a single report?
Thank you!

Mary Benzinger | MAUL FOSTER & ALONGI, INC.

d. 503 501 5247 | p. 503 501 5214| c. 503 319 7132|
www.maulfoster.com
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

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-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Monday, December 02, 2013 2:08 PM
To: Madi Novak; Mike Murray; Mary Benzinger
Subject: XN64-GHHSA

All:

Attached are the final EDD for the bulk of the sediment samples (XO00 was for the porewaters and that one was complete and final.) and a copy of the narrative. No data have change so I omitted the actual sample reports. If you'd like those re-sent and an 'intact'/complete report, let me know. The hard copy will mail tomorrow.

Let me know if you have any questions.

Mark H.

--

Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey <https://www.surveymonkey.com/s/WPDBVJK>.

This correspondence contains confidential information from Analytical Resources,

Inc. (ARI) The information contained herein is intended solely for the use of the individual(s) named above. If you are not the intended recipient, any copying, distribution, disclosure, or use of the text and/or attached document(s) is strictly prohibited.

If you have received this correspondence in error, please notify sender immediately. Thank you.

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number: XN64	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Maul Foster & Alongi	Phone: 9715442139	Date: 11/8/13	Ice Present? Y
Client Contact: Mike Murray		No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2
Client Project Name: GHHSA			
Client Project #: 0863.01.01	Samplers: MRM/MN		

Analysis Requested

Sample ID	Date	Time	Matrix	No Containers	Dioxin/Furan	Butyl-Benzyl-Phthalate, Perka Chlorophenol	Mercury	SMS compounds with marine criteria	TOC	Conventionals TOC, TVS, Total NH4, TS, PWS, % solids	Archive	Salinity in pore water	Notes/Comments
CR06-10cm	11/7/13	12:00	Sed.	8	X	X	X			X	X		"Conventionals" include: TOC, TVS, total solids, NH4, TS, pore water sulfides, % fines
CR06-1		12:15		4							X		Archive all remaining sample volume
CR06-2.5		12:30		8							X		
CR06-4		12:45		8							X		
CR04-10cm		13:00		8	X	X	X			X	X		
CR04-1		13:30		3							X		
CR05-10cm	11/8/13	8.25	Sed	8	X	X	X			X	X		
CR05-2.5		8.45		8							X		
CR05-3.5		9:00		2							X		
CR04-2.5		9:40		8							X		

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Mad. Novak	Printed Name: Jennifer Millsap	Printed Name	Printed Name
	Company: MFA	Company: ARI	Company	Company
	Date & Time: 11/8/13 2:00 pm	Date & Time: 11/8/13 1830	Date & Time	Date & Time

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN64	Turn-around Requested: standard	Page: 2 of 2	
ARI Client Company: Maul Foster + Alongi	Phone: 9715442139	Date: 11/8/13	Ice Present? Y
Client Contact: Mike Murray		No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2
Client Project Name: 6115 GHHSA			
Client Project #: 0863.01.01	Samplers: MRM/MN		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: Dioxins/Furans	Butylbenzyl, Phthalates, Pentachlorophenol	Mercury	SVOCs compounded w/ Modified Criteria	TOC	Conventionals	Archive	Salinity & Particle Size	Notes/Comments
CR04-5	11/8/13	10:00	Sed	4							X		Archive all remaining sample volume ↓
CR01-10cm	↓	11.15	↓	5	X			X	X		X	X	
CR02-10cm		11:30		5	X			X	X		X	X	
CR03-10cm		12:00		5	X			X	X		X	X	

Conventionals = TOC, TVS, total solids, NH_4, TS, pore water sulfides, % fines

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Millsap	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 11/8/13 2 pm	Date & Time: 11/8/13 1830	Date & Time:	Date & Time:

ENVIRONMENTAL CHEMISTS

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN64	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Maul Foster & Alongi	Phone: 971 544 2139	Date: 11/8/13	Ice Present? Y
Client Contact: Mike Murray		No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2
Client Project Name: GHHSA			
Client Project #: 0963.01.01	Samplers: MRM/MN		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dioxin/Furan	Benzyl Butyl Phthalate, Pentachlorophenol	Mercury	SMS compounds with marine criteria	TOC	Conventionals (TOC, TVS, Total NH4, TS, PAHs, %fines)	Archive	Salinity in pore water	Notes/Comments
CR06-10cm	11/7/13	12:00	Sed.	8	X	X	X	phenol		X	X		"Conventionals" include: TOC, TVS, total solids, NH4, TS, pore water solids, %fines
CR06-1		12:15		4	X			X	tphg, tplvk		X		Archive all remaining sample volume
CR06-2.5		12:30		8	X			X	tphg, tplvk		X		
CR06-4		12:45		8							X		
CR04-10cm		13:00		8	X	X	X	phenol		X	X		
CR04-1		13:30		3							X		
CR05-10cm	11/8/13	8.25	sed	8	X	X	X	phenol		X	X		
CR05-2.5		8.45		8							X		
CR05-3.5		9:00		2							X		
CR04-2.5		9:40		8							X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Millsap	Printed Name:	Printed Name
	Company: MFA	Company: ARI	Company	Company
	Date & Time: 11/8/13 2:00 pm	Date & Time: 11/8/13 1830	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN64	Turn-around Requested: standard	Page: 2 of 2	
ARI Client Company: Maul Foster + Alongi	Phone: 9715442139	Date: 11/8/13	Ice Present? Y
Client Contact: Mike Murray		No. of Coolers: 3	Cooler Temps: 3.2, 0.4, 5.2
Client Project Name: FHS GHFSA			
Client Project #: 0863.01 01	Samplers: MRM/MN		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: D. oxin/ Furan	Butylbenzyl Phthalate/ Pentachloro Phenol	Mercury	SVOCs compound list/ Mercury	TOC	Conventionals	Archive	Sulfides/ Ammonia/ Solids	Notes/Comments
CR04-5	11/8/13	10:00	Sed	4		phenol				X (NH3)	X		Archive all
CR01-10cm		11.15		5	X			X	X		X	X	remaining
CR02-10cm		11:30		5	X			X	X		X	X	sample
CR03-10cm	↓	12:00	↓	5	X			X	X		X	X	volume ↓

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by (Signature)
	Printed Name: Madi Novak	Printed Name: Jennifer Mills	Printed Name	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 11/8/13 2 pm	Date & Time: 11/8/13 1830	Date & Time.	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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XENCO Laboratories

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client Maul Foster & Alongi Project Name GHH3A

COC No(s): _____ (NA) Delivered by Fed-Ex UPS (Courier) Hand Delivered Other: MC Delivery

Assigned ARI Job No: XN64 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) 3.2 0.4 5.2

Time: 1830

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877452

Cooler Accepted by: JM Date 11/8/13 Time 1830

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other		
Was sufficient ice used (if appropriate)?		NA (YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)		(NA) YES	NO
Were all VOC vials free of air bubbles?		(NA) YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI		(NA)	

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment _____ Split by: _____

Samples Logged by: JM Date. 11/12/13 Time 1240

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By Date.

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

Small → "sm" (< 2 mm)	
Peabubbles → "pb" (2 to < 4 mm)	
Large → "lg" (4 to < 6 mm)	
Headspace → "hs" (> 6 mm)	

XN64 00007

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XQ70
Client: Maul Foster & Alongi
Project Event: 0863.01.01
Project Name: GHHSA

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	CR04-10cm	XQ70A	13-26908	Sediment	11/07/13 13:00	11/08/13 18:30
2.	CR05-10cm	XQ70B	13-26909	Sediment	11/08/13 08:25	11/08/13 18:30
3.	CR05-2.5	XQ70C	13-26910	Sediment	11/08/13 08:45	11/08/13 18:30
4.	CR04-2.5	XQ70D	13-26911	Sediment	11/08/13 09:40	11/08/13 18:30

XQ70 : 00010

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

YQ7Q : QQQ12

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-121013
METHOD BLANK

Lab Sample ID: MB-121013
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 22:31
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	73.6%	2-Fluorobiphenyl	68.8%
d14-p-Terphenyl	96.4%	d4-1,2-Dichlorobenzene	67.6%
d5-Phenol	76.1%	2-Fluorophenol	74.8%
2,4,6-Tribromophenol	88.8%	d4-2-Chlorophenol	73.1%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR04-10cm
SAMPLE

Lab Sample ID: XQ70A
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 14:35
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes

Sample Amount: 2.37 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 80.3%

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**420**	**460**
106-46-7	1,4-Dichlorobenzene	420	< 420 U
100-51-6	Benzyl Alcohol	420	< 420 U
95-50-1	1,2-Dichlorobenzene	420	< 420 U
95-48-7	2-Methylphenol	420	< 420 U
106-44-5	4-Methylphenol	420	< 420 U
105-67-9	2,4-Dimethylphenol	2,100	< 2,100 U
65-85-0	**Benzoic Acid**	**4,200**	**1,700 J**
120-82-1	1,2,4-Trichlorobenzene	420	< 420 U
91-20-3	**Naphthalene**	**420**	**420**
87-68-3	Hexachlorobutadiene	420	< 420 U
91-57-6	2-Methylnaphthalene	420	< 420 U
131-11-3	Dimethylphthalate	420	< 420 U
208-96-8	Acenaphthylene	420	< 420 U
83-32-9	Acenaphthene	420	< 420 U
132-64-9	Dibenzofuran	420	< 420 U
84-66-2	Diethylphthalate	420	< 420 U
86-73-7	Fluorene	420	< 420 U
86-30-6	N-Nitrosodiphenylamine	420	< 420 U
118-74-1	Hexachlorobenzene	420	< 420 U
87-86-5	Pentachlorophenol	2,100	< 2,100 U
85-01-8	**Phenanthrene**	**420**	**320 J**
120-12-7	Anthracene	420	< 420 U
84-74-2	Di-n-Butylphthalate	420	< 420 U
206-44-0	**Fluoranthene**	**420**	**590 Q**
129-00-0	**Pyrene**	**420**	**700**
85-68-7	Butylbenzylphthalate	420	< 420 U
56-55-3	**Benzo(a)anthracene**	**420**	**250 J**
117-81-7	bis(2-Ethylhexyl)phthalate	1,000	< 1,000 U
218-01-9	**Chrysene**	**420**	**530**
117-84-0	Di-n-Octyl phthalate	420	< 420 U
50-32-8	**Benzo(a)pyrene**	**420**	**300 JQ**
193-39-5	Indeno(1,2,3-cd)pyrene	420	< 420 U
53-70-3	Dibenz(a,h)anthracene	420	< 420 U
191-24-2	**Benzo(g,h,i)perylene**	**420**	**230 JQ**
TOTBFA	**Total Benzofluoranthenes**	**840**	**550 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	76.0%	2-Fluorobiphenyl	76.0%
d14-p-Terphenyl	94.0%	d4-1,2-Dichlorobenzene	63.0%
d5-Phenol	80.0%	2-Fluorophenol	74.0%
2,4,6-Tribromophenol	101%	d4-2-Chlorophenol	74.7%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR05-10cm
SAMPLE

Lab Sample ID: XQ70B
LIMS ID: 13-26909
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 15:10
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes

Sample Amount: 4.31 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 73.1%

CAS Number	Analyte	RL	Result	
108-95-2	**Phenol**	**230**	**600**	
106-46-7	**1,4-Dichlorobenzene**	**230**	**1,100**	
100-51-6	Benzyl Alcohol	230	< 230	U
95-50-1	1,2-Dichlorobenzene	230	< 230	U
95-48-7	2-Methylphenol	230	< 230	U
106-44-5	**4-Methylphenol**	**230**	**310**	
105-67-9	2,4-Dimethylphenol	1,200	< 1,200	U
65-85-0	**Benzoic Acid**	**2,300**	**950**	**J**
120-82-1	1,2,4-Trichlorobenzene	230	< 230	U
91-20-3	**Naphthalene**	**230**	**720**	
87-68-3	Hexachlorobutadiene	230	< 230	U
91-57-6	**2-Methylnaphthalene**	**230**	**310**	
131-11-3	Dimethylphthalate	230	< 230	U
208-96-8	**Acenaphthylene**	**230**	**170**	**J**
83-32-9	**Acenaphthene**	**230**	**210**	**J**
132-64-9	**Dibenzofuran**	**230**	**310**	
84-66-2	Diethylphthalate	230	< 230	U
86-73-7	**Fluorene**	**230**	**260**	
86-30-6	N-Nitrosodiphenylamine	230	< 230	U
118-74-1	Hexachlorobenzene	230	< 230	U
87-86-5	Pentachlorophenol	1,200	< 1,200	U
85-01-8	**Phenanthrene**	**230**	**700**	
120-12-7	**Anthracene**	**230**	**230**	
84-74-2	Di-n-Butylphthalate	230	< 230	U
206-44-0	**Fluoranthene**	**230**	**1,300**	**Q**
129-00-0	**Pyrene**	**230**	**1,300**	
85-68-7	Butylbenzylphthalate	230	< 230	U
56-55-3	**Benzo(a)anthracene**	**230**	**390**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**580**	**960**	
218-01-9	**Chrysene**	**230**	**420**	
117-84-0	Di-n-Octyl phthalate	230	< 230	U
50-32-8	**Benzo(a)pyrene**	**230**	**340**	**Q**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**230**	**200**	**JQ**
53-70-3	Dibenz(a,h)anthracene	230	< 230	U
191-24-2	**Benzo(g,h,i)perylene**	**230**	**260**	**Q**
TOTBFA	**Total Benzofluoranthenes**	**460**	**660**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	69.0%	2-Fluorobiphenyl	75.0%
d14-p-Terphenyl	92.0%	d4-1,2-Dichlorobenzene	59.0%
d5-Phenol	76.7%	2-Fluorophenol	68.0%
2,4,6-Tribromophenol	92.0%	d4-2-Chlorophenol	72.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR05-2.5
SAMPLE

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 15:44
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes

Sample Amount: 2.85 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 74.2%

CAS Number	Analyte	RL	Result	
108-95-2	**Phenol**	**350**	**530**	
106-46-7	**1,4-Dichlorobenzene**	**350**	**600**	
100-51-6	Benzyl Alcohol	350	< 350	U
95-50-1	1,2-Dichlorobenzene	350	< 350	U
95-48-7	2-Methylphenol	350	< 350	U
106-44-5	**4-Methylphenol**	**350**	**280**	**J**
105-67-9	2,4-Dimethylphenol	1,800	< 1,800	U
65-85-0	Benzoic Acid	3,500	< 3,500	U
120-82-1	1,2,4-Trichlorobenzene	350	< 350	U
91-20-3	**Naphthalene**	**350**	**440**	
87-68-3	Hexachlorobutadiene	350	< 350	U
91-57-6	2-Methylnaphthalene	350	< 350	U
131-11-3	Dimethylphthalate	350	< 350	U
208-96-8	Acenaphthylene	350	< 350	U
83-32-9	**Acenaphthene**	**350**	**390**	
132-64-9	**Dibenzofuran**	**350**	**230**	**J**
84-66-2	Diethylphthalate	350	< 350	U
86-73-7	**Fluorene**	**350**	**230**	**J**
86-30-6	N-Nitrosodiphenylamine	350	< 350	U
118-74-1	Hexachlorobenzene	350	< 350	U
87-86-5	Pentachlorophenol	1,800	< 1,800	U
85-01-8	**Phenanthrene**	**350**	**470**	
120-12-7	**Anthracene**	**350**	**320**	**J**
84-74-2	Di-n-Butylphthalate	350	< 350	U
206-44-0	**Fluoranthene**	**350**	**3,900**	**Q**
129-00-0	**Pyrene**	**350**	**3,100**	
85-68-7	Butylbenzylphthalate	350	< 350	U
56-55-3	**Benzo(a)anthracene**	**350**	**680**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**880**	**9,400**	
218-01-9	**Chrysene**	**350**	**460**	
117-84-0	Di-n-Octyl phthalate	350	< 350	U
50-32-8	**Benzo(a)pyrene**	**350**	**530**	**Q**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**350**	**190**	**JQ**
53-70-3	Dibenz(a,h)anthracene	350	< 350	U
191-24-2	**Benzo(g,h,i)perylene**	**350**	**300**	**JQ**
TOTBFA	**Total Benzofluoranthenes**	**700**	**810**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.0%	2-Fluorobiphenyl	72.0%
d14-p-Terphenyl	87.0%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	75.3%	2-Fluorophenol	68.0%
2,4,6-Tribromophenol	93.3%	d4-2-Chlorophenol	67.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: CR04-2.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 16:18
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes

Sample Amount: 3.10 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 82.8%

CAS Number	Analyte	RL	Result	
108-95-2	**Phenol**	**320**	**390**	
106-46-7	1,4-Dichlorobenzene	320	< 320	U
100-51-6	Benzyl Alcohol	320	< 320	U
95-50-1	1,2-Dichlorobenzene	320	< 320	U
95-48-7	2-Methylphenol	320	< 320	U
106-44-5	4-Methylphenol	320	< 320	U
105-67-9	2,4-Dimethylphenol	1,600	< 1,600	U
65-85-0	Benzoic Acid	3,200	< 3,200	U
120-82-1	1,2,4-Trichlorobenzene	320	< 320	U
91-20-3	**Naphthalene**	**320**	**340**	
87-68-3	Hexachlorobutadiene	320	< 320	U
91-57-6	2-Methylnaphthalene	320	< 320	U
131-11-3	Dimethylphthalate	320	< 320	U
208-96-8	Acenaphthylene	320	< 320	U
83-32-9	**Acenaphthene**	**320**	**180**	**J**
132-64-9	**Dibenzofuran**	**320**	**210**	**J**
84-66-2	Diethylphthalate	320	< 320	U
86-73-7	**Fluorene**	**320**	**180**	**J**
86-30-6	N-Nitrosodiphenylamine	320	< 320	U
118-74-1	Hexachlorobenzene	320	< 320	U
87-86-5	Pentachlorophenol	1,600	< 1,600	U
85-01-8	**Phenanthrene**	**320**	**370**	
120-12-7	**Anthracene**	**320**	**290**	**J**
84-74-2	Di-n-Butylphthalate	320	< 320	U
206-44-0	**Fluoranthene**	**320**	**2,200**	**Q**
129-00-0	**Pyrene**	**320**	**1,800**	
85-68-7	Butylbenzylphthalate	320	< 320	U
56-55-3	**Benzo(a)anthracene**	**320**	**640**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**810**	**870**	
218-01-9	**Chrysene**	**320**	**940**	
117-84-0	Di-n-Octyl phthalate	320	< 320	U
50-32-8	**Benzo(a)pyrene**	**320**	**680**	**Q**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**320**	**480**	**Q**
53-70-3	Dibenz(a,h)anthracene	320	< 320	U
191-24-2	**Benzo(g,h,i)perylene**	**320**	**660**	**Q**
TOTBFA	**Total Benzofluoranthenes**	**640**	**1,700**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	68.0%	2-Fluorobiphenyl	70.0%
d14-p-Terphenyl	85.0%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	76.0%	2-Fluorophenol	67.3%
2,4,6-Tribromophenol	90.7%	d4-2-Chlorophenol	71.3%

XQ70:00019

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-121013	73.6%	68.8%	96.4%	67.6%	76.1%	74.8%	88.8%	73.1%	0
LCS-121013	72.8%	69.0%	86.0%	64.4%	76.9%	69.7%	89.1%	69.7%	0
CR04-10cm	76.0%	76.0%	94.0%	63.0%	80.0%	74.0%	101%	74.7%	0
CR05-10cm	69.0%	75.0%	92.0%	59.0%	76.7%	68.0%	92.0%	72.0%	0
CR05-2.5	71.0%	72.0%	87.0%	58.0%	75.3%	68.0%	93.3%	67.3%	0
CR04-2.5	68.0%	70.0%	85.0%	58.0%	76.0%	67.3%	90.7%	71.3%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(33-120)	(30-120)
(FBP) = 2-Fluorobiphenyl	(35-120)	(35-120)
(TPH) = d14-p-Terphenyl	(42-124)	(37-120)
(DCB) = d4-1,2-Dichlorobenzene	(37-120)	(32-120)
(PHL) = d5-Phenol	(32-120)	(29-120)
(2FP) = 2-Fluorophenol	(32-120)	(27-120)
(TBP) = 2,4,6-Tribromophenol	(23-133)	(24-134)
(2CP) = d4-2-Chlorophenol	(36-120)	(31-120)

Prep Method: SW3546
Log Number Range: 13-26908 to 13-26911

FORM-II SW8270

XQ70 : 00019

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-121013
LAB CONTROL

Lab Sample ID: LCS-121013
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 23:05
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	409 Q	500	81.8%
1,4-Dichlorobenzene	362	500	72.4%
Benzyl Alcohol	443	500	88.6%
1,2-Dichlorobenzene	359	500	71.8%
2-Methylphenol	347 Q	500	69.4%
4-Methylphenol	704	1000	70.4%
2,4-Dimethylphenol	1030	1500	68.7%
Benzoic Acid	1750	2750	63.6%
1,2,4-Trichlorobenzene	359	500	71.8%
Naphthalene	349	500	69.8%
Hexachlorobutadiene	346	500	69.2%
2-Methylnaphthalene	384	500	76.8%
Dimethylphthalate	440	500	88.0%
Acenaphthylene	371	500	74.2%
Acenaphthene	369	500	73.8%
Dibenzofuran	371	500	74.2%
Diethylphthalate	465	500	93.0%
Fluorene	402	500	80.4%
N-Nitrosodiphenylamine	497	500	99.4%
Hexachlorobenzene	431	500	86.2%
Pentachlorophenol	1260	1500	84.0%
Phenanthrene	418	500	83.6%
Anthracene	420	500	84.0%
Di-n-Butylphthalate	499	500	99.8%
Fluoranthene	487	500	97.4%
Pyrene	451	500	90.2%
Butylbenzylphthalate	538	500	108%
Benzo(a)anthracene	449	500	89.8%
bis(2-Ethylhexyl)phthalate	453	500	90.6%
Chrysene	405	500	81.0%
Di-n-Octyl phthalate	411	500	82.2%
Benzo(a)pyrene	473 Q	500	94.6%
Indeno(1,2,3-cd)pyrene	326	500	65.2%
Dibenz(a,h)anthracene	239	500	47.8%

XQ70 : 00020

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS

Sample ID: LCS-121013
LAB CONTROL

Lab Sample ID: LCS-121013
LIMS ID: 13-26908
Matrix: Sediment
Date Analyzed: 12/16/13 23:05

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	298 Q	500	59.6%
Total Benzofluoranthenes	804	1000	80.4%

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.8%
2-Fluorobiphenyl	69.0%
d14-p-Terphenyl	86.0%
d4-1,2-Dichlorobenzene	64.4%
d5-Phenol	76.9%
2-Fluorophenol	69.7%
2,4,6-Tribromophenol	89.1%
d4-2-Chlorophenol	69.7%

Reported in µg/kg (ppb)

XQ70 : 00021

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt14.i Injection Date: 16-DEC-2013 14:35
Lab File ID: cc1216.d Init. Cal. Date(s): 11-DEC-2013 11-DEC-2013
Analysis Type: Init. Cal. Times: 13:42 18:15
Lab Sample ID: CC1216 Quant Type: ISTD
Method: /chem3/nt14.i/20131216.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.17428	1.24341	1.24341	0.010	5.88625	20.00000	Averaged	
$ 2 Phenol-d5	1.53259	1.86495	1.86495	0.010	21.68632	20.00000	Averaged	<-
3 Phenol	1.72460	2.28443	2.28443	0.100	32.46149	20.00000	Averaged	<-
$ 5 2-Chlorophenol-d4	1.26113	1.48243	1.48243	0.010	17.54756	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.21185	1.36504	1.36504	0.700	12.64150	20.00000	Averaged	
6 2-Chlorophenol	1.39571	1.58374	1.58374	0.800	13.47235	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.35866	1.39327	1.39327	0.010	2.54760	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.37673	1.47273	1.47273	0.010	6.97294	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.91055	0.92994	0.92994	0.010	2.12977	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.30836	1.39328	1.39328	0.010	6.49053	20.00000	Averaged	
11 Benzyl alcohol	0.71262	0.71605	0.71605	0.010	0.48076	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	0.41510	0.44252	0.44252	0.010	6.60507	20.00000	Averaged	
13 2-Methylphenol	1.28565	1.63760	1.63760	0.700	27.37490	20.00000	Averaged	<-
17 Hexachloroethane	0.50480	0.58400	0.58400	0.300	15.68841	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.82009	0.92258	0.92258	0.500	12.49799	20.00000	Averaged	
15 4-Methylphenol	1.32235	1.52759	1.52759	0.600	15.52060	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.34376	0.36571	0.36571	0.010	6.38390	20.00000	Averaged	
19 Nitrobenzene	0.31920	0.34108	0.34108	0.200	6.85376	20.00000	Averaged	
20 Isophorone	0.53787	0.62730	0.62730	0.300	16.62654	20.00000	Averaged	
21 2-Nitrophenol	0.17764	0.20043	0.20043	0.100	12.83152	20.00000	Averaged	
22 2,4-Dimethylphenol	0.34055	0.33896	0.33896	0.200	-0.46801	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.36439	0.39087	0.39087	0.050	7.26782	20.00000	Averaged	
24 Benzoic acid	22.13133	20.00000	0.29393	0.010	10.65666	20.00000	Quadratic	
25 2,4-Dichlorophenol	0.30590	0.29214	0.29214	0.100	-4.49796	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.28701	0.28540	0.28540	0.010	-0.56085	20.00000	Averaged	
28 Naphthalene	0.97655	0.91734	0.91734	0.100	-6.06334	20.00000	Averaged	
29 4-Chloroaniline	0.35123	0.35058	0.35058	0.010	-0.18568	20.00000	Averaged	
30 Hexachlorobutadiene	0.15785	0.14396	0.14396	0.010	-8.79813	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.27785	0.31047	0.31047	0.200	11.74054	20.00000	Averaged	
32 2-Methylnaphthalene	0.60064	0.65374	0.65374	0.300	8.84080	20.00000	Averaged	
33 Hexachlorocyclopentadiene	0.28573	0.28156	0.28156	0.001	-1.46152	20.00000	Averaged	
34 2,4,6-Trichlorophenol	0.33472	0.33706	0.33706	0.200	0.69917	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.34791	0.37941	0.37941	0.200	9.05304	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.17682	1.17950	1.17950	0.010	0.22809	20.00000	Averaged	
37 2-Chloronaphthalene	0.91423	0.95716	0.95716	0.700	4.69518	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt14.i Injection Date: 16-DEC-2013 14:35
Lab File ID: cc1216.d Init. Cal. Date(s): 11-DEC-2013 11-DEC-2013
Analysis Type: Init. Cal. Times: 13:42 18:15
Lab Sample ID: CC1216 Quant Type: ISTD
Method: /chem3/nt14.i/20131216.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.24954	0.32129	0.32129	0.010	28.75471	20.00000	Averaged	<-
39 Dimethylphthalate	1.02784	0.99658	0.99658	0.010	-3.04148	20.00000	Averaged	
40 Acenaphthylene	1.49257	1.50210	1.50210	0.900	0.63883	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.21189	0.22920	0.22920	0.100	8.16670	20.00000	Averaged	
43 3-Nitroaniline	0.24052	0.31026	0.31026	0.010	28.99449	20.00000	Averaged	<-
44 Acenaphthene	0.98795	0.99989	0.99989	0.100	1.20896	20.00000	Averaged	
45 2,4-Dinitrophenol	23.16297	20.00000	0.20780	0.030	15.81487	20.00000	Quadratic	
46 Dibenzofuran	1.35835	1.36137	1.36137	0.800	0.22181	20.00000	Averaged	
47 4-Nitrophenol	12.21840	10.00000	0.18571	0.010	22.18400	20.00000	Quadratic	<-
48 2,4-Dinitrotoluene	0.28642	0.34410	0.34410	0.200	20.13907	20.00000	Averaged	<-
50 Diethylphthalate	1.04034	1.11819	1.11819	0.010	7.48333	20.00000	Averaged	
49 Fluorene	1.11381	1.19567	1.19567	0.100	7.34932	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.52797	0.55611	0.55611	0.100	5.33073	20.00000	Averaged	
52 4-Nitroaniline	0.23548	0.30333	0.30333	0.010	28.80928	20.00000	Averaged	<-
53 4,6-Dinitro-2-methylphenol	21.44275	20.00000	0.15670	0.001	7.21377	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.45731	0.48842	0.48842	0.010	6.80253	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.14057	0.15699	0.15699	0.010	11.67677	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.17470	0.17810	0.17810	0.100	1.94559	20.00000	Averaged	
57 Hexachlorobenzene	0.18922	0.19402	0.19402	0.100	2.53893	20.00000	Averaged	
58 Pentachlorophenol	0.13759	0.15143	0.15143	0.010	10.06242	20.00000	Averaged	
60 Phenanthrene	0.98991	1.00125	1.00125	0.700	1.14616	20.00000	Averaged	
61 Anthracene	0.93027	1.00068	1.00068	0.700	7.56870	20.00000	Averaged	
62 Carbazole	0.78633	0.80297	0.80297	0.010	2.11592	20.00000	Averaged	
63 Di-n-butylphthalate	4.97069	5.00000	0.99244	0.010	-0.58611	20.00000	Quadratic	
64 Fluoranthene	0.96832	1.02085	1.02085	0.600	5.42503	20.00000	Averaged	
65 Pyrene	1.05920	1.13312	1.13312	0.600	6.97928	20.00000	Averaged	
$ 66 Terphenyl-d14	0.54772	0.60324	0.60324	0.010	10.13620	20.00000	Averaged	
67 Butylbenzylphthalate	5.99504	5.00000	0.48742	0.010	19.90087	20.00000	Quadratic	
68 Benzo(a)anthracene	0.96296	1.05793	1.05793	0.700	9.86156	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.37653	0.50746	0.50746	0.010	34.77172	20.00000	Averaged	<-
71 Chrysene	0.96364	1.00119	1.00119	0.700	3.89666	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	5.09548	5.00000	0.48263	0.010	1.90964	20.00000	Quadratic	
73 Di-n-octylphthalate	0.90626	0.85470	0.85470	0.010	-5.68872	20.00000	Averaged	
74 Benzo(b)fluoranthene	0.95807	1.16281	1.16281	0.700	21.37041	20.00000	Averaged	<-
75 Benzo(k)fluoranthene	1.08338	1.05983	1.05983	0.700	-2.17316	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt14.i Injection Date: 19-DEC-2013 13:20
Lab File ID: cc1219.d Init. Cal. Date(s): 11-DEC-2013 11-DEC-2013
Analysis Type: Init. Cal. Times: 13:42 18:15
Lab Sample ID: CC1219 Quant Type: ISTD
Method: /chem3/nt14.i/20131219.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.17428	1.25110	1.25110	0.010	6.54152	20.00000	Averaged	
$ 2 Phenol-d5	1.53259	1.68197	1.68197	0.010	9.74747	20.00000	Averaged	
3 Phenol	1.72460	2.06212	2.06212	0.100	19.57082	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.26113	1.35866	1.35866	0.010	7.73355	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.35866	1.37381	1.37381	0.010	1.11576	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.37673	1.40685	1.40685	0.010	2.18783	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.91055	0.90961	0.90961	0.010	-0.10237	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.30836	1.33676	1.33676	0.010	2.17026	20.00000	Averaged	
11 Benzyl alcohol	0.71262	0.60029	0.60029	0.010	-15.76266	20.00000	Averaged	
13 2-Methylphenol	1.28565	1.38979	1.38979	0.700	8.10015	20.00000	Averaged	
17 Hexachloroethane	0.50480	0.54043	0.54043	0.300	7.05796	20.00000	Averaged	
15 4-Methylphenol	1.32235	1.55612	1.55612	0.600	17.67807	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.34376	0.43301	0.43301	0.010	25.96305	20.00000	Averaged	<-
22 2,4-Dimethylphenol	0.34055	0.41148	0.41148	0.200	20.82758	20.00000	Averaged	<-
24 Benzoic acid	22.66401	20.00000	0.30132	0.010	13.32003	20.00000	Quadratic	
26 1,2,4-Trichlorobenzene	0.28701	0.28579	0.28579	0.010	-0.42499	20.00000	Averaged	
28 Naphthalene	0.97655	0.99956	0.99956	0.100	2.35549	20.00000	Averaged	
30 Hexachlorobutadiene	0.15785	0.16150	0.16150	0.010	2.31186	20.00000	Averaged	
32 2-Methylnaphthalene	0.60064	0.63776	0.63776	0.300	6.17978	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.17682	1.14344	1.14344	0.010	-2.83614	20.00000	Averaged	
39 Dimethylphthalate	1.02784	1.08929	1.08929	0.010	5.97840	20.00000	Averaged	
40 Acenaphthylene	1.49257	1.66949	1.66949	0.900	11.85318	20.00000	Averaged	
44 Acenaphthene	0.98795	1.02363	1.02363	0.100	3.61189	20.00000	Averaged	
46 Dibenzofuran	1.35835	1.35620	1.35620	0.800	-0.15867	20.00000	Averaged	
50 Diethylphthalate	1.04034	1.08344	1.08344	0.010	4.14230	20.00000	Averaged	
49 Fluorene	1.11381	1.13689	1.13689	0.100	2.07158	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.45731	0.49072	0.49072	0.010	7.30647	20.00000	Averaged	
$ S5 2,4,6-Tribromophenol	0.14057	0.15985	0.15985	0.010	13.71325	20.00000	Averaged	
57 Hexachlorobenzene	0.18922	0.18957	0.18957	0.100	0.18562	20.00000	Averaged	
58 Pentachlorophenol	0.13759	0.14640	0.14640	0.010	6.40405	20.00000	Averaged	
60 Phenanthrene	0.98991	1.01301	1.01301	0.700	2.33394	20.00000	Averaged	
61 Anthracene	0.93027	1.04290	1.04290	0.700	12.10716	20.00000	Averaged	
62 Carbazole	0.78633	0.91010	0.91010	0.010	15.74008	20.00000	Averaged	
63 Di-n-butylphthalate	5.99374	5.00000	1.20308	0.010	19.87484	20.00000	Quadratic	
64 Fluoranthene	0.96832	1.23153	1.23153	0.600	27.18196	20.00000	Averaged	<-

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt14.i Injection Date: 19-DEC-2013 13:20
Lab File ID: cc1219.d Init. Cal. Date(s): 11-DEC-2013 11-DEC-2013
Analysis Type: Init. Cal. Times: 13:42 18:15
Lab Sample ID: CC1219 Quant Type: ISTD
Method: /chem3/nt14.i/20131219.b/ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
65 Pyrene	1.05920	1.21808	1.21808	0.600	15.00059	20.00000	Averaged	
$ 66 Terphenyl-d14	0.54772	0.60372	0.60372	0.010	10.22380	20.00000	Averaged	
67 Butylbenzylphthalate	5.93567	5.00000	0.48241	0.010	18.71334	20.00000	Quadratic	
68 Benzo(a)anthracene	0.96296	1.03775	1.03775	0.700	7.76626	20.00000	Averaged	
71 Chrysene	0.96364	0.99857	0.99857	0.700	3.62404	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	5.06179	5.00000	0.47942	0.010	1.23574	20.00000	Quadratic	
73 Di-n-octylphthalate	0.90626	0.84799	0.84799	0.010	-6.42947	20.00000	Averaged	
76 Benzo(a)pyrene	0.75649	0.91728	0.91728	0.700	21.25560	20.00000	Averaged	<-
78 Indeno(1,2,3-cd)pyrene	6.32074	5.00000	1.23958	0.500	26.41483	20.00000	Quadratic	<-
79 Dibenzo(a,h)anthracene	6.52311	5.00000	1.00184	0.400	30.46223	20.00000	Quadratic	<-
80 Benzo(g,h,i)perylene	0.74846	0.97758	0.97758	0.500	30.61294	20.00000	Averaged	<-
105 1-methylnaphthalene	0.55159	0.58695	0.58695	0.010	6.41015	20.00000	Averaged	
187 Total Benzofluoranthenes	0.94535	1.00637	1.00637	0.010	6.45522	20.00000	Averaged	
98 Retene	++++	0.00018	0.00018	0.010	++++	20.00000	Averaged	<-
120 2,3,4,6-Tetrachlorophenol	0.24889	0.28706	0.28706	0.010	15.33455	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-121013**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-121013
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 22:31
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
106-46-7	1,4-Dichlorobenzene	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0 U
118-74-1	Hexachlorobenzene	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	5.0	< 5.0 U
131-11-3	Dimethylphthalate	5.0	< 5.0 U
85-68-7	Butylbenzylphthalate	5.0	< 5.0 U
95-48-7	2-Methylphenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	25	< 25 U
86-30-6	N-Nitrosodiphenylamine	5.0	< 5.0 U
100-51-6	Benzyl Alcohol	20	< 20 U
87-86-5	Pentachlorophenol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	5.0	< 5.0 U
541-73-1	1,3-Dichlorobenzene	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	73.6%
d14-p-Terphenyl	93.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR04-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XQ70A
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized: TMM
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 14:35
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 2.37 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 80.3%

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**100**	**120 Q**
106-46-7	1,4-Dichlorobenzene	100	< 100 U
120-82-1	1,2,4-Trichlorobenzene	100	< 100 U
118-74-1	Hexachlorobenzene	100	< 100 U
87-68-3	Hexachlorobutadiene	100	< 100 U
131-11-3	Dimethylphthalate	100	< 100 U
85-68-7	Butylbenzylphthalate	100	< 100 U
95-48-7	2-Methylphenol	100	< 100 U
105-67-9	2,4-Dimethylphenol	530	< 530 U
86-30-6	N-Nitrosodiphenylamine	100	< 100 U
100-51-6	Benzyl Alcohol	420	< 420 U
87-86-5	**Pentachlorophenol**	**420**	**270 J**
95-50-1	1,2-Dichlorobenzene	100	< 100 U
541-73-1	1,3-Dichlorobenzene	100	< 100 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	72.0%
d14-p-Terphenyl	95.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR05-10cm**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XQ70B
LIMS ID: 13-26909
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 15:10
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 4.31 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 73.1%

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**58**	**94 Q**
106-46-7	**1,4-Dichlorobenzene**	**58**	**1,000**
120-82-1	**1,2,4-Trichlorobenzene**	**58**	**43 J**
118-74-1	Hexachlorobenzene	58	< 58 U
87-68-3	Hexachlorobutadiene	58	< 58 U
131-11-3	Dimethylphthalate	58	< 58 U
85-68-7	Butylbenzylphthalate	58	< 58 U
95-48-7	**2-Methylphenol**	**58**	**44 J**
105-67-9	2,4-Dimethylphenol	290	< 290 U
86-30-6	N-Nitrosodiphenylamine	58	< 58 U
100-51-6	Benzyl Alcohol	230	< 230 U
87-86-5	Pentachlorophenol	230	< 230 U
95-50-1	1,2-Dichlorobenzene	58	< 58 U
541-73-1	**1,3-Dichlorobenzene**	**58**	**620**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	66.0%
d14-p-Terphenyl	96.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR05-2.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 15:44
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 2.85 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 74.2%

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**88**	**190 Q**
106-46-7	**1,4-Dichlorobenzene**	**88**	**540**
120-82-1	**1,2,4-Trichlorobenzene**	**88**	**74 J**
118-74-1	Hexachlorobenzene	88	< 88 U
87-68-3	Hexachlorobutadiene	88	< 88 U
131-11-3	Dimethylphthalate	88	< 88 U
85-68-7	Butylbenzylphthalate	88	< 88 U
95-48-7	2-Methylphenol	88	< 88 U
105-67-9	2,4-Dimethylphenol	440	< 440 U
86-30-6	N-Nitrosodiphenylamine	88	< 88 U
100-51-6	Benzyl Alcohol	350	< 350 U
87-86-5	Pentachlorophenol	350	< 350 U
95-50-1	1,2-Dichlorobenzene	88	< 88 U
541-73-1	**1,3-Dichlorobenzene**	**88**	**280**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	66.0%
d14-p-Terphenyl	92.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: CR04-2.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/19/13 16:18
Instrument/Analyst: NT14/YZ
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 3.10 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 82.8%

CAS Number	Analyte	LOQ	Result
53-70-3	**Dibenz(a,h)anthracene**	**81**	**360 Q**
106-46-7	1,4-Dichlorobenzene	81	< 81 U
120-82-1	1,2,4-Trichlorobenzene	81	< 81 U
118-74-1	Hexachlorobenzene	81	< 81 U
87-68-3	Hexachlorobutadiene	81	< 81 U
131-11-3	Dimethylphthalate	81	< 81 U
85-68-7	Butylbenzylphthalate	81	< 81 U
95-48-7	2-Methylphenol	81	< 81 U
105-67-9	2,4-Dimethylphenol	400	< 400 U
86-30-6	N-Nitrosodiphenylamine	81	< 81 U
100-51-6	Benzyl Alcohol	320	< 320 U
87-86-5	**Pentachlorophenol**	**320**	**400**
95-50-1	1,2-Dichlorobenzene	81	< 81 U
541-73-1	1,3-Dichlorobenzene	81	< 81 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery	
2-Fluorophenol	66.7%
d14-p-Terphenyl	88.0%

XQ70 : 00028

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	FPH	TER	TOT OUT
MB-121013	73.6%	93.0%	0
LCS-121013	67.3%	85.0%	0
CR04-10cm	72.0%	95.0%	0
CR05-10cm	66.0%	96.0%	0
CR05-2.5	66.0%	92.0%	0
CR04-2.5	66.7%	88.0%	0

	LCS/MB LIMITS	QC LIMITS
(FPH) = 2-Fluorophenol	(32-120)	(27-120)
(TER) = d14-p-Terphenyl	(42-124)	(37-120)

Prep Method: SW3546
Log Number Range: 13-26908 to 13-26911

FORM-II SIM SW8270

XQ70 : 00091

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: LCS-121013**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-121013
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized:
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
Event: 0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed LCS: 12/16/13 23:05
Instrument/Analyst LCS: NT14/YZ

Sample Amount LCS: 10.00 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Dibenz(a,h)anthracene	277 Q	500	55.4%
1,4-Dichlorobenzene	321	500	64.2%
1,2,4-Trichlorobenzene	324	500	64.8%
Hexachlorobenzene	397	500	79.4%
Hexachlorobutadiene	311	500	62.2%
Dimethylphthalate	431	500	86.2%
Butylbenzylphthalate	497 Q	500	99.4%
2-Methylphenol	351	500	70.2%
2,4-Dimethylphenol	1030	1500	68.7%
N-Nitrosodiphenylamine	539	500	108%
Benzyl Alcohol	472	500	94.4%
Pentachlorophenol	1060	1500	70.7%
1,2-Dichlorobenzene	327	500	65.4%
1,3-Dichlorobenzene	325	500	65.0%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorophenol	67.3%
d14-p-Terphenyl	85.0%

XQ70 : 00032

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt14.i Injection Date: 16-DEC-2013 15:10
Lab File ID: cc1216a.d Init. Cal. Date(s): 11-DEC-2013 11-DEC-2013
Analysis Type: Init. Cal. Times: 13:42 18:15
Lab Sample ID: CC1216A Quant Type: ISTD
Method: /chem3/nt14.i/20131216.b/SIM.b/SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	CCAL RRF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.15354	1.35715	1.35715	0.010	17.65056	20.00000	Averaged	
3 Phenol	1.64342	2.01076	2.01076	0.010	22.35191	20.00000	Averaged	<-
7 1,3-Dichlorobenzene	1.48921	1.36005	1.36005	0.010	-8.67321	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.53576	1.39881	1.39881	0.010	-8.91741	20.00000	Averaged	
11 Benzyl alcohol	0.73455	0.69021	0.69021	0.010	-6.03607	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44417	1.35069	1.35069	0.010	-6.47300	20.00000	Averaged	
13 2-Methylphenol	1.16447	1.32247	1.32247	0.010	13.56828	20.00000	Averaged	
15 4-Methylphenol	1.17598	1.42684	1.42684	0.010	21.33128	20.00000	Averaged	<-
16 N-Nitroso-di-n-propylamine	0.67964	0.81381	0.81381	0.050	19.74181	20.00000	Averaged	
22 2,4-Dimethylphenol	0.31095	0.36393	0.36393	0.010	17.03836	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.32381	0.31910	0.31910	0.010	-1.45706	20.00000	Averaged	
30 Hexachlorobutadiene	0.18925	0.18577	0.18577	0.010	-1.83458	20.00000	Averaged	
39 Dimethylphthalate	1.08013	1.09660	1.09660	0.010	1.52449	20.00000	Averaged	
50 Diethylphthalate	1.08190	1.20458	1.20458	0.010	11.33938	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.44728	0.41444	0.41444	0.010	-7.34177	20.00000	Averaged	
57 Hexachlorobenzene	0.23567	0.20797	0.20797	0.010	-11.75525	20.00000	Averaged	
58 Pentachlorophenol	1.96223	2.00000	0.13704	0.005	-1.88854	20.00000	Quadratic	
$ 66 Terphenyl-d14	0.33250	0.37945	0.37945	0.010	14.12095	20.00000	Averaged	
67 Butylbenzylphthalate	1.50861	1.00000	0.44448	0.010	50.86076	20.00000	Quadratic	<-
79 Dibenzo(a,h)anthracene	1.28459	1.00000	0.85513	0.010	28.45890	20.00000	Quadratic	<-
90 N-Nitrosodimethylamine	0.71021	0.74780	0.74780	0.010	5.29331	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt14.i Injection Date: 19-DEC-2013 13:54
Lab File ID: cc1219a.d Init. Cal. Date(s): 11-DEC-2013 11-DEC-2013
Analysis Type: Init. Cal. Times: 13:42 18:15
Lab Sample ID: CC1219A Quant Type: ISTD
Method: /chem3/nt14.i/20131219.b/SIM.b/SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	CCAL RRF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.15354	1.24037	1.24037	0.010	7.52656	20.00000	Averaged	
3 Phenol	1.64342	2.06332	2.06332	0.010	25.55060	20.00000	Averaged	<-
7 1,3-Dichlorobenzene	1.48921	1.38703	1.38703	0.010	-6.86159	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.53576	1.41163	1.41163	0.010	-8.08209	20.00000	Averaged	
11 Benzyl alcohol	0.73455	0.59642	0.59642	0.010	-18.80423	20.00000	Averaged	
12 1,2-Dichlorobenzene	1.44417	1.34299	1.34299	0.010	-7.00601	20.00000	Averaged	
13 2-Methylphenol	1.16447	1.37427	1.37427	0.010	18.01630	20.00000	Averaged	
15 4-Methylphenol	1.17598	1.41000	1.41000	0.010	19.89964	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	0.67964	0.78820	0.78820	0.050	15.97388	20.00000	Averaged	
22 2,4-Dimethylphenol	0.31095	0.33793	0.33793	0.010	8.67849	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.32381	0.29286	0.29286	0.010	-9.55764	20.00000	Averaged	
30 Hexachlorobutadiene	0.18925	0.17622	0.17622	0.010	-6.88463	20.00000	Averaged	
39 Dimethylphthalate	1.08013	1.09935	1.09935	0.010	1.77956	20.00000	Averaged	
50 Diethylphthalate	1.08190	1.18151	1.18151	0.010	9.20739	20.00000	Averaged	
54 N-Nitrosodiphenylamine	0.44728	0.47933	0.47933	0.010	7.16631	20.00000	Averaged	
57 Hexachlorobenzene	0.23567	0.21436	0.21436	0.010	-9.04196	20.00000	Averaged	
58 Pentachlorophenol	1.87741	2.00000	0.13089	0.005	-6.12946	20.00000	Quadratic	
$ 66 Terphenyl-d14	0.33250	0.37094	0.37094	0.010	11.56153	20.00000	Averaged	
67 Butylbenzylphthalate	1.39203	1.00000	0.40762	0.010	39.20322	20.00000	Quadratic	<-
79 Dibenzo(a,h)anthracene	1.42897	1.00000	0.95782	0.010	42.89718	20.00000	Quadratic	<-
90 N-Nitrosodimethylamine	0.71021	0.81237	0.81237	0.010	14.38476	20.00000	Averaged	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-121013**

Lab Sample ID: MB-121013
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 20:08
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result	
2,3,7,8-TCDF		0.65-0.89	0.0320	1.00	< 0.0320	U
2,3,7,8-TCDD	0.11	0.65-0.89		1.00	0.162	JEMPC
1,2,3,7,8-PeCDF		1.32-1.78	0.0340	1.00	< 0.0340	U
2,3,4,7,8-PeCDF		1.32-1.78	0.0420	1.00	< 0.0420	U
1,2,3,7,8-PeCDD	0.80	1.32-1.78		1.00	0.0460	JEMPC
1,2,3,4,7,8-HxCDF		1.05-1.43	0.0360	1.00	< 0.0360	U
1,2,3,6,7,8-HxCDF		1.05-1.43	0.0320	1.00	< 0.0320	U
2,3,4,6,7,8-HxCDF		1.05-1.43	0.0380	1.00	< 0.0380	U
1,2,3,7,8,9-HxCDF		1.05-1.43	0.0520	1.00	< 0.0520	U
1,2,3,4,7,8-HxCDD	1.93	1.05-1.43		1.00	0.0620	JEMPC
1,2,3,6,7,8-HxCDD		1.05-1.43	0.0740	1.00	< 0.0740	U
1,2,3,7,8,9-HxCDD	1.07	1.05-1.43		1.00	0.104	J
1,2,3,4,6,7,8-HpCDF		0.88-1.20	0.0900	1.00	< 0.0900	U
1,2,3,4,7,8,9-HpCDF		0.88-1.20	0.144	1.00	< 0.144	U
1,2,3,4,6,7,8-HpCDD	1.17	0.88-1.20		1.00	1.44	
OCDF		0.76-1.02	0.0780	2.00	< 0.0780	U
OCDD	0.84	0.76-1.02		2.00	8.80	

Homologue Group	EDL	RL	Result	
Total TCDF	0.0320	1.00	< 0.0320	U
Total TCDD		1.00	0.305	EMPC
Total PeCDF	0.0420	2.00	< 0.0420	U
Total PeCDD		1.00	0.113	EMPC
Total HxCDF	0.0520	2.00	< 0.0520	U
Total HxCDD		2.00	1.48	EMPC
Total HpCDF	0.144	2.00	< 0.144	U
Total HpCDD		2.00	3.95	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.24

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.26

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: MB-121013**

Lab Sample ID: MB-121013
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 20:08
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	88.8	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	90.4	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	97.4	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	74.6	21-178	
13C-1,2,3,7,8-PeCDD	1.59	1.32-1.78	88.6	25-181	
13C-1,2,3,4,7,8-HxCDF	0.51	0.43-0.59	77.0	26-152	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	81.9	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	76.8	28-136	
13C-1,2,3,7,8,9-HxCDF	0.52	0.43-0.59	69.4	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	92.8	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	85.8	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	69.0	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.44	0.37-0.51	71.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	93.6	23-140	
13C-OCDD	0.88	0.76-1.02	79.3	17-157	
37Cl4-2,3,7,8-TCDD			95.2	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-121013**

Lab Sample ID: OPR-121013
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 21:01
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	RL	Result
2,3,7,8-TCDF	0.67	0.65-0.89	1.00	24.0
2,3,7,8-TCDD	0.77	0.65-0.89	1.00	22.3
1,2,3,7,8-PeCDF	1.44	1.32-1.78	1.00	116
2,3,4,7,8-PeCDF	1.44	1.32-1.78	1.00	112
1,2,3,7,8-PeCDD	1.54	1.32-1.78	1.00	110
1,2,3,4,7,8-HxCDF	1.15	1.05-1.43	1.00	111
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43	1.00	113
2,3,4,6,7,8-HxCDF	1.17	1.05-1.43	1.00	114
1,2,3,7,8,9-HxCDF	1.16	1.05-1.43	1.00	111
1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	1.00	113
1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	1.00	111
1,2,3,7,8,9-HxCDD	1.25	1.05-1.43	1.00	117
1,2,3,4,6,7,8-HpCDF	0.98	0.88-1.20	1.00	155
1,2,3,4,7,8,9-HpCDF	0.98	0.88-1.20	1.00	111
1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	1.00	113
OCDF	0.83	0.76-1.02	2.00	179
OCDD	0.90	0.76-1.02	2.00	236

Homologue Group	EDL	RL	Result	
Total TCDF		1.00	29.9	EMPC
Total TCDD		1.00	23.2	EMPC
Total PeCDF		2.00	247	EMPC
Total PeCDD		1.00	112	EMPC
Total HxCDF		2.00	455	EMPC
Total HxCDD		2.00	343	EMPC
Total HpCDF		2.00	267	EMPC
Total HpCDD		2.00	117	

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-121013**

Lab Sample ID: OPR-121013
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 21:01
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	86.7	22-152	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	86.8	20-175	
13C-1,2,3,7,8-PeCDF	1.59	1.32-1.78	98.4	21-192	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	81.7	13-328	
13C-1,2,3,7,8-PeCDD	1.57	1.32-1.78	104	21-227	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	75.8	19-202	
13C-1,2,3,6,7,8-HxCDF	0.52	0.43-0.59	82.2	21-159	
13C-2,3,4,6,7,8-HxCDF	0.53	0.43-0.59	76.2	22-176	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	71.6	17-205	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	93.2	21-193	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	85.8	25-163	
13C-1,2,3,4,6,7,8-HpCDF	0.45	0.37-0.51	69.4	21-158	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	96.4	20-186	
13C-1,2,3,4,6,7,8-HpCDD	1.04	0.88-1.20	94.5	26-166	
13C-OCDD	0.88	0.76-1.02	81.4	13-198	
37Cl4-2,3,7,8-TCDD			90.1	31-191	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: OPR-121013**
Page 1 of 1

Lab Sample ID: OPR-121013
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 21:01
Instrument/Analyst: AS1/PK

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	OPR	Spiked	Recovery	Limits
2,3,7,8-TCDF	24.0	20.0	120	75-158
2,3,7,8-TCDD	22.3	20.0	112	67-158
1,2,3,7,8-PeCDF	116	100	116	80-134
2,3,4,7,8-PeCDF	112	100	112	68-160
1,2,3,7,8-PeCDD	110	100	110	70-142
1,2,3,4,7,8-HxCDF	111	100	111	72-134
1,2,3,6,7,8-HxCDF	113	100	113	84-130
2,3,4,6,7,8-HxCDF	114	100	114	70-156
1,2,3,7,8,9-HxCDF	111	100	111	78-130
1,2,3,4,7,8-HxCDD	113	100	113	70-164
1,2,3,6,7,8-HxCDD	111	100	111	76-134
1,2,3,7,8,9-HxCDD	117	100	117	64-162
1,2,3,4,6,7,8-HpCDF	155	100	155	82-132
1,2,3,4,7,8,9-HpCDF	111	100	111	78-138
1,2,3,4,6,7,8-HpCDD	113	100	113	70-140
OCDF	179	200	89.5	63-170
OCDD	236	200	118	78-144

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR05-2.5**

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 12:49
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result		
2,3,7,8-TCDF	0.69	0.65-0.89		0.984	54.3		
2,3,7,8-TCDD	0.77	0.65-0.89		0.984	5.26		
1,2,3,7,8-PeCDF	1.43	1.32-1.78		0.984	41.4		
2,3,4,7,8-PeCDF	1.48	1.32-1.78		0.984	43.5		
1,2,3,7,8-PeCDD	1.53	1.32-1.78		0.984	34.1		
1,2,3,4,7,8-HxCDF	1.19	1.05-1.43		0.984	115		
1,2,3,6,7,8-HxCDF	1.16	1.05-1.43		0.984	51.7		
2,3,4,6,7,8-HxCDF	1.22	1.05-1.43		0.984	69.3		
1,2,3,7,8,9-HxCDF	1.15	1.05-1.43		0.984	62.9		
1,2,3,4,7,8-HxCDD	1.39	1.05-1.43		0.984	24.5		
1,2,3,6,7,8-HxCDD	1.24	1.05-1.43		0.984	1,020		
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43		0.984	98.1		
1,2,3,4,6,7,8-HpCDF	1.00	0.88-1.20		0.984	1,170		
1,2,3,4,7,8,9-HpCDF	0.99	0.88-1.20		0.984	81.3		
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		9.84	12,200		#
OCDF	0.84	0.76-1.02		1.97	3,100		
OCDD	0.89	0.76-1.02		19.7	68,300	E	#

Homologue Group	EDL	RL	Result	
Total TCDF		0.984	558	EMPC
Total TCDD		0.984	180	
Total PeCDF		1.97	2,660	EMPC
Total PeCDD		0.984	862	EMPC
Total HxCDF		1.97	6,030	EMPC
Total HxCDD		1.97	4,840	
Total HpCDF		1.97	5,060	EMPC
Total HpCDD		1.97	21,300	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 359

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 359

#-Result from diluted secondary analysis.

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR05-2.5**

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 12:49
Instrument/Analyst: AS1/PK

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.78	0.65-0.89	70.7	24-169	
13C-2,3,7,8-TCDD	0.79	0.65-0.89	79.7	25-164	
13C-1,2,3,7,8-PeCDF	1.58	1.32-1.78	85.6	24-185	
13C-2,3,4,7,8-PeCDF	1.57	1.32-1.78	84.0	21-178	
13C-1,2,3,7,8-PeCDD	1.58	1.32-1.78	89.2	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	84.4	26-152	
13C-1,2,3,6,7,8-HxCDF	0.51	0.43-0.59	75.8	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	80.4	28-136	
13C-1,2,3,7,8,9-HxCDF	0.53	0.43-0.59	88.5	29-147	
13C-1,2,3,4,7,8-HxCDD	1.27	1.05-1.43	87.3	32-141	
13C-1,2,3,6,7,8-HxCDD	1.25	1.05-1.43	78.6	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.49	0.37-0.51	128	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	91.4	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.05	0.88-1.20	86.9	23-140	
13C-OCDD	0.91	0.76-1.02	80.3	17-157	
37Cl4-2,3,7,8-TCDD			83.8	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR05-2.5
DILUTION

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/17/13 04:24
Instrument/Analyst: AS1/PK

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 10.0

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-1,2,3,4,6,7,8-HpCDD	1.09	0.88-1.20	110	23-140	
13C-OCDD	0.90	0.76-1.02	109	17-157	
37Cl4-2,3,7,8-TCDD			94.7	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: CR04-2.5**
Page 1 of 1

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 13:43
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 11.9 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00
Silica-Florisil Cleanup: Yes

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result		
2,3,7,8-TCDF	0.71	0.65-0.89		0.842	16.0		
2,3,7,8-TCDD	0.77	0.65-0.89		0.842	3.97		
1,2,3,7,8-PeCDF	1.50	1.32-1.78		0.842	12.4		
2,3,4,7,8-PeCDF	1.49	1.32-1.78		0.842	15.7		
1,2,3,7,8-PeCDD	1.54	1.32-1.78		0.842	18.8		
1,2,3,4,7,8-HxCDF	1.14	1.05-1.43		0.842	35.9		
1,2,3,6,7,8-HxCDF	1.18	1.05-1.43		0.842	18.9		
2,3,4,6,7,8-HxCDF	1.35	1.05-1.43		0.842	22.2		
1,2,3,7,8,9-HxCDF	1.18	1.05-1.43		0.842	14.6		
1,2,3,4,7,8-HxCDD	1.17	1.05-1.43		0.842	32.5		
1,2,3,6,7,8-HxCDD	1.23	1.05-1.43		0.842	350		
1,2,3,7,8,9-HxCDD	1.24	1.05-1.43		0.842	48.1		
1,2,3,4,6,7,8-HpCDF	0.99	0.88-1.20		0.842	919		
1,2,3,4,7,8,9-HpCDF	0.95	0.88-1.20		0.842	42.8		
1,2,3,4,6,7,8-HpCDD	1.03	0.88-1.20		4.21	4,070		#
OCDF	0.83	0.76-1.02		1.68	1,900		
OCDD	0.89	0.76-1.02		8.42	23,500	E	#

Homologue Group	EDL	RL	Result	
Total TCDF		0.842	119	EMPC
Total TCDD		0.842	32.6	EMPC
Total PeCDF		1.68	658	EMPC
Total PeCDD		0.842	133	EMPC
Total HxCDF		1.68	2,130	
Total HxCDD		1.68	1,540	EMPC
Total HpCDF		1.68	3,910	
Total HpCDD		1.68	7,520	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 140

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 140

#-Result from diluted secondary analysis.

Reported in pg/g

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR04-2.5

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/16/13 13:43
Instrument/Analyst: AS1/PK

Sample Amount: 11.9 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-2,3,7,8-TCDF	0.77	0.65-0.89	36.8	24-169	
13C-2,3,7,8-TCDD	0.77	0.65-0.89	58.6	25-164	
13C-1,2,3,7,8-PeCDF	1.56	1.32-1.78	70.6	24-185	
13C-2,3,4,7,8-PeCDF	1.58	1.32-1.78	65.8	21-178	
13C-1,2,3,7,8-PeCDD	1.56	1.32-1.78	73.3	25-181	
13C-1,2,3,4,7,8-HxCDF	0.52	0.43-0.59	81.8	26-152	
13C-1,2,3,6,7,8-HxCDF	0.53	0.43-0.59	70.8	26-123	
13C-2,3,4,6,7,8-HxCDF	0.52	0.43-0.59	72.1	28-136	
13C-1,2,3,7,8,9-HxCDF	0.51	0.43-0.59	69.7	29-147	
13C-1,2,3,4,7,8-HxCDD	1.26	1.05-1.43	81.4	32-141	
13C-1,2,3,6,7,8-HxCDD	1.24	1.05-1.43	70.7	28-130	
13C-1,2,3,4,6,7,8-HpCDF	0.47	0.37-0.51	52.6	28-143	
13C-1,2,3,4,7,8,9-HpCDF	0.45	0.37-0.51	71.8	26-138	
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	62.1	23-140	
13C-OCDD	0.89	0.76-1.02	61.1	17-157	
37Cl4-2,3,7,8-TCDD			66.3	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR04-2.5
DILUTION

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/10/13
Date Analyzed: 12/17/13 05:18
Instrument/Analyst: AS1/PK

Sample Amount: 11.9 g-dry-wt
Final Extract Volume: 20 uL
Dilution Factor: 5.00

Analyte	Ion Ratio	Ratio Limits	Result	Limits	Exceedance
13C-1,2,3,4,6,7,8-HpCDD	1.06	0.88-1.20	74.7	23-140	
13C-OCDD	0.90	0.76-1.02	60.5	17-157	
37Cl4-2,3,7,8-TCDD			60.1	35-197	

Reported in Percent Recovery

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546

Sample ID: MB-120913
METHOD BLANK

Lab Sample ID: MB-120913
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/09/13
Date Analyzed: 12/14/13 14:14
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.8%
Tetrachlorometaxylene	98.0%

XQ70 : 0801C

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR04-10cm
SAMPLE

Lab Sample ID: XQ70A
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Date Extracted: 12/09/13
Date Analyzed: 12/14/13 15:15
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.13 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 80.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	29	< 29 Y
11097-69-1	Aroclor 1254	97	< 97 Y
11096-82-5	**Aroclor 1260**	**20**	**200**
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	82.2%
Tetrachlorometaxylene	77.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR05-10cm
SAMPLE

Lab Sample ID: XQ70B
LIMS ID: 13-26909
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/09/13
Date Analyzed: 12/14/13 15:35
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.12 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 73.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	29	< 29 Y
11097-69-1	Aroclor 1254	98	< 98 Y
11096-82-5	**Aroclor 1260**	**20**	**180**
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.5%
Tetrachlorometaxylene	77.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR05-2.5
SAMPLE

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/09/13
Date Analyzed: 12/14/13 15:55
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.16 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 74.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	97	< 97 Y
11097-69-1	**Aroclor 1254**	**19**	**490**
11096-82-5	**Aroclor 1260**	**19**	**670**
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.0%
Tetrachlorometaxylene	91.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR04-2.5
SAMPLE

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Date Extracted: 12/09/13
Date Analyzed: 12/14/13 16:15
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.16 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 82.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	48	< 48 Y
11097-69-1	**Aroclor 1254**	**19**	**440**
11096-82-5	**Aroclor 1260**	**19**	**730**
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	95.2%
Tetrachlorometaxylene	87.8%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-120913	88.8%	61-114	98.0%	52-117	0
LCS-120913	89.0%	61-114	98.8%	52-117	0
CR04-10cm	82.2%	54-115	77.5%	57-109	0
CR05-10cm	75.5%	54-115	77.2%	57-109	0
CR05-2.5	62.0%	54-115	91.2%	57-109	0
CR04-2.5	95.2%	54-115	87.8%	57-109	0

Microwave (MARS) Control Limits PCBSMM
Prep Method: SW3546
Log Number Range: 13-26908 to 13-26911

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-120913
LAB CONTROL

Lab Sample ID: LCS-120913
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/09/13
Date Analyzed: 12/14/13 14:34
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 5.00 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	470	500	94.0%
Aroclor 1260	412	500	82.4%

PCB Surrogate Recovery

Decachlorobiphenyl	89.0%
Tetrachlorometaxylene	98.8%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Matrix: Sediment

Date Received: 11/08/13

Data Release Authorized: MW
Reported: 12/16/13

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-121013	Method Blank	12/10/13	12/12/13	10.0	Diesel Range	50	< 50 U
13-26908	HC ID: ---		FID3B	1.0	Motor Oil Range	100	< 100 U
					o-Terphenyl		89.8%
XQ70A	CR04-10cm	12/10/13	12/12/13	10.0	**Diesel Range**	**250**	**2,400**
13-26908	HC ID: **DRO/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**500**	**7,400**
					o-Terphenyl		76.4%
XQ70B	CR05-10cm	12/10/13	12/12/13	10.0	**Diesel Range**	**180**	**1,200**
13-26909	HC ID: **DRO/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**370**	**4,800**
					o-Terphenyl		85.3%
XQ70C	CR05-2.5	12/10/13	12/12/13	10.0	**Diesel Range**	**190**	**3,200**
13-26910	HC ID: **DRO/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**390**	**13,000**
					o-Terphenyl		76.2%
XQ70D	CR04-2.5	12/10/13	12/12/13	10.0	**Diesel Range**	**290**	**3,200**
13-26911	HC ID: **DRO/MOTOR OIL**		FID3B	1.0	**Motor Oil Range**	**580**	**10,000**
					o-Terphenyl		74.7%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01

Client ID	OTER	TOT OUT
121013MBS	89.8%	0
121013LCS	83.1%	0
CR04-10cm	76.4%	0
CR05-10cm	85.3%	0
CR05-2.5	76.2%	0
CR04-2.5	74.7%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 13-26908 to 13-26911

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-121013
LAB CONTROL

Lab Sample ID: LCS-121013
LIMS ID: 13-26908
Matrix: Sediment
Data Release Authorized: MW
Reported: 12/16/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Date Extracted: 12/10/13
Date Analyzed: 12/12/13 13:47
Instrument/Analyst: FID3B/JLW

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	1,170	1,500	78.0%

TPHD Surrogate Recovery

o-Terphenyl	83.1%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: XQ70
Matrix: Sediment Project: GHHSA
Date Received: 11/08/13 0863.01.01

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
13-26908-121013MB1	Method Blank	10.0 g	10.0 mL	-	12/10/13
13-26908-121013LCS1	Lab Control	10.0 g	10.0 mL	-	12/10/13
13-26908-XQ70A	CR04-10cm	1.98 g	10.0 mL	D	12/10/13
13-26909-XQ70B	CR05-10cm	2.70 g	10.0 mL	D	12/10/13
13-26910-XQ70C	CR05-2.5	2.59 g	10.0 mL	D	12/10/13
13-26911-XQ70D	CR04-2.5	1.73 g	10.0 mL	D	12/10/13

Basis: D=Dry Weight W=As Received

Data File: /chem3/fid3b.i/20131212.b/1212b011.d

Date : 12-DEC-2013 13:22

Client ID: XQ70MBS1

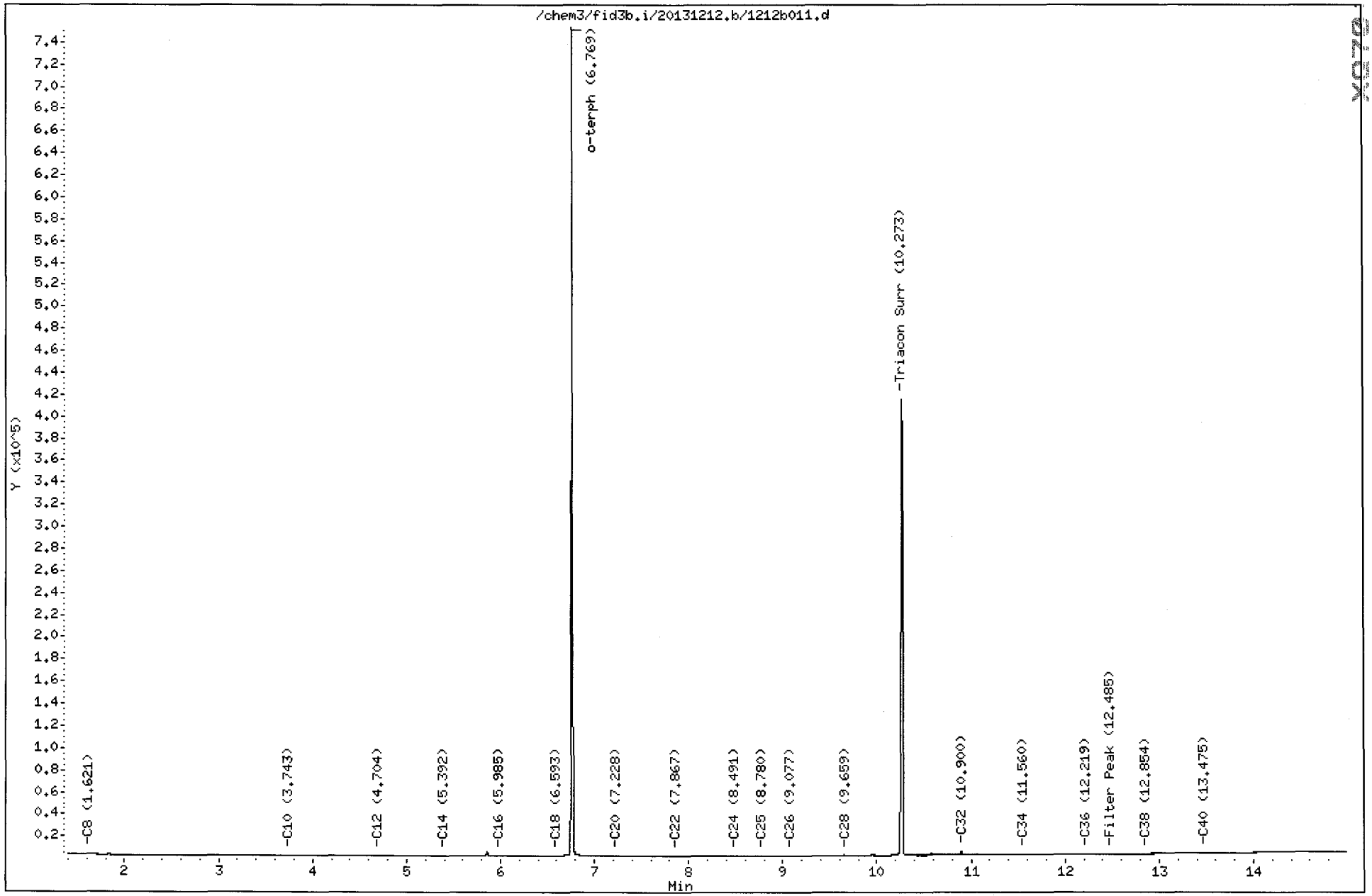
Sample Info: XQ70MBS1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JW

Column diameter: 0.25



Data File: /chem3/fid3b.i/20131212.b/1212b012.d

Date : 12-DEC-2013 13:47

Client ID: XQ70LCSS1

Sample Info: XQ70LCSS1

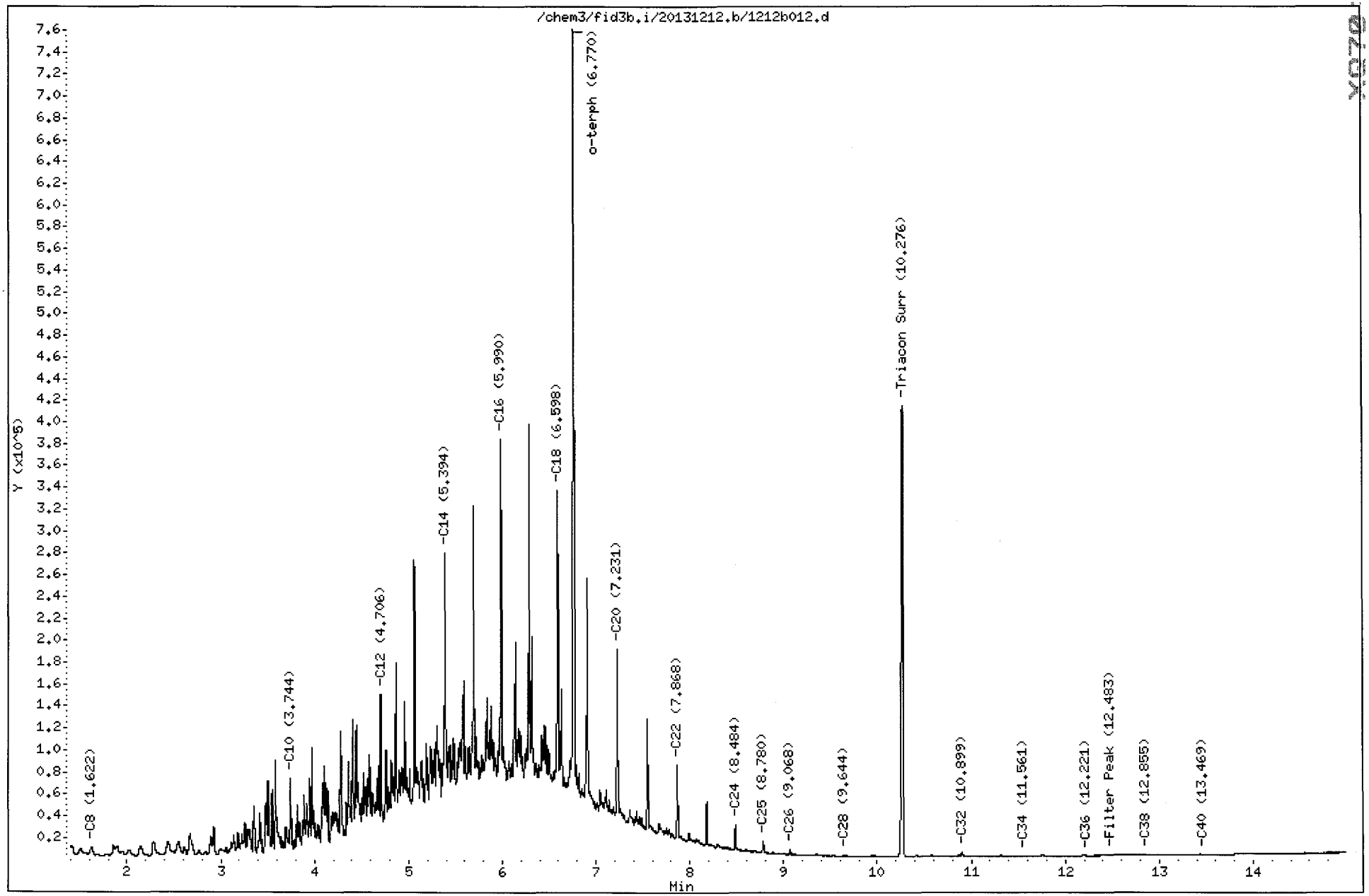
Column phase: RTX-1

Instrument: fid3b.i

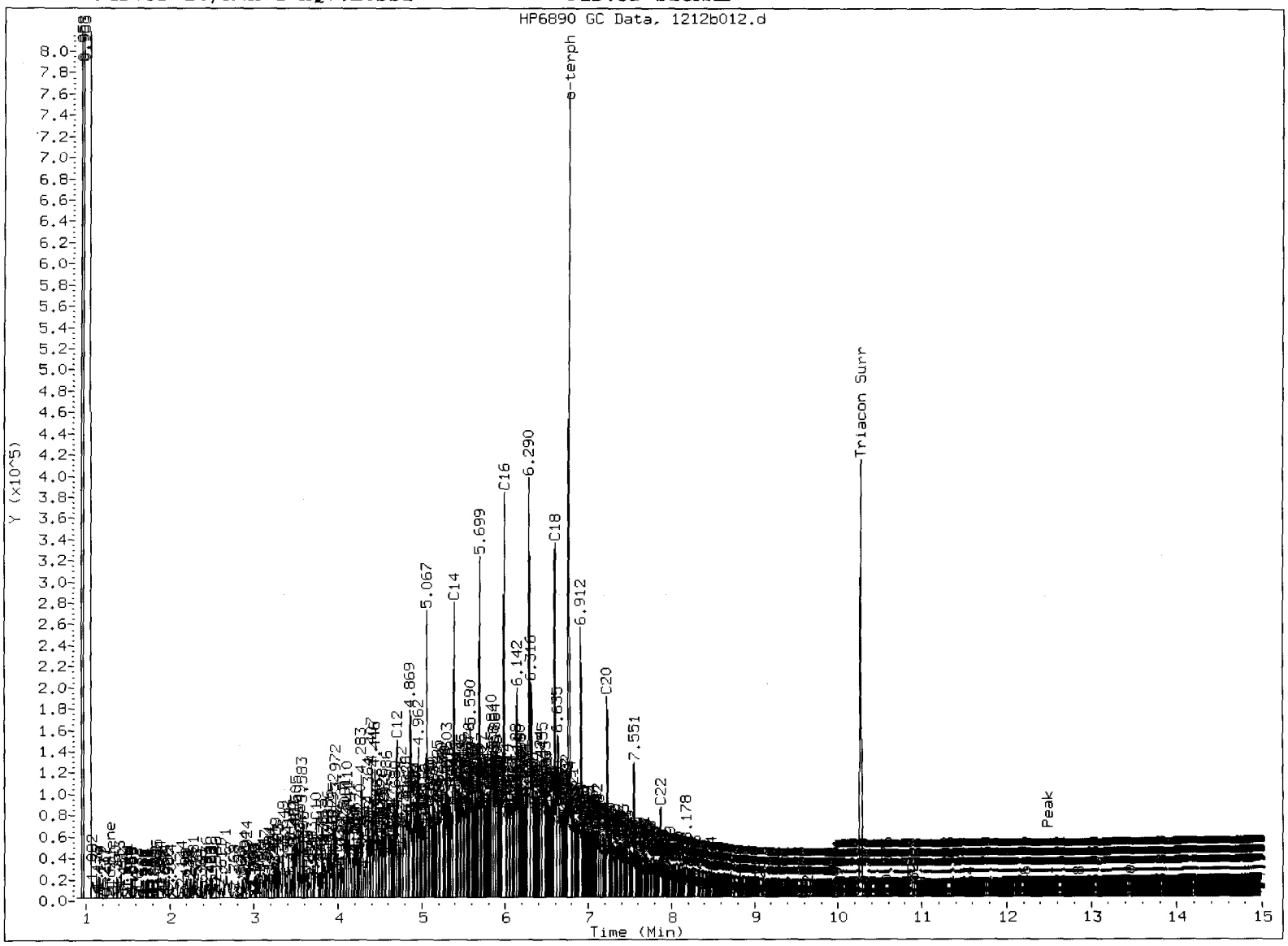
Operator: JW

Column diameter: 0.25

XQ70 00052



FID:3B-2C/RTX-1 XQ70LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
5. Skimmed surrogate

Analyst: JW Date: 12/17/12

Data File: /chem3/fid3b.i/20131212.b/1212b014.d

Date : 12-DEC-2013 14:37

Client ID: CR04-10cm

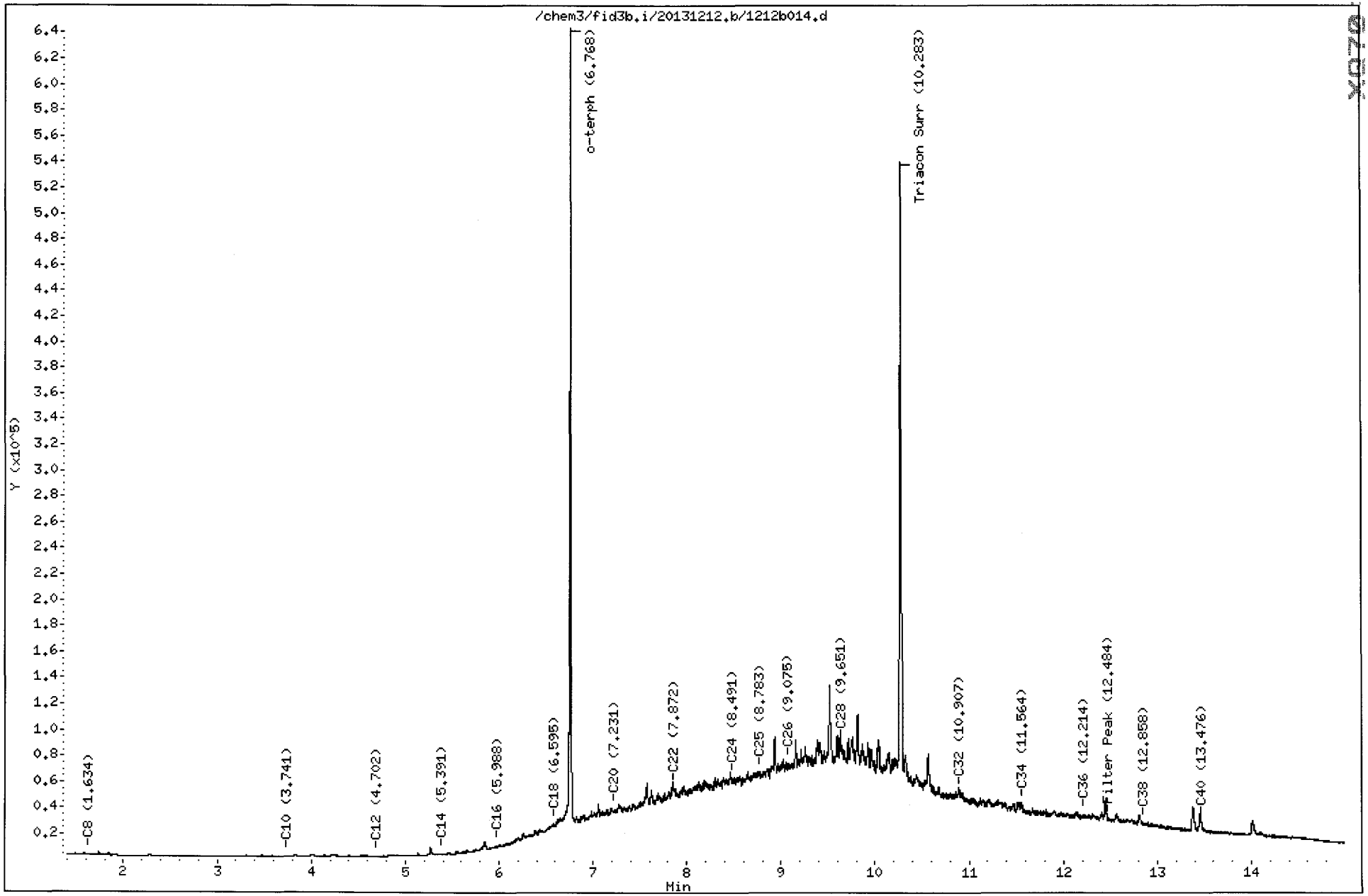
Sample Info: XQ70A

Column phase: RTX-1

Instrument: fid3b.i

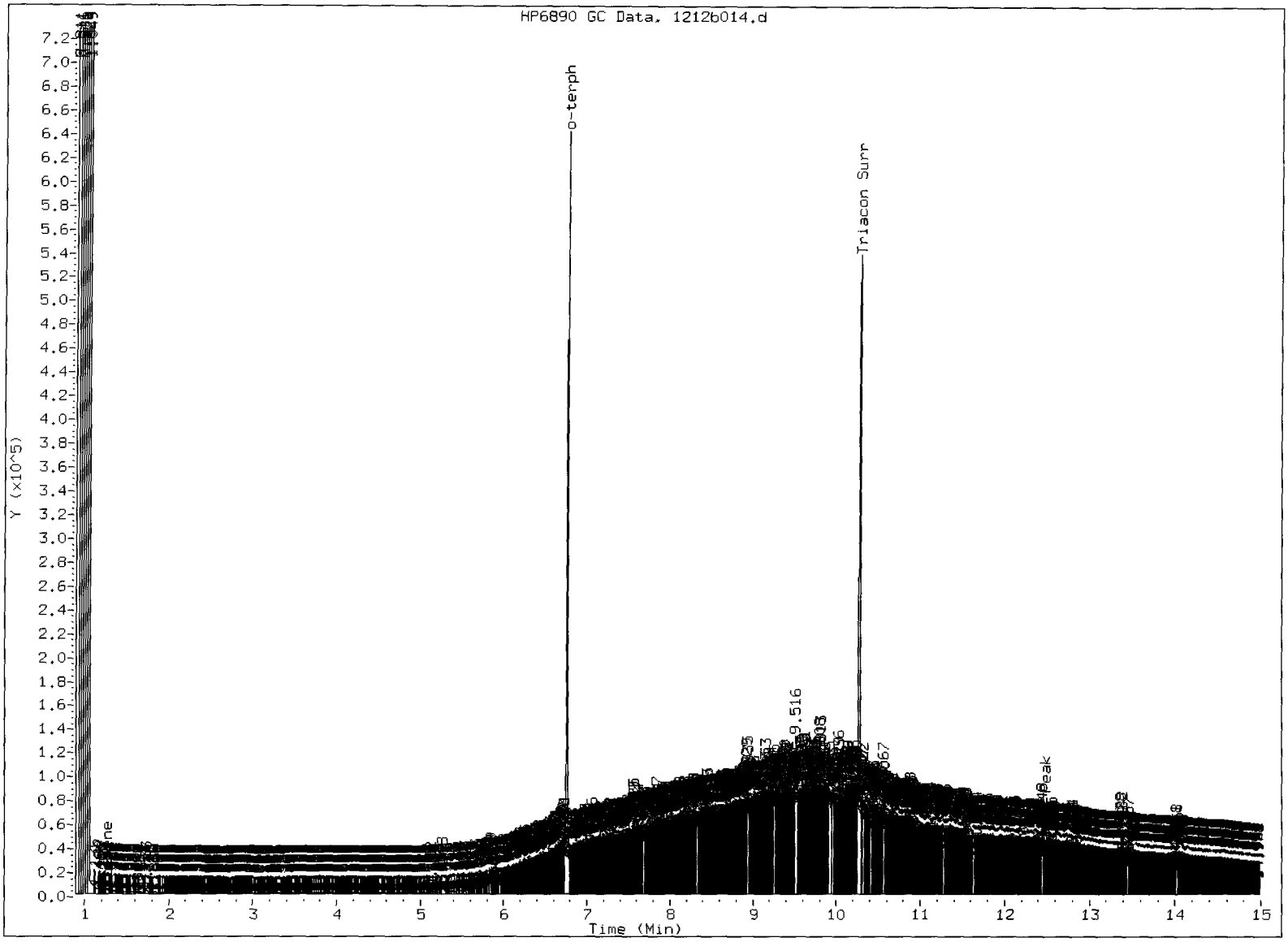
Operator: JW

Column diameter: 0.25



FID:3B-2C/RTX-1 XQ70A

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: JW Date: 12/0/12

Data File: /chem3/fid3b.i/20131212.b/1212b015.d

Date : 12-DEC-2013 15:02

Client ID: CR05-10cm

Sample Info: XQ70B

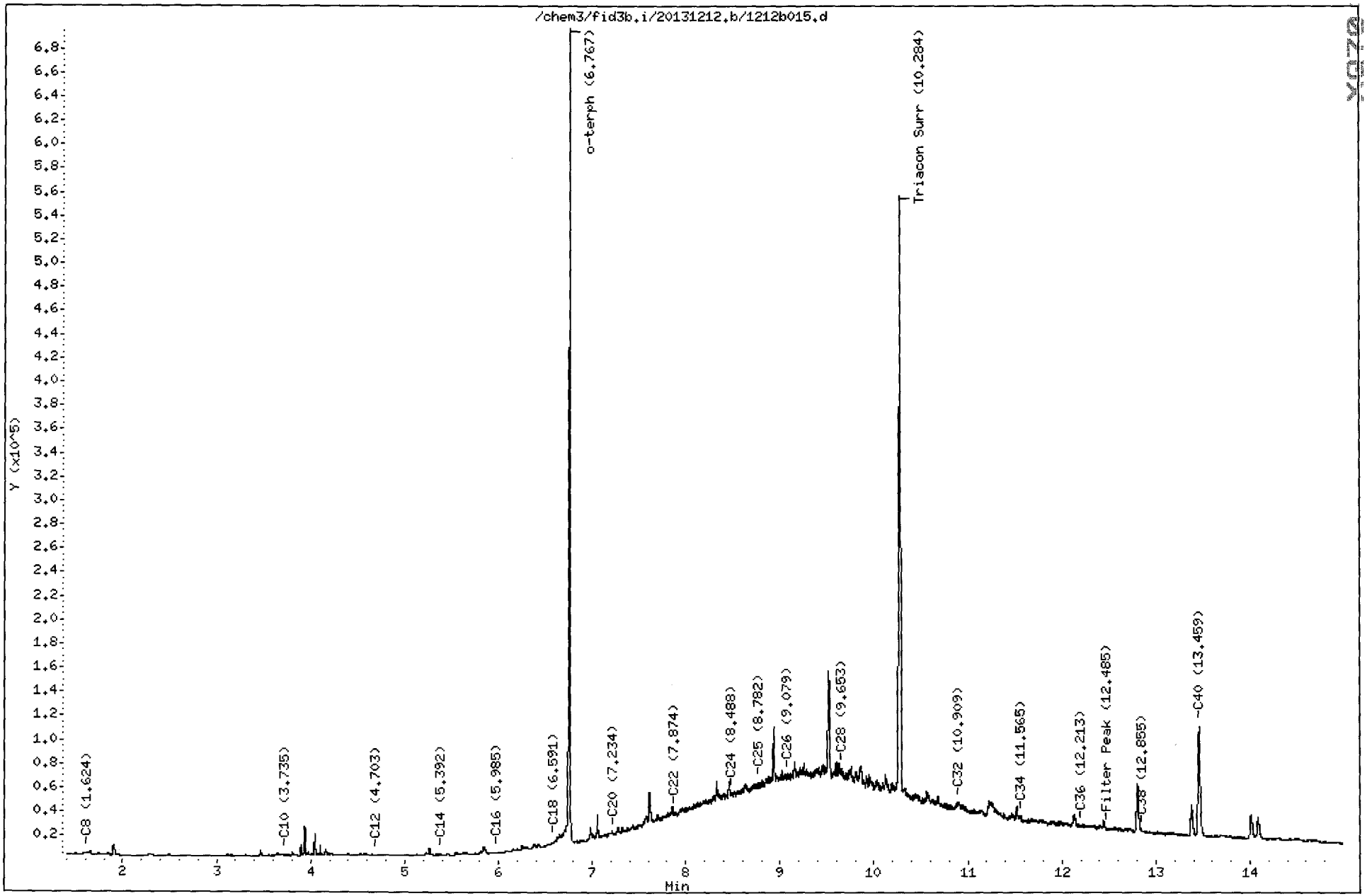
Column phase: RTX-1

Instrument: fid3b.i

Operator: JW

Column diameter: 0.25

XQ70 PAGE2



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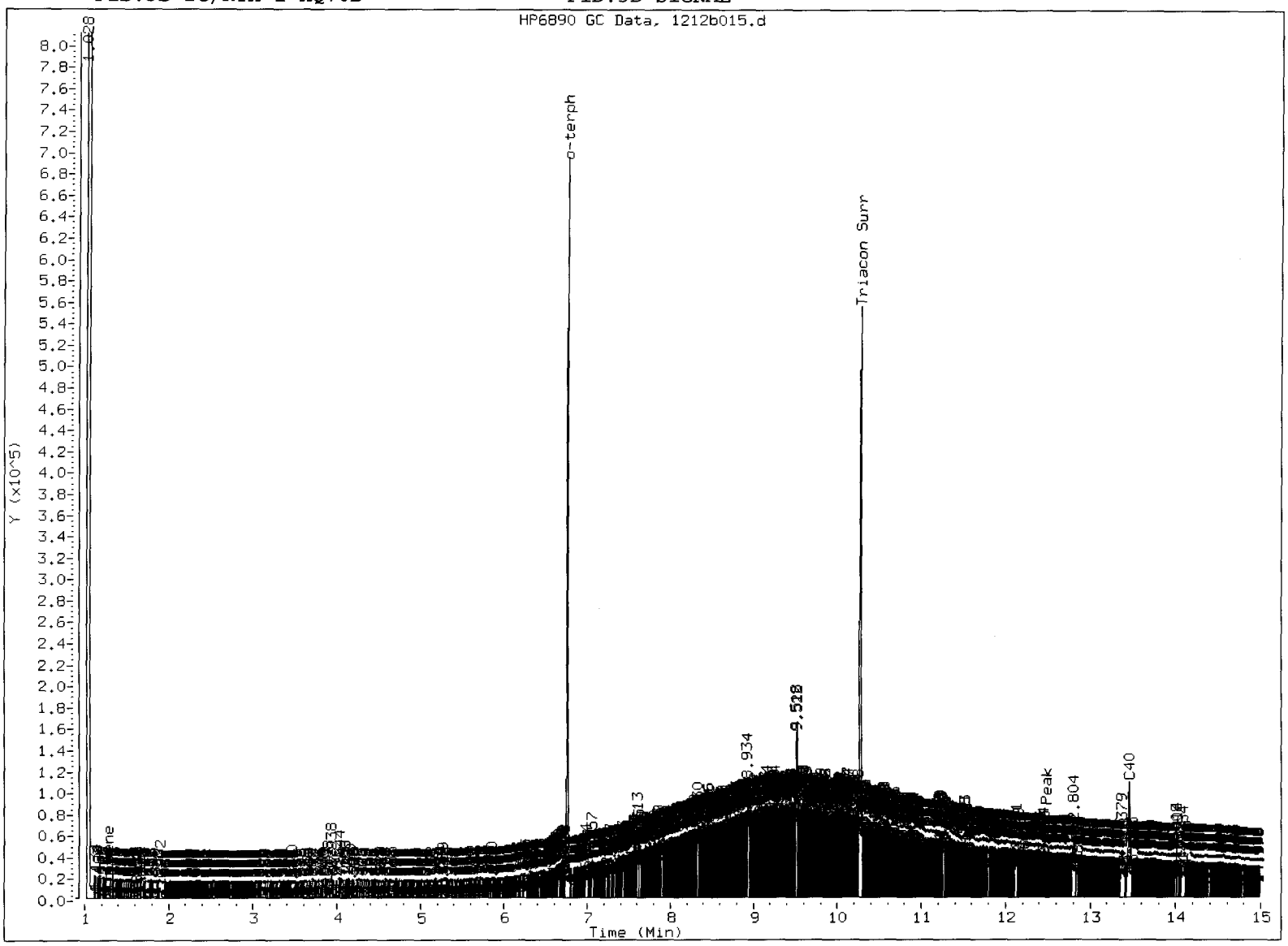
FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: SU Date: 12/10/10

Data File: /chem3/fid3b.i/20131212.b/1212b016.d

Date : 12-DEC-2013 15:27

Client ID: CR05-2.5

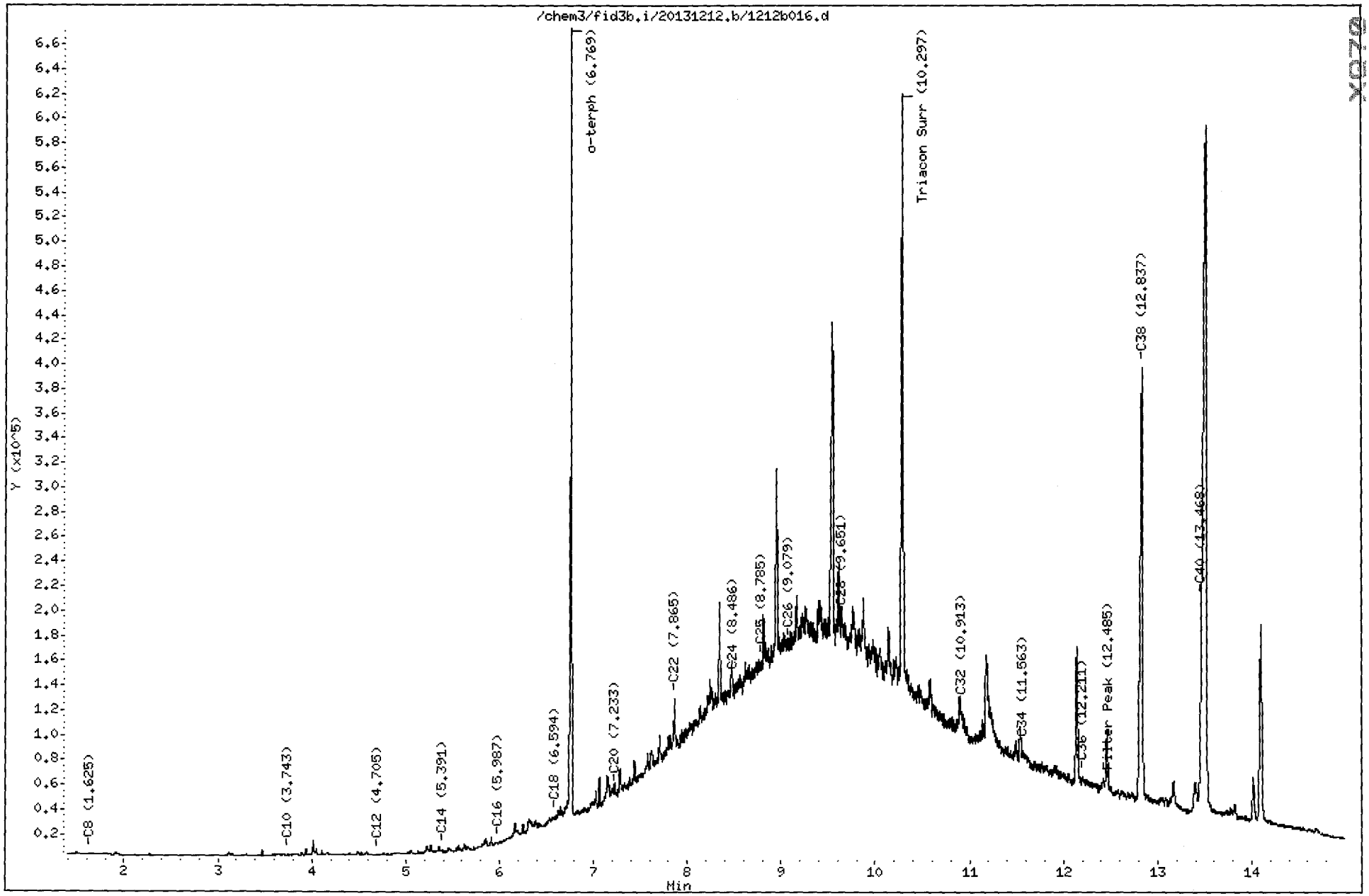
Sample Info: XQ70C

Column phase: RTX-1

Instrument: fid3b.i

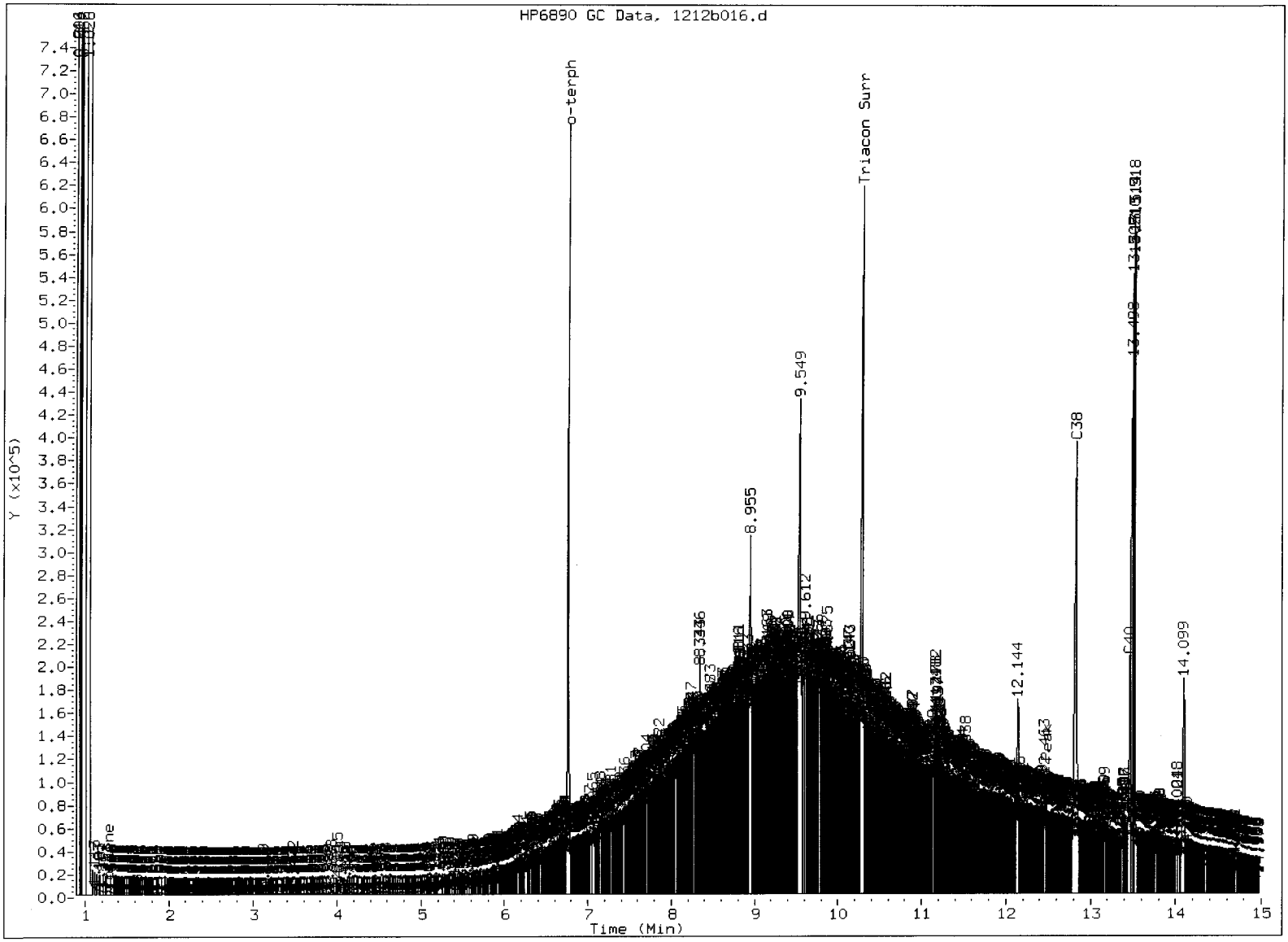
Operator: JW

Column diameter: 0.25



FID:3B-2C/RTX-1 XQ70C

FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: JW Date: 12/13/17

YQ70 : 0065

Data File: /chem3/fid3b.i/20131212.b/1212b017.d

Date : 12-DEC-2013 15:52

Client ID: CR04-2.5

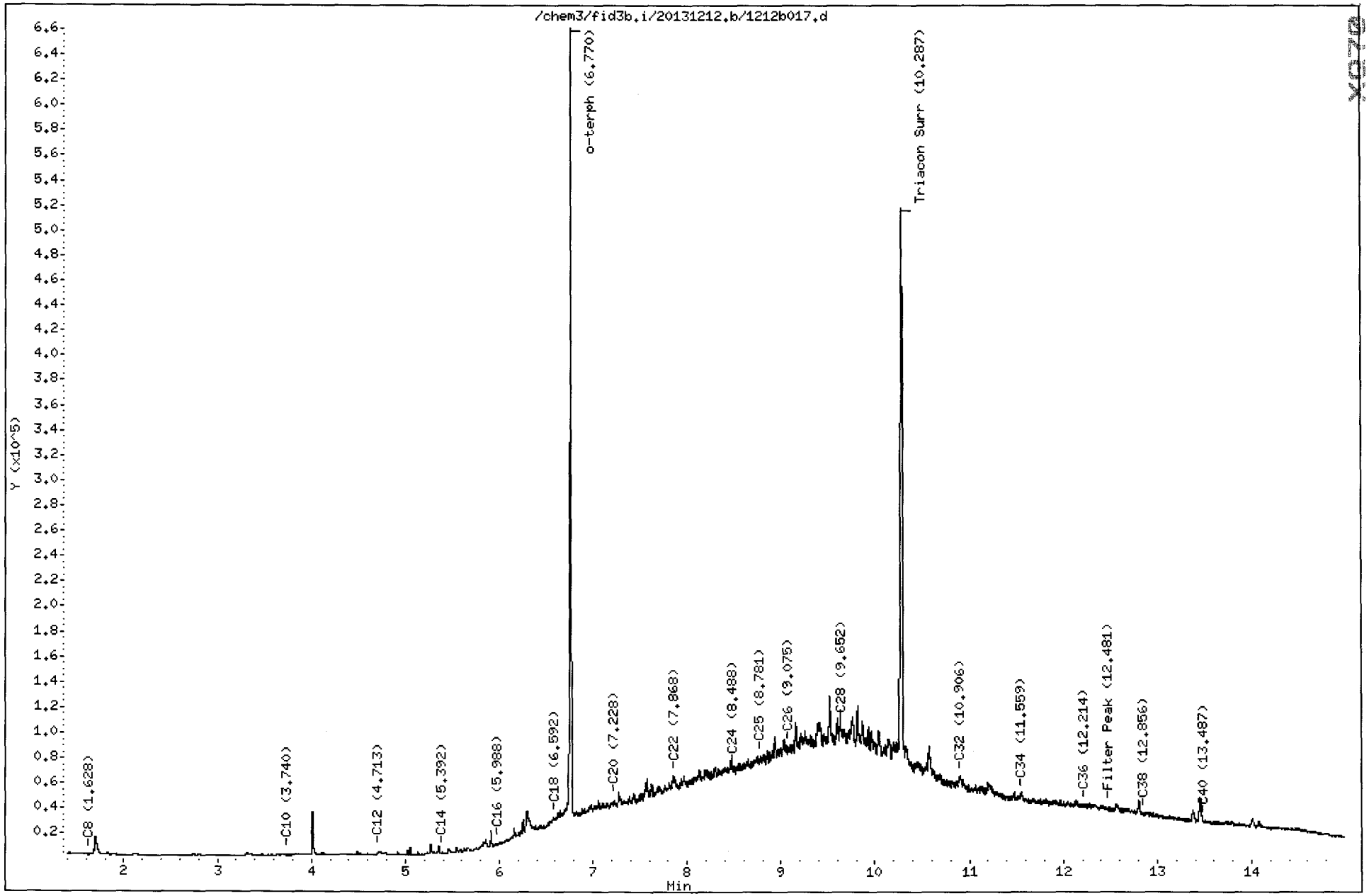
Sample Info: XQ70D

Column phase: RTX-1

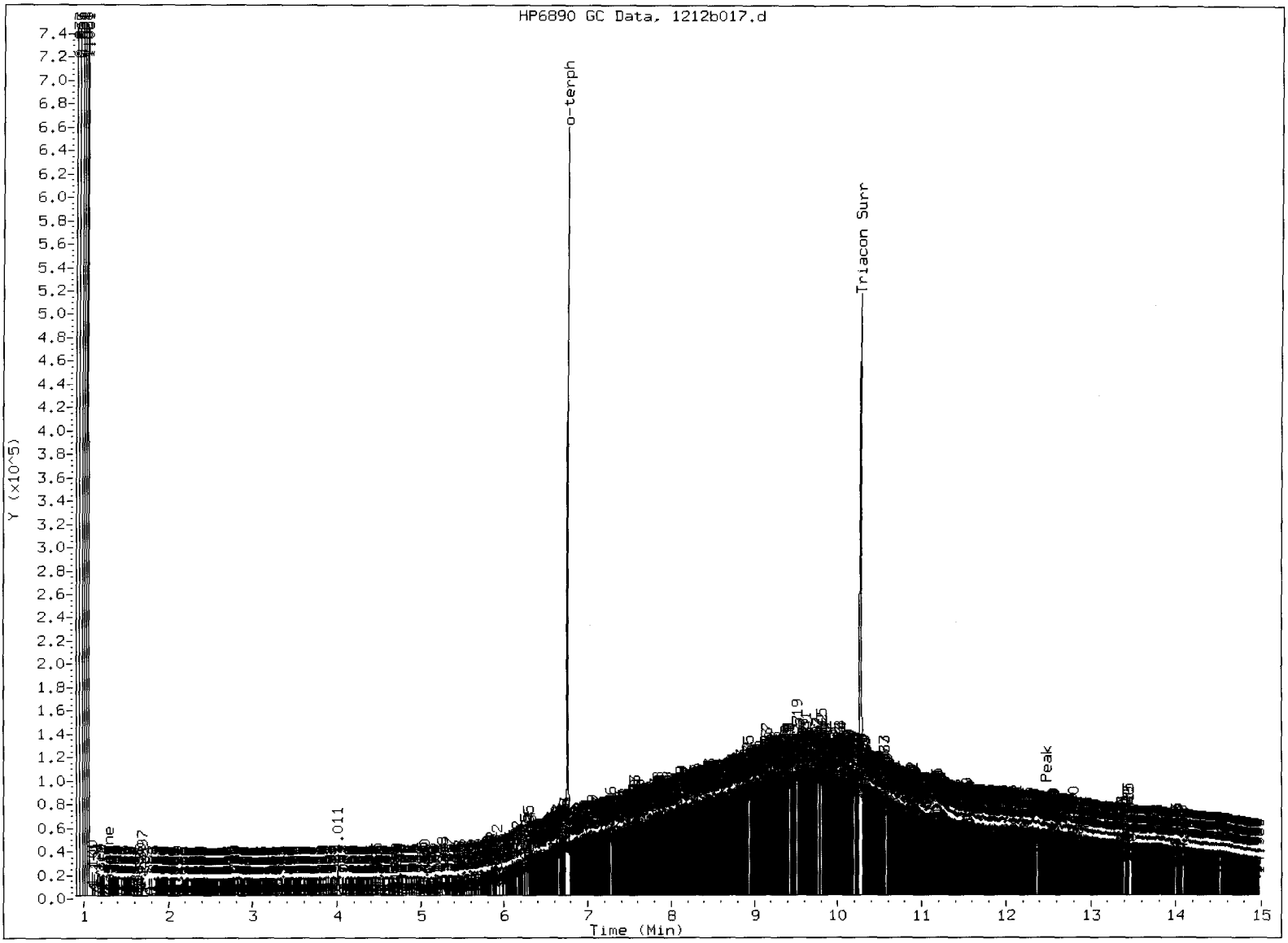
Instrument: fid3b.i

Operator: JW

Column diameter: 0.25



FID:3B-2C/RTX-1 XQ70D FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
3. Peak not found
(5) Skimmed surrogate

Analyst: SD Date: 12/13/12

YOTA : 00067

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR05-2.5
SAMPLE

Lab Sample ID: XQ70C
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/13/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Percent Total Solids: 16.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
CLP	12/10/13	7471A	12/12/13	**7439-97-6**	**Mercury**	0.1	**0.5**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: CR04-2.5
SAMPLE

Lab Sample ID: XQ70D
LIMS ID: 13-26911
Matrix: Sediment
Data Release Authorized:
Reported: 12/13/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

Percent Total Solids: 15.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
CLP	12/10/13	7471A	12/12/13	**7439-97-6**	**Mercury**	0.1	**0.5**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XQ70 : 00005

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: XQ70MB
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/13/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
CLP	12/10/13	7471A	12/12/13	7439-97-6	Mercury	0.02	0.02	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

XQ70:00070

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: XQ70LCS
LIMS ID: 13-26910
Matrix: Sediment
Data Release Authorized:
Reported: 12/13/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHHSA
0863.01.01
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7471A	0.53	0.50	106%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

XQ70:00074

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APPENDIX G

DATA VALIDATION MEMORANDA



DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0863.01.03 | APRIL 10, 2017 | GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

This report reviews the analytical results for sediment samples collected by the Maul Foster & Alongi, Inc. (MFA) project team on the property located at 500 North Custer Street in Aberdeen, Washington. The samples were collected in November 2013.

Analytical Resources, Incorporated (ARI) performed the analyses. ARI report XN64_XO00_GHHSA_rpt, which contains reports XN64 and XO00, and report XQ70_MFA_GHHSA_rpt, which contains XQ70, were reviewed. Three of the sediment samples were processed by ARI to obtain pore water and were reported in XO00. Follow-up analyses were performed on XN64 samples and reported in XQ70. The analyses performed and samples analyzed are listed below. Some analyses may not have been performed on all samples.

Analysis	Reference
Ammonia Nitrogen	USEPA 350.1 Modified
Diesel and Motor Oil	NWTPH-Dx
Dioxins/Furans	USEPA 1613B
Gasoline	NWTPH-G
Grain Size	PSEP 1986
Polychlorinated Biphenyls	USEPA 8082A
Pore Water Conductivity	USEPA 120.1
Pore Water Salinity	SM 2520B
Preserved and Total Solids	SM 2540G
Semivolatile Organic Compounds	USEPA 8270D/8270D SIM
Total Mercury	USEPA 7471A
Total Metals	USEPA 6010C
TOC	Plumb
Total Sulfides	USEPA 376.2
Total Volatile Solids	SM 2540E

NWTPH = Northwest Total Petroleum Hydrocarbons.
Plumb = Procedures for handling and chemical analysis of sediment and water samples (Plumb, 1981).
PSEP = Puget Sound Estuary Protocols.
SIM = selective ion monitoring.
SM = Standard Methods for the Examination of Water and Wastewater.
TOC = total organic carbon.
USEPA = U.S. Environmental Protection Agency.

Samples Analyzed		
SDG XN64	**SDG XO00**	**SDG XQ70**
CR01-10cm	CR01-10cm (pore water)	CR04-10cm
CR02-10cm	CR02-10cm (pore water)	CR05-10cm
CR03-10cm	CR03-10cm (pore water)	CR05-2.5
CR04-10cm	-	CR04-2.5
CR05-10cm	-	-
CR06-10cm	-	-
CR04-5	-	-
CR06-2.5	-	-

SDG = sample delivery group.

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2008, 2010, 2011), appropriate laboratory and method-specific guidelines (ARI, 2013; USEPA, 1986), and the dioxin rules memorandum developed by MFA and approved by the Washington State Department of Ecology (MFA, 2012).

Data validation procedures were modified, as appropriate, to accommodate quality control (QC) requirements for methods not specifically addressed by the functional guidelines (e.g., total volatile solids).

Any result reported as exceeding the calibration range of the instrument was qualified as an estimate and assigned a "J" flag.

USEPA Method 1613B results reported as estimated maximum potential concentrations (EMPCs) were qualified by the reviewer with "U" (non-detect) at the reported EMPC value.

In report XQ70, the USEPA Method 1613B OCDD results for samples CR05-2.5 and CR04-2.5 exceeded the instrument calibration range. National Functional Guidelines for dioxin/furan data review state that laboratories are not required to take action when OCDD exceeds instrument calibration range (USEPA, 2011) The OCDD results were qualified "J" as estimated.

All data are considered acceptable for their intended use with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

In report XN64, the USEPA Method 8270D results for phenol, pentachlorophenol, and butylbenzylphthalate from samples CR04-10cm, CR04-5, CR05-10cm, and CR06-10cm were extracted and analyzed six days after the recommended 14-day holding time. All detected results have been qualified "J" as estimated, and all non-detect results have been qualified "UJ" as estimated.

In report XQ70, samples CR04-10cm, CR05-10cm, CR05-2.5, and CR04-2.5 were extracted for analysis by NWTPH-Dx, USEPA Method 8082A, and USEPA Method 8270D/8270D SIM after the recommended 14-day holding time. Samples CR05-2.5 and CR04-2.5 were prepared and analyzed for USEPA Method 7471A total mercury after the recommended 28-day holding time. All detected results have been qualified "J" as estimated, and all non-detect results have been qualified "UJ" as estimated.

The remaining extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

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.

If an analyte was detected in a sample and in the associated method blank at less than ten times the method blank concentration, the sample result was qualified. USEPA Method 1613B sample results were qualified if sample concentrations were less than five times the associated method blank concentration. Reporting limits were elevated to the concentrations detected in the samples, and results were qualified as not detected "U" at the elevated method reporting limit (MRL).

For USEPA Method 1613B, if an analyte was detected in a sample and in the associated method blank below the reporting limit but above the estimated detection limit, sample detections below the level found in the method blank were qualified as "U" at the reporting limit.

In report XN64 and XQ70, the USEPA Method 1613B method blanks had detections for some analytes below the MRL and some detections for 1,2,3,4,6,7,8-HpCDD and OCDD above the MRL. All associated sample results were greater than five times the method blank concentrations; thus, no results were qualified.

In report XN64, the USEPA Method 376.2 sulfide method blank prepared on November 12, 2013, had a total sulfide detection of 0.17 milligram per kilogram (mg/kg). All associated sample detections were greater than ten times the method blank detection; thus, no results were qualified.

All remaining laboratory method blanks were non-detect.

Trip Blanks

Trip blanks were not submitted for this sampling event, as volatile organic compounds were not analyzed.

Equipment Rinsate Blanks

Equipment rinsate blanks were not collected for this sampling event. Equipment was decontaminated after each sample was collected in accordance with the sediment sampling and analysis plan (MFA, 2013).

SURROGATE RECOVERY RESULTS

When appropriate, individual samples were spiked with surrogate compounds to evaluate laboratory performance.

In report XN64, NWTPH-Gx surrogate recoveries for sample CR06-2.5 exceeded the lower percent recovery limits for both trifluorotoluene and bromobenzene. The associated result was qualified by the reviewer as follows:

Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
CR06-2.5	Gasoline	54 U	54 UJ

The reviewer took no action based on minor surrogate outliers or surrogate percent recoveries that were outside acceptance limits because of dilutions necessary to quantify high concentrations of target analytes present in the samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance and QC for samples with surrogate outliers were within acceptance limits.

All remaining surrogate recoveries were within acceptance limits.

LABELED ANALOG STANDARD RECOVERY RESULTS

All USEPA Method 1613B Modified samples were spiked with C13 labeled analog standards to quantify the recovery of individual target compounds. All C13 labeled analog standard 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.

In report XN64, the USEPA Method 7471A MS exceeded the upper percent recovery acceptance limit for total mercury. The exceedance was minor and the laboratory control sample (LCS) had acceptable recovery; thus, no results were qualified.

In report XN64, the case narrative states that the USEPA 376.2 sulfide matrix duplicate exceeded relative percent difference (RPD) acceptance criteria. The matrix duplicate RPD results were not included in the QC report. The remaining batch QC had acceptable recoveries, and the laboratory stated that sample heterogeneity likely was the cause of the RPD exceedance. No results were qualified.

In report XN64, the case narrative states that the Method Plumb (1981) MS had low percent recovery for TOC and that a re-prepared MS also had low recovery. The LCS had acceptable recovery, which indicates matrix interference. The following results were qualified "J" as estimated:

Report	Sample	Component	Original Result (%)	Qualified Result (%)
XN64	CR06-10cm	TOC	35.6	35.6 J
XN64	CR04-10cm	TOC	31.4	31.4 J
XN64	CR05-10cm	TOC	13.6	13.6 J
XN64	CR06-2.5	TOC	49.5	49.5 J
XN64	CR04-5	TOC	16.5	16.5 J
XN64	CR01-10cm	TOC	2.06	2.06 J
XN64	CR02-10cm	TOC	3.21	3.21 J
XN64	CR03-10cm	TOC	2.91	2.91 J

All recoveries were within acceptance limits for percent recovery and RPDs.

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate RPDs for USEPA Method 6010C were assessed against the RPD acceptance limit of 35 percent for soil laboratory duplicates, as presented in the National Functional Guidelines for inorganic data review (USEPA, 2010). Minor laboratory duplicate RPD exceedances and exceedances for results near the reporting limit were not qualified by the reviewer.

In report XN64, the USEPA Method 6010C laboratory duplicate exceeded RPD acceptance criteria for total chromium, total copper, and total mercury. The exceedance for total mercury was minor and the associated results were not qualified. The associated batch QC had acceptable recoveries; however, the total chromium and total copper RPD exceedances were significant. The following results were qualified:

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
XN64	CR06-2.5	Total Chromium	26	26 J
XN64	CR06-2.5	Total Copper	96	96 J
XN64	CR01-10cm	Total Chromium	40	40 J

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
XN64	CR01-10cm	Total Copper	58	58 J
XN64	CR02-10cm	Total Chromium	38.5	38.5 J
XN64	CR02-10cm	Total Copper	56.3	56.3 J
XN64	CR03-10cm	Total Chromium	48	48 J
XN64	CR03-10cm	Total Copper	65.4	65.4 J

All remaining laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/laboratory control sample duplicate (LCSD) is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

In report XN64, the USEPA Method 8270D SIM LCS exceeded the instrument calibration range for pentachlorophenol. The LCS percent recovery was within acceptance limits, and the associated sample detections were already qualified as estimated because they were below the MRL; thus, no results were qualified by the reviewer.

All remaining LCS/LCSD analytes were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. No field duplicate samples were submitted for analysis.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch.

National Functional Guidelines for low/medium volatile and semivolatile data review (USEPA, 2008) state that results associated with closing CCV percent drift exceedances between 50 percent and -50 percent do not require qualification. However USEPA Method 8270D states that when CCV percent drift acceptance criteria are met for at least 80 percent of the compounds, non-detects may be reported for compounds that exceed acceptance limits if the laboratory demonstrates that quantitation limit sensitivity can still be achieved. Detected compounds associated with CCV percent drift exceedances may be reported as estimated values.

In report XN64, the USEPA Method 8270D SIM CCV exceeded percent drift criteria for benzyl alcohol and butylbenzylphthalate. In report XQ70, the USEPA Method 8270D and

8270D SIM CCVs also exceeded percent drift criteria for several compounds. Associated sample detections above the MRL were qualified with "J" as estimated. USPEA Method 8270D results associated with report XQ70 were already qualified "J" due to holding time exceedances, as noted above.

Report	Sample	Component	Original Result (µg/kg)	Qualified Result (µg/kg)
XN64	CR02-10cm	Benzyl Alcohol	43 Q	43 J
XN64	CR03-10cm	Benzyl Alcohol	43 Q	43 J

µg/kg = micrograms per kilogram.

Based on available information, all other CCVs were within acceptance limits for percent recovery.

REPORTING LIMITS

ARI used routine reporting limits for non-detect results, except when samples required dilutions because of limited sample or extract volume, high analyte concentrations, and/or matrix interferences.

Detections below the MRL were reported for some analyses: results for USEPA Method 1613B were reported to estimated detection limits, and results for USEPA Methods 8082A, 8270D, and 8270D SIM were reported to method detection limits. Some NWTPH-Gx, USEPA Method 8082A, and USEPA Method 8270D reporting limits were raised because of chromatographic interference or matrix interference. All samples in report XQ70 were diluted 1:5 for USEPA Method 8270D/8270D SIM analyses due to matrix interference.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

In report XN64, the case narrative states that the USEPA Method 7471A MS exceeded the lower acceptance limit for total mercury; however, the MS exceeded the upper acceptance limit.

In report XO00, conductivity was not indicated on the chain of custody but was analyzed for pore water extracts of samples CR01-10cm, CR02-10cm, and CR03-10cm.

All samples submitted for pore water extraction (CR01-10cm, CR02-10cm, CR03-10cm, and CR04-5) produced insufficient volume for USEPA Method 376.2 sulfides analysis. The volume of extracted pore water was sufficient to perform the remaining analyses.

No additional issues were found.

REFERENCES

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DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 1044.02.01 | APRIL 10, 2017 | GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater, sediment, soil, and stormwater samples collected at the leased tideland and in-water portion of the Seaport Landing site, located adjacent to the Chehalis River at 500 North Custer Street in Aberdeen, Washington. The samples were collected on October 12 through 16, 2015, and January 12, 2016.

Analytical Resources, Inc. (ARI) in Tukwila, Washington, and NVL Laboratories (NVL) in Seattle, Washington, performed the analyses. ARI report numbers AON0, AON1, AON2, AON3, AOT3, AOV8, AOV9, AOW1, AOW2, ART5, ASF7, and AUD1 were reviewed. The analyses performed and samples analyzed are listed below. Additional samples were submitted to ARI on hold and were archived at -18 degrees Celsius (°C). Portions of samples reported in AOV8, AOV9, and AOW2 were subcontracted to NVL for asbestos analysis and results are appended to AOV8, AOV9, and AOW2, respectively. Report ART5 is a follow-up to report AOW1 and contains results originally requested, but not reported in AOW1. Report ASF7 is a follow-up to report AOV9 and contains results for tests requested in addition to those reported in AOV9.

Analysis	Reference
Ammonia Nitrogen	USEPA 350.1 Modified
Asbestos	EPA 600/M4-82-020 and 600R-93/116
Diesel and Motor Oil	NWTPH-Dx
Dioxins and Furans	USEPA 1613B*
Grain Size	PSEP
Polychlorinated Biphenyls (PCBs)	USEPA 8082A
Semivolatile Organic Compounds (SVOCs)	USEPA 8270D / 8270D-SIM
Sulfide	SM 4500-S2D
Total and Dissolved Mercury	USEPA 7470A/7471A
Total and Dissolved Metals	USEPA 200.8/6010C
Total Organic Carbon (TOC)	Plumb, 1981
Total Solids/Preserved Total Solids/Total Volatile Solids	SM 2540G

NWTPH = Northwest Total Petroleum Hydrocarbons.
PSEP = Puget Sound Estuary Protocols (PSEP, 1997).
SIM = selective ion monitoring.
SM = Standard Methods for the Examination of Water and Wastewater.
USEPA = U.S. Environmental Protection Agency.

* The following acronyms are used to report USEPA Method 1613B congener results:

TCDD = Tetrachlorodibenzo-p-dioxin
TCDF = Tetrachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzofuran
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzofuran
HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzofuran
OCDD = Octachlorodibenzo-p-dioxin
OCDF = Octachlorodibenzofuran

Samples Analyzed				
Report AON0	**Report AON1**	**Report AON2**	**Report AON3**	**Report AOV8**
CR-07-SSD-COMP	CR11-14-SBSD-COMP	CR09a-SSD-COMP	CR20-S-5.0	CR17-D-SSD
CR23-S-3.0	CR-24-SSD-COMP	CR09b-SSD-COMP	CR21-S-5.0	CR17-D-SBSD
CR22-S-3.0	CR11-SBSD-23	-	CR21-GW-10	CR08A-SBSD
CR23-GW-6.0	CR12-SBSD-15	-	CR20-GW-5.0	CR10-SSD-COMP
CR22-GW-9.0	CR13-SBSD-11	-	Seep-01	CR08a-SSD-COMP
-	CR14-SBSD-12	-	-	-
Report AOT3	**Report AOV9**	**Report AOW1**	**Report AOW2**	**Report ART5**
CR19D-SSD-CONV	CR08b-SBSD	CR19F-SBSD	CR15C-SSD	CR18B-SBSD
-	CR26-SBSD	CR19F-SBSD-DUP	CR15C-SBSD	CR18B-SSD
-	-	CR19F-SSD	CR08b-SSD-COMP	-
-	-	SR18B-SBSD	-	-
-	-	SR18B-SSD	-	-
Report ASF7	**Report AUD1**	-	-	--
CR08b-SBSD	Storm-01	-	-	-
CR26-SBSD	-	-	-	-

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2014a,b,c) and appropriate laboratory and method-specific guidelines (ARI, 2014; USEPA, 1986).

Data validation procedures were modified, as appropriate, to accommodate quality control requirements for methods not specifically addressed by the functional guidelines (e.g., NWTPH-Dx).

Where appropriate, the data were qualified using the following qualifiers:

J The analyte was positively identified but the associated numerical value is an approximate concentration because either there was an issue with the quality of the data generated or the concentration of the analyte was between the reporting limit (RL) and half the RL or the estimated detection limit (EDL).

J+ The result is an estimated value but may be biased high.

U Analysis was conducted, but the analyte was not detected at or above the selected RL. The value may represent an adjusted RL or the sample-specific EDL.

UJ The analyte was not detected (see definition of "U" and "J" qualifiers above). The reported value should be considered approximate.

R The sample results are unusable because certain quality control criteria were not met. The analyte may or may not be present in the sample.

GENERAL ASSESSMENT

Results for total and dissolved metals in water were reviewed to identify inconsistencies in any one sample. All total metals results were greater than dissolved metals results or within a reasonable relative percent difference (RPD).

ARI did not use second column confirmation for 2,3,7,8-TCDF. The reviewer confirmed that the analytical column used for USEPA Method 1613B analysis met requirements for 2,3,7,8-TCDD and 2,3,7,8-TCDF isomer specificity, therefore not requiring second column confirmation.

In reports AON1, AON2, AON3, AOV8, AOV9, AOW1, AOW2, and AUD1, USEPA Method 1613B detected results that were reported as estimated maximum potential concentrations (EMPC) were assigned by the reviewer a "U" qualifier (non-detect) at the reported EMPC value. Results detected below the RL were flagged by ARI with "J EMPC" and were also assigned by the reviewer a "U" qualifier at the reported EMPC value. In reports AON2 and AOW1, the 1,2,3,7,8-PeCDF results for samples CR09a-SSD-COMP and CR19F-SSD were flagged by ARI with "X" in addition to "EMPC," due to polychlorinated diphenyl ether interference. Qualified results are summarized below.

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AON0	CR23-S-3.0	2,3,7,8-TCDF	0.0538 J EMPC	0.0538 U
AON0	CR23-S-3.0	1,2,3,6,7,8-HxCDF	0.153 J EMPC	0.153 U
AON0	CR23-S-3.0	1,2,3,7,8,9-HxCDF	0.155 J EMPC	0.155 U
AON0	CR23-S-3.0	1,2,3,4,7,8-HxCDD	0.193 J EMPC	0.193 U
AON0	CR23-S-3.0	1,2,3,4,7,8,9-HpCDF	0.221 J EMPC	0.221 U
AON0	CR23-S-3.0	Total TCDF	0.103 EMPC	0.103 U
AON0	CR23-S-3.0	Total TCDD	11.4 EMPC	11.4 U

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AON0	CR23-S-3.0	Total HxCDF	5.78 EMPC	5.78 U
AON0	CR23-S-3.0	Total HxCDD	27.3 EMPC	27.3 U
AON0	CR23-S-3.0	Total HpCDF	10.2 EMPC	10.2 U
AON0	CR22-S-3.0	2,3,7,8-TCDD	1.41 J EMPC	1.41 U
AON0	CR22-S-3.0	1,2,3,4,7,8,9-HpCDF	12.5 EMPC	12.5 U
AON0	CR22-S-3.0	Total TCDF	5.25 EMPC	5.25 U
AON0	CR22-S-3.0	Total TCDD	13.6 EMPC	13.6 U
AON0	CR22-S-3.0	Total PeCDF	48.6 EMPC	48.6 U
AON0	CR22-S-3.0	Total HpCDF	695 EMPC	695 U
AON1	CR11-SBSD-23	1,2,3,6,7,8-HxCDF	0.0339 J EMPC	0.0339 U
AON1	CR11-SBSD-23	1,2,3,7,8,9-HxCDF	0.112 J EMPC	0.112 U
AON1	CR11-SBSD-23	1,2,3,4,7,8-HxCDD	0.255 J EMPC	0.255 U
AON1	CR11-SBSD-23	1,2,3,6,7,8-HxCDD	0.631 J EMPC	0.631 U
AON1	CR11-SBSD-23	1,2,3,4,6,7,8-HpCDF	0.317 J EMPC	0.317 U
AON1	CR11-SBSD-23	Total TCDF	0.303 EMPC	0.303 U
AON1	CR11-SBSD-23	Total TCDD	7.61 EMPC	7.61 U
AON1	CR11-SBSD-23	Total PeCDF	0.111 EMPC	0.111 U
AON1	CR11-SBSD-23	Total HxCDF	0.599 EMPC	0.599 U
AON1	CR11-SBSD-23	Total HxCDD	18.1 EMPC	18.1 U
AON1	CR11-SBSD-23	Total HpCDF	1.28 EMPC	1.28 U
AON2	CR09a-SSD-COMP	1.2.37.8-PeCDF	0.383 JX EMPC	0.383 U
AON2	CR09a-SSD-COMP	2,3,4,7,8-PeCDF	0.379 J EMPC	0.379 U
AON2	CR09a-SSD-COMP	1,2,3,4,7,8-HxCDF	0.991 EMPC	0.991 U
AON2	CR09a-SSD-COMP	Total TCDF	6.42 EMPC	6.42 U
AON2	CR09a-SSD-COMP	Total TCDD	8.55 EMPC	8.55 U
AON2	CR09a-SSD-COMP	Total PeCDF	10.6 EMPC	10.6 U
AON2	CR09a-SSD-COMP	Total PeCDD	12.4 EMPC	12.4 U
AON2	CR09a-SSD-COMP	Total HxCDF	22.2 EMPC	22.2 U
AON2	CR09a-SSD-COMP	Total HxCDD	48.3 EMPC	48.3 U
AON2	CR09b-SSD-COMP	2,3,7,8-TCDD	2.06 EMPC	2.06 U
AON2	CR09b-SSD-COMP	2,3,4,7,8-PeCDF	0.528 EMPC	0.528 U
AON2	CR09b-SSD-COMP	1,2,3,4,7,8-HxCDF	1.16 EMPC	1.16 U
AON2	CR09b-SSD-COMP	Total TCDF	12.5 EMPC	12.5 U
AON2	CR09b-SSD-COMP	Total TCDD	15.4 EMPC	15.4 U
AON2	CR09b-SSD-COMP	Total PeCDF	16.5 EMPC	16.5 U
AON2	CR09b-SSD-COMP	Total PeCDD	21.0 EMPC	21.0 U
AON2	CR09b-SSD-COMP	Total HxCDF	30.8 EMPC	30.8 U
AON2	CR09b-SSD-COMP	Total HxCDD	72.3 EMPC	72.3 U
AON2	CR09b-SSD-COMP	Total HpCDF	58.9 EMPC	58.9 U
AON3	CR20-S-5.0	1,2,3,7,8-PeCDF	4.85 EMPC	4.85 U
AON3	CR20-S-5.0	Total TCDF	50.9 EMPC	50.9 U
AON3	CR20-S-5.0	Total TCDD	79.6 EMPC	79.6 U

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AON3	CR20-S-5.0	Total PeCDF	316 EMPC	316 U
AON3	CR20-S-5.0	Total HxCDF	1340 EMPC	1340 U
AON3	CR20-S-5.0	Total HxCDD	843 EMPC	843 U
AON3	CR20-S-5.0	Total HpCDF	3080 EMPC	3080 U
AON3	CR21-S-5.0	2,3,7,8-TCDF	0.657 J EMPC	0.657 U
AON3	CR21-S-5.0	2,3,7,8-TCDD	0.467 J EMPC	0.467 U
AON3	CR21-S-5.0	2,3,4,7,8-PeCDF	0.727 J EMPC	0.727 U
AON3	CR21-S-5.0	Total TCDF	7.08 EMPC	7.08 U
AON3	CR21-S-5.0	Total TCDD	4.89 EMPC	4.89 U
AON3	CR21-S-5.0	Total PeCDF	36.3 EMPC	36.3 U
AON3	CR21-S-5.0	Total PeCDD	14.9 EMPC	14.9 U
AON3	CR21-S-5.0	Total HxCDF	95.5 EMPC	95.5 U
AOV8	CR17-D-SSD	2,3,7,8-TCDF	0.406 J EMPC	0.406 U
AOV8	CR17-D-SSD	1,2,3,7,8-PeCDF	0.213 J EMPC	0.213 U
AOV8	CR17-D-SSD	2,3,4,7,8-PeCDF	0.239 J EMPC	0.239 U
AOV8	CR17-D-SSD	2,3,4,6,7,8-HxCDF	0.443 J EMPC	0.443 U
AOV8	CR17-D-SSD	1,2,3,7,8,9-HxCDF	0.324 J EMPC	0.324 U
AOV8	CR17-D-SSD	1,2,3,4,7,8-HxCDD	0.736 J EMPC	0.736 U
AOV8	CR17-D-SSD	1,2,3,4,7,8,9-HpCDF	0.483 J EMPC	0.483 U
AOV8	CR17-D-SSD	Total TCDF	4.27 EMPC	4.27 U
AOV8	CR17-D-SSD	Total TCDD	12.4 EMPC	12.4 U
AOV8	CR17-D-SSD	Total PeCDF	4.66 EMPC	4.66 U
AOV8	CR17-D-SSD	Total PeCDD	16.7 EMPC	16.7 U
AOV8	CR17-D-SSD	Total HxCDF	10.8 EMPC	10.8 U
AOV8	CR17-D-SSD	Total HxCDD	45.8 EMPC	45.8 U
AOV8	CR17-D-SSD	Total HpCDF	21.2 EMPC	21.2 U
AOV8	CR08A-SBSD	1,2,3,7,8,9-HxCDF	0.258 J EMPC	0.258 U
AOV8	CR08A-SBSD	1,2,3,4,7,8-HxCDD	0.583 J EMPC	0.583 U
AOV8	CR08A-SBSD	1,2,3,4,7,8,9-HpCDF	0.250 J EMPC	0.250 U
AOV8	CR08A-SBSD	Total TCDF	0.656 EMPC	0.656 U
AOV8	CR08A-SBSD	Total TCDD	12.0 EMPC	12.0 U
AOV8	CR08A-SBSD	Total PeCDF	0.428 EMPC	0.428 U
AOV8	CR08A-SBSD	Total PeCDD	12.7 EMPC	12.7 U
AOV8	CR08A-SBSD	Total HxCDF	1.27 EMPC	1.27 U
AOV8	CR08A-SBSD	Total HxCDD	33.2 EMPC	33.2 U
AOV8	CR08A-SBSD	Total HpCDF	3.43 EMPC	3.43 U
AOV8	CR08a-SSD-COMP	1,2,3,7,8-PeCDF	0.483 J EMPC	0.483 U
AOV8	CR08a-SSD-COMP	1,2,3,4,7,8,9-HpCDF	2.10 EMPC	2.10 U
AOV8	CR08a-SSD-COMP	Total TCDF	10.9 EMPC	10.9 U
AOV8	CR08a-SSD-COMP	Total TCDD	23.9 EMPC	23.9 U
AOV8	CR08a-SSD-COMP	Total PeCDF	12.8 EMPC	12.8 U
AOV8	CR08a-SSD-COMP	Total PeCDD	25.9 EMPC	25.9 U

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AOV8	CR08a-SSD-COMP	Total HxCDF	44.0 EMPC	44.0 U
AOV8	CR08a-SSD-COMP	Total HxCDD	147 EMPC	147 U
AOV8	CR08a-SSD-COMP	Total HpCDF	126 EMPC	126 U
AOV9	CR08b-SBSD	1,2,3,7,8-PeCDF	0.288 J EMPC	0.288 U
AOV9	CR08b-SBSD	1,2,3,4,6,7,8-HpCDF	0.295 J EMPC	0.295 U
AOV9	CR08b-SBSD	OCDF	0.802 J EMPC	0.802 U
AOV9	CR08b-SBSD	Total TCDF	10.7 EMPC	10.7 U
AOV9	CR08b-SBSD	Total TCDD	21.4 EMPC	21.4 U
AOV9	CR08b-SBSD	Total PeCDF	2.08 EMPC	2.08 U
AOV9	CR08b-SBSD	Total PeCDD	21.9 EMPC	21.9 U
AOV9	CR08b-SBSD	Total HxCDF	0.888 EMPC	0.888 U
AOV9	CR08b-SBSD	Total HxCDD	45.4 EMPC	45.4 U
AOV9	CR08b-SBSD	Total HpCDF	0.643 EMPC	0.643 U
AOW1	CR19F-SSD	1,2,3,7,8-PeCDF	0.613 JX EMPC	0.613 U
AOW1	CR19F-SSD	1,2,3,7,8,9-HxCDF	0.571 J EMPC	0.571 U
AOW1	CR19F-SSD	Total TCDF	25.6 EMPC	25.6 U
AOW1	CR19F-SSD	Total TCDD	20.6 EMPC	20.6 U
AOW1	CR19F-SSD	Total PeCDF	23.6 EMPC	23.6 U
AOW1	CR19F-SSD	Total PeCDD	26.4 EMPC	26.4 U
AOW1	CR19F-SSD	Total HxCDF	40.2 EMPC	40.2 U
AOW1	CR19F-SSD	Total HxCDD	93.0 EMPC	93.0 U
AOW1	CR19F-SSD	Total HpCDF	62.7 EMPC	62.7 U
AOW1	CR18B-SSD	2,3,7,8-TCDF	0.381 J EMPC	0.381 U
AOW1	CR18B-SSD	1,2,3,7,8-PeCDF	0.157 J EMPC	0.157 U
AOW1	CR18B-SSD	2,3,4,7,8-PeCDF	0.183 J EMPC	0.183 U
AOW1	CR18B-SSD	1,2,3,4,7,8-HxCDF	0.424 J EMPC	0.424 U
AOW1	CR18B-SSD	1,2,3,6,7,8-HxCDF	0.294 J EMPC	0.294 U
AOW1	CR18B-SSD	Total TCDF	4.57 EMPC	4.57 U
AOW1	CR18B-SSD	Total TCDD	15.9 EMPC	15.9 U
AOW1	CR18B-SSD	Total PeCDF	4.65 EMPC	4.65 U
AOW1	CR18B-SSD	Total PeCDD	20.5 EMPC	20.5 U
AOW1	CR18B-SSD	Total HxCDF	8.92 EMPC	8.92 U
AOW1	CR18B-SSD	Total HxCDD	46.9 EMPC	46.9 U
AOW2	CR15C-SSD	2,3,4,7,8-PeCDF	0.505 J EMPC	0.505 U
AOW2	CR15C-SSD	1,2,3,4,7,8-HxCDF	1.25 EMPC	1.25 U
AOW2	CR15C-SSD	2,3,4,6,7,8-HxCDF	1.21 EMPC	1.21 U
AOW2	CR15C-SSD	1,2,3,4,7,8,9-HpCDF	0.959 J EMPC	0.959 U
AOW2	CR15C-SSD	Total TCDF	13.7 EMPC	13.7 U
AOW2	CR15C-SSD	Total TCDD	20.3 EMPC	20.3 U
AOW2	CR15C-SSD	Total PeCDF	12.6 EMPC	12.6 U
AOW2	CR15C-SSD	Total HxCDF	28.1 EMPC	28.1 U
AOW2	CR15C-SSD	Total HxCDD	76.1 EMPC	76.1 U

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AOW2	CR15C-SSD	Total HpCDF	60.7 EMPC	60.7 U
AOW2	CR08b-SSD-COMP	Total TCDF	21.7 EMPC	21.7 U
AOW2	CR08b-SSD-COMP	Total TCDD	25.0 EMPC	25.0 U
AOW2	CR08b-SSD-COMP	Total PeCDF	35.9 EMPC	35.9 U
AOW2	CR08b-SSD-COMP	Total HxCDF	119 EMPC	119 U
AOW2	CR08b-SSD-COMP	Total HpCDF	243 EMPC	243 U

EMPC = estimated maximum potential concentration.
J = the result is an estimated value.
pg/g = picograms per gram.
U = the result is non-detect.

Report	Sample	Component	Laboratory-Reported Result (pg/L)	Result of Record (pg/L)
AUD1	Storm-01	2,3,7,8-TCDF	0.872 J EMPC	0.872 U
AUD1	Storm-01	1,2,3,7,8-PeCDF	1.13 J EMPC	1.13 U
AUD1	Storm-01	1,2,3,6,7,8-HxCDF	1.38 J EMPC	1.38 U
AUD1	Storm-01	2,3,4,6,7,8-HxCDF	2.26 J EMPC	2.26 U
AUD1	Storm-01	1,2,3,7,8,9-HxCDF	0.949 J EMPC	0.949 U
AUD1	Storm-01	1,2,3,4,7,8-HxCDD	0.795 J EMPC	0.795 U
AUD1	Storm-01	1,2,3,4,7,8,9-HpCDF	2.67 J EMPC	2.67 U
AUD1	Storm-01	Total TCDF	9.23 EMPC	9.23 U
AUD1	Storm-01	Total TCDD	39.8 EMPC	39.8 U
AUD1	Storm-01	Total PeCDF	30.1 EMPC	30.1 U
AUD1	Storm-01	Total PeCDD	18.6 EMPC	18.6 U
AUD1	Storm-01	Total HxCDF	88.0 EMPC	88.0 U
AUD1	Storm-01	Total HxCDD	100 EMPC	100 U
AUD1	Storm-01	Total HpCDF	130 EMPC	130 U

EMPC = estimated maximum potential concentration.
J = the result is an estimated value.
pg/L = picograms per liter.
U = the result is non-detect.

In reports AON0, AOV8, and AOW2, the USEPA Method 1613B OCDD result for samples CR22-S-3.0 and CR08a-SSD-COMP exceeded the instrument calibration range. The results have been qualified as estimated by the reviewer as follows:

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (ug/kg)
AON0	CR22-S-3.0	OCDD	30800	30800 J
AOV8	CR08a-SSD-COMP	OCDD	13700	13700 J
AOW2	CR0b-SSD-COMP	OCDD	22200	22200 J

J = the result is an estimated value.
ug/kg = micrograms per kilogram.

In report AON3, the laboratory flagged USEPA Method 8082A Aroclor 1254 results for sample CR20-S-5.0 due to primary and confirmation column relative percent differences (RPDs) greater than or equal to 40 percent. The laboratory did not detect chromatographic interference. The results were qualified "J", as estimated, by the reviewer. Qualifications are as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON3	CR20-S-5.0	Aroclor 1254	710	710 J
AON3	CR21-S-5.0	Aroclor 1254	73	73 J

J = the result is an estimated value.
ug/kg = micrograms per kilogram.

In report AOT3, the preserved (fixed) total solids result was greater than the total solids result. The preserved total solids value was within 20 percent of the total solids value; thus, no results were qualified.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

All TOC analysis dates exceeded the recommended 14-day holding time; however, samples from reports AON1, AON2, AOV8, AOW1, and AOW2 were prepared for analysis within 14 days of sample collection. Samples from report ASF7 were prepared from containers frozen at the time of receipt. No data required qualification.

USEPA Method 8270D and 8270D SIM extractions were conducted one to two days past the 14-day recommended holding times for sediment samples associated with reports AOV9 and AOW2. The reviewer confirmed with ARI that the affected samples were extracted from containers stored at -18°C from the time of login. Sediment sample storage at -18°C

extends USEPA Method 8270D and 8270D-SIM holding time to one year. No qualification was required.

Remaining extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

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.

If 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 for USEPA Method 1613B results and less than ten times the method blank concentration for remaining analysis results. Method reporting limits (MRLs) were elevated to the concentration detected in the samples and results were qualified as not detected "U" at the elevated MRL. The reviewer did not qualify remaining results.

Sample results less than five times the MRL were qualified by the reviewer with "J+", as estimated with a positive bias, if sample results were also within ten times a method blank concentration that was below the MRL.

For USEPA Method 1613B results, analytes detected in a sample and in the associated method blank below the MRL but above the EDL were qualified as "U" at the reporting limit. Method blank detections flagged as EMPCs did not result in qualification.

In report AON3, the USEPA Method 1613B method blank had detections for some analytes below the MRL and a detection of OCDD above the MRL. All associated sample results were above the MRL and greater than five times the method blank concentrations; thus, no results were qualified.

In reports AON0, AON1, and AON2, the soil and sediment matrix USEPA Method 1613B method blank (MB-102315) had several detections below the MRL and a detection for OCDD above the MRL. The following results were qualified

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AON0	CR23-S-3.0	2,3,4,6,7,8-HxCDF	0.133 J	0.133 U

J = the result is an estimated value.
pg/g = pictograms per gram.
U = the result is non-detect.

In report AOV8, the sediment matrix USEPA Method 1613B method blank (MB-102615) had detections of some analytes below the MRL and detections of 1,2,3,4,6,7,8-HpCDD and OCDD above the MRL. All associated sample results were either qualified based on EMPC, were non-detect, or were greater than five times the method blank concentration; thus, no results were qualified.

In reports AOV9, AOW1, and AOW2, the sediment matrix USEPA Method 8270D method blank (MB-103015) had a detection of diethylphthalate above the reporting limit, at 21 ug/kg. Associated samples were qualified by the reviewer as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOV9	CR26-SBSD	Diethylphthalate	20	20 U
AOW1	CR19F-SBSD	Diethylphthalate	24	24 U
AOW1	CR19F-SBSD-DUP	Diethylphthalate	38	38 U
AOW1	CR19F-SSD	Diethylphthalate	22	22 U
AOW1	SR18B-SBSD	Diethylphthalate	20	20 U
AOW1	SR18B-SSD	Diethylphthalate	40	40 U
AOW2	CR15C-SSD	Diethylphthalate	21	21 U
AOW2	CR15C-SBSD	Diethylphthalate	26	26 U
AOW2	CR08b-SSD-COMP	Diethylphthalate	36	36 U

J = the result is an estimated value.
U = the result is non-detect.
ug/kg = micrograms per kilogram.

In reports AOV9, AOW1, and AOW2, the sediment matrix USEPA Method 1613B method blank (MB-102615) had a detection of 1,2,3,7,8,9-HxCDF below the MRL and detections of 1,2,3,4,6,7,8-HpCDD and OCDD above the MRL. The following results were qualified:

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AOV9	CR08b-SBSD	1,2,3,7,8,9-HxCDF	0.146 J	0.146 U
AOV9	CR08b-SBSD	OCDD	45.4	45.4 U
AOW1	CR18B-SSD	1,2,3,7,8,9-HxCDF	0.226 J	0.226 U

Report	Sample	Component	Laboratory-Reported Result (pg/g)	Result of Record (pg/g)
AOW2	CR15C-SSD	1,2,3,7,8,9-HxCDF	0.338 J	0.338 U

J = the result is an estimated value.
pg/g = pictograms per gram.
U = the result is non-detect.

In report AOT3, the USEPA Method 8270D sediment matrix method blank (MB-102815) had a detection for phenol below the reporting limit, at 17 ug/kg. The associated sample, CR19D-SSD-CONV, had a phenol detection above the reporting limit, at 93 ug/kg. The reviewer qualified the result as estimated with a positive bias (J+) as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOT3	CR19D-SSD-CONV	Phenol	93	93 J+

J+ = the result is an estimated value with a positive bias.
U = the result is non-detect.
ug/kg = micrograms per kilogram.

All remaining method blanks were non-detect.

Trip Blanks

Trip blanks were not submitted for analysis.

Equipment Rinsate Blanks

Equipment rinsate blanks were not submitted for analysis.

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 were within acceptance limits, except where otherwise noted. Sample results associated with surrogate percent recovery exceedances caused by dilutions were not qualified by the reviewer.

In report AON0, the USEPA Method 8270D surrogate p-terphenyl-d14 result was below the lower percent recovery acceptance limit of 28 percent, at 24.9 percent for sample CR23-GW-6.0. The surrogate p-terphenyl-d14 is a base/neutral surrogate, and the remaining base/neutral surrogates for sample CR23-GW-6.0 were within percent recovery acceptance limits. No results were qualified.

In report AON0, the NWTPH-Dx surrogate o-terphenyl result was below the lower percent recovery acceptance limit of 50 percent, at 47.6 percent for sample CR23-GW-6.0. Associated sample results were qualified "J" as estimated by the reviewer as follows:

Report	Sample	Component	Laboratory-Reported Result (mg/L)	Result of Record (mg/L)
AON0	CR23-GW-6.0	Diesel	3.4	3.4 J
AON0	CR23-GW-6.0	Motor Oil	3.2	3.2 J

J = the result is an estimated value.
mg/L = milligrams per liter.

In report AON3, the USEPA Method 8082A surrogate decachlorobiphenyl exceeded the upper percent recovery acceptance limit of 120 percent, at 126 percent due to co-elution with some Aroclors compounds. The exceedance was minor, and the remaining surrogate had acceptable percent recovery; thus, no results were qualified.

All remaining surrogate recoveries were within acceptance limits.

LABELED ANALOG RECOVERY RESULTS

In reports AON0, AON2, AON3, AOV8, AOV9, AOW1, and AOW2, USEPA Method 1613B samples were spiked with carbon-13 (C13) labeled analog standards to quantify the relative response of analytes in each sample. All C13 labeled analog standard 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. Control limits were not included with most MS/MSD results. The reviewer confirmed that MS/MSDs met percent recovery and RPD acceptance criteria, with the following exceptions:

In reports AON1, sediment matrix USEPA Method 8270D MS/MSD results for 4-methylphenol were above the upper percent recovery acceptance limit, with percent recoveries of 162 percent and 139 percent, respectively. The MS/MSD results for N-nitrosodiphenylamine were below lower percent recovery acceptance limits, at 24.5 percent and 12.2 percent, respectively. The RPD for N-nitrosodiphenylamine exceeded the control limit, at 67 percent. The associated laboratory control sample (LCS) had acceptable percent recoveries for both compounds. The sample used to prepare the MS/MSD was qualified by the reviewer as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON1	CR12-SBSD-15	4-Methylphenol	870	870 J
AON1	CR12-SBSD-15	N-Nitrosodiphenylamine	20 U	20 UJ

J = the result is an estimated value.
ug/kg = micrograms per kilogram.
UJ = the result is non-detect and an estimated value.

In report AON1, sediment matrix USEPA Method 8270D-SIM MS/MSD results for N-nitrosodiphenylamine were below lower percent recovery acceptance limits, at 28.4 percent and 14.5 percent, respectively. The RPD for N-nitrosodiphenylamine exceeded the control limit, at 64.6 percent. The associated LCS had acceptable percent recovery. The sample used to prepare the MS/MSD was qualified as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON1	CR12-SBSD-15	N-Nitrosodiphenylamine	4.9 U	4.9 UJ

ug/kg = micrograms per kilogram.
UJ = the result is non-detect and an estimated value.

In report AON3, the soil matrix USEPA Method 6010C MS result for total chromium was below the lower percent recovery acceptance limit of 75 percent, at -5.4 percent. The associated LCS met percent recovery acceptance limits for total chromium. The associated laboratory duplicate exceeded RPD acceptance limits for total chromium. Associated samples are qualified in the laboratory duplicate section below.

In report AOV8, the sediment matrix USEPA Method 8270D-SIM MS/MSD results for pentachlorophenol and the MS result for 2,4-dimethylphenol were flagged with "E" by ARI due to concentrations exceeding the instrument calibration range. The reviewer confirmed that the same MS/MSD extract was analyzed by both 8270D dual scan and 8270D-SIM. The MS/MSD met percent recovery acceptance limits for pentachlorophenol and 2,4-dimethylphenol by both USEPA Method 8270D and 8270D-SIM, and analytical results for the same samples reported by both methods were consistent; thus, no results were qualified.

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. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results that had concentrations less than five times the reporting limit were not evaluated.

In report AON3, the soil matrix USEPA Method 6010C laboratory duplicate prepared with sample CR20-S-5.0 exceeded the RPD control limit of 20 percent for total chromium, at 119 percent. The associated LCS met percent recovery acceptance limits. The MS prepared with the same sample also exceeded total chromium control limits. The sample used to prepare the laboratory duplicate is likely heterogeneous. Since the matrix of sample CR20-S-5.0 is expected to be similar to the matrix of site soils, both sample results were qualified "J" as estimated by the reviewer as follows:

Report	Sample	Component	Laboratory-Reported Result (mg/kg)	Result of Record (mg/kg)
AON3	CR20-S-5.0	Total Chromium	71	71 J
AON3	CR21-S-5.0	Total Chromium	32	32 J

Report	Sample	Component	Laboratory-Reported Result (mg/kg)	Result of Record (mg/kg)

J = the result is an estimated value.
mg/kg = milligrams per kilogram.

The laboratory duplicates for solid matrix USEPA Method 6010C and 7471A batches prepared on November 2, 2015 were associated with results reported in AOV8, AOV9, AOW1, and AOW2. The laboratory duplicate results were reported only in AOW1 and met RPD control limits.

All remaining laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

Laboratory control sample/laboratory control sample duplicates (LCS/LCSD) are spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency. Control limits were not included with most LCS/LCSD results. The reviewer confirmed that LCS/LCSDs met percent recovery and RPD acceptance criteria, with the following exceptions:

In reports AON0 and AON3, the soil and sediment matrix USEPA Method 8270D LCS result for 4-chloroaniline was below the lower percent recovery acceptance limit of 11 percent, at 3.8 percent; the result for 3-nitroaniline was below the lower percent recovery acceptance limit of 22 percent, at 5.7 percent; and the LCS result for 3,3'-dichlorobenzidine was 0 percent. All associated sample results were non-detect. Due to the low LCS percent recoveries, the results have been qualified with "R" as rejected by the reviewer as shown in the table below. Qualifications are as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON0	CR07-SSD-COMP	4-Chloroaniline	97 U	97 R
AON0	CR07-SSD-COMP	3-Nitroaniline	97 U	97 R
AON0	CR07-SSD-COMP	3,3'-Dichlorobenzidine	97 U	97 R
AON0	CR23-S-3.0	4-Chloroaniline	93 U	93 R
AON0	CR23-S-3.0	3-Nitroaniline	93 U	93 R
AON0	CR23-S-3.0	3,3'-Dichlorobenzidine	93 U	93 R
AON0	CR22-S-3.0	4-Chloroaniline	190 U	190 R
AON0	CR22-S-3.0	3-Nitroaniline	190 U	190 R
AON0	CR22-S-3.0	3,3'-Dichlorobenzidine	190 U	190 R
AON3	CR20-S-5.0	4-Chloroaniline	1400 U	1400 R
AON3	CR20-S-5.0	3-Nitroaniline	1400 U	1400 R
AON3	CR20-S-5.0	3,3'-Dichlorobenzidine	1400 U	1400 R
AON3	CR21-S-5.0	4-Chloroaniline	460 U	460 R
AON3	CR21-S-5.0	3-Nitroaniline	460 U	460 R
AON3	CR21-S-5.0	3,3'-Dichlorobenzidine	460 U	460 R

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)

ug/kg = micrograms per kilogram.
R = the result is rejected.

In reports AON0 and AON3, the groundwater and surface water matrix USEPA Method 8270D LCSD result for 2,2'-oxybis (1-chloropropane) was below the lower percent recovery acceptance limit of 47 percent, at 44.4 percent. The LCS result was within the percent recovery acceptance limit; thus, no results were qualified. The LCS/LCSD exceeded RPD acceptance limits of 30 percent for phenol, bis(2-chloroethyl)ether, and 2-chlorophenol. Associated samples were non-detect; thus, no results were qualified.

In reports AON1, AOV8, AOV9, AOW1, and AOW2, the USEPA Method 8270D-SIM LCS results for pentachlorophenol were flagged with "E" by ARI due to concentrations exceeding the instrument calibration range. The reviewer confirmed that the same LCS extract was analyzed by both 8270D dual scan and 8270D-SIM. The LCS met percent pentachlorophenol percent recovery acceptance limits for both methods. The pentachlorophenol results reported by both methods for the same samples were consistent; thus, no results were qualified.

All remaining LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

One field duplicate was submitted for analysis with report AOW1 (CRF19F-SBSD/CRF19F-SBSD-DUP). 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 are not used in the evaluation of field duplicate results. All field duplicate analytes were within the acceptance criteria.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy throughout the sample batch. ARI reported CCV-qualified results. CCV exceedances associated with quality control samples and surrogate results that met percent recovery acceptance limits were not qualified by the reviewer.

In reports AON1 and AON2, the solid matrix USEPA Method 8270D-SIM CCV analyzed on November 5, 2015 exceeded percent drift acceptance limits for pentachlorophenol. All associated results were qualified as estimated by the reviewer with "UJ" for non-detect results and "J" for detected results, as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON1	CR-24-SSD-COMP	Pentachlorophenol	86 Q	86 J

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON1	CR11-SBSD-23	Pentachlorophenol	19 U	19 UJ
AON1	CR12-SBSD-15	Pentachlorophenol	20 U	20 UJ
AON1	CR13-SBSD-11	Pentachlorophenol	20 U	20 UJ
AON1	CR14-SBSD-12	Pentachlorophenol	20 U	20 UJ
AON2	CR09a-SSD-COMP	Pentachlorophenol	19 U	19 UJ
AON2	CR09b-SSD-COMP	Pentachlorophenol	19 U	19 UJ

In reports AON0 and AON3, the solid matrix USEPA Method 8270D CCV analyzed on October 28, 2015 exceeded percent drift acceptance limits for phenol, carbazole, and 3,3'-dichlorobenzidine. Associated sample results have been qualified as estimated by the reviewer with "J," except for 3,3'-dichlorobenzidine results, which were already qualified in the LCS/LCSD section. Results detected below the reporting limit were already flagged by the laboratory as estimated; no additional qualification was required. Qualified results are as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON0	CR-07-SSD-COMP	Carbazole	24	24 J
AON0	CR23-S-3.0	Phenol	19 U	19 UJ
AON0	CR23-S-3.0	Carbazole	19 U	19 UJ
AON0	CR22-S-3.0	Phenol	38 U	38 UJ
AON0	CR22-S-3.0	Carbazole	38 U	38 UJ
AON3	CR20-S-5.0	Phenol	280 U	280 UJ
AON3	CR20-S-5.0	Carbazole	280 U	280 UJ
AON3	CR21-S-5.0	Phenol	92 U	92 UJ
AON3	CR21-S-5.0	Carbazole	92 U	92 UJ

J = the result is an estimated value.
U = the result is non-detect.
ug/kg = micrograms per kilogram.
UJ = the result is non-detect and an estimated value.

In reports AON0 and AON3, the aqueous matrix USEPA Method 8270D CCV analyzed on October 23, 2015 exceeded percent drift acceptance limits for benzoic acid, hexachlorocyclopentadiene, 2,4-dinitrophenol, 4-nitrophenol, and pentachlorophenol. Associated sample results that were non-detect have been qualified as estimated by the reviewer with "UJ." Sample results reported between one-half of the MRL and the MRL are estimated values and were not additionally qualified by the reviewer. Qualified results are summarized as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/L)	Result of Record (ug/L)
AON0	CR23-GW-6.0	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON0	CR23-GW-6.0	2,4-Dinitrophenol	20 U	20 UJ
AON0	CR23-GW-6.0	4-Nitrophenol	10 U	10 UJ

Report	Sample	Component	Laboratory-Reported Result (ug/L)	Result of Record (ug/L)
AON0	CR23-GW-6.0	Pentachlorophenol	10 U	10 UJ
AON0	CR22-GW-9.0	Benzoic acid	20 U	20 UJ
AON0	CR22-GW-9.0	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON0	CR22-GW-9.0	2,4-Dinitrophenol	20 U	20 UJ
AON0	CR22-GW-9.0	4-Nitrophenol	10 U	10 UJ
AON0	CR22-GW-9.0	Pentachlorophenol	10 U	10 UJ
AON3	CR21-GW-10	Benzoic acid	20 U	20 UJ
AON3	CR21-GW-10	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON3	CR21-GW-10	2,4-Dinitrophenol	20 U	20 UJ
AON3	CR21-GW-10	4-Nitrophenol	10 U	10 UJ
AON3	CR21-GW-10	Pentachlorophenol	10 U	10 UJ
AON3	CR20-GW-5.0	Benzoic acid	20 U	20 UJ
AON3	CR20-GW-5.0	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON3	CR20-GW-5.0	2,4-Dinitrophenol	20 U	20 UJ
AON3	CR20-GW-5.0	4-Nitrophenol	10 U	10 UJ
AON3	CR20-GW-5.0	Pentachlorophenol	10 U	10 UJ
AON3	Seep-01	Benzoic acid	20 U	20 UJ
AON3	Seep-01	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON3	Seep-01	2,4-Dinitrophenol	20 U	20 UJ
AON3	Seep-01	4-Nitrophenol	10 U	10 UJ
AON3	Seep-01	Pentachlorophenol	10 U	10 UJ

UJ = the result is non-detect and an estimated value.
ug/L = micrograms per liter.

In reports AON0 and AON3, ARI reported in the case narrative that a USEPA Method 8082A CCV exceeded the percent drift acceptance limit for Aroclor 1242. The reviewer confirmed that the CCV was associated with aqueous matrix samples. The CCVs analyzed on the secondary column met percent drift acceptance criteria, and ARI quantified results from the secondary column; thus, no qualification was required.

In reports AOV8 and AOV9, the solid matrix USEPA Method 8270D CCV analyzed on October 30, 2015 exceeded percent drift acceptance limits for 4-methylphenol and benzoic acid. Associated sample results detected below the reporting limit were already flagged by the laboratory as estimated; no additional qualification was required. Remaining qualified results are summarized below. The CCV also exceeded percent drift acceptance limits for some compounds that were not reported, and no action was required by the reviewer for these exceedances. Qualifications are as follows:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOV8	CR17-D-SSD	4-Methylphenol	19 U	19 UJ
AOV8	CR17-D-SBSD	4-Methylphenol	120	120 J
AOV8	CR17-D-SSD	Benzoic Acid	230	230 J

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOV8	CR08A-SBSD	4-Methylphenol	190	190 J
AOV8	CR10-SSD-COMP	4-Methylphenol	160	160 J
AOV8	CR10-SSD-COMP	Benzoic Acid	210	210 J
AOV8	CR08a-SSD-COMP	4-Methylphenol	28	28 J
AOV9	CR08b-SBSD	4-Methylphenol	560	560 J
AOV9	CR08b-SBSD	Benzoic Acid	290	290 J

J = the result is an estimated value.
ug/kg = micrograms per kilogram.
UJ = the result is non-detect and an estimated value.

In reports AOV9, AOW1, and AOW2, the solid matrix USEPA Method 8270D-SIM CCV analyzed on November 5, 2015 exceeded percent drift acceptance limits for pentachlorophenol. Associated sample results that were non-detect have been qualified as estimated by the reviewer with "UJ." Associated sample results detected below the reporting limit were already flagged by the laboratory as estimated; no additional qualification was required. Qualified results are summarized below.

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOV9	CR26-SBSD	Pentachlorophenol	20 U	20 UJ
AOW1	CR19F-SBSD	Pentachlorophenol	20 U	20 UJ
AOW1	CR19F-SBSD-DUP	Pentachlorophenol	20 U	20 UJ
AOW2	CR15C-SSD	Pentachlorophenol	20 U	20 UJ
AOW2	CR15C-SBSD	Pentachlorophenol	20 U	20 UJ

ug/kg = micrograms per kilogram.
UJ = the result is non-detect and an estimated value.

In reports AOW1 and AOW2, the solid matrix USEPA Method 8270D CCV analyzed on November 14, 2015 exceeded percent drift acceptance limits for benzoic acid, diethylphthalate, and pentachlorophenol. Associated sample results detected below the MRL were already flagged by the laboratory as estimated; no additional qualification was required. Diethylphthalate results were already qualified by the reviewer in the method blank section above. Remaining qualified results are summarized below:

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOW1	CR18B-SBSD	Benzoic Acid	210	210 J
AOW1	CR18B-SBSD	Pentachlorophenol	99 U	99 UJ
AOW1	CR18B-SSD	Pentachlorophenol	99 U	99 UJ
AOW2	CR15C-SSD	Benzoic Acid	250	250 J
AOW2	CR15C-SSD	Pentachlorophenol	98 U	98 UJ
AOW2	CR15C-SBSD	Pentachlorophenol	98 U	98 UJ
AOW2	CR08b-SSD-COMP	Benzoic Acid	330	330 J

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AOW2	CR08b-SSD-COMP	Pentachlorophenol	96 U	96 UJ

J = the result is an estimated value.
ug/kg = micrograms per kilogram.
UJ = the result is non-detect and an estimated value.

In report AUD1, ARI noted in the cover letter that USEPA Method 8270D CCV results for benzoic acid were above the acceptance limit for percent difference. The non-detect sample result has been qualified with "J" as estimated by the reviewer:

Report	Sample	Component	Laboratory-Reported Result (ug/L)	Result of Record (ug/L)
AUD1	Storm-01	Benzoic Acid	22 U	22 UJ

ug/L = micrograms per liter.
U = the result is non-detect.
UJ = the result is non-detect; RL posted is an estimated value.

The reviewer confirmed with ARI that remaining CCVs not reported by the laboratory were within acceptance limits for percent recovery.

REPORTING LIMITS

ARI evaluated USEPA Methods 6010C, 7470A, 7471A, 8082A, 8270D, and 8270D-SIM results to one-half the MRL. Non-detect results were reported at the MRL. ARI evaluated USEPA Method 1613B results to EDLs. Remaining results, including NWTPH-Dx, were evaluated and reported to MRLs. Results reported between MRL and one-half of the MRL or between the EDL and MRL were qualified by the laboratory with "J" as estimated. Some reporting limits were additionally raised due to matrix interference. NVL evaluated asbestos results to the 1 percent visual estimation detection limit.

Samples requiring dilutions because of high analyte concentrations and/or matrix interferences had elevated EDLs and/or RLs.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

In report AON2, sample CR09b-SSD-COMP was incorrectly transcribed by ARI during login as CRO96-SSD-COMP.T The sample name was corrected for the final report; however, USEPA Method 8270D and 8270D-SIM, and 8082A surrogate recovery summary pages in report AON2 display the incorrect sample name.

In report AON3, sample Seep-01 was not recorded on the chain of custody. The sample name, collection date and time, and analyses were provided by MFA after samples were received by ARI. A record of the request is included with the report.

USEPA Method 8270D analysis was added to samples in report AOW1 after samples were received by the laboratory. A record of the added analysis was not included with the final report.

In report AOW1, USEPA Method 8082A analysis was requested but not performed for samples CR18B-SBSD and CR18B-SSD. The results are reported in report ART5.

In report AUD1, total suspended solids analysis requested on the chain of custody was canceled due to insufficient sample volume. No additional action was required.

No additional issues were found.

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APPENDIX B

HAZARDOUS MATERIALS SURVEY REPORT

HAZARDOUS MATERIALS SURVEY REPORT

WEYERHAEUSER SAWMILL/SEAPORT LANDING SITE—ABERDEEN, WASHINGTON

Prepared for

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

February 11, 2020

Project No. 1044.02.15

MAUL FOSTER ALONGI

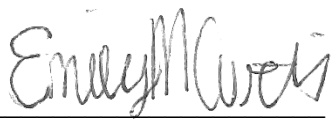
Prepared by

Maul Foster & Alongi, Inc.

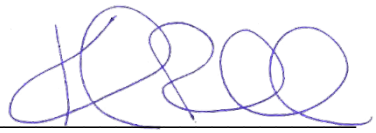
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.



Emily Curtis
Project Environmental Health and Safety Specialist
AHERA Building Inspector Number 171622



Kyle Roslund, LG
Senior Geologist
AHERA Building Inspector Number 171627

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ACRONYMS AND ABBREVIATIONS

ACM	asbestos-containing material
AHERA	Asbestos Hazard Emergency Act
CFR	Code of Federal Regulations
Ecology	Washington State Department of Ecology
FSDS	field sampling data sheet
GHHSA	Grays Harbor Historical Seaport Authority
LBP	lead-based paint
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NVLAP	National Voluntary Laboratory Accreditation Program
PCP	pentachlorophenol
PLM	polarized light microscopy
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
site	Weyerhaeuser Sawmill/Seaport Landing Site
TCLP	toxicity characteristic leaching procedure
ug/kg	micrograms per kilogram
USEPA	U.S. Environmental Protection Agency
WAC	Washington Administrative Code
XRF	x-ray fluorescence

1 INTRODUCTION

On behalf of the Grays Harbor Historical Seaport Authority (GHHSA), Maul Foster & Alongi, Inc. (MFA) conducted a hazardous building materials assessment at five buildings at the Weyerhaeuser Sawmill/Seaport Landing Site in Aberdeen, Washington (the site). MFA conducted the survey on December 3 through 5, 2019. Site features and building locations are provided in Figure 1-1. The five buildings assessed are:

- Planar building
- Storage shed
- Fuel and chemical storage shed
- Main shipping shed
- Guard shed

The assessment areas are described in the work plan (MFA, 2019) and were limited to the buildings that GHHSA had identified as being part of the site's reuse. The assessment included use of a portable x-ray fluorescence (XRF) device to screen materials for the presence of lead-based paint (LBP); sampling and analysis of suspected asbestos-containing materials (ACM); sampling and analysis of suspected pentachlorophenol (PCP)-containing materials; and visual inspection and tracking of suspected polychlorinated biphenyl (PCB)-containing fixtures, mercury-containing fixtures, and other potentially hazardous materials.

The survey was conducted by certified Asbestos Hazard Emergency Act (AHERA) building inspector Emily Curtis of MFA. Ms. Curtis's AHERA building inspector certificate is provided in Appendix A. Samantha Wolf-Saxon of MFA also assisted in the fieldwork efforts.

1.1 Material Survey Objective

The objective of this survey was to identify building materials and components that may require abatement, special handling, or disposal during future demolition or construction activities.

1.2 Regulatory Framework

This survey was conducted as described in the work plan (MFA, 2019) and consistent with regulatory requirements of AHERA in 40 Code of Federal Regulations (CFR) 763; Washington Administrative Code (WAC) 296-65 pertaining to ACM, and Olympic Region Clean Air Agency rules. Additionally, sampling was conducted to determine if PCP use in the planer/grader building has impacted the building materials slated for demolition. PCP was used in the planer/grader building as a spray-on application for anti-sapstain (PES, 2010).

2 BACKGROUND

2.1 Site Description

The site is located at 500 North Custer Street in Aberdeen, Washington, and is approximately 2 miles upriver from Grays Harbor. The site is bordered on the west by a former boatyard and marine service center, to the east by a log storage yard, to the north by the Chehalis River, and to the south by residential and commercial development. The GHHSA acquired the upland portion of the site on March 29, 2013.

2.2 Site History

Historically, sawmills operated on both the upland and in-water portions of the site, beginning prior to 1900. Weyerhaeuser acquired the property in 1955 and operated several sawmills and associated support facilities through January 2009, when the mill known as the small log sawmill was permanently closed. In 2006, the Big Mill and attached finger pier were closed, and the associated structures were removed between 2006 and 2008. The small log mill continued to operate into early 2009. PCP was applied to milled lumber in spray rooms in the planer/grader building (PES, 2010).

3 FIELD AND ANALYTICAL METHODS

MFA conducted the field sampling and survey on December 3 through 5. The building-material survey was conducted to satisfy federal, state, and local air quality regulations regarding communicating the location, amount, and quality of known ACM and LBP at the site as well as to catalogue other potentially hazardous fixtures to be managed before renovation, construction, or demolition. The scope of work included the following:

- Collection of bulk samples of suspected ACM.
- Use of a portable XRF device to field screen painted surfaces for the presence of lead in surface paint.
- Collection of paint chip samples.
- Collection of bulk samples of suspected PCP-containing materials.
- Submission of suspected ACM bulk samples and paint chip samples to a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Suspected ACM samples were analyzed by polarized light microscopy (PLM).

- Submission of PCP-containing building samples of wood and concrete to Apex Laboratories, LLC.
- Recording the location, quantity, and quality of homogeneous areas identified on the floor of each building as well as the roof of the guard shed and the exteriors of all buildings.

The survey involved visual inspection of the interiors and exteriors of designated buildings.

3.1 Asbestos-Containing Material

MFA's survey of suspected ACM at the site in the designated buildings included bulk sampling of surfacing materials and miscellaneous materials from homogeneous areas, in accordance with AHERA sampling protocol.

Sample locations were chosen by the inspector, based on identification of suspected ACM. See Figures 3-1 through 3-7 for a description of the sampling locations.

Samples were extracted with hand tools and placed into labeled sample bags. For layered building material, the layers were penetrated and incorporated into each sample. Samples were sent to NVL Laboratories, Inc., an NVLAP laboratory, for analysis by U.S. Environmental Protection Agency (USEPA) PLM Method 600/R-93-116.

3.2 Lead-Based Paint

MFA conducted a survey for interior and exterior paint coatings of the designated buildings, including XRF readings of each color and/or layer identified. The portable XRF unit used was a Vanta L analyzer with a reported accuracy range from 0.1 to 5 milligrams of lead per square centimeter. Generally, if a painted surface has a detectable result for lead, it is considered lead-containing. As defined by the USEPA (40 CFR 745), LBP is quantified as paint containing lead concentrations of over 5,000 parts per million (ppm) (greater than 0.5 percent).

For quality assurance, approximately 5 percent of the representative paint chip samples collected by XRF were submitted for analysis. The identification of LBP summarized in this report is based on XRF results and confirmation paint chip samples collected from the buildings. For paint that was observed generally in the same homogeneous areas as paint in testing locations and having color similar to the tested paint, it was assumed that the test result for that color was representative of that untested paint.

Sampling locations were chosen by the inspector, based on identification of painted surfaces and ability to access certain portions of the buildings. See Figures 3-1 through 3-7 for sampling locations.

XRF readings were recorded on the field sampling data sheets (FSDSs) as positive or non-detect. Paint chip samples were placed in labeled sample bags and sent to NVL Laboratories, Inc., for analysis by USEPA Method 3051/7000B.

3.3 Pentachlorophenol

MFA's survey of PCP-impacted building material at the site focused on two areas in the planar/grader building where anecdotal information inferred that spray-on applications of PCP may have been performed. Three samples of wood and three samples of concrete building materials were collected in two areas, for a total of six samples. Sample locations were recorded on Figure 3-1 and photographs of the sample locations are provided on the FSDSs. Building material samples were placed in labeled sample bags and sent to Apex Laboratories, LLC, for analysis by USEPA Method 8270D.

3.4 Mercury, Polychlorinated Biphenyls, and Other Materials

MFA conducted a visual survey to identify fixtures that may contain mercury or PCBs. MFA also noted the presence of other potentially hazardous materials, such as containers with residual hazardous chemicals. Items were tracked on the FSDSs provided in Appendix B and are summarized in Table 3-1.

4 ASSESSMENT RESULTS

4.1 Asbestos-Containing Material

Sample locations are provided in Figures 3-1 through 3-7, and sample results are summarized in Table 4-1. Laboratory reports are provided in Appendix C. Asbestos testing was completed for GHHSA at the site by KD&S Environmental, Inc., in 2016 and 2017 (Appendix D). Testing results detected asbestos in samples collected from roofing materials of the planar building, storage shed, chemical storage shed, and main shipping shed. This roofing material will require abatement and appropriate handling during demolition activities.

All 31 samples collected by MFA as a part of this assessment and analyzed were non-detect. Some unsampled materials such as fire hoses and coated sinks were assumed to contain asbestos (see Table 4-1).

4.2 Lead

XRF measurement locations and paint chip sample locations are provided in Figures 3-1 through 3-7. Paint chip sample results are summarized in Table 4-2, and laboratory reports are provided in Appendix C.

Lead was detected in painted surfaces in the planer building, main shipping shed, fuel and chemical storage building, chemical shed, and guard shed; however, the detectable levels of lead were below the USEPA regulated definition of LBP. None of the surfaces assessed in the buildings included in this assessment had lead content above the USEPA regulated definition for LBP. For the purposes of renovation or reuse, painted surfaces with detectable levels of lead below the USEPA regulated

definition of LBP are considered lead-containing, and abatement or in-place management of these materials should follow the USEPA's Renovation, Repair, and Painting Rule.

4.3 Pentachlorophenol

The use of PCP at the site for wood-treating applications necessitates designation of the building debris waste generated in the vicinity of the application as listed waste F032. PCP samples were collected in the area of application from wood and concrete building materials. PCP was not detected in five of the six samples. 4,960 micrograms per kilogram (ug/kg) of PCP was measured in a sample of the wood wall and ceiling of the spray room (sample 1-1-PCP-3). (See lab report in Appendix C).

The Resource Conservation and Recovery Act (RCRA) regulations impose land disposal restrictions on certain hazardous chemicals, including PCP, and defines concentrations that result in hazardous waste generation designation (40 CFR 268). WAC 173-303-040 defines "dangerous wastes" as those solid wastes designated in WAC 173-303-070 through 173-303-100 as dangerous, or extremely hazardous or mixed waste. As used in this chapter, the term "dangerous waste" refers to the full universe of wastes regulated by this chapter. The abbreviation "DW" will refer only to that part of the regulated universe that is not extremely hazardous waste. (See also "extremely hazardous waste," "hazardous waste," and "mixed waste" definitions.)

In an effort to be more protective, the definition of "dangerous waste" includes more wastes than RCRA hazardous wastes.

The Washington State Department of Ecology (Ecology) has a step-by-step guide for determining if a waste is a "dangerous waste."

After consulting the Ecology guidance and RCRA requirements, MFA has determined that while the PCP detections in building material at the site constitute a listed waste (F032), it is neither a hazardous waste under RCRA nor a state dangerous waste. Special handling and disposal will still be required of the wooden spray room walls and ceiling. MFA recommends talking to the GHHSA contractor who will complete the abatement and demolition of the buildings to understand what landfill may be accepting the demolition debris waste. In addition to Ecology requirements, the proposed landfill may have special waste acceptance procedures that may have to be met prior to transfer to and disposal at that facility. Based on MFA's discussions with Ecology, it is possible that the PCP-impacted wood could either be segregated and disposed of at a landfill that will accept the waste, or that the PCP-impacted wood could be washed to remove the PCP and disposed of with the rest of the general building demolition debris. The washwater would require capture and proper disposal, and confirmation sampling of the washed wood would be required prior to disposal.

4.4 Mercury, Polychlorinated Biphenyls, and Other Materials

Mercury-containing fixtures, PCB-containing fixtures, and other hazardous materials were tracked and recorded on the FSDSs provided in Appendix B. A summary of the observations is provided in Table 3-1.

5 SUMMARY AND RECOMMENDATIONS

Based on our observations and the results of the material testing, MFA concludes the following:

- There are lead-containing coatings throughout the interiors and exteriors of the designated buildings.
- Roofing materials on the planar building, storage shed, chemical storage shed, and main shipping shed contain asbestos.
- Many potentially hazardous-materials-containing fixtures are present throughout the designated buildings.
- Unknown and unlabeled chemicals are present throughout the buildings.
- PCP-impacted wood debris in the planar building will require special coordination, handling, and disposal during abatement and demolition activities.

5.1 Recommendations

This report should be made available to contractors during bidding on abatement, construction, or demolition work to be conducted on these buildings. Prior to any disturbance activities at the site, identified hazardous materials should be abated by a licensed abatement contractor or safely managed in place consistent with a written operations and maintenance plan.

GHHSA should inform contractors that, during the renovation and demolition activities, other hazardous materials or conditions may be discovered that may warrant additional remediations and/or corrective actions.

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.

REFERENCES

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TABLES



Table 3-1
Hazardous Building Materials Survey Summary
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Regulated Material	Material Description	Location	Estimated Quantity if Detected	Comment
Asbestos	Fire hoses	Planer building and main shipping shed	32	
	Coated sink	Planer building and main shipping shed	2	
Lead-containing paint	Green paint on staircases	Planer building	400 sq. ft.	
	Bright yellow paint on steel and wood	Planer building	450 sq. ft.	
	White paint on wood posts	Planer building	150 sq. ft.	
	Light green paint on wood and metal	Planer building	360 sq. ft.	
	Yellow paint on posts	Main shipping shed	1,300 sq. ft.	
	Shiny light green paint on upstairs office cabinets	Main shipping shed	160 sq. ft.	
	Bright red paint on fire valves	Main shipping shed	100 sq. ft.	
	Light green paint on steel beams	Main shipping shed	800 sq. ft.	
	White paint on exterior wood siding	Main shipping shed	5,000 sq. ft.	
	Green paint on exterior concrete pillar	Fuel and chemical storage building	150 sq. ft.	
	Light yellow paint on exterior metal beams	Chemical shed	665 sq. ft.	
	Light blue/gray paint on exterior	Guard shed	700 sq. ft.	
	Off-white paint on exterior	Guard shed	700 sq. ft.	

Table 3-1
Hazardous Building Materials Survey Summary
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Regulated Material	Material Description	Location	Estimated Quantity if Detected	Comment
PCB-containing, mercury-containing, and other hazardous materials	Lightbulbs/ballasts and fixtures	Planer building, main shipping shed, chemical shed, and guard shed	390	Not all lightbulbs/ballasts included a fixture.
	Electrical panels/boxes	Planer building, fuel and chemical storage building, and chemical shed	7	
	Diesel engine fire pump control box	Planer building	1	
	Miscellaneous motors / compressors / pumps / batteries / boilers / engines	Planer building and main shipping shed	2 motors, 5 compressors, 2 batteries, 1 steam boiler, 4 engines	
	Propane tanks	Planer building and main shipping shed	4	
	CO_2 tanks	Main shipping shed	2	
	Miscellaneous appliances	Planer building	2 refrigerator/freezers	
	Riser rooms/sprinkler systems	Planer building, main shipping shed, fuel and chemical storage building, and chemical shed	8	
	Fire extinguishers	Main shipping shed	41	
	Miscellaneous tanks, drums, and buckets	Planer building, main shipping shed, fuel and chemical storage building, and guard shed	6 tanks, 53 drums, 110 5-gallon buckets	Various gas cans, aerosol cans, paints, and chemical maintenance supplies were not quantified but are present throughout all of the buildings.

NOTES:
ACM = asbestos-containing material.
CO_2 = carbon dioxide.
PCB = polychlorinated biphenyl.
sq. ft. = square feet.

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Table 4-1
Summary of Asbestos Sample Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Sample Name	Sample Date	Material Description	Location	Lab Description	Bulk Asbestos	Condition if Detected	Estimated Quantity if Detected
Planer Building							
1-1-MISC-1	12/04/2019	Gray base cove with tan mastic	Upstairs office	Light gray rubbery material	ND	--	--
				Pale yellow soft mastic with debris	ND		
				Gold soft adhesive	ND		
1-2-MISC-2	12/04/2019	Gray speckled sheet vinyl flooring with gray mastic	Upstairs office	Gray sheet vinyl with thin clear adhesive surface	ND	--	--
				Light gray fibrous backing with soft mastic and trace crumbly material (on wood)	ND		
1-3-MISC-3	12/04/2019	Drywall	Upstairs office and break room	Off-white compacted powdery material with paint	ND	--	--
				Off-white compacted powdery material with white paper	ND		
				Trace off-white chalky material with paper	ND		
1-4-MISC-4	12/04/2019	Brown base cove with brown mastic	Upstairs break room	Dark brown rubbery material with debris	ND	--	--
				Brown brittle mastic	ND		
1-5-MISC-5	12/04/2019	Tan/brown sheet vinyl flooring with yellow mastic	Upstairs break room	Tan sheet vinyl	ND	--	--
				Light tan fibrous backing with mastic and trace wood flakes	ND		
1-6-MISC-6	12/04/2019	Light gray ceramic tile with gray mortar	Tile floor of bathroom near spray room	Off-white ceramic tile	ND	--	--
				Beige soft mastic	ND		
				Light gray sandy/brittle material	ND		
				Off-white compressed powdery material with trace debris	ND		
				Off-white brittle material	ND		
Main Shipping Shed							
2-1-MISC-1	12/04/2019	Gray base cove with tan mastic	Men/woman's bathroom on the west side	Light gray rubbery material	ND	--	--
				Cream soft mastic with debris	ND		
2-2-MISC-2	12/04/2019	White/gray speckled sheet vinyl flooring with gray mastic	Men/woman's bathroom on the west side	Off-white sheet vinyl with adhesive surface	ND	--	--
				Light tan fibrous backing with mastic	ND		
2-3-MISC-3	12/04/2019	White vinyl wall covering with yellow mastic	Men/woman's bathroom on the west side	Brown flat hard compressed fibrous material with off-white surface and trace paint	ND	--	--
				Tan brittle mastic with trace debris	ND		
2-4-MISC-4	12/04/2019	12x12 stipple pattern acoustic ceiling tile with brown glue dot	West side upstairs sales office	Off-white compressed fibrous material with white textured paint	ND	--	--
				Tan brittle mastic with trace thin compacted powdery material with white paint	ND		
2-5-MISC-5	12/04/2019	12x12 textured acoustic ceiling tile	West side top floor office	Tan wooden compressed fibrous material with off-white textured coating	ND	--	--

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Table 4-1
Summary of Asbestos Sample Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Sample Name	Sample Date	Material Description	Location	Lab Description	Bulk Asbestos	Condition if Detected	Estimated Quantity if Detected
2-6-MISC-6	12/04/2019	Gray/blue speckled sheet vinyl flooring with tan mastic	Storage rooms on SW side behind bathroom, office room at the top of the stairs, and back bike storage area	Multicolored sheet vinyl	ND	--	--
				Light gray fibrous backing with mastic and gray paint	ND		
2-7-MISC-7	12/04/2019	Dark gray base cove with tan mastic	SW storage rooms behind bathrooms and back bike storage area	Gray rubbery material with trace white paint	ND	--	--
				Yellow soft mastic with paint and trace debris	ND		
2-8-MISC-8	12/04/2019	Drywall	SW storage rooms behind bathrooms and back bike storage area	White bumpy compacted powdery material with layered paint	ND	--	--
				White compacted powdery material with white paper	ND		
				Beige thin fibrous material	ND		
				Off-white chalky material with paper	ND		
2-9-MISC-9	12/04/2019	Light gray base cove with white /gray mastic	West side upstairs sales office	Gray rubbery material	ND	--	--
				Off-white soft mastic	ND		
				White bumpy compacted powdery material with paint	ND		
				White bumpy compacted powdery material with paint	ND		
				Off-white fibrous material with white paint	ND		
				Tan fibrous material	ND		
2-10-MISC-10	12/04/2019	Drywall	West side upstairs sales office	Off-white compacted powdery material with blue paint and clear cellophane tape	ND	--	--
				Off-white thin fibrous material	ND		
				White chalky material with paper	ND		
2-11-MISC-11	12/04/2019	Gray/green speckled sheet vinyl flooring with tan mastic	West side top floor office	Off-white sheet vinyl with multicolored dots	ND	--	--
				Light gray fibrous backing with yellow mastic	ND		
2-12-MISC-12	12/04/2019	Gray base cove with tan mastic	West side top floor office	Gray rubbery material	ND	--	--
				Off-white soft mastic	ND		
				Brown brittle mastic	ND		
2-13-MISC-13	12/04/2019	Cream vinyl wall covering with yellow/brown mastic	West side back storage/kitchen area	Brown flat hard compressed fibrous material with cream surface	ND	--	--
				Tan brittle mastic	ND		
2-14-MISC-14	12/04/2019	Drywall	NE wood boat storage buildout and upstairs	Off-white thin fibrous material with white paint	ND	--	--
				White chalky material with paper	ND		
2-15-MISC-15	12/04/2019	Gray base cove with gray/white mastic	East side upstairs locker room	Tan rubbery material	ND	--	--
				Off-white soft mastic	ND		
				Brown compressed fibrous material with white paint	ND		

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Table 4-1
Summary of Asbestos Sample Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Sample Name	Sample Date	Material Description	Location	Lab Description	Bulk Asbestos	Condition if Detected	Estimated Quantity if Detected
2-16-MISC-16	12/04/2019	Tan sheet vinyl flooring with tan/yellow mastic	East side upstairs locker room	Off-white sheet vinyl	ND	--	--
				Light tan fibrous backing with mastic	ND		
2-17-MISC-17	12/04/2019	White fibrous wall covering with yellow/tan mastic	East side upstairs locker room	Off-white brittle mastic	ND	--	--
				Brown wooden hard compressed fibrous material with white paint	ND		
				Yellow brittle mastic	ND		
2-18-MISC-18	12/04/2019	Dark brown base cove with white mastic	East side upstairs men's bathroom	Brown rubbery material	ND	--	--
				Off-white soft mastic with debris	ND		
2-19-MISC-19	12/04/2019	White fibrous wall covering with white mastic	East side upstairs men's bathroom	Brown wooden hard compressed fibrous material with cream paint	ND	--	--
				Off-white soft mastic	ND		
2-20-MISC-20	12/04/2019	Dark brown base cove with tan/yellow mastic	East side upstairs office	Black rubbery material with trace debris	ND	--	--
				Brown brittle mastic	ND		
				White compacted powdery material with paint	ND		
Guard Shed							
3-1-MISC-1	12/04/2019	Dark brown base cove with dark brown mastic	Guard shed interior	Black rubbery material with trace debris	ND	--	--
				Dark brown brittle mastic	ND		
3-2-MISC-2	12/04/2019	Dark gray speckled sheet vinyl flooring with tan mastic	Near entrance	Gray sheet vinyl	ND	--	--
				Tan fibrous backing with mastic and trace chalky material	ND		
3-3-MISC-3	12/04/2019	Dark gray square patterned sheet vinyl flooring with tan mastic	Guard shed interior	Gray sheet vinyl	ND	--	--
				Tan fibrous backing with mastic	ND		
3-4-MISC-4	12/04/2019	Drywall	Guard shed interior	White compacted powdery material with paint	ND	--	--
				Beige thin fibrous material	ND		
				White chalky material with paper	ND		
3-5-ROOF-5	12/04/2019	Black asphaltic roofing material	Roof	Black brittle asphaltic material	ND	--	--

NOTES:
Samples were analyzed consistent with polarized light microscopy U.S. Environmental Protection Agency Method 600/R-93-116.
-- = not applicable.
ND = not detected.
sq. ft. = square feet.

Table 4-2
Summary of Paint Chip Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Sample Name	Sample Date	Material Description	Location	Lead Result (wt %)
1-13-PB-13	12/04/2019	Bright yellow paint	Steel and wood posts in Planer building	0.16
2-1-PB-1	12/04/2019	Bright yellow paint	Posts throughout Shipping Shed	0.021
3-2-PB-2	12/04/2019	Off-white paint	Exterior wood siding on Guard Shed	< 0.0046

NOTES:

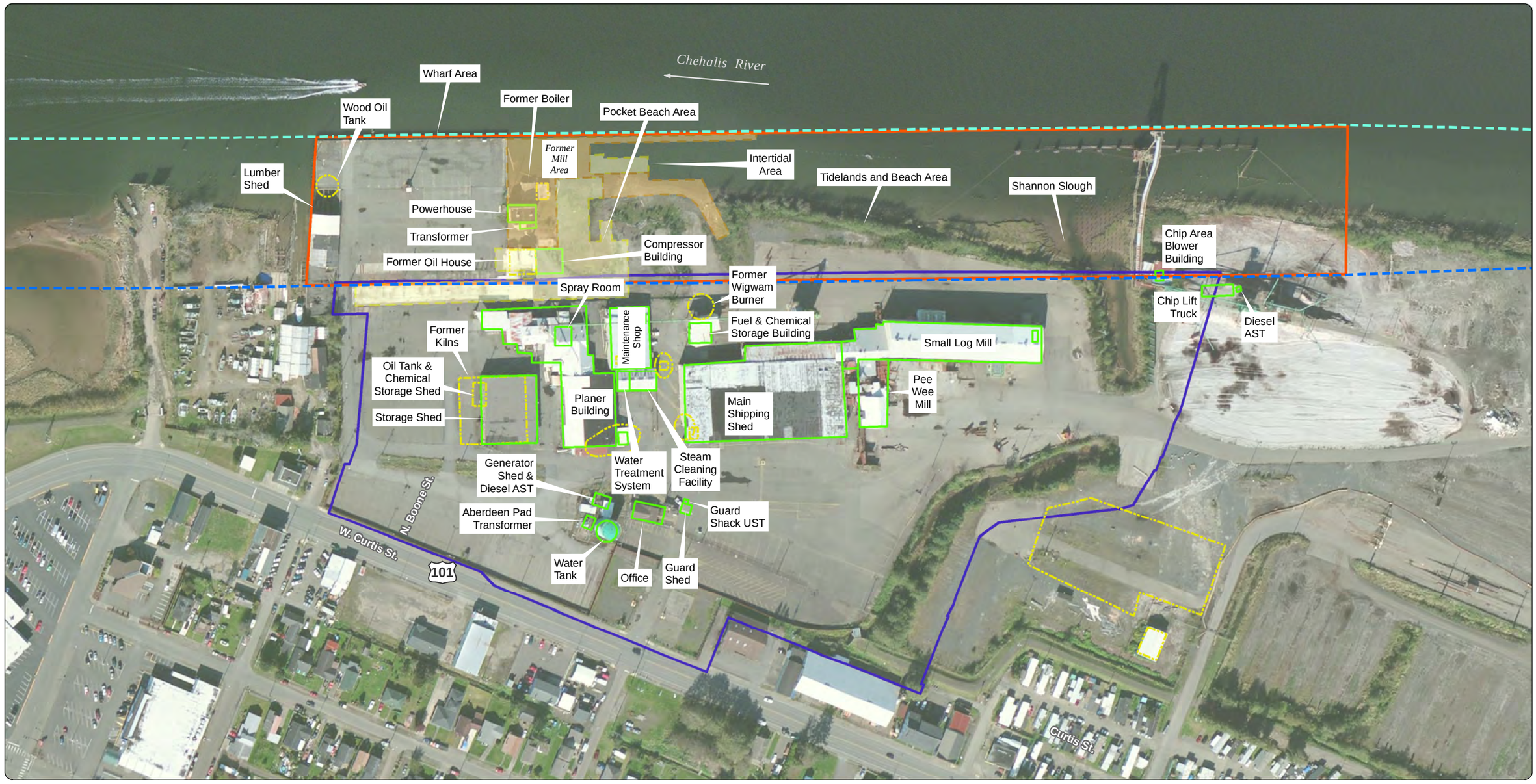
Samples were analyzed consistent with U.S. Environmental Protection Agency Method 3050B/7000B.

< = less than reporting limit. Reporting limit represents lowest amount of analyte that laboratory can confidently detect in sample and is not a regulatory level.

wt % = percent by weight.

FIGURES





Source:
Aerial photograph obtained from Esri ArcGIS Online.
Parcels and roads obtained from Grays Harbor County.
Harbor lines obtained from Washington Dept. of Natural Resources.
Former features from Level I Environmental Site Assessment,
PES Environmental; August 13, 2010.

Legend

- Former Mill
- Former Wharf Extension
- Existing Buildings/Features
- Former Buildings/Features
- Inner Harbor Line
- Outer Harbor Line
- Seaport Authority Property
- Leased Property Area

Figure 1-1
Historical and Current Property Features
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_R1_FSFig3_Property Features_MJ.mxd
Print Date: 1/4/2017
Approved By: mstringer
Produced By: rroberts
Project: 0863.01.01-02

Figure 3-1
Planer Building
Functional Area 1
First Floor
Grays Harbor Seaport Authority



Legend

- Asbestos
- Lead
- PCP
- Hazardous Building Material Survey Extents

0 25 50
Feet

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Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Planer_Building.mxd
Print Date: 1/7/2020
Approved By:
Produced By: mjosef
Project: 1834.02.01

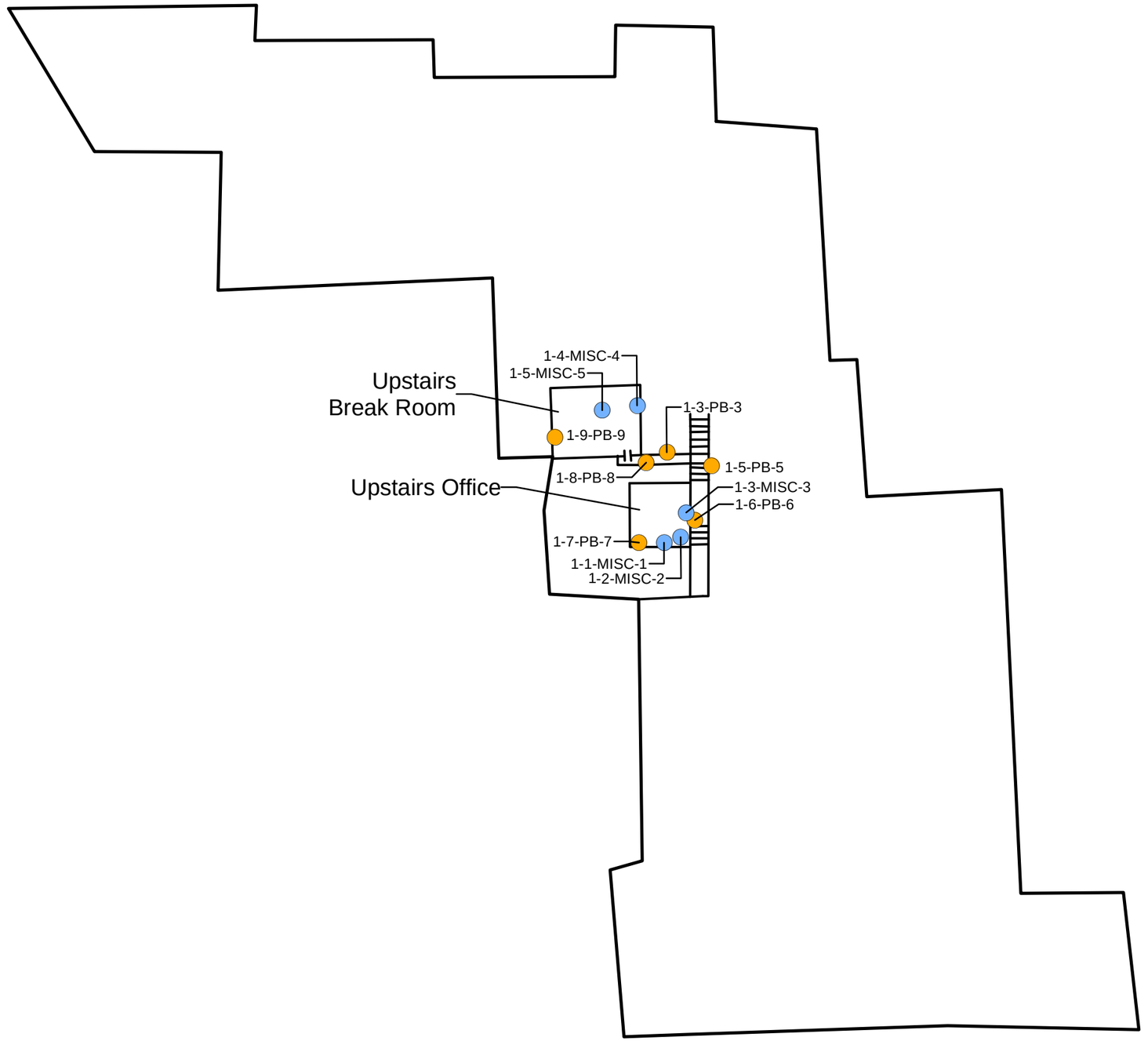

Figure 3-2
Planer Building
Functional Area 1
Second Floor

Grays Harbor Seaport Authority

Legend

- Asbestos
- Lead
- Hazardous Building Material Survey Extents

0 25 50

Feet

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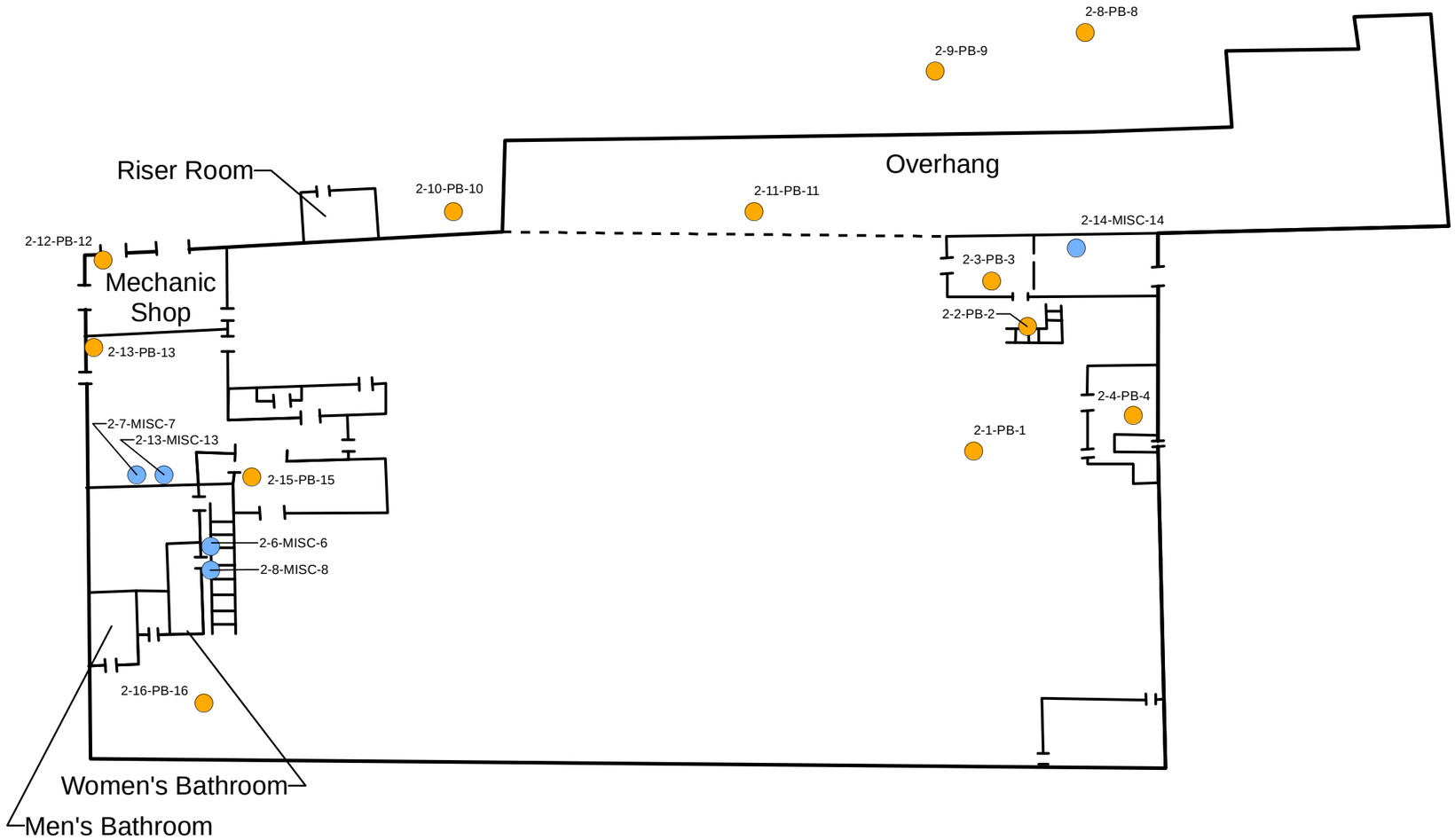
Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Planer_Building_2ndfloor.mxd
Print Date: 1/7/2020
Approved By:
Produced By: mjosef
Project: 1834.02.01

Figure 3-3
Main Shipping Shed
Functional Area 2
First Floor
Grays Harbor Seaport Authority



Legend

- Asbestos
- Lead
- Hazardous Building Material Survey Extents

0 30 60
Feet

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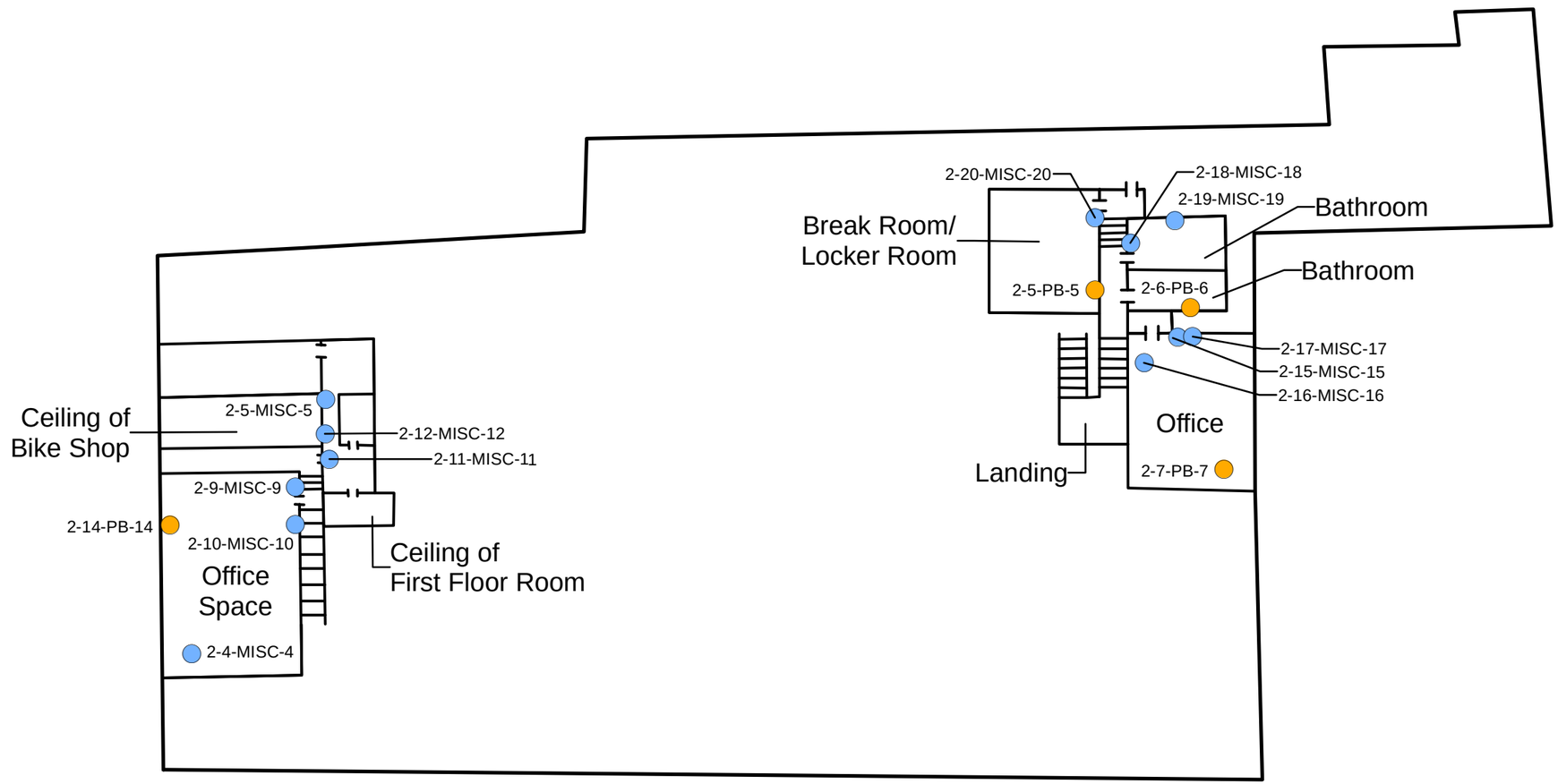
Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Main_Shipping_Shed.mxd
Print Date: 1/7/2020
Approved By:
Produced By: mjosef
Project: 1834.02.01

Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Main_Shipping_Shed_2ndfloor.mxd

Figure 3-4
Main Shipping Shed
Functional Area 2
Second Floor

Grays Harbor Seaport Authority



Legend

- Asbestos
- Lead
- Hazardous Building Material Survey Extents

Project: 1834.02.01 Produced By: mjosef Approved By: Print Date: 1/7/2020

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Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Guard_Shed.mxd
Print Date: 1/7/2020
Approved By:
Produced By: mjosef
Project: 1834.02.01

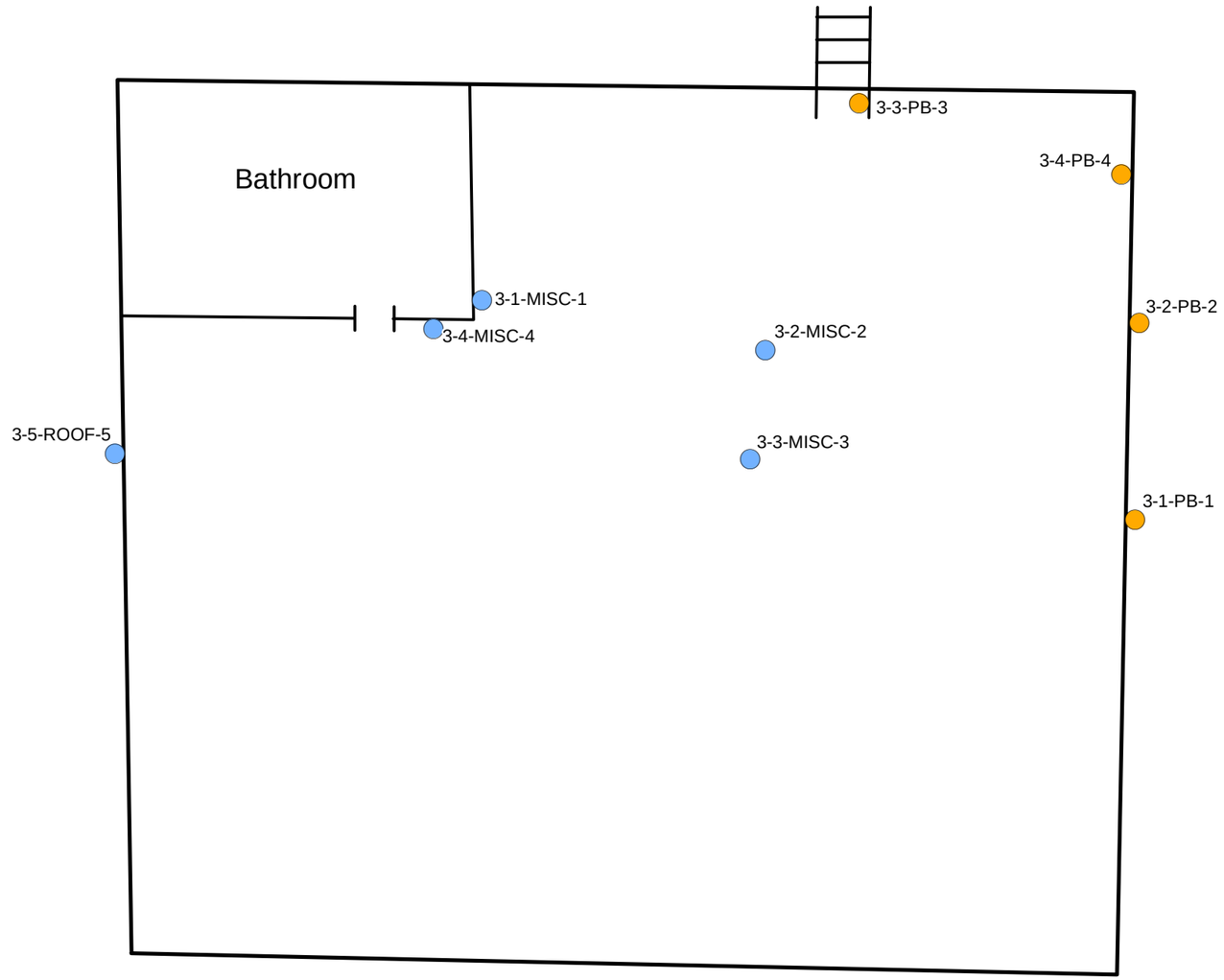

Figure 3-5
Guard Shed
Functional Area 3
Grays Harbor Seaport Authority

Legend

- Asbestos
- Lead
- Hazardous Building Material Survey Extents

0 2.5 5
Feet

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Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Fuel&ChemicalStorage.mxd
Print Date: 1/7/2020
Approved By:
Produced By: mjosef
Project: 1834.02.01

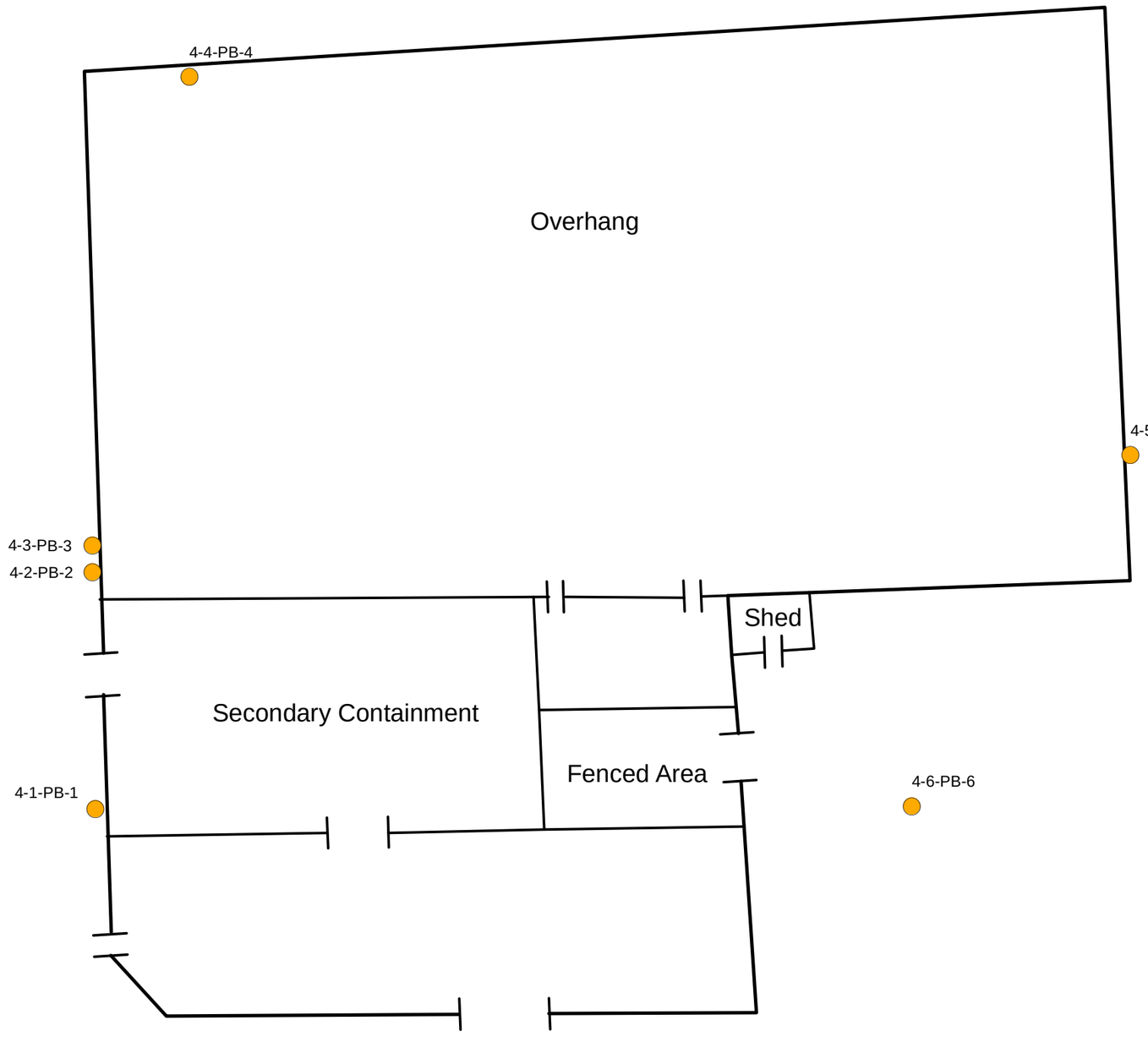

Figure 3-6
Fuel and Chemical Storage Building Functional Area 4

Grays Harbor Seaport Authority

Legend

- Asbestos
- Lead
- Hazardous Building Material Survey Extent

0 7.5 15
Feet

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Path: X:\1044.02_Grays_Harbor_15\Projects\Fig_Chemical_Storage_Shed.mxd

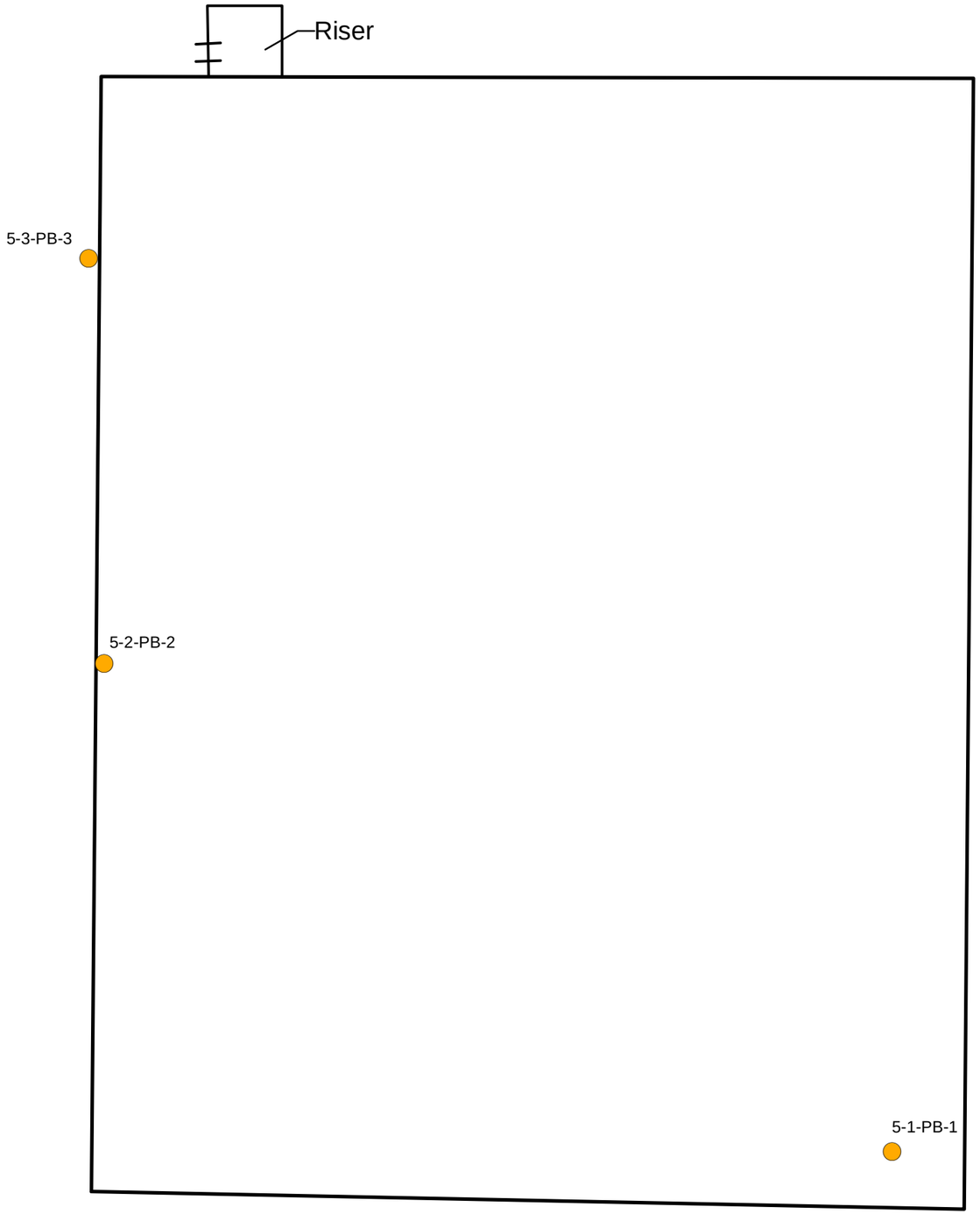

Figure 3-7
Chemical Storage Shed Functional Area 5
Grays Harbor Seaport Authority

Legend

- Asbestos
- Lead
- Hazardous Building Material Survey Extents

0 15 30
Feet

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Project: 1834.02.01 Produced By: mjosef Approved By: Print Date: 1/7/2020

APPENDIX A

AHERA CERTIFICATE



Certificate of Completion

This is to certify that

Emily Curtis

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

171622
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Feb 20, 2019 Expires in 1 year.
Date(s) of Training

Exam Score (if applicable):

Instructor

ARGUS PACIFIC, INC / 21905 64th AVE W, SUITE 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM

APPENDIX B

FIELD SAMPLING DATA SHEETS



HBM Survey

Project Name:	1044.02.15
Project Number:	Seaport Authority
Date:	12/4/2019
Field Personnel:	Emily Curtis; Other
Sample Types:	Asbestos; Lead; Other
Sample Areas:	Planer

Samples

Sample ID:	**Sample Type:**	
1-1-PB-1	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Riser room next to storeroom sprinkler 17&18	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Dark red	NA	ND

Sample Photo:



Sample ID:	**Sample Type:**
1-1-MISC-1	MISC
Misc Sample Material:	Gray base cove with tan mastic
Sample Location:	**Detailed Sample Location:**
Planer building	Upstairs office
Sample Friable?:	**Sample Condition:**
No	Potential ACBM with potential for damage

Sample Color:	Sample Quantity:	XRF
	71 linear ft	

Sample Photo:

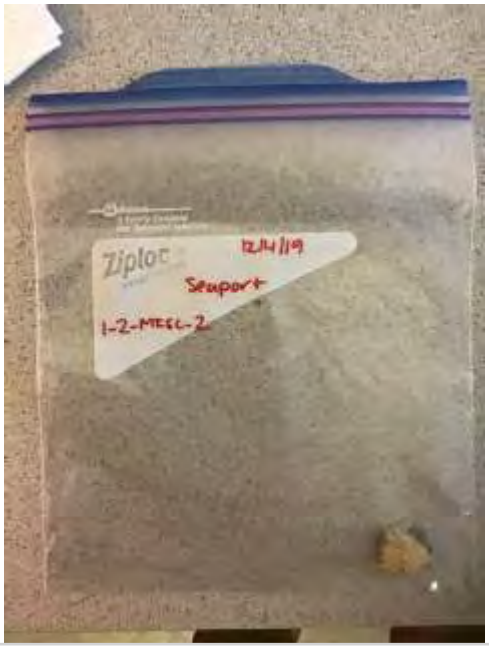




Sample ID:	Sample Type:
1-2-MISC-2	MISC
Misc Sample Material:	Gray speckled vinyl sheet flooring with gray mastic
Sample Location:	**Detailed Sample Location:**
Planer building	Upstairs office
Sample Friable?:	**Sample Condition:**

No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	226 sq. ft.	

Sample Photo:





Sample ID:	**Sample Type:**
1-2-PB-2	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**
Planer	Exit door near 17&18 riser

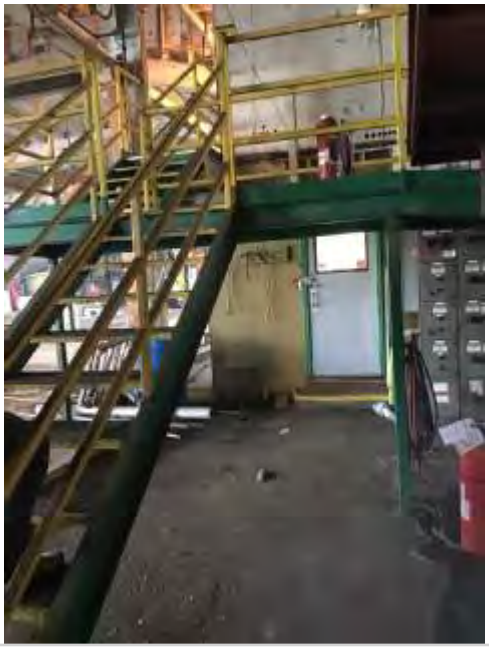
Sample Friable?:	Sample Condition:	
Sample Color:	**Sample Quantity:**	**XRF**
Kelly green	NA	ND

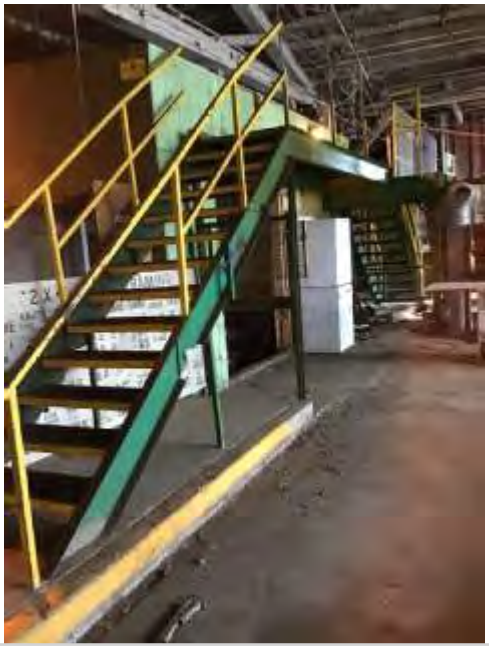
Sample Photo:



Sample ID:	Sample Type:	
1-3-PB-3	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Staircases (All)	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Green	400 sq. ft.	0.006 mg/cm2

Sample Photo:







Sample ID:	Sample Type:	
1-3-MISC-3	MISC	
Misc Sample Material:	Drywall	
Sample Location:	**Detailed Sample Location:**	
Planer building	Upstairs office and break room walls and ceiling	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	1,139 sq. ft.	

Sample Photo:

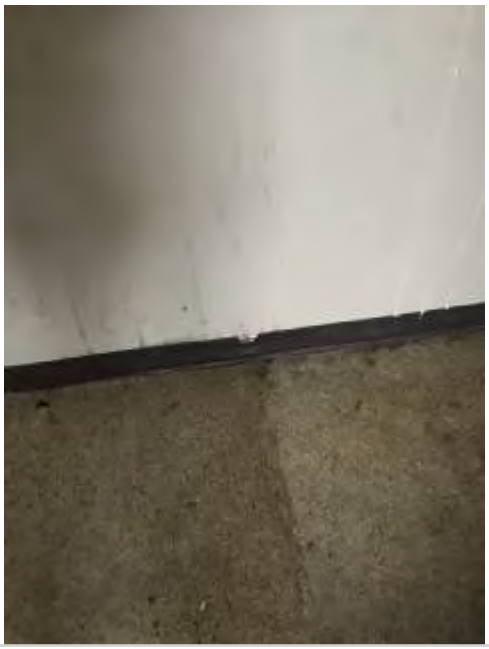




Sample ID:	Sample Type:	
1-4-MISC-4	MISC	
Misc Sample Material:	Brown base cove with brown mastic	
Sample Location:	**Detailed Sample Location:**	
Planer building	Upstairs break room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	66 linear ft	

Sample Photo:





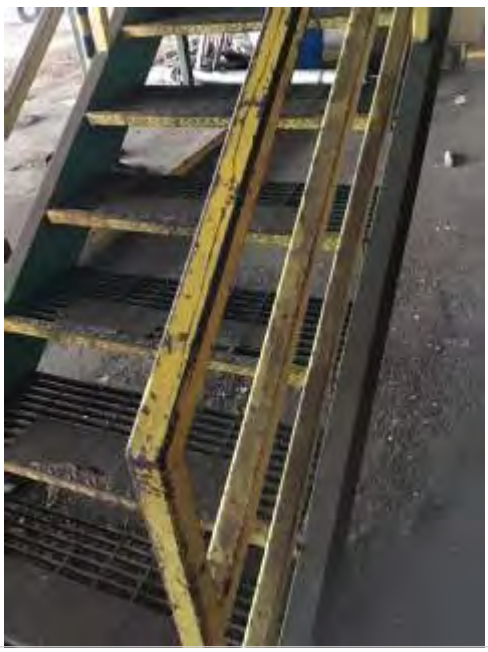
Sample ID:	Sample Type:	
1-4-PB-4	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Door to 17&18 riser	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
White	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-5-PB-5	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer building	Railings on staircases	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Yellow	NA	ND

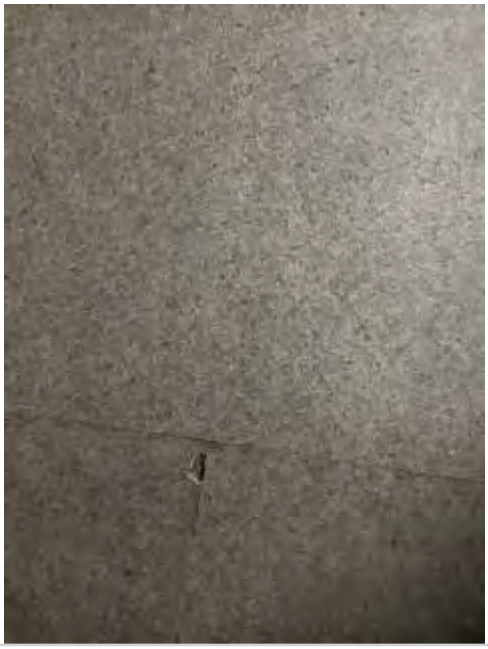
Sample Photo:



Sample ID:	Sample Type:	
1-5-MISC-5	MISC	
Misc Sample Material:	Tan and brown vinyl sheet flooring with yellow mastic	
Sample Location:	**Detailed Sample Location:**	
Planer building	Upstairs break room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	272 sq. ft.	

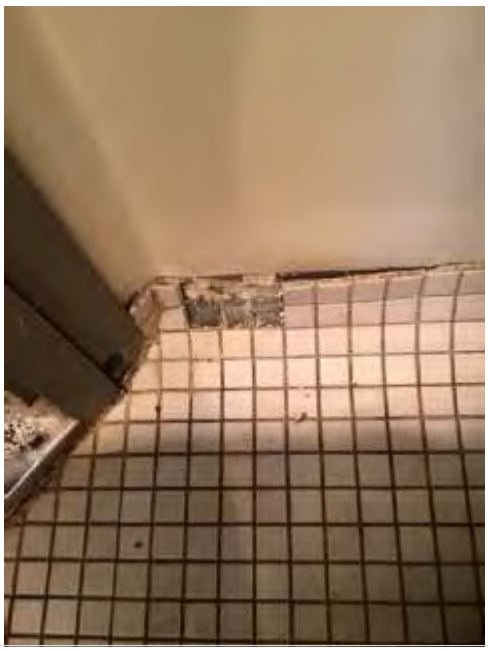
Sample Photo:





Sample ID:	Sample Type:	
1-6-MISC-6	MISC	
Misc Sample Material:	White tile flooring with gray mortar	
Sample Location:	**Detailed Sample Location:**	
Planer building	Tile floor of bathroom near spray room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	25 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
1-6-PB-6	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Door to upstairs office	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-7-PB-7	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer building	Drywall of upstairs bathroom office	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
White	NA	ND

Sample Photo:



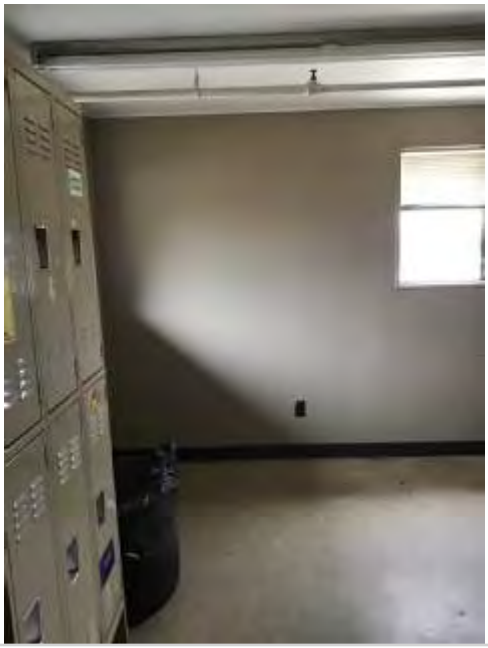
Sample ID:	Sample Type:	
1-8-PB-8	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Platform wall outside upstairs break room	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Grayish white	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-9-PB-9	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Wall of upstairs break room	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Tan	NA	ND

Sample Photo:



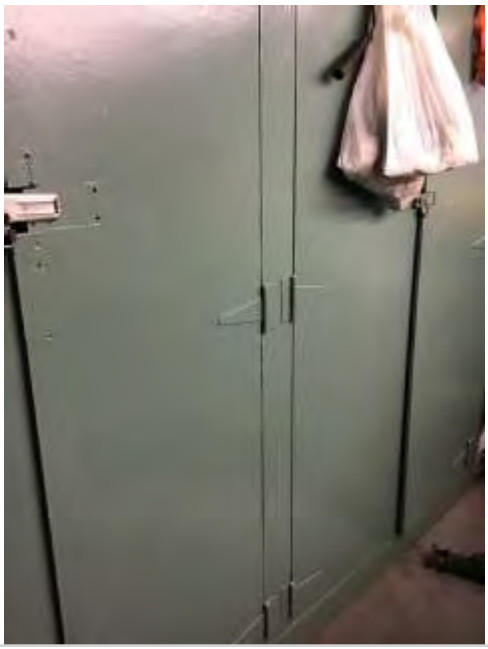
Sample ID:	Sample Type:	
1-10-PB-10	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Exterior wall of storeroom	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Mustard brown	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-11-PB-11	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Cabinets inside storeroom	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Seafoam green	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-12-PB-12	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Floor of storeroom	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Gray concrete	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-13-PB-13	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Steel and wood posts	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Bright yellow	14 posts--450 sq. ft.	0.619 mg/cm2

Sample Photo:







Sample ID:	Sample Type:	
1-14-PB-14	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Diesel engine fire pump controller	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Bright red	NA	ND

Sample Photo:


Sample ID:	Sample Type:	
1-15-PB-15	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Wooden posts (3)	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
White on wood	150 sq. ft.	0.298 mg/cm2

Sample Photo:



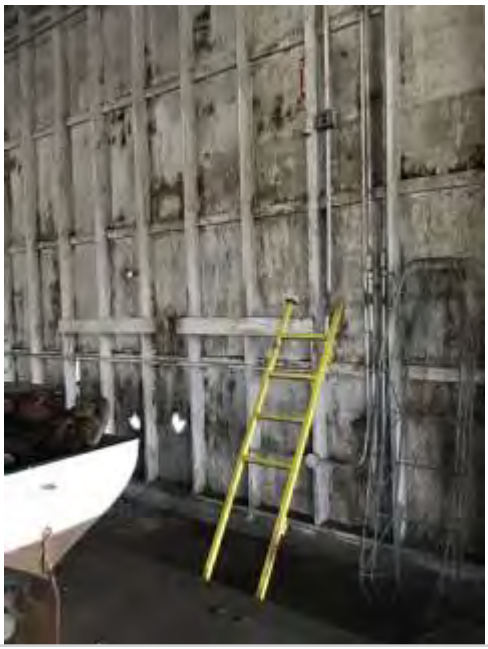
Sample ID:	Sample Type:	
1-16-PB-16	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Wooden post on west side (2)	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Green on wood	60 sq. ft.	0.87 mg/cm2

Sample Photo:



Sample ID:	Sample Type:	
1-17-PB-17	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Back wall south end	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Dirty white on wood	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-18-PB-18	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Back wall south end	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Green on wood	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-19-PB-19	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Exterior wall on south end buildout	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Dark gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-20-PB-20	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Southwest buildout interior wall	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Dark yellow	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-21-PB-21	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Steel posts--metal crossbeams, catwalk	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Lighter green on metal	300 sq. ft.	0.71 mg/cm2

Sample Photo:





Sample ID:	Sample Type:	
1-22-PB-22	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Exterior east facing wall of storeroom	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-23-PB-23	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Exterior metal siding	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light yellow	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
1-24-PB-24	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Planer	Exterior wood siding	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light brownish beige	NA	ND

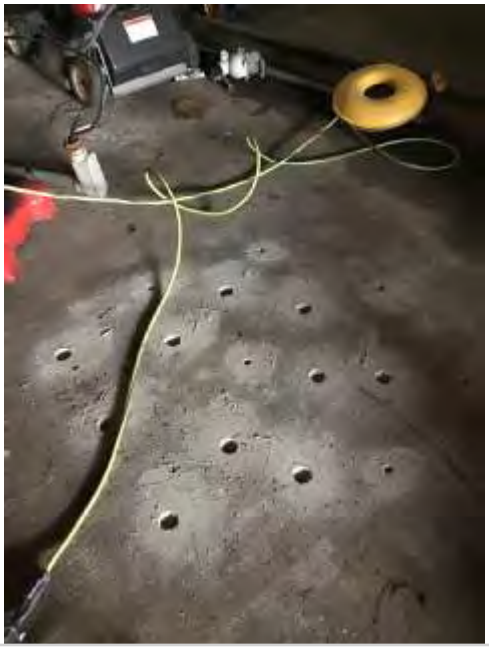
Sample Photo:



Other Material Tracking

General Fixture Location:	Detailed Fixture Location:
Spray room	Concrete floor east end
Type of Fixture:	**Quantity:**
PCP	400 sq. ft.
Condition:	**Additional Fixture Notes:**
Good	Sample name: 1-1-PCP-1

Other Material Photo:

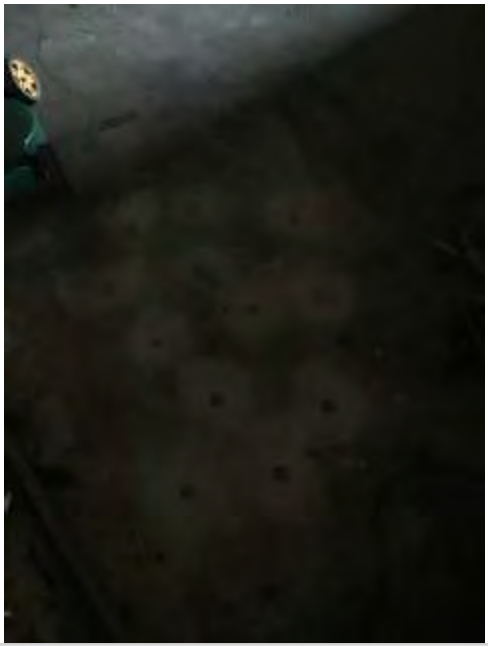






Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Spray room	Concrete floor west end
Type of Fixture:	**Quantity:**
PCP	400 sq. ft.
Condition:	**Additional Fixture Notes:**
Good	Sample name: 1-1-PCP-2

Other Material Photo:



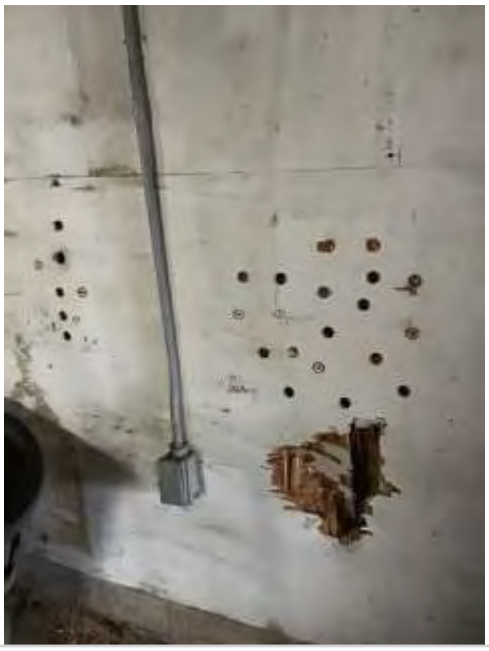




Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Spray room	Wood wall south end
Type of Fixture:	**Quantity:**
PCP	1172 sq. ft.
Condition:	**Additional Fixture Notes:**
Good	Sample name: 1-1-PCP-3 Two jars submitted to laboratory. Wood on all walls and ceiling of spray room.

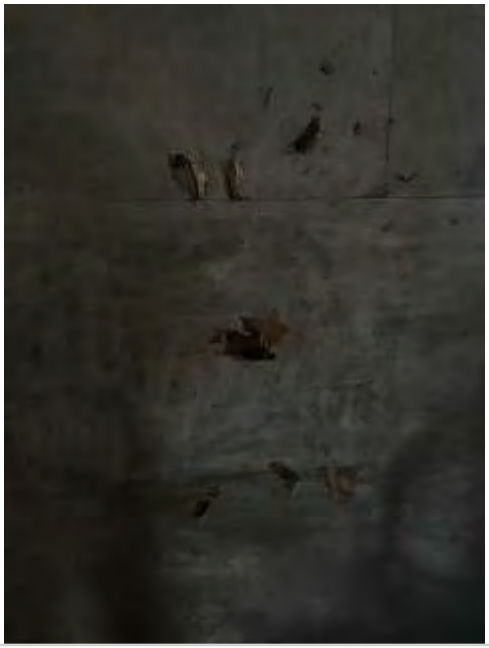
Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Spray room	Wood wall east end
Type of Fixture:	**Quantity:**
PCP	1172 sq. ft.
Condition:	**Additional Fixture Notes:**
Good	Sample name: 1-1-PCP-4 Two jars submitted to laboratory for analysis. Wood walls and ceiling.

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	South end concrete floor
Type of Fixture:	**Quantity:**
PCP	Unknown
Condition:	**Additional Fixture Notes:**
Good	Sample name: 1-2-PCP-5

Other Material Photo:



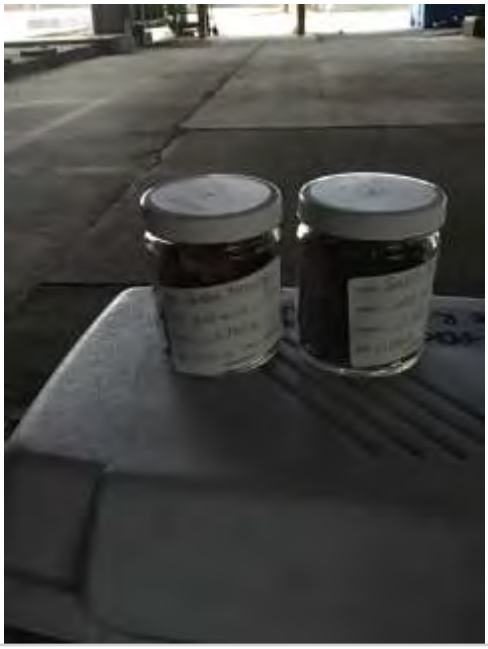




Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	South end wall
Type of Fixture:	**Quantity:**
PCP	Unknown
Condition:	**Additional Fixture Notes:**
Good	Sample name: 1-2-PCP-6 Two jars submitted to laboratory for analysis Wood wall

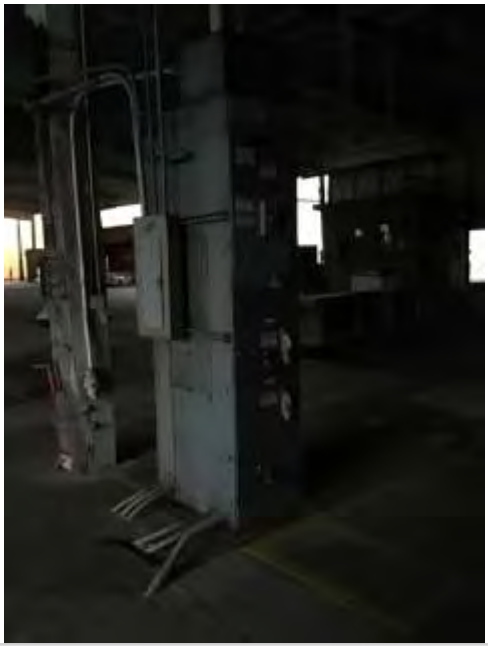
Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Electric panel on south end
Type of Fixture:	**Quantity:**
Electric panel	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	West of south end build-outs in crate
Type of Fixture:	**Quantity:**
Misc lights	1 crate
Condition:	**Additional Fixture Notes:**
Good	

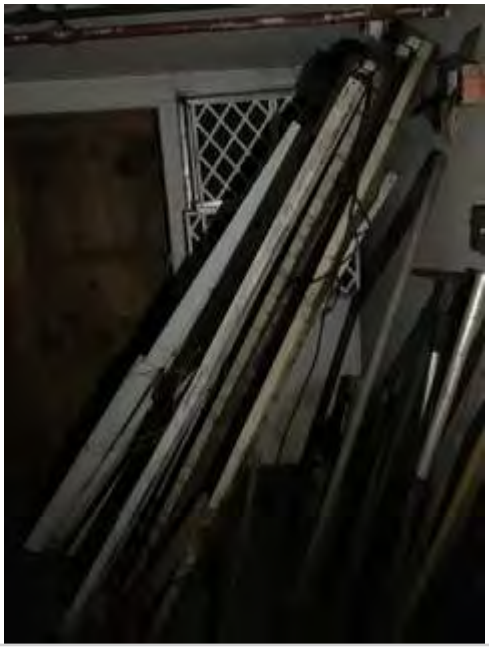
Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Buildout on south end
Type of Fixture:	**Quantity:**
Misc lights, ballasts, fixture pieces, fluorescent ballasts	4 fluorescent tubes, 5 lights, several fixture pieces and light ballasts
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	On south east wall between open area and east wall buildout
Type of Fixture:	**Quantity:**
Arc welding power source	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Behind arc flash welding source
Type of Fixture:	**Quantity:**
Diesel engine fire pump control	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Inside red metal trunk next to fire hydrant on east side
Type of Fixture:	**Quantity:**
Diatomaceous absorbent material	1 bag
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Center of building
Type of Fixture:	**Quantity:**
Conveyor belt motor	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Outside on west side of building
Type of Fixture:	**Quantity:**
Compressor	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Center of building toward east side
Type of Fixture:	**Quantity:**
MCC panel	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Outside of storeroom underneath staircase
Type of Fixture:	**Quantity:**
MCC panel	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Storeroom
Type of Fixture:	**Quantity:**
Various gas cans, oil, aerosols, paints, chemical maintenance supplies	
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



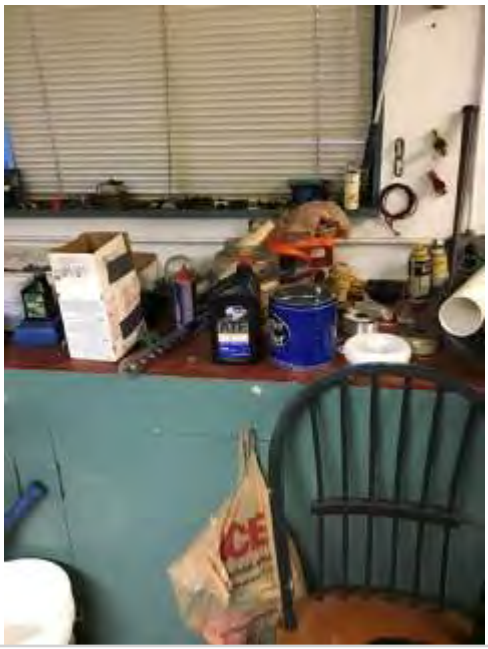












Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Back storeroom
Type of Fixture:	**Quantity:**
Batteries	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:







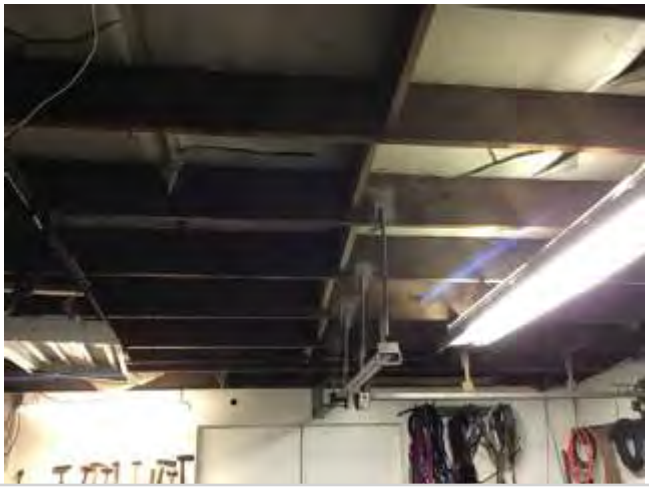
Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Storeroom, outside storeroom
Type of Fixture:	**Quantity:**
Fluorescent light ballasts	25 in storeroom, 59 outside storeroom
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



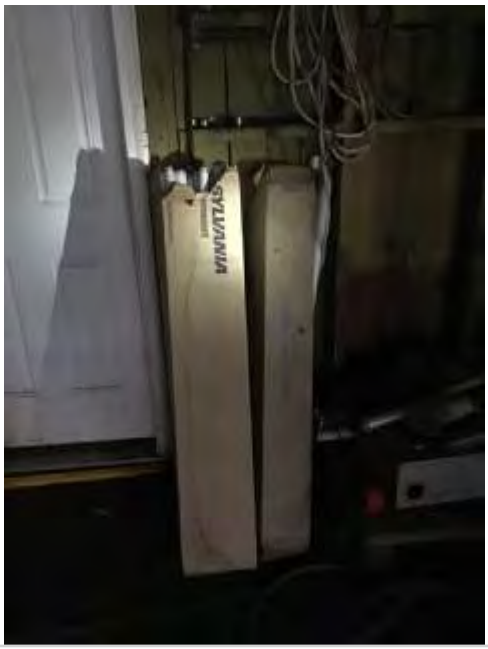






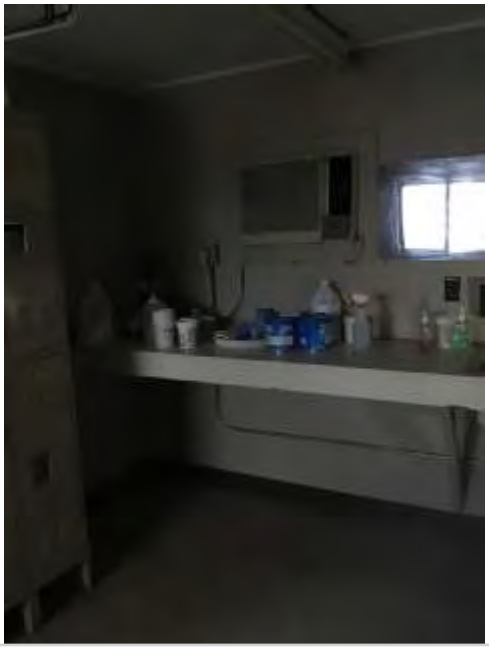


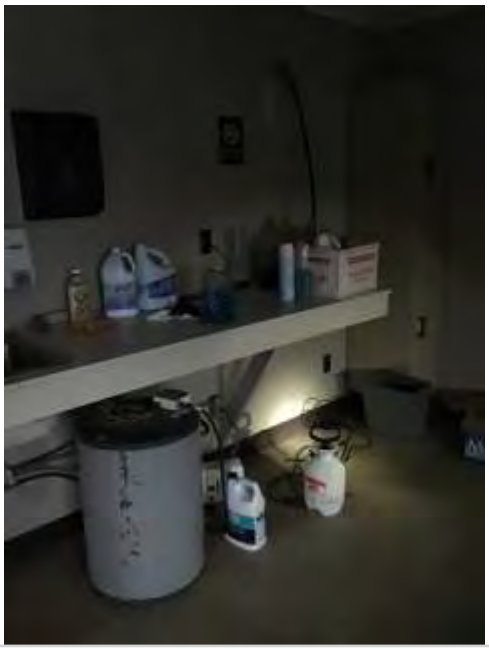




Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Upstairs break room
Type of Fixture:	**Quantity:**
Various cleaning supplies	
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Upstairs break room
Type of Fixture:	**Quantity:**
Hot water heater	1
Condition:	**Additional Fixture Notes:**
Good	

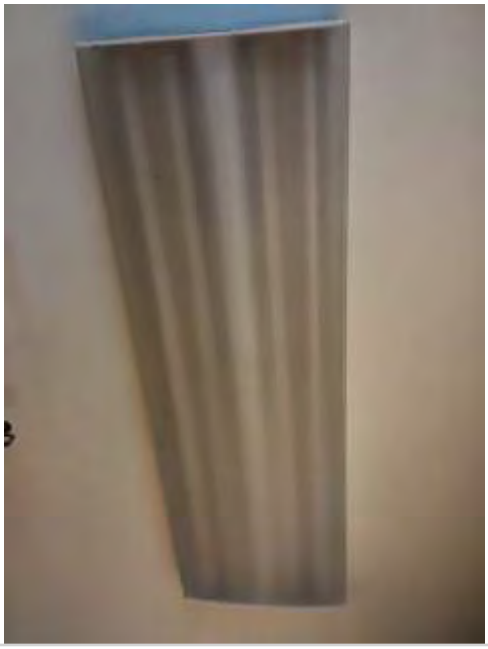
Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	throughout building
Type of Fixture:	**Quantity:**
Fluorescent light ballasts	8 in upstairs break room, 26 in upstairs office--12 on south end of building, 4 in west side buildout, 2 on northwest side but staircase, 6 in spray room, 4 outside of spray room, 2 inside bathroom outside spray room, 10 on north end of building
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:

















Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Hanging from ceiling throughout building and overhang
Type of Fixture:	**Quantity:**
Electric lighting fixture	29
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:











Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Throughout building and outside, underneath overhang
Type of Fixture:	**Quantity:**
Floodlights	15
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	West side of building next to doorway
Type of Fixture:	**Quantity:**
Asbestos-containing fire hose	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	East side of building near grills and lawn equipment
Type of Fixture:	**Quantity:**
Propane	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Appliances on north end
Type of Fixture:	**Quantity:**
Refrigerator and freezer (Freon)	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Riser buildout behind bathroom
Type of Fixture:	**Quantity:**
Hot water heater	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Riser build-outs (2)
Type of Fixture:	**Quantity:**
Sprinkler system	2
Condition:	**Additional Fixture Notes:**
Good	

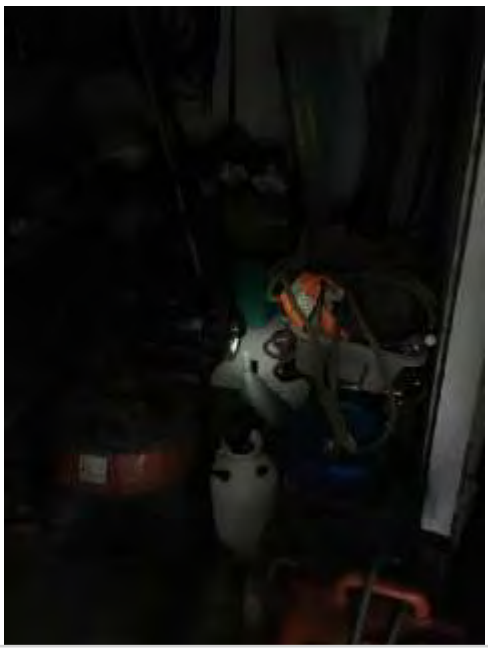
Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Chemical closet with outside entrance on southwest side
Type of Fixture:	**Quantity:**
Various oils, fuel, aerosols, lawn maintenance chemicals, paint	
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Planer building	Upstairs break room
Type of Fixture:	**Quantity:**
Coated footed sink	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Project Name:	1044.02.15
Project Number:	Seaport Authority
Date:	12/4/2019
Field Personnel:	Emily Curtis; Other
Sample Types:	Asbestos; Lead
Sample Areas:	Main Shipping Shed

Samples

Sample ID:	**Sample Type:**	
2-1-MISC-1	MISC	
Misc Sample Material:	Gray base cove with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Men/women’s bathroom west side	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	74 linear ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-1-PB-1	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Yellow posts throughout	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Dark light yellow	1,300 sq. ft.	0.264 mg/cm2 and 167 mg/cm2

Sample Photo:





Sample ID:	Sample Type:	
2-2-PB-2	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Stairway railing on northeast side	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light yellow	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
2-2-MISC-2	MISC	
Misc Sample Material:	White with gray speckled vinyl sheet flooring with gray mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Men/women’s bathroom west side	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	148 sq. ft.	

Sample Photo:





Sample ID:		Sample Type:	
2-3-MISC-3		MISC	
Misc Sample Material:	White vinyl wall covering with yellow mastic		
Sample Location:		**Detailed Sample Location:**	
Main shipping shed		Men/women’s bathroom west side wall	
Sample Friable?:	**Sample Condition:**		
No	Potential ACBM with potential for damage		
Sample Color:		**Sample Quantity:**	**XRF**
		613 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-3-PB-3	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Exterior wall of buildout on northeast side	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
2-4-PB-4	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Small storage closet buildout on northeast side	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light blue	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
2-4-MISC-4	MISC	
Misc Sample Material:	12x12 acoustic ceiling tiles, no mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	West side upstairs sales office	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	336 sq. ft.	

Sample Photo:

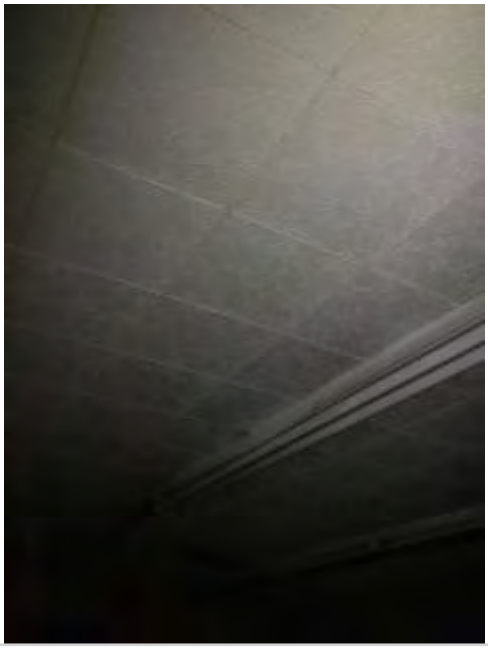




Sample ID:	Sample Type:	
2-5-MISC-5	MISC	
Misc Sample Material:	12x12 white acoustic ceiling tile, no mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	West side top floor office	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	406 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-5-PB-5	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Wall of locker room	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Cream	NA	ND

Sample Photo:


Sample ID:	Sample Type:	
2-6-PB-6	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Upstairs women’s bathroom wall	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Pink	NA	ND

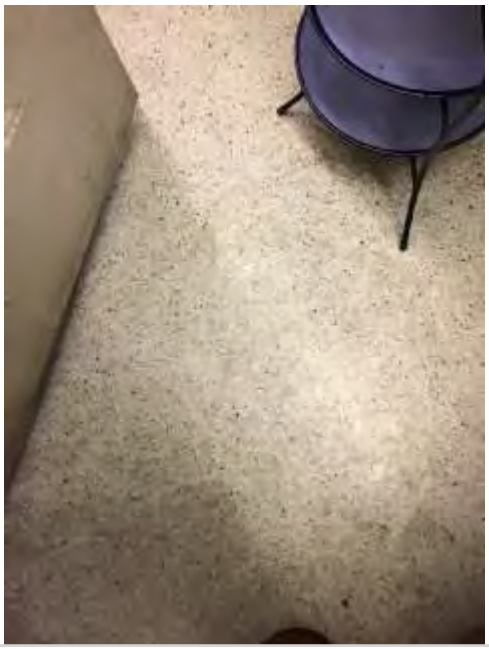
Sample Photo:



Sample ID:		Sample Type:	
2-6-MISC-6		MISC	
Misc Sample Material:	Tan/gray with black speckle vinyl sheet flooring with tan mastic		
Sample Location:		**Detailed Sample Location:**	
Main shipping shed		Storage rooms on southwest behind bathroom, office room at the top of the stairs, back bike storage	
Sample Friable?:	**Sample Condition:**		
No	Potential ACBM with potential for damage		
Sample Color:		**Sample Quantity:**	**XRF**
		812 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-7-MISC-7	MISC	
Misc Sample Material:	Gray base cove with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Southwest storage rooms behind bathrooms, back bike storage	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	83 linear ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-7-PB-7	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Upstairs office on northeast side cabinets	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Shiny Light green	160 sq. ft.	0.213 mg/cm2

Sample Photo:


Sample ID:	Sample Type:	
2-8-PB-8	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Fire valves under north side overhang	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Bright red	100 sq. ft.	0.354 mg/cm2

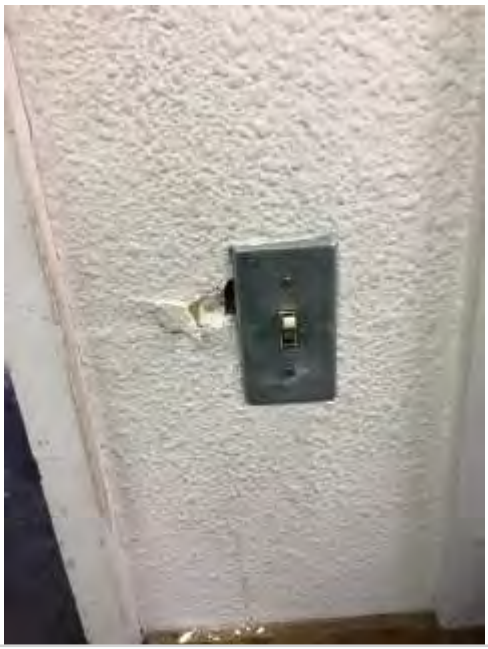
Sample Photo:


Sample ID:	Sample Type:
2-8-MISC-8	MISC

Misc Sample Material:	Drywall	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Southwest storage rooms behind bathrooms wall and ceiling, back bike storage	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	3,844 sq. ft.	

Sample Photo:



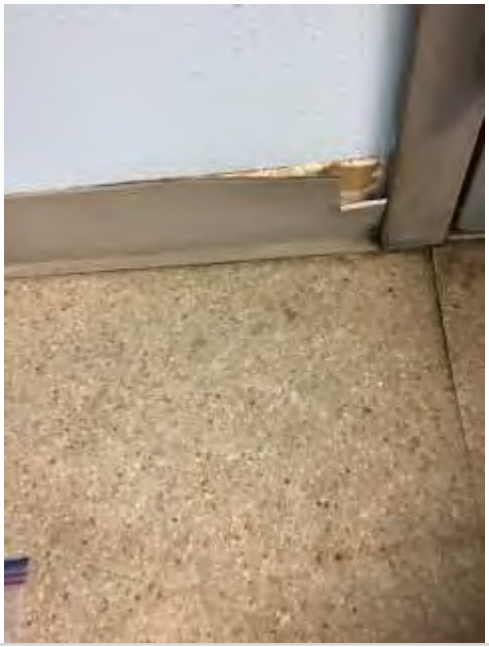


Sample ID:	Sample Type:

2-9-MISC-9	MISC	
Misc Sample Material:	Tan base cove with white mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	West side upstairs sales office	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	94 linear ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-9-PB-9	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Steel beams supporting north overhang	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light olive green	800 sq. ft.	0.503 mg/cm2

Sample Photo:



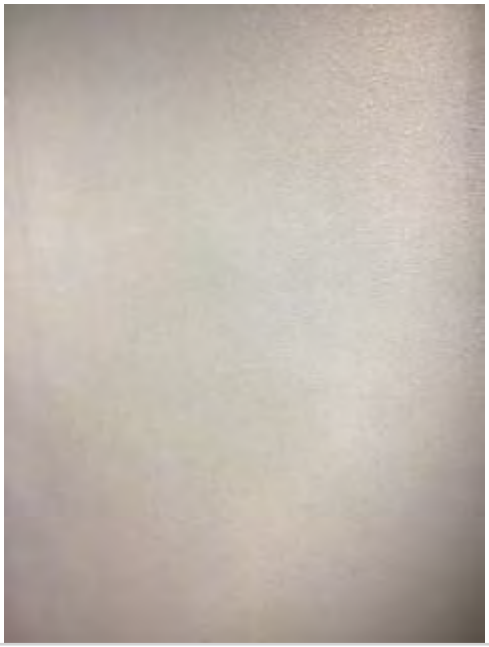
Sample ID:	Sample Type:	
2-10-PB-10	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Wood siding on exterior of shipping shed	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Beige yellow	NA	ND

Sample Photo:



Sample ID:		Sample Type:	
2-10-MISC-10		MISC	
Misc Sample Material:	Drywall		
Sample Location:		**Detailed Sample Location:**	
Main shipping shed		Wall of upstairs sales office	
Sample Friable?:	**Sample Condition:**		
No	Potential ACBM with potential for damage		
Sample Color:		**Sample Quantity:**	**XRF**
		4,256 sq. ft.	

Sample Photo:

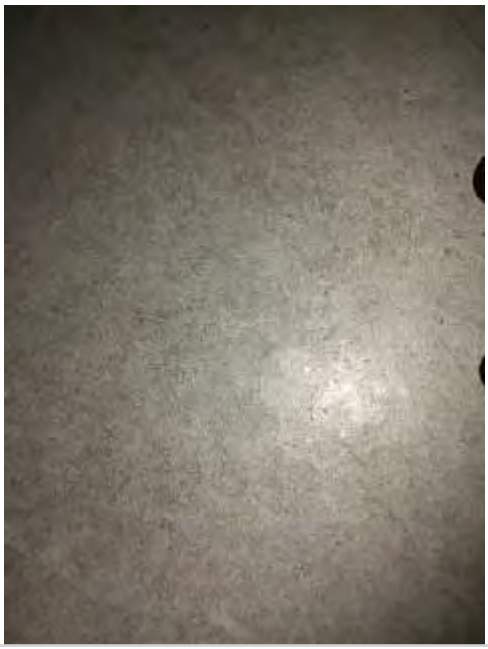




Sample ID:	Sample Type:	
2-11-MISC-11	MISC	
Misc Sample Material:	Tan vinyl sheet flooring with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	West side top floor office	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	406 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-11-PB-11	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Exterior wood siding on west side of building	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
White	5,000 square feet	0.98 mg/cm2

Sample Photo:



Sample ID:	Sample Type:	
2-12-PB-12	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Wall inside mechanic shop	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
2-12-MISC-12	MISC	
Misc Sample Material:	Tan base cove with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	West side top floor office	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	162 linear ft	

Sample Photo:





Sample ID:	Sample Type:	
2-13-MISC-13	MISC	
Misc Sample Material:	Cream vinyl wall covering with orange mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	West side back storage/kitchen room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	336 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-13-PB-13	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Wooden siding on east exterior	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
2-14-PB-14	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Upstairs sales office wall	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light blue	NA	ND

Sample Photo:



Sample ID:		Sample Type:	
2-14-MISC-14		MISC	
Misc Sample Material:	Drywall		
Sample Location:		**Detailed Sample Location:**	
Main shipping shed		Northeast boat wood storage buildout and upstairs	
Sample Friable?:	**Sample Condition:**		
No	Potential ACBM with potential for damage		
Sample Color:		**Sample Quantity:**	**XRF**
		10,880 sq. ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-15-MISC-15	MISC	
Misc Sample Material:	Tan base cove with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	East side upstairs locker room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	70 linear ft.	

Sample Photo:





Sample ID:	Sample Type:	
2-15-PB-15	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Bike storage area	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Blue	NA	ND

Sample Photo:



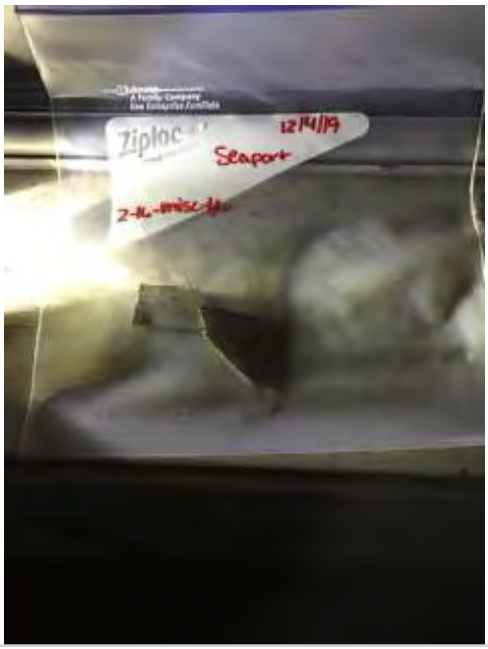
Sample ID:	Sample Type:	
2-16-PB-16	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	Cylinder post outside bathrooms on southwest side	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Medium blue	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
2-16-MISC-16	MISC	
Misc Sample Material:	Tan sheet vinyl flooring with yellow mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	East side upstairs locker room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	276 sq. ft.	

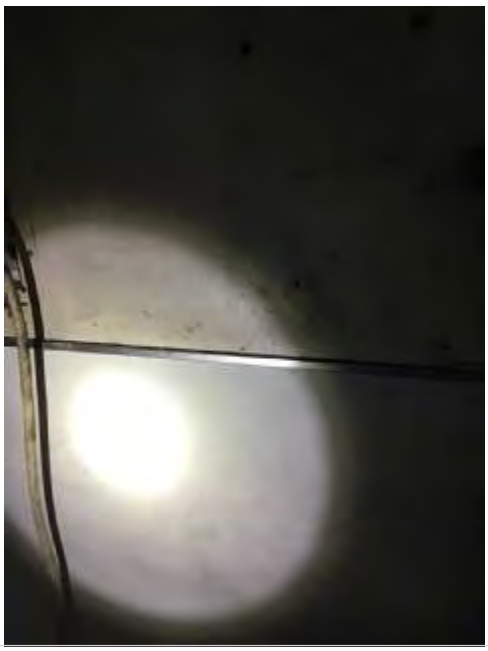
Sample Photo:





Sample ID:	Sample Type:	
2-17-MISC-17	MISC	
Misc Sample Material:	White vinyl wall covering with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	East side upstairs locker room	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	1,104 sq. ft.	

Sample Photo:





Sample ID:		Sample Type:	
2-18-MISC-18		MISC	
Misc Sample Material:	Brown base cove with white mastic		
Sample Location:		**Detailed Sample Location:**	
Main shipping shed		East side upstairs men’s bathroom	
Sample Friable?:	**Sample Condition:**		
No	Potential ACBM with potential for damage		
Sample Color:		**Sample Quantity:**	**XRF**
		25 linear ft.	

Sample Photo:





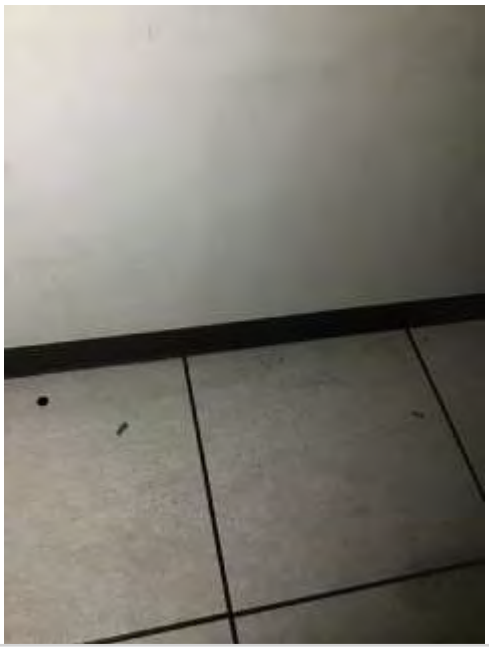
Sample ID:	Sample Type:	
2-19-MISC-19	MISC	
Misc Sample Material:	water resistant wall covering with white mastic	
Sample Location:	**Detailed Sample Location:**	
Main shipping shed	East side upstairs men’s bathroom	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	616 sq. ft.	

Sample Photo:





Sample ID:		Sample Type:	
2-20-MISC-20		MISC	
Misc Sample Material:	Brown base cove with white mastic		
Sample Location:		**Detailed Sample Location:**	
Main shipping shed		East side upstairs office	
Sample Friable?:	**Sample Condition:**		
No	Potential ACBM with potential for damage		
Sample Color:		**Sample Quantity:**	**XRF**
		72 Linear ft.	

Sample Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Auto maintenance shop
Type of Fixture:	**Quantity:**
Various flammable aerosols, cleaning supplies, fuel, oil	Several
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:







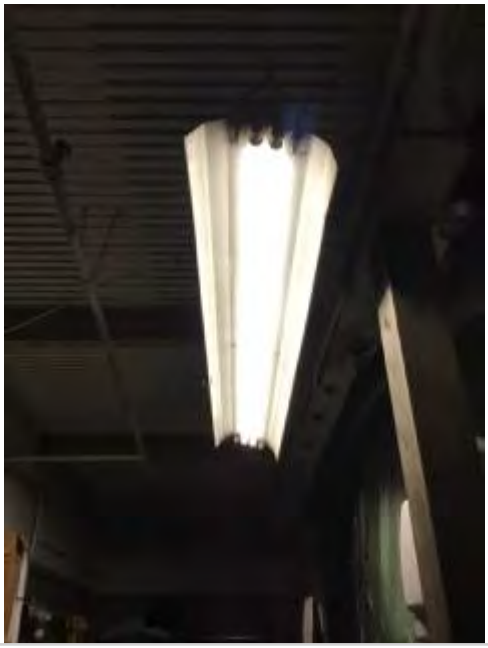
Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Auto maintenance shop
Type of Fixture:	**Quantity:**
Overhead lights	7
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Auto maintenance shop
Type of Fixture:	**Quantity:**
Fluorescent light ballasts	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Southwest corner room behind bathroom
Type of Fixture:	**Quantity:**
Misc tank	1
Condition:	**Additional Fixture Notes:**
Good	

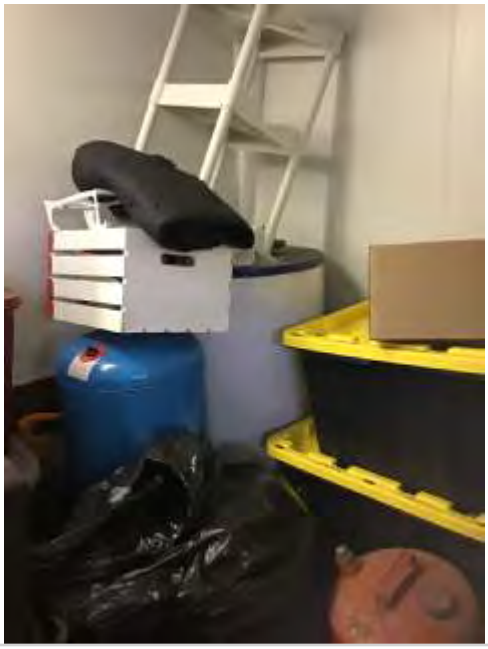
Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Southwest corner room behind bathroom
Type of Fixture:	**Quantity:**
Water heaters	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Throughout bike room
Type of Fixture:	**Quantity:**
Fluorescent light ballast	48
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside storage room on northwest side
Type of Fixture:	**Quantity:**
CO2 tanks	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Upstairs storage room on southwest side, upstairs office area
Type of Fixture:	**Quantity:**
Fluorescent light ballasts	16 in storage, 20 in office
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Upstairs storage room on southwest side
Type of Fixture:	**Quantity:**
Misc paints	Several
Condition:	**Additional Fixture Notes:**
Good	

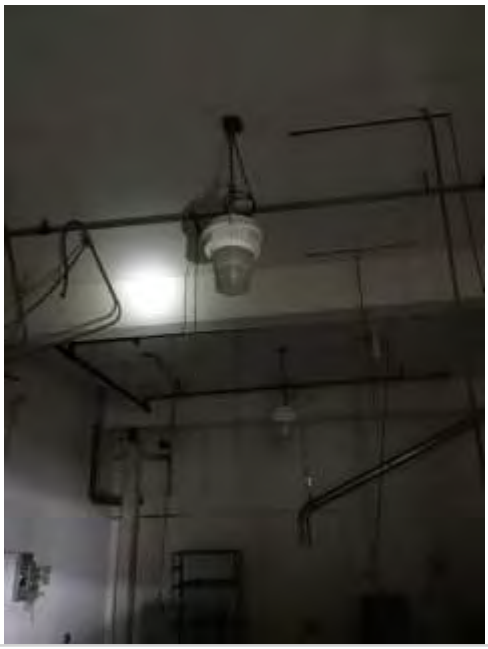
Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Ceiling throughout, inside buildout
Type of Fixture:	**Quantity:**
Ceiling light fixtures	23 throughout, 2 inside buildout
Condition:	**Additional Fixture Notes:**
Good	

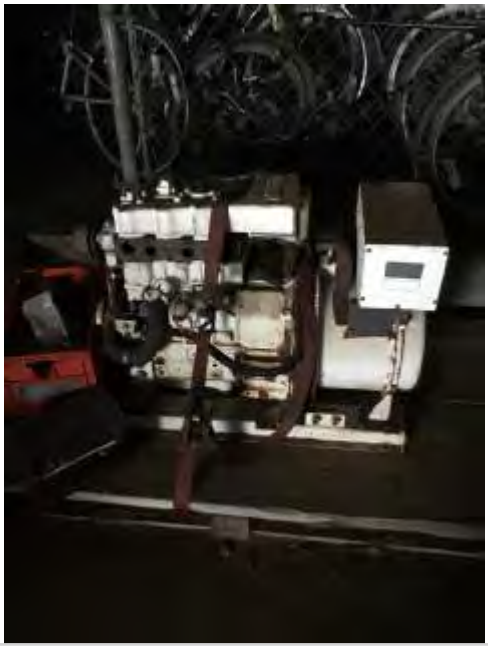
Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside gated bike storage near northwest end
Type of Fixture:	**Quantity:**
Compressor and steam boiler	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside northwest side doorway
Type of Fixture:	**Quantity:**
Air compressor tank	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	North wall
Type of Fixture:	**Quantity:**
Engine	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Center of shipping shed
Type of Fixture:	**Quantity:**
Asbestos fire hoses	30
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Center of shipping shed
Type of Fixture:	**Quantity:**
Misc compressors, engines	4
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:

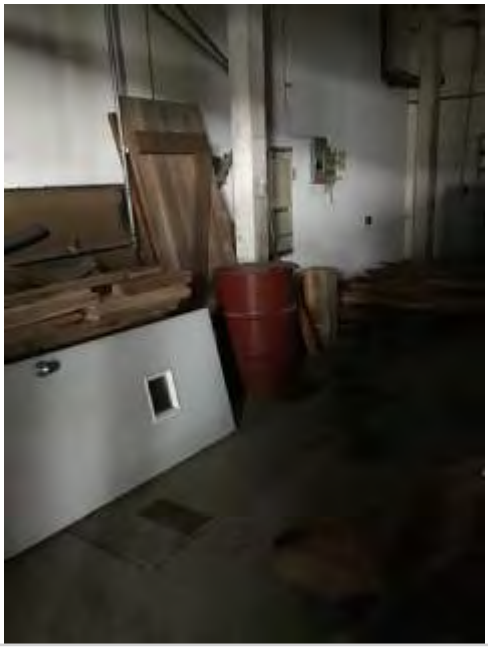


Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Against northeast buildout wall/ inside buildout
Type of Fixture:	**Quantity:**
55 gallon drums--mostly	2 against wall (mostly empty), 2 inside buildout (not empty)

Condition:	Additional Fixture Notes:
Good	Unknown contents

Other Material Photo:





Other Material Tracking

General Fixture Location:	Detailed Fixture Location:
Main shipping shed	Against northeast buildout wall/ outside under west overhang
Type of Fixture:	**Quantity:**
Storage tank--empty for nonregulated waste	1 against northwest buildout, 1 outside under west overhang
Condition:	**Additional Fixture Notes:**

Good	

Other Material Photo:





Other Material Tracking

General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Against northeast wall of east buildout
Type of Fixture:	**Quantity:**
Misc equipment	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:


Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Inside northeast buildout
Type of Fixture:	**Quantity:**
Sprinkler	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:


Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Storage buildout on northeast side
Type of Fixture:	**Quantity:**
Propane tanks	2
Condition:	**Additional Fixture Notes:**
Good	

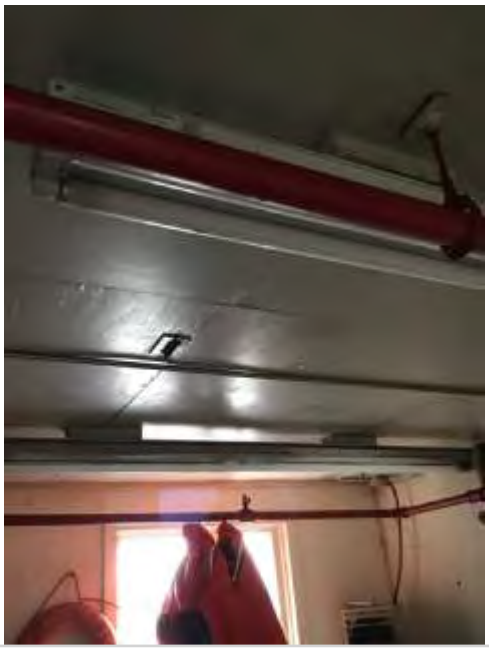
Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Storage buildout on northeast side, boating life jacket storage, upstairs locker room, upstairs bathrooms, upstairs platform, upstairs office
Type of Fixture:	**Quantity:**
Fluorescent light ballasts	4 in buildout, 12 in life jacket, 4 in locker room, 2 in women's upstairs bathroom, 4 in men's upstairs bathroom, 15 upstairs platforms, 8 in upstairs office
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:







Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside storage shed in northeast side
Type of Fixture:	**Quantity:**
Fire hydrants	41
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Upstairs locker room
Type of Fixture:	**Quantity:**
Coated sink	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside under north overhang/ outside near roll-up doors
Type of Fixture:	**Quantity:**
Sprinkler	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside under northern overhang
Type of Fixture:	**Quantity:**
Unlabeled 5-gal buckets	60
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside under northern overhang
Type of Fixture:	**Quantity:**
55-gal used-oil drums	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Main shipping shed	Outside under north overhang
Type of Fixture:	**Quantity:**
Fan unit	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Project Name:	1044.02.15
Project Number:	Seaport Authority
Date:	12/4/2019
Field Personnel:	Emily Curtis; Other
Sample Types:	Asbestos; Lead
Sample Areas:	Chemical and fuel storage shed

Samples

Sample ID:	**Sample Type:**	
4-1-PB-1	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Chemical and fuel storage	Metal sheet siding on west exterior	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Cream	NA	ND

Sample Photo:



Sample ID:	**Sample Type:**
4-2-PB-2	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**
Chemical and fuel storage	Metal sheet siding on west exterior
Sample Friable?:	**Sample Condition:**

Sample Color:	Sample Quantity:	XRF
Grayish white	NA	ND

Sample Photo:



Sample ID:	Sample Type:
4-3-PB-3	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**
Chemical and fuel storage	Paint on exterior cement footing, west side
Sample Friable?:	**Sample Condition:**

Sample Color:	Sample Quantity:	XRF
Light gray	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
4-4-PB-4	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Chemical and fuel storage	Steel posts supporting north overhang	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Yellow	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
4-5-PB-5	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Chemical and fuel storage	Metal sheet siding on east exterior	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light yellow	NA	ND

Sample Photo:



Sample ID:	Sample Type:	
4-6-PB-6	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Chemical and fuel storage	Concrete pillar on southeast side outside shed	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Green	150 sq. ft.	0.007 mg/cm2

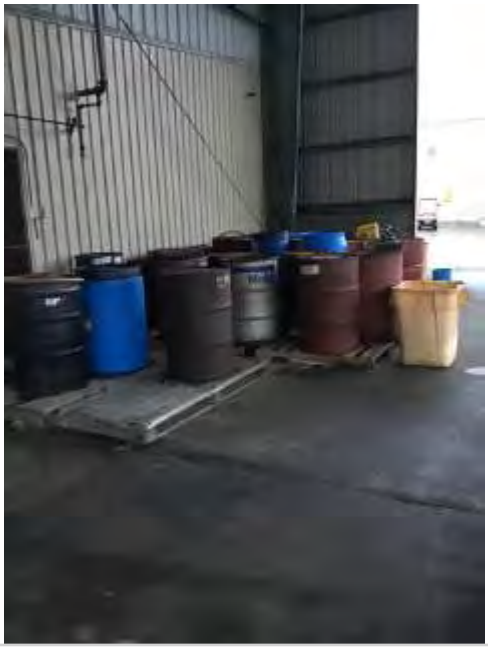
Sample Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage shed	Throughout
Type of Fixture:	**Quantity:**
55-gallon drums--unknown contents	47
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage	Throughout
Type of Fixture:	**Quantity:**
Gas cans	7
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



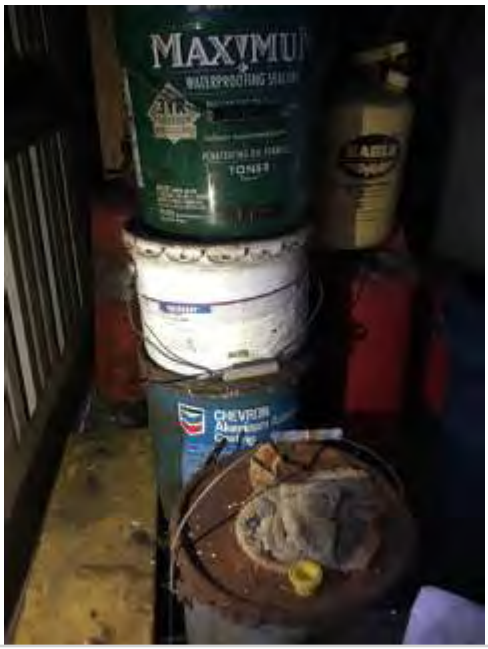
Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage	Throughout
Type of Fixture:	**Quantity:**
Various 5-gallon buckets, paint cans, oil cans	50+
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:








MAXYMU
WATERPROOFING
CHEVRON





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage	Under north overhang
Type of Fixture:	**Quantity:**
Mechanical equipment, fire sprinkler	2
Condition:	**Additional Fixture Notes:**
Good	

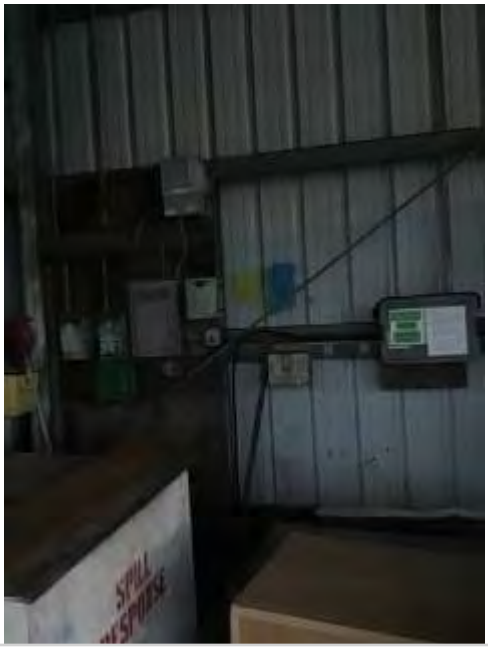
Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage	Under north overhang
Type of Fixture:	**Quantity:**
Electric panel	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage	Central inside secondary containment area
Type of Fixture:	**Quantity:**
Antifreeze tanks	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical and fuel storage	Next to antifreeze tanks
Type of Fixture:	**Quantity:**
Waste tank	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:

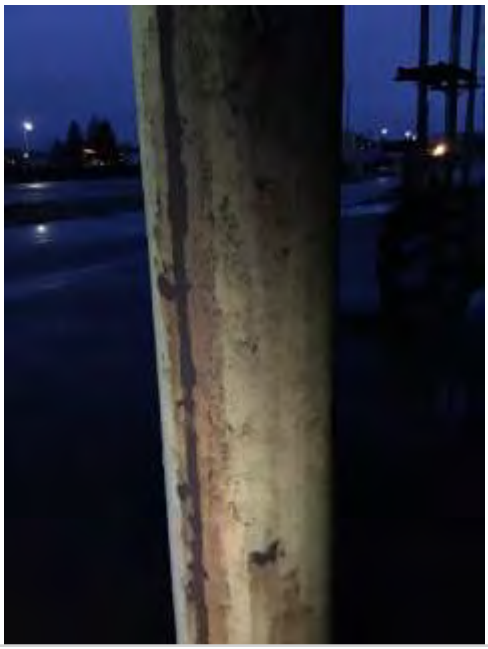


Project Name:	1044.02.15
Project Number:	Seaport Authority
Date:	12/4/2019
Field Personnel:	Emily Curtis; Other
Sample Types:	Asbestos; Lead
Sample Areas:	Chemical shed

Samples

Sample ID:	**Sample Type:**	
5-1-PB-1	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Chemical shed	Metal beams supporting overhang	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light yellow	10 posts 25 ft high, 10 in diameter	1.68 mg/cm2

Sample Photo:



Sample ID:	**Sample Type:**
5-2-PB-2	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**
Chemical shed	Metal support post
Sample Friable?:	**Sample Condition:**

Sample Color:	Sample Quantity:	XRF
Black	NA	ND

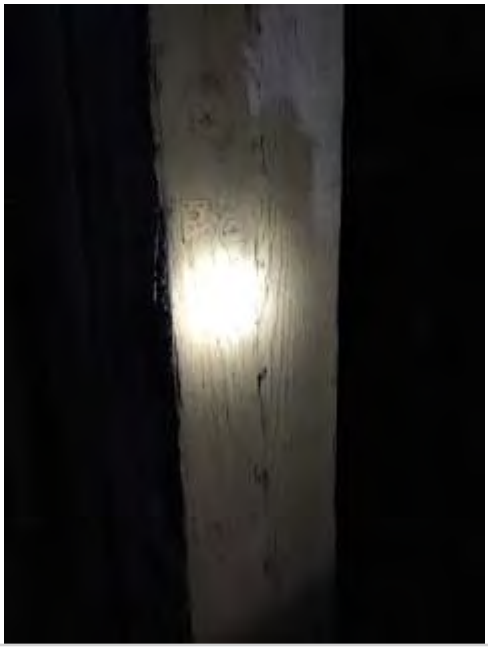
Sample Photo:



Sample ID:	Sample Type:
5-3-PB-3	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**
Chemical shed	Wood siding
Sample Friable?:	**Sample Condition:**

Sample Color:	Sample Quantity:	XRF
Dark tan	NA	ND

Sample Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical shed	Against back wall (north wall)
Type of Fixture:	**Quantity:**
Electric panel and electric box	2
Condition:	**Additional Fixture Notes:**
Good	

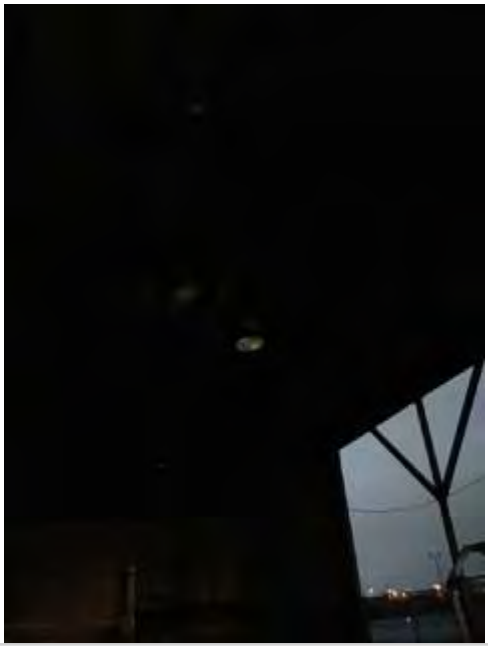
Other Material Photo:





Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical shed	Throughout ceiling
Type of Fixture:	**Quantity:**
Light fixtures	12
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Chemical shed	Riser buildout north side
Type of Fixture:	**Quantity:**
Sprinkler	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Project Name:	1044.02.15
Project Number:	Seaport Authority
Date:	12/4/2019
Field Personnel:	Emily Curtis; Other
Sample Types:	Asbestos; Lead
Sample Areas:	Guard shack

Samples

Sample ID:	**Sample Type:**	
3-1-PB-1	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Guard shack	Exterior wood siding	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Light blue gray	700 sq. ft.	0.45 mg/cm2

Sample Photo:

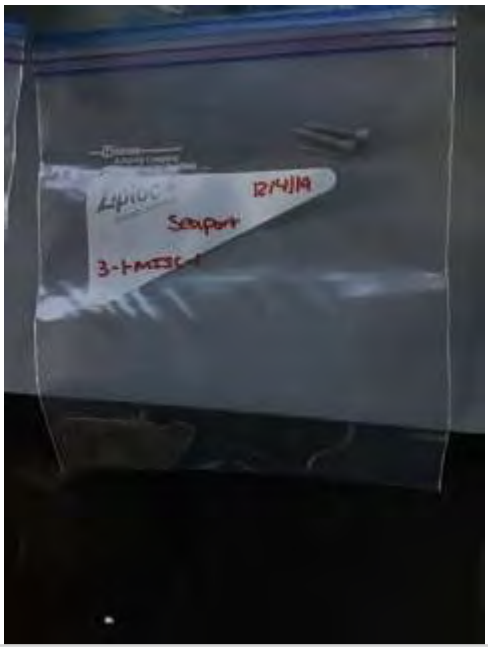


Sample ID:	**Sample Type:**
3-1-MISC-1	MISC
Misc Sample Material:	Brown base cove with brown mastic
Sample Location:	**Detailed Sample Location:**
Guard shack	Base cove
Sample Friable?:	**Sample Condition:**
No	Potential ACBM with potential for damage

Sample Color:	Sample Quantity:	XRF
	80 linear ft.	

Sample Photo:

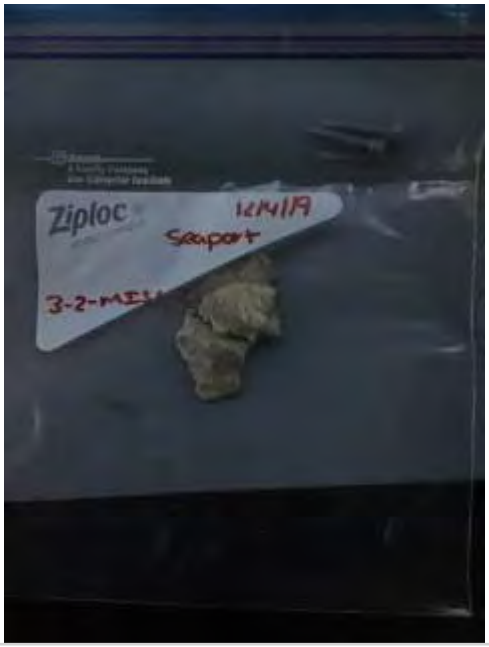


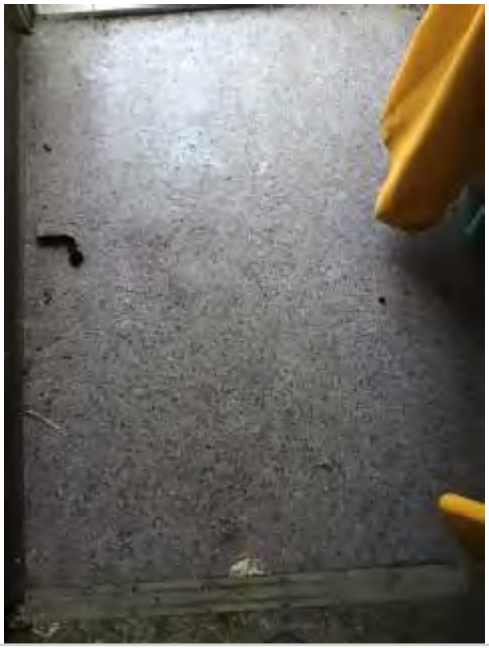


Sample ID:	Sample Type:
3-2-MISC-2	MISC
Misc Sample Material:	Gray, black, tan speckled vinyl sheet flooring with tan mastic
Sample Location:	**Detailed Sample Location:**
Guard shack	Flooring near entrance
Sample Friable?:	**Sample Condition:**

No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	6 sq. ft.	

Sample Photo:



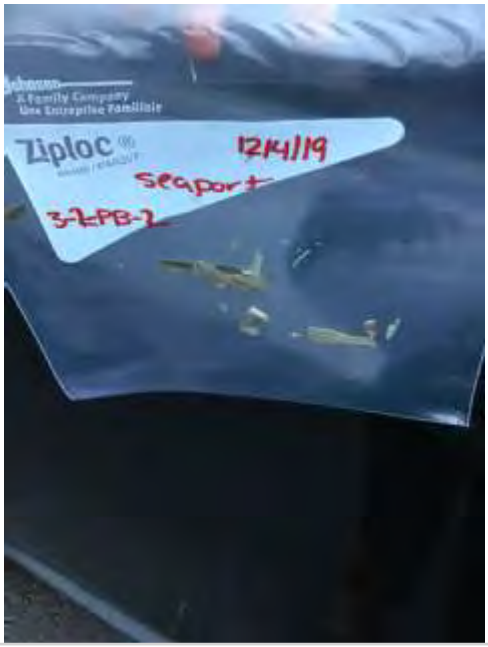


Sample ID:	**Sample Type:**
3-2-PB-2	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**
Guard shack	Exterior wood siding

Sample Friable?:	Sample Condition:	
Sample Color:	**Sample Quantity:**	**XRF**
Off white	700 sq. ft.	1.68 mg/cm2

Sample Photo:





Sample ID:	Sample Type:
3-3-PB-3	PB
Misc Sample Material:	
Sample Location:	**Detailed Sample Location:**

Guard shack	Interior side of door	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
Tan yellow	NA	ND

Sample Photo:



Sample ID:	**Sample Type:**	
3-3-MISC-3	MISC	
Misc Sample Material:	Dark gray, beige, tan vinyl sheet flooring with tan mastic	
Sample Location:	**Detailed Sample Location:**	
Guard shack	Flooring	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	256 sq. ft.	

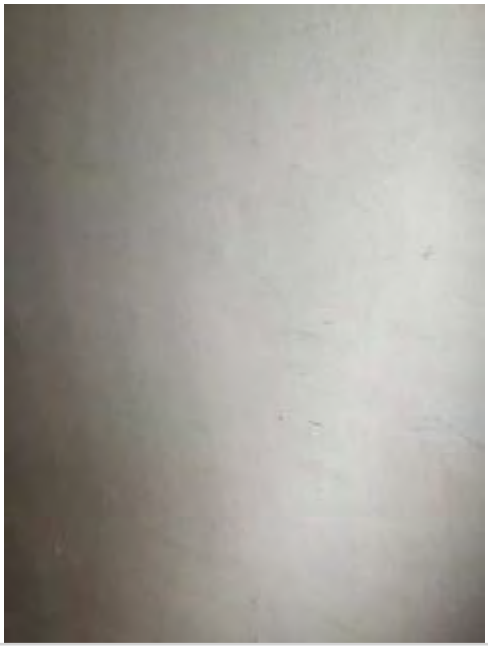
Sample Photo:





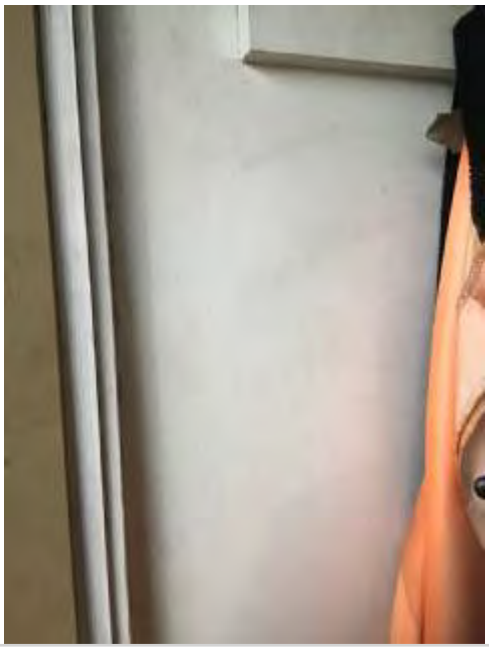
Sample ID:	Sample Type:	
3-4-MISC-4	MISC	
Misc Sample Material:	Drywall	
Sample Location:	**Detailed Sample Location:**	
Guard shack	Walls	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	1,792 sq. ft.	

Sample Photo:



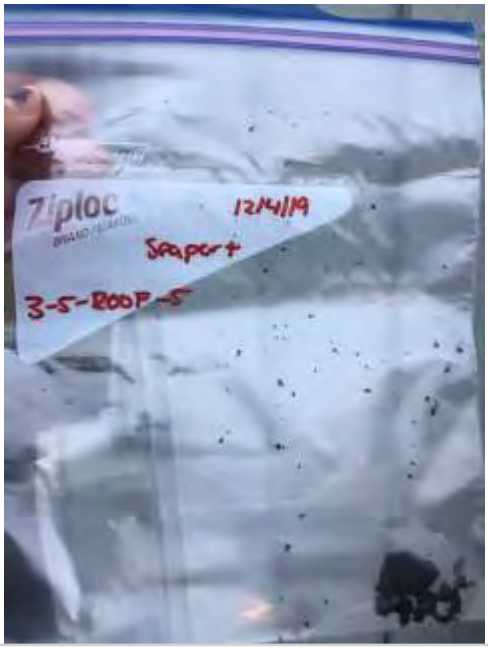


Sample ID:	Sample Type:	
3-4-PB-4	PB	
Misc Sample Material:		
Sample Location:	**Detailed Sample Location:**	
Guard shack	Walls	
Sample Friable?:	**Sample Condition:**	
Sample Color:	**Sample Quantity:**	**XRF**
White	NA	ND

Sample Photo:


Sample ID:	Sample Type:	
3-5-MISC-5	MISC	
Misc Sample Material:	Black asphaltic roofing material	
Sample Location:	**Detailed Sample Location:**	
Guard shack	Roof	
Sample Friable?:	**Sample Condition:**	
No	Potential ACBM with potential for damage	
Sample Color:	**Sample Quantity:**	**XRF**
	NA	

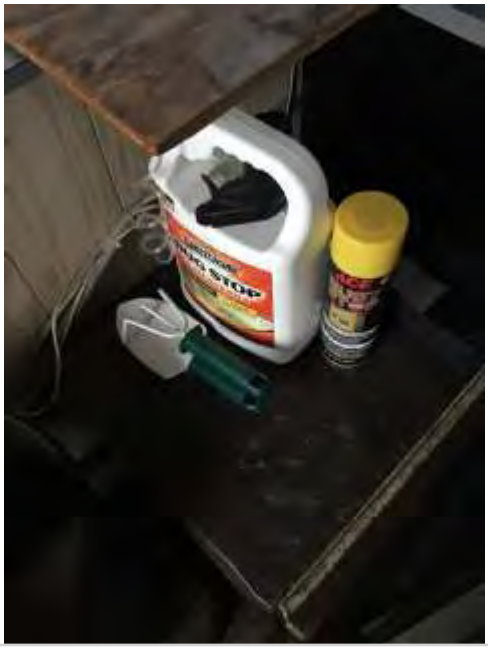
Sample Photo:





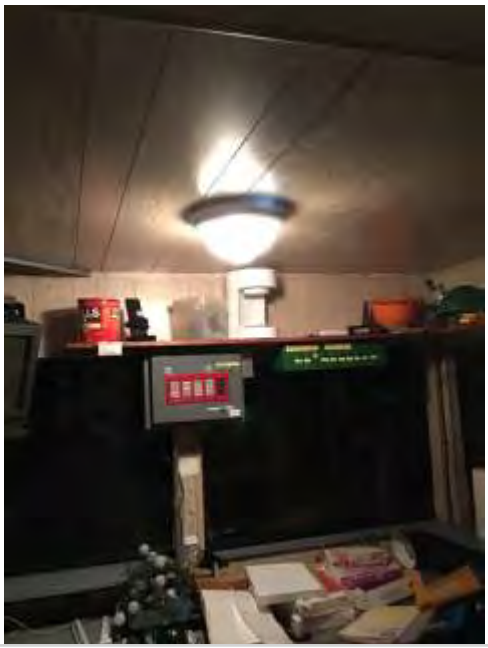
Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Guard shack	Near entrance
Type of Fixture:	**Quantity:**
Bug stop, aerosol	2
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



Other Material Tracking	
General Fixture Location:	**Detailed Fixture Location:**
Guard shack	Ceiling
Type of Fixture:	**Quantity:**
Light fixture	1
Condition:	**Additional Fixture Notes:**
Good	

Other Material Photo:



APPENDIX C

LABORATORY ANALYTICAL REPORTS

December 17, 2019

Kyle Roslund
Maul Foster & Alongi, Inc.
109 E 13th St.
Vancouver, WA 98660

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1925820.00

Client Project: 1044.02.15
Location: WA

Dear Mr. Roslund,

Enclosed please find test results for the 31 sample(s) submitted to our laboratory for analysis on 12/9/2019.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Lab Code: 102063-0

Enc.: Sample Results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 19141773 **Client Sample #: 1-1-MISC-1**

Location: WA

Comments: Qualitative analysis was conducted for the presence of asbestos fibers in layer 2 of this sample.

Layer 1 of 3 **Description:** Light gray rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Rubber/Binder	None Detected ND	**None Detected ND**

Layer 2 of 3 **Description:** Pale yellow soft mastic with debris

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous particles, Debris, Fine particles	Cellulose	**None Detected ND**
Wood flakes	Synthetic fibers	
	Spider silk	
	Wood fibers	

Layer 3 of 3 **Description:** Gold soft adhesive

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Adhesive/Binder	None Detected ND	**None Detected ND**

Lab ID: 19141774 **Client Sample #: 1-2-MISC-2**

Location: WA

Layer 1 of 2 **Description:** Gray sheet vinyl with thin clear adhesive surface

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Adhesive/Binder, Calcareous particles, Vinyl/Binder	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** Light gray fibrous backing with soft mastic and trace crumbly material (on wood)

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Fine particles	Cellulose 42%	**None Detected ND**
Mastic/Binder, Wood	Glass fibers 3%	

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

		Synthetic fibers	2%

Lab ID: 19141775 **Client Sample #: 1-3-MISC-3**

Location: WA

Layer 1 of 3 **Description:** Off-white compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous binder, Calcareous particles, Paint	None Detected	ND	**None Detected ND**
Perlite			

Layer 2 of 3 **Description:** Off-white compacted powdery material with white paper

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous binder, Calcareous particles, Perlite	Cellulose	20%	**None Detected ND**

Layer 3 of 3 **Description:** Trace off-white chalky material with paper

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Fine particles, Gypsum/Binder	Cellulose	2%	**None Detected ND**
	Glass fibers	2%	

Lab ID: 19141776 **Client Sample #: 1-4-MISC-4**

Location: WA

Comments: Qualitative analysis was conducted for the presence of asbestos fibers in layer 1 of this sample.

Layer 1 of 2 **Description:** Dark brown rubbery material with debris

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Debris, Fine particles, Rubber/Binder	Cellulose		**None Detected ND**
	Synthetic fibers		
	Spider silk		

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Brown brittle mastic

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Mastic/Binder	Wollastonite	2%	**None Detected ND**

Lab ID: 19141777 **Client Sample #: 1-5-MISC-5**

Location: WA

Layer 1 of 2 **Description:** Tan sheet vinyl

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**

Layer 2 of 2 **Description:** Light tan fibrous backing with mastic and trace wood flakes

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Binder/Filler, Calcareous particles, Fine particles	Cellulose	39%	**None Detected ND**
Mastic/Binder, Wood flakes	Glass fibers	6%	
	Synthetic fibers	7%	
	Wollastonite	2%	

Lab ID: 19141778 **Client Sample #: 1-6-MISC-6**

Location: WA

Comments: Qualitative analysis was conducted for the presence of asbestos fibers in layer 4 of this sample.

Layer 1 of 5 **Description:** Off-white ceramic tile

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Ceramic/Binder, Quartz	None Detected	ND	**None Detected ND**

Layer 2 of 5 **Description:** Beige soft mastic

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Calcareous particles, Mastic/Binder	None Detected	ND	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 3 of 5	**Description:** Light gray sandy/brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Mineral grains, Sand	None Detected	ND	**None Detected ND**
Layer 4 of 5	**Description:** Off-white compressed powdery material with trace debris			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Calcareous particles, Fine particles	Cellulose		**None Detected ND**
	Wood flakes	Glass fibers		
		Synthetic fibers		
		Wood fibers		
Layer 5 of 5	**Description:** Off-white brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Mineral grains	None Detected	ND	**None Detected ND**

Lab ID: 19141779 **Client Sample #: 2-1-MISC-1**
Location: WA

Layer 1 of 2	**Description:** Light gray rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Rubber/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Cream soft mastic with debris			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Calcareous particles, Debris	Wood fibers	<1%	**None Detected ND**
	Fine particles, Wood flakes	Spider silk	<1%	

Lab ID: 19141780 **Client Sample #: 2-2-MISC-2**
Location: WA

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Off-white sheet vinyl with adhesive surface			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Adhesive/Binder, Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Light tan fibrous backing with mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Calcareous particles, Fine particles	Cellulose	38%	**None Detected ND**
	Mastic/Binder	Glass fibers	6%	
		Synthetic fibers	2%	

Lab ID: 19141781 **Client Sample #: 2-3-MISC-3**
Location: WA

Layer 1 of 2	**Description:** Brown flat hard compressed fibrous material with off-white surface and trace paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler, Paint	Cellulose	98%	**None Detected ND**
Layer 2 of 2	**Description:** Tan brittle mastic with trace debris			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Mastic/Binder	None Detected	ND	**None Detected ND**

Lab ID: 19141782 **Client Sample #: 2-4-MISC-4**
Location: WA

Layer 1 of 2	**Description:** Off-white compressed fibrous material with white textured paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Fine particles, Glass beads	Cellulose	60%	**None Detected ND**
	Paint, Perlite	Glass fibers	25%	

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Tan brittle mastic with trace thin compacted powdery material with white paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous particles, Mastic/Binder, Paint	None Detected	ND	**None Detected ND**

Lab ID: 19141783 **Client Sample #: 2-5-MISC-5**
Location: WA

Layer 1 of 1 **Description:** Tan wooden compressed fibrous material with off-white textured coating

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Perlite	Wood fibers	95%	**None Detected ND**
Wood flakes			

Lab ID: 19141784 **Client Sample #: 2-6-MISC-6**
Location: WA

Layer 1 of 2 **Description:** Multi-colored sheet vinyl

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**

Layer 2 of 2 **Description:** Light gray fibrous backing with mastic and gray paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Fine particles, Mastic/Binder	Cellulose	27%	**None Detected ND**
Paint, Wood flakes	Glass fibers	5%	
	Synthetic fibers	10%	
	Wollastonite	2%	
	Spider silk	<1%	

Lab ID: 19141785 **Client Sample #: 2-7-MISC-7**
Location: WA

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Gray rubbery material wit trace white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Paint, Rubber/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Yellow soft mastic with paint and trace debris			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Debris, Fine particles	Spider silk	<1%	**None Detected ND**
	Mastic/Binder, Paint, Wood flakes	Wood fibers	2%	

Lab ID: 19141786 **Client Sample #: 2-8-MISC-8**

Location: WA

Layer 1 of 4	**Description:** White bumpy compacted powdery material with layered paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Calcareous particles, Paint	None Detected	ND	**None Detected ND**
	Perlite			
Layer 2 of 4	**Description:** White compacted powdery material with white paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Calcareous particles, Perlite	Cellulose	19%	**None Detected ND**
Layer 3 of 4	**Description:** Beige thin fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler	Cellulose	12%	**None Detected ND**
Layer 4 of 4	**Description:** Off-white chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Fine grains, Fine particles, Gypsum/Binder	Cellulose	22%	**None Detected ND**
		Glass fibers	4%	

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 19141787 **Client Sample #: 2-9-MISC-9**
Location: WA

Layer 1 of 5	**Description:** Gray rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Fine particles, Rubber/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 5	**Description:** Off-white soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Mastic/Binder	None Detected	ND	**None Detected ND**
Layer 3 of 5	**Description:** White bumpy compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Calcareous particles, Paint	None Detected	ND	**None Detected ND**
Layer 4 of 5	**Description:** Off-white fibrous material with white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Paint	Cellulose	15%	**None Detected ND**
Layer 5 of 5	**Description:** Tan fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler	Cellulose	18%	**None Detected ND**

Lab ID: 19141788 **Client Sample #: 2-10-MISC-10**
Location: WA

Layer 1 of 3	**Description:** Off-white compacted powdery material with blue paint and clear cellophane tape			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Adhesive/Binder, Calcareous binder, Calcareous particles Cellophane, Paint	None Detected	ND	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

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Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 3	**Description:** Off-white thin fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler	Cellulose	17%	**None Detected ND**
Layer 3 of 3	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Fine particles, Gypsum/Binder	Cellulose	19%	**None Detected ND**
		Glass fibers	2%	

Lab ID: 19141789 **Client Sample #: 2-11-MISC-11**
Location: WA

Layer 1 of 2	**Description:** Off-white sheet vinyl with multi-colored dots			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Light gray fibrous backing with yellow mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Fine particles, Mastic/Binder	Cellulose	39%	**None Detected ND**
		Synthetic fibers	5%	
		Glass fibers	4%	

Lab ID: 19141790 **Client Sample #: 2-12-MISC-12**
Location: WA

Layer 1 of 3	**Description:** Gray rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Fine particles, Rubber/Binder	None Detected	ND	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 3	**Description:** Off-white soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Mastic/Binder	None Detected	ND	**None Detected ND**
Layer 3 of 3	**Description:** Brown brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder	None Detected	ND	**None Detected ND**

Lab ID: 19141791 **Client Sample #: 2-13-MISC-13**
Location: WA

Layer 1 of 2	**Description:** Brown flat hard compressed fibrous material with cream surface			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler	Cellulose	95%	**None Detected ND**
Layer 2 of 2	**Description:** Tan brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Mastic/Binder, Wood flakes	None Detected	ND	**None Detected ND**

Lab ID: 19141792 **Client Sample #: 2-14-MISC-14**
Location: WA

Layer 1 of 2	**Description:** Off-white thin fibrous material with white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler, Paint	Cellulose	17%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Fine particles, Gypsum/Binder	Cellulose	22%	**None Detected ND**
		Glass fibers	5%	

Lab ID: 19141793 **Client Sample #: 2-15-MISC-15**
Location: WA

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 3	**Description:** Tan rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Rubber/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** Off-white soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Mastic/Binder	None Detected	ND	**None Detected ND**
Layer 3 of 3	**Description:** Brown compressed fibrous material with white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Paint	Cellulose	73%	**None Detected ND**

Lab ID: 19141794 **Client Sample #: 2-16-MISC-16**
Location: WA

Layer 1 of 2	**Description:** Off-white sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Light tan fibrous backing with mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Fine particles, Diatom	Cellulose	37%	**None Detected ND**
	Mastic/Binder, Perlite	Glass fibers	4%	
		Synthetic fibers	5%	
		Wollastonite	3%	

Lab ID: 19141795 **Client Sample #: 2-17-MISC-17**
Location: WA

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 3	**Description:** Off-white brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Fine particles, Mastic/Binder	Wollastonite	2%	**None Detected ND**
Layer 2 of 3	**Description:** Brown wooden hard compressed fibrous material with white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler, Paint	Wood fibers	97%	**None Detected ND**
	Wood flakes			
Layer 3 of 3	**Description:** Yellow brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous particles, Mastic/Binder	None Detected	ND	**None Detected ND**

Lab ID: 19141796 **Client Sample #: 2-18-MISC-18**
Location: WA

Layer 1 of 2	**Description:** Brown rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Rubber/Binder, Wood flakes	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Off-white soft mastic with debris			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous particles, Debris, Fine particles	Cellulose	2%	**None Detected ND**
	Mastic/Binder, Wood flakes	Spider silk	<1%	

Lab ID: 19141797 **Client Sample #: 2-19-MISC-19**
Location: WA

Layer 1 of 2	**Description:** Brown wooden hard compressed fibrous material with cream paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler, Paint	Wood fibers	96%	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2	**Description:** Off-white soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous particles, Mastic/Binder	Cellulose <1%		**None Detected ND**

Lab ID: 19141798 **Client Sample #: 2-20-MISC-20**
Location: WA

Layer 1 of 3	**Description:** Black rubbery material with trace debris			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Debris, Insect parts, Rubber/Binder	Spider silk <1%		**None Detected ND**
	Wood flakes			
Layer 2 of 3	**Description:** Brown brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Mastic/Binder	Wollastonite 3%		**None Detected ND**
Layer 3 of 3	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Calcareous particles, Paint	None Detected ND		**None Detected ND**

Lab ID: 19141800 **Client Sample #: 3-1-MISC-1**
Location: WA

Layer 1 of 2	**Description:** Black rubbery material with trace debris			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Debris, Insect parts, Rubber/Binder	Spider silk <1%		**None Detected ND**
	Wood flakes			
Layer 2 of 2	**Description:** Dark brown brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Mastic/Binder	Wollastonite 3%		**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

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Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 19141801 **Client Sample #: 3-2-MISC-2**
Location: WA

Layer 1 of 2 **Description:** Gray sheet vinyl

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**

Layer 2 of 2 **Description:** Tan fibrous backing with mastic and trace chalky material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Fine particles, Gypsum/Binder	Cellulose	29%	**None Detected ND**
Mastic/Binder	Glass fibers	5%	
	Synthetic fibers	12%	

Lab ID: 19141802 **Client Sample #: 3-3-MISC-3**
Location: WA

Layer 1 of 2 **Description:** Gray sheet vinyl

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous particles, Vinyl/Binder	None Detected	ND	**None Detected ND**

Layer 2 of 2 **Description:** Tan fibrous backing with mastic

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Fine particles, Gypsum/Binder	Cellulose	39%	**None Detected ND**
Mastic/Binder	Glass fibers	5%	
	Synthetic fibers	8%	

Lab ID: 19141803 **Client Sample #: 3-4-MISC-4**
Location: WA

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925820.00
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 31
Samples Analyzed: 31
Method: EPA/600/R-93/116 & EPA/600/M4-82-020

Layer 1 of 3	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Calcareous particles, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** Beige thin fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler	Cellulose	14%	**None Detected ND**
Layer 3 of 3	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Fine particles, Gypsum/Binder	Cellulose	20%	**None Detected ND**
		Glass fibers	3%	

Lab ID: 19141804 **Client Sample #: 3-5-ROOF-5**
Location: WA

Layer 1 of 1	**Description:** Black brittle asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Asphalt/Binder, Sand	Cellulose	2%	**None Detected ND**
		Glass fibers	2%	

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 12/13/2019
Reviewed by: Matt Macfarlane **Date:** 12/17/2019

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

ASBESTOS LABORATORY SERVICES

Company	Maul Foster & Alongi, Inc.	**NVL Batch Number**	**1925820.00**
Address	109 E 13th St. Vancouver, WA 98660	**TAT** 5 Days **AH** No **Rush TAT**	
Project Manager	Mr. Kyle Roslund	**Due Date** 12/16/2019 **Time** 8:00 AM	
Phone	(971) 544-2139	**Email** krOSLUND@maulfoster.com	
Cell	(503) 341-8112	**Fax**	

Project Name/Number: 1044.02.15 **Project Location:** WA

Subcategory PLM Bulk

Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 31 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	19141773	1-1-MISC-1		A
2	19141774	1-2-MISC-2		A
3	19141775	1-3-MISC-3		A
4	19141776	1-4-MISC-4		A
5	19141777	1-5-MISC-5		A
6	19141778	1-6-MISC-6		A
7	19141779	2-1-MISC-1		A
8	19141780	2-2-MISC-2		A
9	19141781	2-3-MISC-3		A
10	19141782	2-4-MISC-4		A
11	19141783	2-5-MISC-5		A
12	19141784	2-6-MISC-6		A
13	19141785	2-7-MISC-7		A
14	19141786	2-8-MISC-8		A
15	19141787	2-9-MISC-9		A
16	19141788	2-10-MISC-10		A
17	19141789	2-11-MISC-11		A
18	19141790	2-12-MISC-12		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Drop Box				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	12/9/19	800
Analyzed by	Alla Prysyazhnyuk		NVL	12/13/19	
Results Called by	Alla Prysyazhnyuk		NVL-AUR	12/13/19	5:07 PM
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 12/9/2019
Time: 11:25 AM
Entered By: Emily Schubert

ASBESTOS LABORATORY SERVICES

Company	Maul Foster & Alongi, Inc.	**NVL Batch Number**	**1925820.00**
Address	109 E 13th St. Vancouver, WA 98660	**TAT** 5 Days **AH** No **Rush TAT**	
Project Manager	Mr. Kyle Roslund	**Due Date** 12/16/2019 **Time** 8:00 AM	
Phone	(971) 544-2139	**Email** krOSLUND@maulfoster.com	
Cell	(503) 341-8112	**Fax**	

Project Name/Number: 1044.02.15 **Project Location:** WA

Subcategory PLM Bulk

Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 31 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	19141791	2-13-MISC-13		A
20	19141792	2-14-MISC-14		A
21	19141793	2-15-MISC-15		A
22	19141794	2-16-MISC-16		A
23	19141795	2-17-MISC-17		A
24	19141796	2-18-MISC-18		A
25	19141797	2-19-MISC-19		A
26	19141798	2-20-MISC-20		A
27	19141800	3-1-MISC-1		A
28	19141801	3-2-MISC-2		A
29	19141802	3-3-MISC-3		A
30	19141803	3-4-MISC-4		A
31	19141804	3-5-ROOF-5		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Drop Box				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	12/9/19	800
Analyzed by	Alla Prysyazhnyuk		NVL	12/13/19	
Results Called by	Alla Prysyazhnyuk		NVL-AUR	12/13/19	5:07 PM
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 12/9/2019
Time: 11:25 AM
Entered By: Emily Schubert

1925820

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ❑ 1 Hour
- ❑ 2 Hours
- ❑ 4 Hours
- ❑ 24 Hours
- ❑ 2 Days
- ❑ 3 Days
- ❑ 4 Days
- ❑ 5 Days
- ☒ 10 Days STAT

Please call for TAT less than 24 Hours

Company Mawl Foster + Alongi, Inc. Project Manager Kyle Roslund
Address 2001 NW 19th Ave Suite 200 Cell ( ) -
PDX, OR 97209 Email kroslund@mawlfoster.com
Phone ( ) - Fax ( ) -

Project Name/Number 1044.02.15 Project Location WA

- ❑ PCM Air (NIOSH 7400)
- ❑ TEM (NIOSH 7402)
- ❑ TEM (AHERA)
- ❑ TEM (EPA Level II Modified)
- ☒ PLM (EPA 600/R-93-116)
- ❑ EPA 400 Points (600/R-93-116)
- ❑ EPA 1000Points (600/R-93-116)
- ❑ PLM Gravimetry (600/R-93-116)
- ❑ Asbestos in Vermiculite (EPA 600/R-04/004)
- ❑ Asbestos in Sediment (EPA 1900 Points)
- ❑ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ❑ Other

Reporting Instructions Report to Emily Curtis
❑ Call (503) 501-5233 ❑ Fax ( ) - ☒ Email ecurtis@mawlfoster.com

Total Number of Samples 31

	Sample ID	Description	A/R
1	1-1-MISC-1	Gray base cove w/ tan mastic	
2	1-2-MISC-2	Gray Speckled sheet vinyl flooring w/ gray mastic	
3	1-3-MISC-3	Drywall	
4	1-4-MISC-4	Brown base cove w/ brown mastic	
5	1-5-MISC-5	Tan/brown sheet vinyl flooring w/ yellow mastic	
6	1-6-MISC-6	light gray ceramic tile w/ gray mortar	
7	2-1-MISC-1	Gray base cove w/ tan mastic	
8	2-2-MISC-2	white/gray speckled sheet vinyl flooring w/ gray mastic	
9	2-3-MISC-3	White vinyl wall covering w/ yellow mastic	
10	2-4-MISC-4	12x12 Stipple pattern Acoustic ceiling tile w/ brown glue dot	
11	2-5-MISC-5	12x12 textured drop ceiling tile	
12	2-6-MISC-6	Gray/blue speckled sheet vinyl flooring w/ tan mastic	
13	2-7-MISC-7	Dark gray wall base cove w/ tan mastic	
14	2-8-MISC-8	Drywall	
15	2-9-MISC-9	Light gray base cove w/ white/gray mastic	

	Print Name	Signature	Company	Date	Time
Sampled by	Emily Curtis	Emily Mac	MFA	12/4/19	1700
Relinquish by	Emily Curtis	Emily MFA	MFA	12/5/19	1700

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Emily S		NVL	12/9/19	800 DB
Analyzed by					
Called by					
Faxed/Email by					

1925820

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour ☐ 24 Hours ☐ 4 Days
- ☐ 2 Hours ☐ 2 Days ☐ 5 Days
- ☐ 4 Hours ☐ 3 Days ☒ 10 Days

Please call for TAT less than 24 Hours STAT

Company Mawl Foster + Along, Inc Project Manager Kyle Roslund
Address 2001 NW 19th Ave Suite 200 Cell ( ) -
PDX, OR 97209 Email Kroslund@mawlfoster.com
Phone ( ) - Fax ( ) -

Project Name/Number 1044.02.15 Project Location WA

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☒ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions Report to Emily Curtis
☐ Call (503) 501-5233 ☐ Fax ( ) - ☒ Email ecurtis@mawlfoster.com

Total Number of Samples 31

	Sample ID	Description	A/R
1	2-10-MISC-10	Drywall	
2	2-11-MISC-11	Gray/green speckled sheet vinyl flooring w/ tan mastic	
3	2-12-MISC-12	Gray base cove w/ tan mastic	
4	2-13-MISC-13	Cream vinyl wall covering w/ yellow/brown mastic	
5	2-14-MISC-14	Drywall	
6	2-15-MISC-15	Gray base cove w/ gray/white mastic	
7	2-16-MISC-16	Tan sheet vinyl flooring w/ tan/yellow mastic	
8	2-17-MISC-17	White fibrous wall covering w/ yellow/tan mastic	
9	2-18-MISC-18	Dark brown base cove w/ white mastic	
10	2-19-MISC-19	White fibrous wall covering w/ white mastic	
11	2-20-MISC-20	Dark brown base cove w/ tan/yellow mastic	
12	3-1-MISC-1	Dark brown base cove w/ dark brown mastic	
13	3-2-MISC-2	Dark gray speckled sheet vinyl flooring w/ tan mastic	
14	3-3-MISC-3	Dark gray square patterned sheet vinyl flooring w/ tan mastic	
15	3-4-MISC-4	Drywall	

	Print Name	Signature	Company	Date	Time
Sampled by	Emily Curtis	Emily Mc	MFA	12/4/19	1700
Relinquish by	Emily Curtis	Emily Mc	MFA	12/5/19	1700

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Emily S		NVL	12/9/19	800 DB
Analyzed by					
Called by					
Faxed/Email by					

1925820

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ❑ 1 Hour ❑ 24 Hours ❑ 4 Days
- ❑ 2 Hours ❑ 2 Days ❑ 5 Days
- ❑ 4 Hours ❑ 3 Days ☒ 10 Days

Please call for TAT less than 24 Hours STAT

Company Mawl Foster + Alongi, Inc. Project Manager Kyle Roslund
Address 2001 NW 19th Ave Suite 200 Cell ( ) -
PDX, OR 97209 Email kroslund@mawlfoster.com
Phone ( ) - Fax ( ) -

Project Name/Number 1044.02.15 Project Location WA

- ❑ PCM Air (NIOSH 7400) ❑ TEM (NIOSH 7402) ❑ TEM (AHERA) ❑ TEM (EPA Level II Modified)
- ☒ PLM (EPA 600/R-93-116) ❑ EPA 400 Points (600/R-93-116) ❑ EPA 1000Points (600/R-93-116)
- ❑ PLM Gravimetry (600/R-93-116) ❑ Asbestos in Vermiculite (EPA 600/R-04/004) ❑ Asbestos in Sediment (EPA 1900 Points)
- ❑ Asbestos Friable/Non-Friable (EPA 600/R-93/116) ❑ Other

Reporting Instructions Report to Emily Curtis
❑ Call (503) 501-5233 ❑ Fax ( ) - ☒ Email ecurtis@mawlfoster.com

Total Number of Samples 31

	Sample ID	Description	A/R
1	3-5-R001-5	Black asphaltic roofing material	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Emily Curtis	Emily MC	MFA	12/4/19	1700
Relinquish by	Emily Curtis	Emily MC	MFA	12/5/19	1700

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Emily S		NVL	12/9/19	800 DB
Analyzed by					
Called by					
Faxed/Email by					

December 10, 2019

Kyle Roslund
Maul Foster & Alongi, Inc.
109 E 13th St.
Vancouver, WA 98660

RE: Metals Analysis; NVL Batch # 1925826.00

Dear Mr. Roslund,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Yasuyuki Hida, Laboratory Analyst

Enc.: Sample results

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
WWW.AIHAACCREDITEDLABS.ORG
LAB # 101861

Analysis Report

Total Lead (Pb)

Client: Maul Foster & Alongi, Inc.
Address: 109 E 13th St.
Vancouver, WA 98660

Attention: Mr. Kyle Roslund
Project Location: WA

Batch #: 1925826.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 1044.02.15
Date Received: 12/9/2019
Samples Received: 3
Samples Analyzed: 3

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
19141828	1-13-Pb-13	0.2364	42	1600	0.16
19141829	2-1-Pb-1	0.2243	45	210	0.021
19141830	3-2-Pb-2	0.2186	46	< 46	< 0.0046

Sampled by: Client
Analyzed by: Shalini Patel
Reviewed by: Yasuyuki Hida
Date Analyzed: 12/10/2019
Date Issued: 12/10/2019

Yasuyuki Hida, Laboratory Analyst

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2019-1210-08
FAA-02

LEAD LABORATORY SERVICES

Company	Maul Foster & Alongi, Inc.	**NVL Batch Number**	**1925826.00**
Address	109 E 13th St. Vancouver, WA 98660	**TAT** 10 Days **AH** No **Rush TAT**	
Project Manager	Mr. Kyle Roslund	**Due Date** 12/23/2019 **Time** 8:00 AM	
Phone	(971) 544-2139	**Email** krOSLUND@maulfoster.com	
Cell	(503) 341-8112	**Fax**	

Project Name/Number: 1044.02.15 **Project Location:** WA

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	19141828	1-13-Pb-13		A
2	19141829	2-1-Pb-1		A
3	19141830	3-2-Pb-2		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Drop Box				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	12/9/19	800
Analyzed by	Shalini Patel		NVL	12/10/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 12/9/2019
Time: 11:50 AM
Entered By: Emily Schubert

1925826

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days ❑ 3 Days ❑ 4 Days
- ❑ 5 Days ☒ 6-10 Days STAT
- Please call for TAT less than 24 Hours

Company Mawl Foster + Alongi, Inc. Project Manager Kyle Roslund
Address 2001 NW 19th Ave Suite 200 Cell ( ) -
PDX, OR 97209 Email kroslund@mawlfoster.com
Phone ( ) - Fax ( ) -

Project Name/Number 1044.02.15 Project Location WA

❑ Total Metals	❑ FAA (ppm	❑ Air Filter	☒ Paint Chips (%)	❑ Soil	RCRA 8	RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	❑ Dust Wipes		❑ Barium ❑ Chromium ❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic ❑ Mercury ☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium ❑ Cadmium	❑ Other

Reporting Instructions Report to Emily Curtis
❑ Call (503) 501-5233 ❑ Fax ( ) - ☒ Email ecurtis@mawlfoster.com

Total Number of Samples 3

	Sample ID	Description	A/R
1	1-13-Pb-13	Bright yellow paint chip	
2	2-1-Pb-1	yellow/orange paint chip	
3	3-2-Pb-2	Gray/off-white paint chip	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Emily Curtis	EmilyMCurtis	MFA	12/4/19	1700
Relinquish by	Emily Curtis	EmilyMCurtis	MFA	12/5/19	1700

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Emily S		NVL	12/6/19	800 BB
Analyzed by					
Called by					
Faxed/Email by					

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Thursday, December 19, 2019

Kyle Roslund
Maul Foster & Alongi, INC.
2001 NW 19th Ave, STE 200
Portland, OR 97209

RE: A9L0180 - Seaport Tidelands - 1044.02.15

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

Enclosed are the results of analyses for work order A9L0180, which was received by the laboratory on 12/5/2019 at 12:55:00PM.

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

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

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #1 2.2 degC

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

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1-1-PCP-1	A9L0180-01	Concrete	12/03/19 13:40	12/05/19 12:55
1-1-PCP-2	A9L0180-02	Concrete	12/03/19 14:00	12/05/19 12:55
1-1-PCP-3	A9L0180-03	Solid	12/03/19 14:30	12/05/19 12:55
1-1-PCP-4	A9L0180-04	Solid	12/03/19 15:20	12/05/19 12:55
1-2-PCP-6	A9L0180-05	Solid	12/03/19 16:10	12/05/19 12:55
1-1-PCP-5	A9L0180-06	Concrete	12/03/19 15:50	12/05/19 12:55

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-1 (A9L0180-01)				**Matrix: Concrete**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Acenaphthylene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Anthracene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benz(a)anthracene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benzo(a)pyrene	ND	77.2	154	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benzo(b)fluoranthene	ND	77.2	154	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benzo(k)fluoranthene	ND	77.2	154	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benzo(g,h,i)perylene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Chrysene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Dibenz(a,h)anthracene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Fluoranthene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Fluorene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
1-Methylnaphthalene	ND	103	206	ug/kg	40	12/13/19 19:45	EPA 8270D	
2-Methylnaphthalene	ND	103	206	ug/kg	40	12/13/19 19:45	EPA 8270D	
Naphthalene	ND	103	206	ug/kg	40	12/13/19 19:45	EPA 8270D	
Phenanthrene	**73.2**	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	**J**
Pyrene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Carbazole	ND	77.2	154	ug/kg	40	12/13/19 19:45	EPA 8270D	
Dibenzofuran	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
4-Chloro-3-methylphenol	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
2-Chlorophenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,4-Dichlorophenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,4-Dimethylphenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,4-Dinitrophenol	ND	1290	2580	ug/kg	40	12/13/19 19:45	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1290	2580	ug/kg	40	12/13/19 19:45	EPA 8270D	
2-Methylphenol	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
3+4-Methylphenol(s)	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
2-Nitrophenol	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
4-Nitrophenol	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
Pentachlorophenol (PCP)	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
Phenol	ND	103	206	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	

Apex Laboratories

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

Philip Nerenberg, Lab Director

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-1 (A9L0180-01)				**Matrix: Concrete**		**Batch: 9120852**		**R-04**
2,3,5,6-Tetrachlorophenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,4,5-Trichlorophenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,4,6-Trichlorophenol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**813**	772	1540	ug/kg	40	12/13/19 19:45	EPA 8270D	**J**
Butyl benzyl phthalate	**967**	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	**J**
Diethylphthalate	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
Dimethylphthalate	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
Di-n-butylphthalate	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
Di-n-octyl phthalate	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
N-Nitrosodimethylamine	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
N-Nitrosodiphenylamine	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Hexachlorobenzene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
Hexachlorobutadiene	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Hexachlorocyclopentadiene	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
Hexachloroethane	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
2-Chloronaphthalene	ND	51.4	103	ug/kg	40	12/13/19 19:45	EPA 8270D	
1,2-Dichlorobenzene	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
1,3-Dichlorobenzene	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
1,4-Dichlorobenzene	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
1,2,4-Trichlorobenzene	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
4-Bromophenyl phenyl ether	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Aniline	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
4-Chloroaniline	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
2-Nitroaniline	ND	1030	2060	ug/kg	40	12/13/19 19:45	EPA 8270D	
3-Nitroaniline	ND	1030	2060	ug/kg	40	12/13/19 19:45	EPA 8270D	
4-Nitroaniline	ND	1030	2060	ug/kg	40	12/13/19 19:45	EPA 8270D	
Nitrobenzene	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
2,4-Dinitrotoluene	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	

Apex Laboratories



Philip Nerenberg, Lab Director

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

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-1 (A9L0180-01)				**Matrix: Concrete**		**Batch: 9120852**		**R-04**
2,6-Dinitrotoluene	ND	514	1030	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benzoic acid	ND	6450	12900	ug/kg	40	12/13/19 19:45	EPA 8270D	
Benzyl alcohol	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
Isophorone	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Azobenzene (1,2-DPH)	ND	129	258	ug/kg	40	12/13/19 19:45	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1290	2580	ug/kg	40	12/13/19 19:45	EPA 8270D	
3,3'-Dichlorobenzidine	ND	1030	2060	ug/kg	40	12/13/19 19:45	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1290	2580	ug/kg	40	12/13/19 19:45	EPA 8270D	
1,3-Dinitrobenzene	ND	1290	2580	ug/kg	40	12/13/19 19:45	EPA 8270D	
1,4-Dinitrobenzene	ND	1290	2580	ug/kg	40	12/13/19 19:45	EPA 8270D	
Pyridine	ND	258	514	ug/kg	40	12/13/19 19:45	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*83 %*	*Limits: 37-122 %*	*40*	*12/13/19 19:45*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*97 %*	*44-115 %*	*40*	*12/13/19 19:45*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*%*	*33-122 %*	*40*	*12/13/19 19:45*	*EPA 8270D*	*S-01*
p-Terphenyl-d14 (Surr)			*88 %*	*54-127 %*	*40*	*12/13/19 19:45*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*%*	*35-115 %*	*40*	*12/13/19 19:45*	*EPA 8270D*	*S-01*
2,4,6-Tribromophenol (Surr)			*%*	*39-132 %*	*40*	*12/13/19 19:45*	*EPA 8270D*	*S-01*
1-1-PCP-2 (A9L0180-02)				**Matrix: Concrete**		**Batch: 9120864**		
Acenaphthene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Acenaphthylene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Anthracene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benz(a)anthracene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benzo(a)pyrene	ND	463	927	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benzo(b)fluoranthene	ND	463	927	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benzo(k)fluoranthene	ND	463	927	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benzo(g,h,i)perylene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Chrysene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Dibenz(a,h)anthracene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Fluoranthene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Fluorene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
1-Methylnaphthalene	ND	618	1240	ug/kg	40	12/16/19 11:43	EPA 8270D	
2-Methylnaphthalene	ND	618	1240	ug/kg	40	12/16/19 11:43	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-2 (A9L0180-02)				**Matrix: Concrete**		**Batch: 9120864**		
Naphthalene	ND	618	1240	ug/kg	40	12/16/19 11:43	EPA 8270D	
Phenanthrene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Pyrene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Carbazole	ND	463	927	ug/kg	40	12/16/19 11:43	EPA 8270D	
Dibenzofuran	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
4-Chloro-3-methylphenol	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
2-Chlorophenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,4-Dichlorophenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,4-Dimethylphenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,4-Dinitrophenol	ND	7720	15400	ug/kg	40	12/16/19 11:43	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	7720	15400	ug/kg	40	12/16/19 11:43	EPA 8270D	
2-Methylphenol	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
3+4-Methylphenol(s)	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
2-Nitrophenol	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
4-Nitrophenol	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Pentachlorophenol (PCP)	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Phenol	ND	618	1240	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,4,5-Trichlorophenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,4,6-Trichlorophenol	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**13800**	4630	9270	ug/kg	40	12/16/19 11:43	EPA 8270D	
Butyl benzyl phthalate	ND	6180	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Diethylphthalate	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Dimethylphthalate	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Di-n-butylphthalate	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Di-n-octyl phthalate	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
N-Nitrosodimethylamine	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
N-Nitrosodiphenylamine	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	

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Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-2 (A9L0180-02)				**Matrix: Concrete**		**Batch: 9120864**		
Hexachlorobenzene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
Hexachlorobutadiene	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
Hexachlorocyclopentadiene	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
Hexachloroethane	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
2-Chloronaphthalene	ND	309	618	ug/kg	40	12/16/19 11:43	EPA 8270D	
1,2-Dichlorobenzene	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
1,3-Dichlorobenzene	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
1,4-Dichlorobenzene	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
1,2,4-Trichlorobenzene	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
4-Bromophenyl phenyl ether	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
Aniline	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
4-Chloroaniline	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
2-Nitroaniline	ND	6180	12400	ug/kg	40	12/16/19 11:43	EPA 8270D	
3-Nitroaniline	ND	6180	12400	ug/kg	40	12/16/19 11:43	EPA 8270D	
4-Nitroaniline	ND	6180	12400	ug/kg	40	12/16/19 11:43	EPA 8270D	
Nitrobenzene	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,4-Dinitrotoluene	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
2,6-Dinitrotoluene	ND	3090	6180	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benzoic acid	ND	38600	77200	ug/kg	40	12/16/19 11:43	EPA 8270D	
Benzyl alcohol	**1620**	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	**J, Q-42**
Isophorone	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
Azobenzene (1,2-DPH)	ND	772	1540	ug/kg	40	12/16/19 11:43	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	7720	15400	ug/kg	40	12/16/19 11:43	EPA 8270D	
3,3'-Dichlorobenzidine	ND	6180	12400	ug/kg	40	12/16/19 11:43	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	7720	15400	ug/kg	40	12/16/19 11:43	EPA 8270D	
1,3-Dinitrobenzene	ND	7720	15400	ug/kg	40	12/16/19 11:43	EPA 8270D	
1,4-Dinitrobenzene	ND	7720	15400	ug/kg	40	12/16/19 11:43	EPA 8270D	
Pyridine	ND	1540	3090	ug/kg	40	12/16/19 11:43	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*53 %*	*Limits: 37-122 %*	*40*	*12/16/19 11:43*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*60 %*	*44-115 %*	*40*	*12/16/19 11:43*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*23 %*	*33-122 %*	*40*	*12/16/19 11:43*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*97 %*	*54-127 %*	*40*	*12/16/19 11:43*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*2 %*	*35-115 %*	*40*	*12/16/19 11:43*	*EPA 8270D*	*S-05*

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Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-2 (A9L0180-02)				**Matrix: Concrete**		**Batch: 9120864**		
Surrogate: 2,4,6-Tribromophenol (Surr)			*Recovery: %*	*Limits: 39-132 %*	*40*	*12/16/19 11:43*	*EPA 8270D*	*S-01*
1-1-PCP-3 (A9L0180-03)				**Matrix: Solid**		**Batch: 9120926**		
Acenaphthene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Acenaphthylene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Anthracene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benz(a)anthracene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benzo(a)pyrene	ND	550	1100	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benzo(b)fluoranthene	ND	550	1100	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benzo(k)fluoranthene	ND	550	1100	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benzo(g,h,i)perylene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Chrysene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Dibenz(a,h)anthracene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Fluoranthene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Fluorene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
1-Methylnaphthalene	ND	735	1470	ug/kg	40	12/16/19 13:00	EPA 8270D	
2-Methylnaphthalene	ND	735	1470	ug/kg	40	12/16/19 13:00	EPA 8270D	
Naphthalene	ND	735	1470	ug/kg	40	12/16/19 13:00	EPA 8270D	
Phenanthrene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Pyrene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Carbazole	ND	550	1100	ug/kg	40	12/16/19 13:00	EPA 8270D	
Dibenzofuran	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
4-Chloro-3-methylphenol	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
2-Chlorophenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,4-Dichlorophenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,4-Dimethylphenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,4-Dinitrophenol	ND	9170	18400	ug/kg	40	12/16/19 13:00	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	9170	18400	ug/kg	40	12/16/19 13:00	EPA 8270D	
2-Methylphenol	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
3+4-Methylphenol(s)	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
2-Nitrophenol	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
4-Nitrophenol	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
Pentachlorophenol (PCP)	**4960**	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	**J, Q-42**

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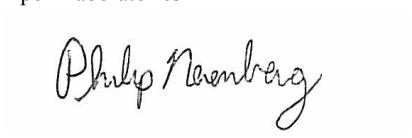

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-3 (A9L0180-03)				**Matrix: Solid**		**Batch: 9120926**		
Phenol	ND	735	1470	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,4,5-Trichlorophenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,4,6-Trichlorophenol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**44200**	5500	11000	ug/kg	40	12/16/19 13:00	EPA 8270D	
Butyl benzyl phthalate	ND	14600	14600	ug/kg	40	12/16/19 13:00	EPA 8270D	R-02
Diethylphthalate	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
Dimethylphthalate	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
Di-n-butylphthalate	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
Di-n-octyl phthalate	**5720**	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	**J**
N-Nitrosodimethylamine	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
N-Nitrosodiphenylamine	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Hexachlorobenzene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
Hexachlorobutadiene	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Hexachlorocyclopentadiene	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
Hexachloroethane	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
2-Chloronaphthalene	ND	366	735	ug/kg	40	12/16/19 13:00	EPA 8270D	
1,2-Dichlorobenzene	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
1,3-Dichlorobenzene	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
1,4-Dichlorobenzene	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
1,2,4-Trichlorobenzene	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
4-Bromophenyl phenyl ether	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Aniline	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
4-Chloroaniline	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
2-Nitroaniline	ND	7350	14700	ug/kg	40	12/16/19 13:00	EPA 8270D	
3-Nitroaniline	ND	7350	14700	ug/kg	40	12/16/19 13:00	EPA 8270D	
4-Nitroaniline	ND	7350	14700	ug/kg	40	12/16/19 13:00	EPA 8270D	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-3 (A9L0180-03)				**Matrix: Solid**		**Batch: 9120926**		
Nitrobenzene	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,4-Dinitrotoluene	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
2,6-Dinitrotoluene	ND	3660	7350	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benzoic acid	ND	46000	91700	ug/kg	40	12/16/19 13:00	EPA 8270D	
Benzyl alcohol	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
Isophorone	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Azobenzene (1,2-DPH)	ND	917	1840	ug/kg	40	12/16/19 13:00	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	18400	18400	ug/kg	40	12/16/19 13:00	EPA 8270D	
3,3'-Dichlorobenzidine	ND	7350	14700	ug/kg	40	12/16/19 13:00	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	9170	18400	ug/kg	40	12/16/19 13:00	EPA 8270D	
1,3-Dinitrobenzene	ND	9170	18400	ug/kg	40	12/16/19 13:00	EPA 8270D	
1,4-Dinitrobenzene	ND	9170	18400	ug/kg	40	12/16/19 13:00	EPA 8270D	
Pyridine	ND	1840	3660	ug/kg	40	12/16/19 13:00	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*51 %*	*Limits: 37-122 %*	*40*	*12/16/19 13:00*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*74 %*	*44-115 %*	*40*	*12/16/19 13:00*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*30 %*	*33-122 %*	*40*	*12/16/19 13:00*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*93 %*	*54-127 %*	*40*	*12/16/19 13:00*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*42 %*	*35-115 %*	*40*	*12/16/19 13:00*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*118 %*	*39-132 %*	*40*	*12/16/19 13:00*	*EPA 8270D*	*S-05*
1-1-PCP-4 (A9L0180-04)				**Matrix: Solid**		**Batch: 9120926**		
Acenaphthene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Acenaphthylene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Anthracene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benz(a)anthracene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benzo(a)pyrene	ND	580	1160	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benzo(b)fluoranthene	ND	580	1160	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benzo(k)fluoranthene	ND	580	1160	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benzo(g,h,i)perylene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Chrysene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Dibenz(a,h)anthracene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Fluoranthene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Fluorene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-4 (A9L0180-04)				**Matrix: Solid**		**Batch: 9120926**		
1-Methylnaphthalene	ND	774	1540	ug/kg	40	12/16/19 14:08	EPA 8270D	
2-Methylnaphthalene	ND	774	1540	ug/kg	40	12/16/19 14:08	EPA 8270D	
Naphthalene	ND	774	1540	ug/kg	40	12/16/19 14:08	EPA 8270D	
Phenanthrene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Pyrene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Carbazole	ND	580	1160	ug/kg	40	12/16/19 14:08	EPA 8270D	
Dibenzofuran	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
4-Chloro-3-methylphenol	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
2-Chlorophenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,4-Dichlorophenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,4-Dimethylphenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,4-Dinitrophenol	ND	9650	19300	ug/kg	40	12/16/19 14:08	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	9650	19300	ug/kg	40	12/16/19 14:08	EPA 8270D	
2-Methylphenol	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
3+4-Methylphenol(s)	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
2-Nitrophenol	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
4-Nitrophenol	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
Pentachlorophenol (PCP)	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
Phenol	ND	774	1540	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,4,5-Trichlorophenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,4,6-Trichlorophenol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**68300**	5800	11600	ug/kg	40	12/16/19 14:08	EPA 8270D	
Butyl benzyl phthalate	ND	11600	11600	ug/kg	40	12/16/19 14:08	EPA 8270D	R-02
Diethylphthalate	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
Dimethylphthalate	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
Di-n-butylphthalate	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
Di-n-octyl phthalate	**4430**	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	**J**
N-Nitrosodimethylamine	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
N-Nitrosodiphenylamine	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	

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Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-4 (A9L0180-04)				**Matrix: Solid**		**Batch: 9120926**		
Bis(2-Chloroethyl) ether	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
Hexachlorobenzene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
Hexachlorobutadiene	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
Hexachlorocyclopentadiene	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
Hexachloroethane	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
2-Chloronaphthalene	ND	386	774	ug/kg	40	12/16/19 14:08	EPA 8270D	
1,2-Dichlorobenzene	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
1,3-Dichlorobenzene	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
1,4-Dichlorobenzene	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
1,2,4-Trichlorobenzene	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
4-Bromophenyl phenyl ether	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
Aniline	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
4-Chloroaniline	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
2-Nitroaniline	ND	7740	15400	ug/kg	40	12/16/19 14:08	EPA 8270D	
3-Nitroaniline	ND	7740	15400	ug/kg	40	12/16/19 14:08	EPA 8270D	
4-Nitroaniline	ND	7740	15400	ug/kg	40	12/16/19 14:08	EPA 8270D	
Nitrobenzene	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,4-Dinitrotoluene	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
2,6-Dinitrotoluene	ND	3860	7740	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benzoic acid	ND	48400	96500	ug/kg	40	12/16/19 14:08	EPA 8270D	
Benzyl alcohol	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
Isophorone	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
Azobenzene (1,2-DPH)	ND	965	1930	ug/kg	40	12/16/19 14:08	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	9650	19300	ug/kg	40	12/16/19 14:08	EPA 8270D	
3,3'-Dichlorobenzidine	ND	7740	15400	ug/kg	40	12/16/19 14:08	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	9650	19300	ug/kg	40	12/16/19 14:08	EPA 8270D	
1,3-Dinitrobenzene	ND	9650	19300	ug/kg	40	12/16/19 14:08	EPA 8270D	
1,4-Dinitrobenzene	ND	9650	19300	ug/kg	40	12/16/19 14:08	EPA 8270D	
Pyridine	ND	1930	3860	ug/kg	40	12/16/19 14:08	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*49 %*	*Limits: 37-122 %*	*40*	*12/16/19 14:08*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*84 %*	*44-115 %*	*40*	*12/16/19 14:08*	*EPA 8270D*	*S-05*

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Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-4 (A9L0180-04)				**Matrix: Solid**		**Batch: 9120926**		
Surrogate: Phenol-d6 (Surr)			*Recovery: 31 %*	*Limits: 33-122 %*	*40*	*12/16/19 14:08*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*75 %*	*54-127 %*	*40*	*12/16/19 14:08*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*35 %*	*35-115 %*	*40*	*12/16/19 14:08*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*123 %*	*39-132 %*	*40*	*12/16/19 14:08*	*EPA 8270D*	*S-05*
1-2-PCP-6 (A9L0180-05RE1)				**Matrix: Solid**		**Batch: 9120926**		
Acenaphthene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Acenaphthylene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Anthracene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benz(a)anthracene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benzo(a)pyrene	ND	57.4	115	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benzo(b)fluoranthene	ND	57.4	115	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benzo(k)fluoranthene	ND	57.4	115	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benzo(g,h,i)perylene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Chrysene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Dibenz(a,h)anthracene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Fluoranthene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Fluorene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
1-Methylnaphthalene	ND	76.7	153	ug/kg	4	12/16/19 21:33	EPA 8270D	
2-Methylnaphthalene	ND	76.7	153	ug/kg	4	12/16/19 21:33	EPA 8270D	
Naphthalene	ND	76.7	153	ug/kg	4	12/16/19 21:33	EPA 8270D	
Phenanthrene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Pyrene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Carbazole	ND	57.4	115	ug/kg	4	12/16/19 21:33	EPA 8270D	
Dibenzofuran	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
4-Chloro-3-methylphenol	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
2-Chlorophenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,4-Dichlorophenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,4-Dimethylphenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,4-Dinitrophenol	ND	956	1910	ug/kg	4	12/16/19 21:33	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	956	1910	ug/kg	4	12/16/19 21:33	EPA 8270D	
2-Methylphenol	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
3+4-Methylphenol(s)	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-2-PCP-6 (A9L0180-05RE1)				**Matrix: Solid**		**Batch: 9120926**		
2-Nitrophenol	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
4-Nitrophenol	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Pentachlorophenol (PCP)	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Phenol	ND	76.7	153	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,4,5-Trichlorophenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,4,6-Trichlorophenol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**1270**	574	1150	ug/kg	4	12/16/19 21:33	EPA 8270D	
Butyl benzyl phthalate	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Diethylphthalate	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Dimethylphthalate	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Di-n-butylphthalate	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Di-n-octyl phthalate	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
N-Nitrosodimethylamine	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
N-Nitrosodiphenylamine	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Hexachlorobenzene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
Hexachlorobutadiene	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Hexachlorocyclopentadiene	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
Hexachloroethane	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
2-Chloronaphthalene	ND	38.2	76.7	ug/kg	4	12/16/19 21:33	EPA 8270D	
1,2-Dichlorobenzene	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
1,3-Dichlorobenzene	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
1,4-Dichlorobenzene	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
1,2,4-Trichlorobenzene	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
4-Bromophenyl phenyl ether	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Aniline	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
4-Chloroaniline	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	

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EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-2-PCP-6 (A9L0180-05RE1)				**Matrix: Solid**		**Batch: 9120926**		
2-Nitroaniline	ND	767	1530	ug/kg	4	12/16/19 21:33	EPA 8270D	
3-Nitroaniline	ND	767	1530	ug/kg	4	12/16/19 21:33	EPA 8270D	
4-Nitroaniline	ND	767	1530	ug/kg	4	12/16/19 21:33	EPA 8270D	
Nitrobenzene	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,4-Dinitrotoluene	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
2,6-Dinitrotoluene	ND	382	767	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benzoic acid	ND	4790	9560	ug/kg	4	12/16/19 21:33	EPA 8270D	
Benzyl alcohol	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
Isophorone	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Azobenzene (1,2-DPH)	ND	95.6	191	ug/kg	4	12/16/19 21:33	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	956	1910	ug/kg	4	12/16/19 21:33	EPA 8270D	
3,3'-Dichlorobenzidine	ND	767	1530	ug/kg	4	12/16/19 21:33	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	956	1910	ug/kg	4	12/16/19 21:33	EPA 8270D	
1,3-Dinitrobenzene	ND	956	1910	ug/kg	4	12/16/19 21:33	EPA 8270D	
1,4-Dinitrobenzene	ND	956	1910	ug/kg	4	12/16/19 21:33	EPA 8270D	
Pyridine	ND	191	382	ug/kg	4	12/16/19 21:33	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*41 %*	*Limits: 37-122 %*	*4*	*12/16/19 21:33*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*58 %*	*44-115 %*	*4*	*12/16/19 21:33*	*EPA 8270D*	
Phenol-d6 (Surr)			*33 %*	*33-122 %*	*4*	*12/16/19 21:33*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*75 %*	*54-127 %*	*4*	*12/16/19 21:33*	*EPA 8270D*	
2-Fluorophenol (Surr)			*40 %*	*35-115 %*	*4*	*12/16/19 21:33*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*73 %*	*39-132 %*	*4*	*12/16/19 21:33*	*EPA 8270D*	
1-1-PCP-5 (A9L0180-06)				**Matrix: Concrete**		**Batch: 9120864**		**R-04**
Acenaphthene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Acenaphthylene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Anthracene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benz(a)anthracene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benzo(a)pyrene	ND	494	988	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benzo(b)fluoranthene	ND	494	988	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benzo(k)fluoranthene	ND	494	988	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benzo(g,h,i)perylene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Chrysene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Dibenz(a,h)anthracene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-5 (A9L0180-06)				**Matrix: Concrete**		**Batch: 9120864**		**R-04**
Fluoranthene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Fluorene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
1-Methylnaphthalene	ND	658	1320	ug/kg	40	12/16/19 12:55	EPA 8270D	
2-Methylnaphthalene	ND	658	1320	ug/kg	40	12/16/19 12:55	EPA 8270D	
Naphthalene	ND	658	1320	ug/kg	40	12/16/19 12:55	EPA 8270D	
Phenanthrene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Pyrene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Carbazole	ND	494	988	ug/kg	40	12/16/19 12:55	EPA 8270D	
Dibenzofuran	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
4-Chloro-3-methylphenol	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
2-Chlorophenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,4-Dichlorophenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,4-Dimethylphenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,4-Dinitrophenol	ND	8230	16500	ug/kg	40	12/16/19 12:55	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	8230	16500	ug/kg	40	12/16/19 12:55	EPA 8270D	
2-Methylphenol	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
3+4-Methylphenol(s)	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
2-Nitrophenol	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
4-Nitrophenol	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Pentachlorophenol (PCP)	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Phenol	ND	658	1320	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,4,5-Trichlorophenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,4,6-Trichlorophenol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4940	9880	ug/kg	40	12/16/19 12:55	EPA 8270D	
Butyl benzyl phthalate	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Diethylphthalate	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Dimethylphthalate	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Di-n-butylphthalate	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Di-n-octyl phthalate	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
N-Nitrosodimethylamine	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-5 (A9L0180-06)				**Matrix: Concrete**		**Batch: 9120864**		**R-04**
N-Nitroso-di-n-propylamine	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
N-Nitrosodiphenylamine	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Hexachlorobenzene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
Hexachlorobutadiene	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Hexachlorocyclopentadiene	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
Hexachloroethane	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
2-Chloronaphthalene	ND	329	658	ug/kg	40	12/16/19 12:55	EPA 8270D	
1,2-Dichlorobenzene	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
1,3-Dichlorobenzene	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
1,4-Dichlorobenzene	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
1,2,4-Trichlorobenzene	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
4-Bromophenyl phenyl ether	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Aniline	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
4-Chloroaniline	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
2-Nitroaniline	ND	6580	13200	ug/kg	40	12/16/19 12:55	EPA 8270D	
3-Nitroaniline	ND	6580	13200	ug/kg	40	12/16/19 12:55	EPA 8270D	
4-Nitroaniline	ND	6580	13200	ug/kg	40	12/16/19 12:55	EPA 8270D	
Nitrobenzene	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,4-Dinitrotoluene	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
2,6-Dinitrotoluene	ND	3290	6580	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benzoic acid	ND	41200	82300	ug/kg	40	12/16/19 12:55	EPA 8270D	
Benzyl alcohol	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
Isophorone	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Azobenzene (1,2-DPH)	ND	823	1650	ug/kg	40	12/16/19 12:55	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	8230	16500	ug/kg	40	12/16/19 12:55	EPA 8270D	
3,3'-Dichlorobenzidine	ND	6580	13200	ug/kg	40	12/16/19 12:55	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	8230	16500	ug/kg	40	12/16/19 12:55	EPA 8270D	
1,3-Dinitrobenzene	ND	8230	16500	ug/kg	40	12/16/19 12:55	EPA 8270D	
1,4-Dinitrobenzene	ND	8230	16500	ug/kg	40	12/16/19 12:55	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

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EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1-1-PCP-5 (A9L0180-06)				**Matrix: Concrete**		**Batch: 9120864**		**R-04**
Pyridine	ND	1650	3290	ug/kg	40	12/16/19 12:55	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*66 %*	*Limits: 37-122 %*	*40*	*12/16/19 12:55*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*78 %*	*44-115 %*	*40*	*12/16/19 12:55*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*2 %*	*33-122 %*	*40*	*12/16/19 12:55*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*99 %*	*54-127 %*	*40*	*12/16/19 12:55*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*%*	*35-115 %*	*40*	*12/16/19 12:55*	*EPA 8270D*	*S-01*
2,4,6-Tribromophenol (Surr)			*%*	*39-132 %*	*40*	*12/16/19 12:55*	*EPA 8270D*	*S-01*

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 19:25									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2-Nitrophenol	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
4-Nitrophenol	ND	25.0	25.0	ug/kg	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Phenol	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 19:25							
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	ug/kg	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Diethylphthalate	**14.2**	12.5	25.0	ug/kg	1	---	---	---	---	---	---	B-02, J
Dimethylphthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Di-n-butylphthalate	**20.3**	12.5	25.0	ug/kg	1	---	---	---	---	---	---	B-02, J
Di-n-octyl phthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 19:25									
Benzoic acid	ND	157	312	ug/kg	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 75 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*76 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*73 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*89 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*73 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*99 %*		*39-132 %*				*"*			
LCS (9120852-BS1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 20:11									**Q-18**
EPA 8270D												
Acenaphthene	460	2.66	5.34	ug/kg	2	533	---	86	40-122%	---	---	
Acenaphthylene	493	2.66	5.34	ug/kg	2	533	---	92	32-132%	---	---	
Anthracene	514	2.66	5.34	ug/kg	2	533	---	96	47-123%	---	---	
Benz(a)anthracene	544	2.66	5.34	ug/kg	2	533	---	102	49-126%	---	---	
Benzo(a)pyrene	546	4.00	8.00	ug/kg	2	533	---	102	45-129%	---	---	
Benzo(b)fluoranthene	537	4.00	8.00	ug/kg	2	533	---	101	45-132%	---	---	
Benzo(k)fluoranthene	534	4.00	8.00	ug/kg	2	533	---	100	47-132%	---	---	
Benzo(g,h,i)perylene	507	2.66	5.34	ug/kg	2	533	---	95	43-134%	---	---	
Chrysene	487	2.66	5.34	ug/kg	2	533	---	91	50-124%	---	---	
Dibenz(a,h)anthracene	510	2.66	5.34	ug/kg	2	533	---	96	45-134%	---	---	
Fluoranthene	554	2.66	5.34	ug/kg	2	533	---	104	50-127%	---	---	
Fluorene	500	2.66	5.34	ug/kg	2	533	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	490	2.66	5.34	ug/kg	2	533	---	92	45-133%	---	---	
1-Methylnaphthalene	455	5.34	10.7	ug/kg	2	533	---	85	40-120%	---	---	
2-Methylnaphthalene	465	5.34	10.7	ug/kg	2	533	---	87	38-122%	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
LCS (9120852-BS1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 20:11							**Q-18**
Naphthalene	456	5.34	10.7	ug/kg	2	533	---	86	35-123%	---	---	
Phenanthrene	469	2.66	5.34	ug/kg	2	533	---	88	50-121%	---	---	
Pyrene	548	2.66	5.34	ug/kg	2	533	---	103	47-127%	---	---	
Carbazole	363	4.00	8.00	ug/kg	2	533	---	68	50-122%	---	---	
Dibenzofuran	470	2.66	5.34	ug/kg	2	533	---	88	44-120%	---	---	
4-Chloro-3-methylphenol	500	26.6	53.4	ug/kg	2	533	---	94	45-122%	---	---	
2-Chlorophenol	497	13.3	26.6	ug/kg	2	533	---	93	34-121%	---	---	
2,4-Dichlorophenol	538	13.3	26.6	ug/kg	2	533	---	101	40-122%	---	---	
2,4-Dimethylphenol	540	13.3	26.6	ug/kg	2	533	---	101	30-127%	---	---	
2,4-Dinitrophenol	767	66.6	133	ug/kg	2	533	---	**144**	**5-137%**	---	---	Q-29
4,6-Dinitro-2-methylphenol	692	66.6	133	ug/kg	2	533	---	130	29-132%	---	---	
2-Methylphenol	474	6.66	13.3	ug/kg	2	533	---	89	32-122%	---	---	
3+4-Methylphenol(s)	481	6.66	13.3	ug/kg	2	533	---	90	34-120%	---	---	
2-Nitrophenol	542	26.6	53.4	ug/kg	2	533	---	102	36-123%	---	---	Q-41
4-Nitrophenol	590	53.4	53.4	ug/kg	2	533	---	111	30-132%	---	---	
Pentachlorophenol (PCP)	666	26.6	53.4	ug/kg	2	533	---	125	25-133%	---	---	
Phenol	452	5.34	10.7	ug/kg	2	533	---	85	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	553	13.3	26.6	ug/kg	2	533	---	104	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	609	13.3	26.6	ug/kg	2	533	---	114	40-120%	---	---	Q-41
2,4,5-Trichlorophenol	550	13.3	26.6	ug/kg	2	533	---	103	41-124%	---	---	
2,4,6-Trichlorophenol	534	13.3	26.6	ug/kg	2	533	---	100	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	624	40.0	80.0	ug/kg	2	533	---	117	51-133%	---	---	
Butyl benzyl phthalate	543	26.6	53.4	ug/kg	2	533	---	102	48-132%	---	---	
Diethylphthalate	559	26.6	53.4	ug/kg	2	533	---	105	50-124%	---	---	B-02
Dimethylphthalate	534	26.6	53.4	ug/kg	2	533	---	100	48-124%	---	---	
Di-n-butylphthalate	599	26.6	53.4	ug/kg	2	533	---	112	51-128%	---	---	B-02
Di-n-octyl phthalate	642	26.6	53.4	ug/kg	2	533	---	120	44-140%	---	---	Q-41
N-Nitrosodimethylamine	405	6.66	13.3	ug/kg	2	533	---	76	23-120%	---	---	
N-Nitroso-di-n-propylamine	431	6.66	13.3	ug/kg	2	533	---	81	36-120%	---	---	
N-Nitrosodiphenylamine	435	6.66	13.3	ug/kg	2	533	---	82	38-127%	---	---	
Bis(2-Chloroethoxy) methane	457	6.66	13.3	ug/kg	2	533	---	86	36-121%	---	---	
Bis(2-Chloroethyl) ether	406	6.66	13.3	ug/kg	2	533	---	76	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	325	6.66	13.3	ug/kg	2	533	---	61	33-131%	---	---	
Hexachlorobenzene	478	2.66	5.34	ug/kg	2	533	---	90	44-122%	---	---	

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Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
LCS (9120852-BS1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 20:11							**Q-18**
Hexachlorobutadiene	507	6.66	13.3	ug/kg	2	533	---	95	32-123%	---	---	
Hexachlorocyclopentadiene	411	13.3	26.6	ug/kg	2	533	---	77	5-140%	---	---	
Hexachloroethane	485	6.66	13.3	ug/kg	2	533	---	91	28-120%	---	---	
2-Chloronaphthalene	490	2.66	5.34	ug/kg	2	533	---	92	41-120%	---	---	
1,2-Dichlorobenzene	437	6.66	13.3	ug/kg	2	533	---	82	33-120%	---	---	
1,3-Dichlorobenzene	456	6.66	13.3	ug/kg	2	533	---	86	30-120%	---	---	
1,4-Dichlorobenzene	445	6.66	13.3	ug/kg	2	533	---	83	31-120%	---	---	
1,2,4-Trichlorobenzene	470	6.66	13.3	ug/kg	2	533	---	88	34-120%	---	---	
4-Bromophenyl phenyl ether	520	6.66	13.3	ug/kg	2	533	---	98	46-124%	---	---	
4-Chlorophenyl phenyl ether	504	6.66	13.3	ug/kg	2	533	---	94	45-121%	---	---	
Aniline	150	13.3	26.6	ug/kg	2	533	---	28	7-120%	---	---	
4-Chloroaniline	203	6.66	13.3	ug/kg	2	533	---	38	16-120%	---	---	
2-Nitroaniline	536	53.4	107	ug/kg	2	533	---	100	44-127%	---	---	
3-Nitroaniline	302	53.4	107	ug/kg	2	533	---	57	33-120%	---	---	
4-Nitroaniline	238	53.4	107	ug/kg	2	533	---	45	35-120%	---	---	
Nitrobenzene	437	26.6	53.4	ug/kg	2	533	---	82	34-122%	---	---	
2,4-Dinitrotoluene	500	26.6	53.4	ug/kg	2	533	---	94	48-126%	---	---	
2,6-Dinitrotoluene	550	26.6	53.4	ug/kg	2	533	---	103	46-124%	---	---	
Benzoic acid	1540	334	666	ug/kg	2	1070	---	**145**	**5-140%**	---	---	Q-29
Benzyl alcohol	450	13.3	26.6	ug/kg	2	533	---	84	29-122%	---	---	
Isophorone	472	6.66	13.3	ug/kg	2	533	---	89	30-122%	---	---	
Azobenzene (1,2-DPH)	439	6.66	13.3	ug/kg	2	533	---	82	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	579	66.6	133	ug/kg	2	533	---	109	60-121%	---	---	
3,3'-Dichlorobenzidine	220	53.4	107	ug/kg	2	1070	---	**21**	**22-121%**	---	---	Q-30
1,2-Dinitrobenzene	513	66.6	133	ug/kg	2	533	---	96	44-120%	---	---	
1,3-Dinitrobenzene	566	66.6	133	ug/kg	2	533	---	106	42-127%	---	---	
1,4-Dinitrobenzene	578	66.6	133	ug/kg	2	533	---	108	37-132%	---	---	
Pyridine	351	13.3	26.6	ug/kg	2	533	---	66	5-120%	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 82 %*	*Limits: 37-122 %*	*Dilution: 2x*
2-Fluorobiphenyl (Surr)	*92 %*	*44-115 %*	*"*
Phenol-d6 (Surr)	*93 %*	*33-122 %*	*"*
p-Terphenyl-d14 (Surr)	*106 %*	*54-127 %*	*"*
2-Fluorophenol (Surr)	*93 %*	*35-115 %*	*"*
2,4,6-Tribromophenol (Surr)	*110 %*	*39-132 %*	*"*

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Tigard, OR 97223
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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)				Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20								
QC Source Sample: Non-SDG (A9L0097-17)												
Acenaphthene	**466**	130	261	ug/kg	100	---	685	---	---	**38**	**30%**	Q-04
Acenaphthylene	ND	130	261	ug/kg	100	---	ND	---	---	---	30%	
Anthracene	**139**	130	261	ug/kg	100	---	154	---	---	11	30%	J
Benz(a)anthracene	**253**	130	261	ug/kg	100	---	220	---	---	14	30%	J
Benzo(a)pyrene	**336**	195	390	ug/kg	100	---	271	---	---	22	30%	J
Benzo(b)fluoranthene	**406**	195	390	ug/kg	100	---	437	---	---	7	30%	
Benzo(k)fluoranthene	ND	195	390	ug/kg	100	---	254	---	---	***	**30%**	Q-04
Benzo(g,h,i)perylene	ND	130	261	ug/kg	100	---	ND	---	---	---	30%	
Chrysene	**353**	130	261	ug/kg	100	---	380	---	---	7	30%	
Dibenz(a,h)anthracene	ND	130	261	ug/kg	100	---	ND	---	---	---	30%	
Fluoranthene	**421**	130	261	ug/kg	100	---	472	---	---	11	30%	
Fluorene	**335**	130	261	ug/kg	100	---	510	---	---	**41**	**30%**	Q-04
Indeno(1,2,3-cd)pyrene	**164**	130	261	ug/kg	100	---	ND	---	---		**30%**	Q-04, J
1-Methylnaphthalene	ND	261	520	ug/kg	100	---	300	---	---	***	**30%**	Q-04
2-Methylnaphthalene	**318**	261	520	ug/kg	100	---	522	---	---	**49**	**30%**	Q-04, J
Naphthalene	ND	261	520	ug/kg	100	---	432	---	---	***	**30%**	Q-04
Phenanthrene	**305**	130	261	ug/kg	100	---	429	---	---	**34**	**30%**	Q-04
Pyrene	**327**	130	261	ug/kg	100	---	380	---	---	15	30%	
Carbazole	ND	195	390	ug/kg	100	---	ND	---	---	---	30%	
Dibenzofuran	**210**	130	261	ug/kg	100	---	345	---	---	**49**	**30%**	Q-04, J
4-Chloro-3-methylphenol	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
2-Chlorophenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	3250	6510	ug/kg	100	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	3250	6510	ug/kg	100	---	ND	---	---	---	30%	
2-Methylphenol	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
2-Nitrophenol	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
4-Nitrophenol	ND	2610	2610	ug/kg	100	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
Phenol	ND	261	520	ug/kg	100	---	ND	---	---	---	30%	

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Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20									
QC Source Sample: Non-SDG (A9L0097-17)												
2,3,4,6-Tetrachlorophenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	ND	1950	3900	ug/kg	100	---	ND	---	---	---	30%	
Butyl benzyl phthalate	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
Diethylphthalate	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
Dimethylphthalate	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	130	261	ug/kg	100	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
Hexachloroethane	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	130	261	ug/kg	100	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Aniline	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
4-Chloroaniline	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
2-Nitroaniline	ND	2610	5200	ug/kg	100	---	ND	---	---	---	30%	
3-Nitroaniline	ND	2610	5200	ug/kg	100	---	ND	---	---	---	30%	
4-Nitroaniline	ND	2610	5200	ug/kg	100	---	ND	---	---	---	30%	
Nitrobenzene	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20									
QC Source Sample: Non-SDG (A9L0097-17)												
2,4-Dinitrotoluene	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	1300	2610	ug/kg	100	---	ND	---	---	---	30%	
Benzoic acid	ND	16300	32500	ug/kg	100	---	ND	---	---	---	30%	
Benzyl alcohol	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
Isophorone	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	325	651	ug/kg	100	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	3250	6510	ug/kg	100	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	2610	5200	ug/kg	100	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	3250	6510	ug/kg	100	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	3250	6510	ug/kg	100	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	3250	6510	ug/kg	100	---	ND	---	---	---	30%	
Pyridine	ND	651	1300	ug/kg	100	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 64 %*		*Limits: 37-122 %*		*Dilution: 100x*					S-05
2-Fluorobiphenyl (Surr)			*66 %*		*44-115 %*		*"*					S-05
Phenol-d6 (Surr)			*47 %*		*33-122 %*		*"*					S-05
p-Terphenyl-d14 (Surr)			*76 %*		*54-127 %*		*"*					S-05
2-Fluorophenol (Surr)			*53 %*		*35-115 %*		*"*					S-05
2,4,6-Tribromophenol (Surr)			*199 %*		*39-132 %*		*"*					S-05

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
Blank (9120864-BLK1)			Prepared: 12/13/19 07:02 Analyzed: 12/16/19 10:30									
EPA 8270D												
Acenaphthene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Acenaphthylene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Anthracene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	10.0	20.0	ug/kg	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	10.0	20.0	ug/kg	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	10.0	20.0	ug/kg	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Chrysene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Fluoranthene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Fluorene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	13.3	26.7	ug/kg	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	13.3	26.7	ug/kg	1	---	---	---	---	---	---	
Naphthalene	ND	13.3	26.7	ug/kg	1	---	---	---	---	---	---	
Phenanthrene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Pyrene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Carbazole	ND	10.0	20.0	ug/kg	1	---	---	---	---	---	---	
Dibenzofuran	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
2-Chlorophenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	167	333	ug/kg	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	167	333	ug/kg	1	---	---	---	---	---	---	
2-Methylphenol	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
2-Nitrophenol	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
4-Nitrophenol	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
Phenol	ND	13.3	26.7	ug/kg	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
Blank (9120864-BLK1)			Prepared: 12/13/19 07:02		Analyzed: 12/16/19 10:30							
2,3,5,6-Tetrachlorophenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	100	200	ug/kg	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
Diethylphthalate	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
Dimethylphthalate	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
Hexachloroethane	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	6.67	13.3	ug/kg	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Aniline	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
4-Chloroaniline	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
2-Nitroaniline	ND	133	267	ug/kg	1	---	---	---	---	---	---	
3-Nitroaniline	ND	133	267	ug/kg	1	---	---	---	---	---	---	
4-Nitroaniline	ND	133	267	ug/kg	1	---	---	---	---	---	---	
Nitrobenzene	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	66.7	133	ug/kg	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
Blank (9120864-BLK1)			Prepared: 12/13/19 07:02 Analyzed: 12/16/19 10:30									
Benzoic acid	ND	833	1670	ug/kg	1	---	---	---	---	---	---	
Benzyl alcohol	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
Isophorone	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	16.7	33.3	ug/kg	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	167	333	ug/kg	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	133	267	ug/kg	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	167	333	ug/kg	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	167	333	ug/kg	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	167	333	ug/kg	1	---	---	---	---	---	---	
Pyridine	ND	33.3	66.7	ug/kg	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 37-122 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*70 %*		*44-115 %*			*"*				
Phenol-d6 (Surr)			*79 %*		*33-122 %*			*"*				
p-Terphenyl-d14 (Surr)			*95 %*		*54-127 %*			*"*				
2-Fluorophenol (Surr)			*71 %*		*35-115 %*			*"*				
2,4,6-Tribromophenol (Surr)			*62 %*		*39-132 %*			*"*				
LCS (9120864-BS1)			Prepared: 12/13/19 07:02 Analyzed: 12/16/19 11:06									**Q-18**
EPA 8270D												
Acenaphthene	3110	10.0	20.0	ug/kg	1	4000	---	78	40-122%	---	---	
Acenaphthylene	3280	10.0	20.0	ug/kg	1	4000	---	82	32-132%	---	---	
Anthracene	3400	10.0	20.0	ug/kg	1	4000	---	85	47-123%	---	---	
Benz(a)anthracene	3730	10.0	20.0	ug/kg	1	4000	---	93	49-126%	---	---	
Benzo(a)pyrene	3560	15.0	30.0	ug/kg	1	4000	---	89	45-129%	---	---	
Benzo(b)fluoranthene	3530	15.0	30.0	ug/kg	1	4000	---	88	45-132%	---	---	
Benzo(k)fluoranthene	3580	15.0	30.0	ug/kg	1	4000	---	90	47-132%	---	---	
Benzo(g,h,i)perylene	3650	10.0	20.0	ug/kg	1	4000	---	91	43-134%	---	---	
Chrysene	3490	10.0	20.0	ug/kg	1	4000	---	87	50-124%	---	---	
Dibenz(a,h)anthracene	3650	10.0	20.0	ug/kg	1	4000	---	91	45-134%	---	---	
Fluoranthene	3640	10.0	20.0	ug/kg	1	4000	---	91	50-127%	---	---	
Fluorene	3200	10.0	20.0	ug/kg	1	4000	---	80	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	3460	10.0	20.0	ug/kg	1	4000	---	87	45-133%	---	---	
1-Methylnaphthalene	3130	20.0	40.0	ug/kg	1	4000	---	78	40-120%	---	---	
2-Methylnaphthalene	3170	20.0	40.0	ug/kg	1	4000	---	79	38-122%	---	---	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
LCS (9120864-BS1)			Prepared: 12/13/19 07:02		Analyzed: 12/16/19 11:06							**Q-18**
Naphthalene	3040	20.0	40.0	ug/kg	1	4000	---	76	35-123%	---	---	
Phenanthrene	3170	10.0	20.0	ug/kg	1	4000	---	79	50-121%	---	---	
Pyrene	3660	10.0	20.0	ug/kg	1	4000	---	91	47-127%	---	---	
Carbazole	3880	15.0	30.0	ug/kg	1	4000	---	97	50-122%	---	---	
Dibenzofuran	3180	10.0	20.0	ug/kg	1	4000	---	79	44-120%	---	---	
4-Chloro-3-methylphenol	3730	100	200	ug/kg	1	4000	---	93	45-122%	---	---	
2-Chlorophenol	3580	50.0	100	ug/kg	1	4000	---	90	34-121%	---	---	
2,4-Dichlorophenol	3620	50.0	100	ug/kg	1	4000	---	90	40-122%	---	---	
2,4-Dimethylphenol	3310	50.0	100	ug/kg	1	4000	---	83	30-127%	---	---	
2,4-Dinitrophenol	4050	250	500	ug/kg	1	4000	---	101	5-137%	---	---	
4,6-Dinitro-2-methylphenol	4290	250	500	ug/kg	1	4000	---	107	29-132%	---	---	Q-41
2-Methylphenol	3750	25.0	50.0	ug/kg	1	4000	---	94	32-122%	---	---	
3+4-Methylphenol(s)	3920	25.0	50.0	ug/kg	1	4000	---	98	34-120%	---	---	Q-41
2-Nitrophenol	3420	100	200	ug/kg	1	4000	---	85	36-123%	---	---	
4-Nitrophenol	4030	100	200	ug/kg	1	4000	---	101	30-132%	---	---	
Pentachlorophenol (PCP)	3260	100	200	ug/kg	1	4000	---	81	25-133%	---	---	
Phenol	4030	20.0	40.0	ug/kg	1	4000	---	101	34-120%	---	---	Q-41
2,3,4,6-Tetrachlorophenol	3430	50.0	100	ug/kg	1	4000	---	86	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	3520	50.0	100	ug/kg	1	4000	---	88	40-120%	---	---	
2,4,5-Trichlorophenol	3620	50.0	100	ug/kg	1	4000	---	91	41-124%	---	---	
2,4,6-Trichlorophenol	3500	50.0	100	ug/kg	1	4000	---	88	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	3600	150	300	ug/kg	1	4000	---	90	51-133%	---	---	
Butyl benzyl phthalate	3710	100	200	ug/kg	1	4000	---	93	48-132%	---	---	
Diethylphthalate	3500	100	200	ug/kg	1	4000	---	87	50-124%	---	---	
Dimethylphthalate	3360	100	200	ug/kg	1	4000	---	84	48-124%	---	---	
Di-n-butylphthalate	3710	100	200	ug/kg	1	4000	---	93	51-128%	---	---	
Di-n-octyl phthalate	3960	100	200	ug/kg	1	4000	---	99	44-140%	---	---	
N-Nitrosodimethylamine	3200	25.0	50.0	ug/kg	1	4000	---	80	23-120%	---	---	
N-Nitroso-di-n-propylamine	3510	25.0	50.0	ug/kg	1	4000	---	88	36-120%	---	---	
N-Nitrosodiphenylamine	3490	25.0	50.0	ug/kg	1	4000	---	87	38-127%	---	---	
Bis(2-Chloroethoxy) methane	3290	25.0	50.0	ug/kg	1	4000	---	82	36-121%	---	---	
Bis(2-Chloroethyl) ether	3340	25.0	50.0	ug/kg	1	4000	---	83	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	3040	25.0	50.0	ug/kg	1	4000	---	76	33-131%	---	---	
Hexachlorobenzene	3220	10.0	20.0	ug/kg	1	4000	---	80	44-122%	---	---	

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Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
LCS (9120864-BS1)			Prepared: 12/13/19 07:02		Analyzed: 12/16/19 11:06							**Q-18**
Hexachlorobutadiene	2870	25.0	50.0	ug/kg	1	4000	---	72	32-123%	---	---	
Hexachlorocyclopentadiene	2950	50.0	100	ug/kg	1	4000	---	74	5-140%	---	---	
Hexachloroethane	3190	25.0	50.0	ug/kg	1	4000	---	80	28-120%	---	---	
2-Chloronaphthalene	3080	10.0	20.0	ug/kg	1	4000	---	77	41-120%	---	---	
1,2-Dichlorobenzene	3080	25.0	50.0	ug/kg	1	4000	---	77	33-120%	---	---	
1,3-Dichlorobenzene	3000	25.0	50.0	ug/kg	1	4000	---	75	30-120%	---	---	
1,4-Dichlorobenzene	3030	25.0	50.0	ug/kg	1	4000	---	76	31-120%	---	---	
1,2,4-Trichlorobenzene	2970	25.0	50.0	ug/kg	1	4000	---	74	34-120%	---	---	
4-Bromophenyl phenyl ether	3370	25.0	50.0	ug/kg	1	4000	---	84	46-124%	---	---	
4-Chlorophenyl phenyl ether	3140	25.0	50.0	ug/kg	1	4000	---	78	45-121%	---	---	
Aniline	3510	50.0	100	ug/kg	1	4000	---	88	7-120%	---	---	
4-Chloroaniline	2500	25.0	50.0	ug/kg	1	4000	---	62	16-120%	---	---	
2-Nitroaniline	3680	200	400	ug/kg	1	4000	---	92	44-127%	---	---	
3-Nitroaniline	3290	200	400	ug/kg	1	4000	---	82	33-120%	---	---	
4-Nitroaniline	4040	200	400	ug/kg	1	4000	---	101	35-120%	---	---	
Nitrobenzene	3660	100	200	ug/kg	1	4000	---	91	34-122%	---	---	
2,4-Dinitrotoluene	3690	100	200	ug/kg	1	4000	---	92	48-126%	---	---	
2,6-Dinitrotoluene	3520	100	200	ug/kg	1	4000	---	88	46-124%	---	---	
Benzoic acid	3000	1250	2500	ug/kg	1	8000	---	37	5-140%	---	---	Q-31
Benzyl alcohol	3990	50.0	100	ug/kg	1	4000	---	100	29-122%	---	---	Q-41
Isophorone	3450	25.0	50.0	ug/kg	1	4000	---	86	30-122%	---	---	
Azobenzene (1,2-DPH)	3460	25.0	50.0	ug/kg	1	4000	---	86	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	3850	250	500	ug/kg	1	4000	---	96	60-121%	---	---	
3,3'-Dichlorobenzidine	7400	200	400	ug/kg	1	8000	---	93	22-121%	---	---	
1,2-Dinitrobenzene	3610	250	500	ug/kg	1	4000	---	90	44-120%	---	---	
1,3-Dinitrobenzene	3730	250	500	ug/kg	1	4000	---	93	42-127%	---	---	
1,4-Dinitrobenzene	3870	250	500	ug/kg	1	4000	---	97	37-132%	---	---	
Pyridine	2160	50.0	100	ug/kg	1	4000	---	54	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 94 %*		*Limits: 37-122 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*77 %*		*44-115 %*			*"*				
Phenol-d6 (Surr)			*92 %*		*33-122 %*			*"*				
p-Terphenyl-d14 (Surr)			*89 %*		*54-127 %*			*"*				
2-Fluorophenol (Surr)			*85 %*		*35-115 %*			*"*				
2,4,6-Tribromophenol (Surr)			*89 %*		*39-132 %*			*"*				

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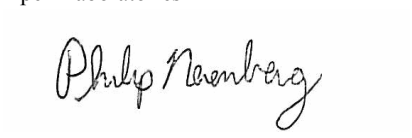

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
Duplicate (9120864-DUP1)				Prepared: 12/13/19 07:02 Analyzed: 12/16/19 12:19								
QC Source Sample: 1-1-PCP-2 (A9L0180-02)												
EPA 8270D												
Acenaphthene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Acenaphthylene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Anthracene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	462	923	ug/kg	40	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	462	923	ug/kg	40	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	462	923	ug/kg	40	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Chrysene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Fluoranthene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Fluorene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	615	1230	ug/kg	40	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	615	1230	ug/kg	40	---	ND	---	---	---	30%	
Naphthalene	ND	615	1230	ug/kg	40	---	ND	---	---	---	30%	
Phenanthrene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Pyrene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Carbazole	ND	462	923	ug/kg	40	---	ND	---	---	---	30%	
Dibenzofuran	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
4-Chloro-3-methylphenol	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
2-Chlorophenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	7690	15400	ug/kg	40	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	7690	15400	ug/kg	40	---	ND	---	---	---	30%	
2-Methylphenol	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
2-Nitrophenol	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
4-Nitrophenol	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
Duplicate (9120864-DUP1)			Prepared: 12/13/19 07:02		Analyzed: 12/16/19 12:19							
QC Source Sample: 1-1-PCP-2 (A9L0180-02)												
Phenol	ND	615	1230	ug/kg	40	---	ND	---	---	---	30%	
2,3,4,6-Tetrachlorophenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	**13400**	4620	9230	ug/kg	40	---	13800	---	---	3	30%	
Butyl benzyl phthalate	ND	6150	6150	ug/kg	40	---	ND	---	---	---	30%	
Diethylphthalate	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
Dimethylphthalate	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
Hexachloroethane	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	308	615	ug/kg	40	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Aniline	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
4-Chloroaniline	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
2-Nitroaniline	ND	6150	12300	ug/kg	40	---	ND	---	---	---	30%	
3-Nitroaniline	ND	6150	12300	ug/kg	40	---	ND	---	---	---	30%	
4-Nitroaniline	ND	6150	12300	ug/kg	40	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120864 - EPA 3546							**Concrete**					
Duplicate (9120864-DUP1)			Prepared: 12/13/19 07:02		Analyzed: 12/16/19 12:19							
QC Source Sample: 1-1-PCP-2 (A9L0180-02)												
Nitrobenzene	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	3080	6150	ug/kg	40	---	ND	---	---	---	30%	
Benzoic acid	ND	38500	76900	ug/kg	40	---	ND	---	---	---	30%	
Benzyl alcohol	ND	1540	3080	ug/kg	40	---	1620	---	---	***	**30%**	Q-17
Isophorone	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	769	1540	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	7690	15400	ug/kg	40	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	6150	12300	ug/kg	40	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	7690	15400	ug/kg	40	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	7690	15400	ug/kg	40	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	7690	15400	ug/kg	40	---	ND	---	---	---	30%	
Pyridine	ND	1540	3080	ug/kg	40	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 51 %*		*Limits: 37-122 %*		*Dilution: 40x*					S-05
2-Fluorobiphenyl (Surr)			*60 %*		*44-115 %*		*"*					S-05
Phenol-d6 (Surr)			*13 %*		*33-122 %*		*"*					S-05
p-Terphenyl-d14 (Surr)			*98 %*		*54-127 %*		*"*					S-05
2-Fluorophenol (Surr)			*1 %*		*35-115 %*		*"*					S-05
2,4,6-Tribromophenol (Surr)			*%*		*39-132 %*		*"*					S-01

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
Blank (9120926-BLK1)			Prepared: 12/16/19 07:00		Analyzed: 12/16/19 11:51							
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2-Nitrophenol	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
4-Nitrophenol	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Phenol	ND	2.50	5.00	ug/kg	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
Blank (9120926-BLK1)			Prepared: 12/16/19 07:00		Analyzed: 12/16/19 11:51							
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	ug/kg	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Diethylphthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Dimethylphthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	ug/kg	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	ug/kg	1	---	---	---	---	---	---	

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Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
Blank (9120926-BLK1)			Prepared: 12/16/19 07:00 Analyzed: 12/16/19 11:51									
Benzoic acid	ND	157	312	ug/kg	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	ug/kg	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	25.0	50.0	ug/kg	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	ug/kg	1	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	ug/kg	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 71 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*77 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*66 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*87 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*72 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*74 %*		*39-132 %*				*"*			
LCS (9120926-BS1)			Prepared: 12/16/19 07:00 Analyzed: 12/16/19 12:25									**Q-18**
EPA 8270D												
Acenaphthene	421	2.66	5.34	ug/kg	2	533	---	79	40-122%	---	---	
Acenaphthylene	451	2.66	5.34	ug/kg	2	533	---	85	32-132%	---	---	
Anthracene	475	2.66	5.34	ug/kg	2	533	---	89	47-123%	---	---	
Benz(a)anthracene	496	2.66	5.34	ug/kg	2	533	---	93	49-126%	---	---	
Benzo(a)pyrene	498	4.00	8.00	ug/kg	2	533	---	93	45-129%	---	---	
Benzo(b)fluoranthene	489	4.00	8.00	ug/kg	2	533	---	92	45-132%	---	---	
Benzo(k)fluoranthene	483	4.00	8.00	ug/kg	2	533	---	91	47-132%	---	---	
Benzo(g,h,i)perylene	481	2.66	5.34	ug/kg	2	533	---	90	43-134%	---	---	
Chrysene	459	2.66	5.34	ug/kg	2	533	---	86	50-124%	---	---	
Dibenz(a,h)anthracene	465	2.66	5.34	ug/kg	2	533	---	87	45-134%	---	---	
Fluoranthene	504	2.66	5.34	ug/kg	2	533	---	94	50-127%	---	---	
Fluorene	436	2.66	5.34	ug/kg	2	533	---	82	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	451	2.66	5.34	ug/kg	2	533	---	85	45-133%	---	---	
1-Methylnaphthalene	411	5.34	10.7	ug/kg	2	533	---	77	40-120%	---	---	
2-Methylnaphthalene	409	5.34	10.7	ug/kg	2	533	---	77	38-122%	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
LCS (9120926-BS1)			Prepared: 12/16/19 07:00		Analyzed: 12/16/19 12:25							**Q-18**
Naphthalene	413	5.34	10.7	ug/kg	2	533	---	78	35-123%	---	---	
Phenanthrene	440	2.66	5.34	ug/kg	2	533	---	82	50-121%	---	---	
Pyrene	496	2.66	5.34	ug/kg	2	533	---	93	47-127%	---	---	
Carbazole	458	4.00	8.00	ug/kg	2	533	---	86	50-122%	---	---	
Dibenzofuran	424	2.66	5.34	ug/kg	2	533	---	80	44-120%	---	---	
4-Chloro-3-methylphenol	411	26.6	53.4	ug/kg	2	533	---	77	45-122%	---	---	
2-Chlorophenol	433	13.3	26.6	ug/kg	2	533	---	81	34-121%	---	---	
2,4-Dichlorophenol	470	13.3	26.6	ug/kg	2	533	---	88	40-122%	---	---	
2,4-Dimethylphenol	439	13.3	26.6	ug/kg	2	533	---	82	30-127%	---	---	
2,4-Dinitrophenol	369	66.6	133	ug/kg	2	533	---	69	5-137%	---	---	Q-31
4,6-Dinitro-2-methylphenol	476	66.6	133	ug/kg	2	533	---	89	29-132%	---	---	
2-Methylphenol	411	6.66	13.3	ug/kg	2	533	---	77	32-122%	---	---	
3+4-Methylphenol(s)	407	6.66	13.3	ug/kg	2	533	---	76	34-120%	---	---	
2-Nitrophenol	537	26.6	53.4	ug/kg	2	533	---	101	36-123%	---	---	Q-41
4-Nitrophenol	417	26.6	53.4	ug/kg	2	533	---	78	30-132%	---	---	
Pentachlorophenol (PCP)	468	26.6	53.4	ug/kg	2	533	---	88	25-133%	---	---	
Phenol	406	5.34	10.7	ug/kg	2	533	---	76	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	464	13.3	26.6	ug/kg	2	533	---	87	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	490	13.3	26.6	ug/kg	2	533	---	92	40-120%	---	---	
2,4,5-Trichlorophenol	482	13.3	26.6	ug/kg	2	533	---	90	41-124%	---	---	
2,4,6-Trichlorophenol	464	13.3	26.6	ug/kg	2	533	---	87	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	461	40.0	80.0	ug/kg	2	533	---	86	51-133%	---	---	
Butyl benzyl phthalate	459	26.6	53.4	ug/kg	2	533	---	86	48-132%	---	---	
Diethylphthalate	472	26.6	53.4	ug/kg	2	533	---	89	50-124%	---	---	
Dimethylphthalate	459	26.6	53.4	ug/kg	2	533	---	86	48-124%	---	---	
Di-n-butylphthalate	506	26.6	53.4	ug/kg	2	533	---	95	51-128%	---	---	
Di-n-octyl phthalate	494	26.6	53.4	ug/kg	2	533	---	93	44-140%	---	---	
N-Nitrosodimethylamine	386	6.66	13.3	ug/kg	2	533	---	72	23-120%	---	---	
N-Nitroso-di-n-propylamine	361	6.66	13.3	ug/kg	2	533	---	68	36-120%	---	---	
N-Nitrosodiphenylamine	465	6.66	13.3	ug/kg	2	533	---	87	38-127%	---	---	
Bis(2-Chloroethoxy) methane	391	6.66	13.3	ug/kg	2	533	---	73	36-121%	---	---	
Bis(2-Chloroethyl) ether	380	6.66	13.3	ug/kg	2	533	---	71	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	292	6.66	13.3	ug/kg	2	533	---	55	33-131%	---	---	Q-31
Hexachlorobenzene	459	2.66	5.34	ug/kg	2	533	---	86	44-122%	---	---	

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Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
LCS (9120926-BS1)			Prepared: 12/16/19 07:00		Analyzed: 12/16/19 12:25							**Q-18**
Hexachlorobutadiene	465	6.66	13.3	ug/kg	2	533	---	87	32-123%	---	---	
Hexachlorocyclopentadiene	502	13.3	26.6	ug/kg	2	533	---	94	5-140%	---	---	Q-41
Hexachloroethane	452	6.66	13.3	ug/kg	2	533	---	85	28-120%	---	---	
2-Chloronaphthalene	451	2.66	5.34	ug/kg	2	533	---	84	41-120%	---	---	
1,2-Dichlorobenzene	398	6.66	13.3	ug/kg	2	533	---	75	33-120%	---	---	
1,3-Dichlorobenzene	420	6.66	13.3	ug/kg	2	533	---	79	30-120%	---	---	
1,4-Dichlorobenzene	401	6.66	13.3	ug/kg	2	533	---	75	31-120%	---	---	
1,2,4-Trichlorobenzene	442	6.66	13.3	ug/kg	2	533	---	83	34-120%	---	---	
4-Bromophenyl phenyl ether	471	6.66	13.3	ug/kg	2	533	---	88	46-124%	---	---	
4-Chlorophenyl phenyl ether	437	6.66	13.3	ug/kg	2	533	---	82	45-121%	---	---	
Aniline	236	13.3	26.6	ug/kg	2	533	---	44	7-120%	---	---	Q-31
4-Chloroaniline	236	6.66	13.3	ug/kg	2	533	---	44	16-120%	---	---	Q-31
2-Nitroaniline	465	53.4	107	ug/kg	2	533	---	87	44-127%	---	---	
3-Nitroaniline	402	53.4	107	ug/kg	2	533	---	75	33-120%	---	---	
4-Nitroaniline	453	53.4	107	ug/kg	2	533	---	85	35-120%	---	---	
Nitrobenzene	378	26.6	53.4	ug/kg	2	533	---	71	34-122%	---	---	
2,4-Dinitrotoluene	458	26.6	53.4	ug/kg	2	533	---	86	48-126%	---	---	
2,6-Dinitrotoluene	487	26.6	53.4	ug/kg	2	533	---	91	46-124%	---	---	
Benzoic acid	469	334	334	ug/kg	2	1070	---	44	5-140%	---	---	Q-31
Benzyl alcohol	367	13.3	26.6	ug/kg	2	533	---	69	29-122%	---	---	
Isophorone	402	6.66	13.3	ug/kg	2	533	---	75	30-122%	---	---	
Azobenzene (1,2-DPH)	403	6.66	13.3	ug/kg	2	533	---	75	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	478	66.6	133	ug/kg	2	533	---	90	60-121%	---	---	
3,3'-Dichlorobenzidine	1860	53.4	107	ug/kg	2	1070	---	**174**	**22-121%**	---	---	Q-29, Q-41
1,2-Dinitrobenzene	451	66.6	133	ug/kg	2	533	---	85	44-120%	---	---	
1,3-Dinitrobenzene	489	66.6	133	ug/kg	2	533	---	92	42-127%	---	---	
1,4-Dinitrobenzene	512	66.6	133	ug/kg	2	533	---	96	37-132%	---	---	
Pyridine	292	13.3	26.6	ug/kg	2	533	---	55	5-120%	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 70 %*	*Limits: 37-122 %*	*Dilution: 2x*
2-Fluorobiphenyl (Surr)	*81 %*	*44-115 %*	*"*
Phenol-d6 (Surr)	*77 %*	*33-122 %*	*"*
p-Terphenyl-d14 (Surr)	*90 %*	*54-127 %*	*"*
2-Fluorophenol (Surr)	*81 %*	*35-115 %*	*"*
2,4,6-Tribromophenol (Surr)	*92 %*	*39-132 %*	*"*

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Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
Duplicate (9120926-DUP1)			Prepared: 12/16/19 07:00 Analyzed: 12/16/19 13:34									
QC Source Sample: 1-1-PCP-3 (A9L0180-03)												
EPA 8270D												
Acenaphthene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Acenaphthylene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Anthracene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	577	1150	ug/kg	40	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	577	1150	ug/kg	40	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	577	1150	ug/kg	40	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Chrysene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Fluoranthene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Fluorene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	770	1540	ug/kg	40	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	770	1540	ug/kg	40	---	ND	---	---	---	30%	
Naphthalene	ND	770	1540	ug/kg	40	---	ND	---	---	---	30%	
Phenanthrene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Pyrene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Carbazole	ND	577	1150	ug/kg	40	---	ND	---	---	---	30%	
Dibenzofuran	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
4-Chloro-3-methylphenol	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
2-Chlorophenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	19200	19200	ug/kg	40	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	9610	19200	ug/kg	40	---	ND	---	---	---	30%	
2-Methylphenol	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
2-Nitrophenol	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
4-Nitrophenol	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	3840	7700	ug/kg	40	---	4960	---	---	***	**30%**	Q-17

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Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
Duplicate (9120926-DUP1)			Prepared: 12/16/19 07:00		Analyzed: 12/16/19 13:34							
QC Source Sample: 1-1-PCP-3 (A9L0180-03)												
Phenol	ND	770	1540	ug/kg	40	---	ND	---	---	---	30%	
2,3,4,6-Tetrachlorophenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	**47400**	5770	11500	ug/kg	40	---	44200	---	---	7	30%	
Butyl benzyl phthalate	ND	15300	15300	ug/kg	40	---	ND	---	---	---	30%	R-02
Diethylphthalate	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
Dimethylphthalate	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
Di-n-octyl phthalate	**6240**	3840	7700	ug/kg	40	---	5720	---	---	9	30%	J
N-Nitrosodimethylamine	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
Hexachloroethane	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	384	770	ug/kg	40	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Aniline	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
4-Chloroaniline	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
2-Nitroaniline	ND	7700	15400	ug/kg	40	---	ND	---	---	---	30%	
3-Nitroaniline	ND	7700	15400	ug/kg	40	---	ND	---	---	---	30%	
4-Nitroaniline	ND	7700	15400	ug/kg	40	---	ND	---	---	---	30%	

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Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120926 - EPA 3546							**Solid**					
Duplicate (9120926-DUP1)			Prepared: 12/16/19 07:00		Analyzed: 12/16/19 13:34							
QC Source Sample: 1-1-PCP-3 (A9L0180-03)												
Nitrobenzene	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	3840	7700	ug/kg	40	---	ND	---	---	---	30%	
Benzoic acid	ND	48200	96100	ug/kg	40	---	ND	---	---	---	30%	
Benzyl alcohol	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
Isophorone	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	961	1920	ug/kg	40	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	19200	19200	ug/kg	40	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	7700	15400	ug/kg	40	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	9610	19200	ug/kg	40	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	9610	19200	ug/kg	40	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	9610	19200	ug/kg	40	---	ND	---	---	---	30%	
Pyridine	ND	1920	3840	ug/kg	40	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 50 %*		*Limits: 37-122 %*		*Dilution: 40x*					S-05
2-Fluorobiphenyl (Surr)			*77 %*		*44-115 %*		*"*					S-05
Phenol-d6 (Surr)			*37 %*		*33-122 %*		*"*					S-05
p-Terphenyl-d14 (Surr)			*91 %*		*54-127 %*		*"*					S-05
2-Fluorophenol (Surr)			*44 %*		*35-115 %*		*"*					S-05
2,4,6-Tribromophenol (Surr)			*125 %*		*39-132 %*		*"*					S-05

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.15**	**Report ID:**
Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120852							
A9L0180-01	Concrete	EPA 8270D	12/03/19 13:40	12/12/19 15:20	15.54g/2mL	15g/2mL	0.97
Batch: 9120864							
A9L0180-02	Concrete	EPA 8270D	12/03/19 14:00	12/13/19 07:02	2.59g/2mL	2g/2mL	0.77
A9L0180-06	Concrete	EPA 8270D	12/03/19 15:50	12/13/19 07:02	2.43g/2mL	2g/2mL	0.82
Batch: 9120926							
A9L0180-03	Solid	EPA 8270D	12/03/19 14:30	12/16/19 07:00	2.18g/2mL	15g/2mL	6.88
A9L0180-04	Solid	EPA 8270D	12/03/19 15:20	12/16/19 07:00	2.07g/2mL	15g/2mL	7.25
A9L0180-05RE1	Solid	EPA 8270D	12/03/19 16:10	12/16/19 07:00	2.09g/2mL	15g/2mL	7.18

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QUALIFIER DEFINITIONS

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

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B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-17	RPD between original and duplicate sample is outside of established control limits.
Q-18	Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source sample.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-30	Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
Q-52	Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

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

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

NR Result Not Reported

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

Detection Limits: Limit of Detection (LOD)

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

Reporting Limits: Limit of Quantitation (LOQ)

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

Reporting Conventions:

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

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

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

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

QC Source:

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

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

Miscellaneous Notes:

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

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

Blanks:

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

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

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

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

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

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

Soil and Sediment Samples:

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

Sampling and Preservation Notes:

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

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

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

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

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LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

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

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

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

Secondary Accreditations

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

Subcontract Laboratory Accreditations

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

Field Testing Parameters

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

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Philip Nerenberg, Lab Director

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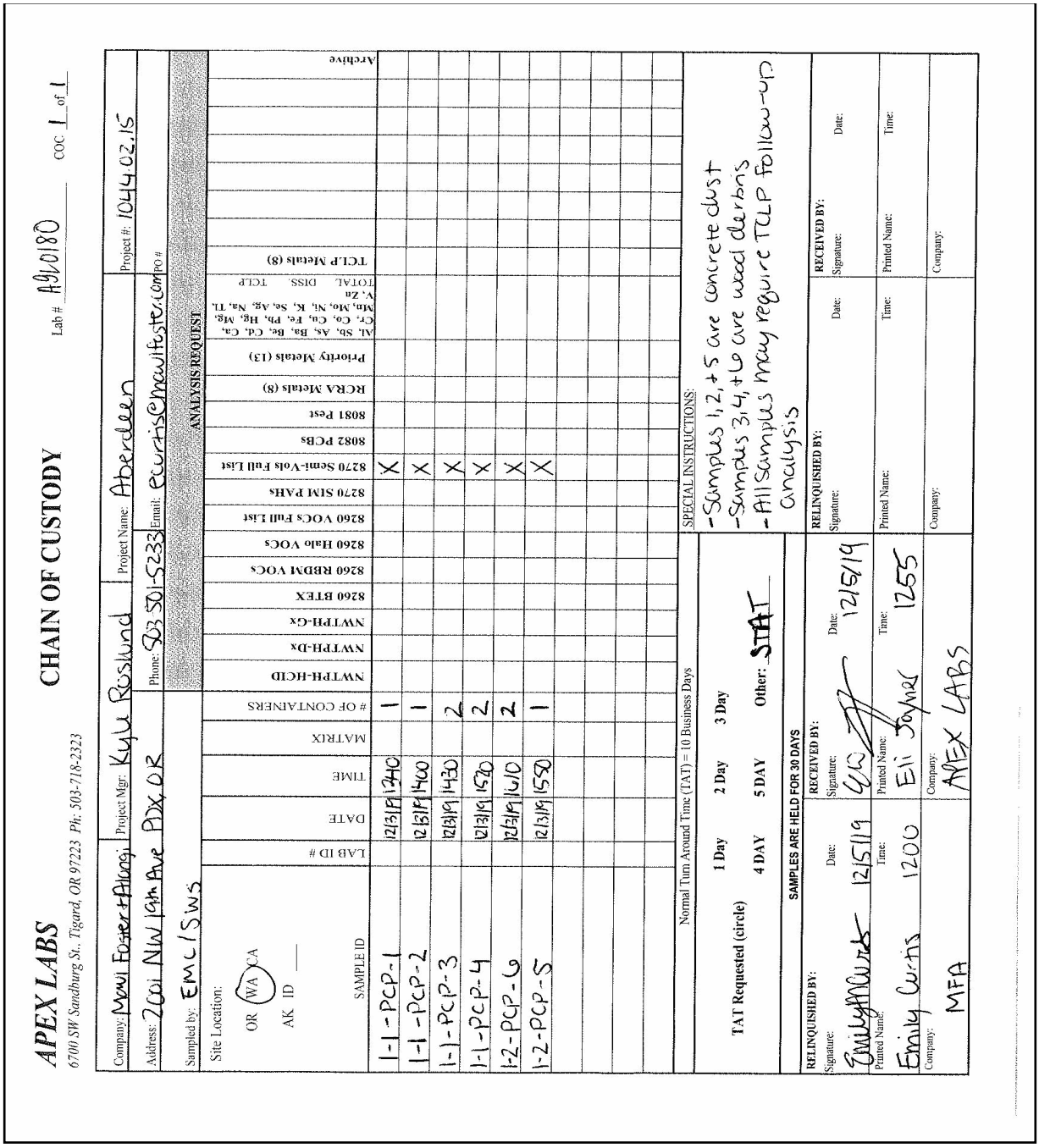

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A9L0180 COC 1 of 1

Company: Maul Foster & Alongi | Project Mgr: Kyle Roslund | Project Name: Aberdeen | Project #: 1044.02.15
Address: 2001 NW 19th Ave Ste 200 PDX OR | Phone: 503 501-5233 | Email: ecurtis@mfa-inc.com | PO #
Sampled by: EMC/SWS

Site Location: OR (WA) CA AK ID ___

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Archive
1-1-PCP-1		12/13/19	1240		1									X						
1-1-PCP-2		12/13/19	1400		1									X						
1-1-PCP-3		12/13/19	1430		2									X						
1-1-PCP-4		12/13/19	1520		2									X						
1-2-PCP-6		12/13/19	1610		2									X						
1-2-PCP-5		12/13/19	1550		1									X						

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
- Samples 1, 2, + 5 are concrete dust
- Samples 3, 4, + 6 are wood debris
- All samples may require TCLP follow-up analysis

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Emily Curtis Date: 12/15/19 Time: 1200 Printed Name: Emily Curtis Company: MFA

RECEIVED BY: Signature: Date: 12/15/19 Time: 1255 Printed Name: Eli Joyce Company: APEX LABS

RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Portland, OR 97209	Project Manager: **Kyle Roslund**	**A9L0180 - 12 19 19 1112**

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A9L0180

Project/Project #: Aberdeen 1044.02.15

Delivery Info:

Date/time received: 12/5/19 @ 1255 By: EJ

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Date/time inspected: 12/5/19 @ 1330 By: EJ

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

Signed/dated by client? Yes X No

Signed/dated by Apex? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	2.2						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Gel/Real						
Condition:	Good						

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

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

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

Samples Inspection: Date/time inspected: 12/6/19 @ 913 By: EJ

All samples intact? Yes X No Comments:

Bottle labels/COCs agree? Yes X No Comments:

COC/container discrepancies form initiated? Yes No NA X

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

Do VOA vials have visible headspace? Yes No NA X

Comments

Water samples: pH checked: Yes No NA X pH appropriate? Yes No NA X

Comments:

Additional information:

Labeled by: EJ Witness: Cooler Inspected by: MM See Project Contact Form: Y

APPENDIX D

KD&S ENVIRONMENTAL, INC. REPORTS

KD&S ENVIRONMENTAL, INC.
P.O. BOX 312, MONTESANO, WA 98563
OFFICE: (360) 249-5540 FAX: (360) 249-3475 EMAIL: INFO@KDSENV.COM

HAZARDOUS MATERIALS INVESTIGATION
ASBESTOS SURVEY

Demolition Purpose

PERFORMED FOR:
HARBOR ARCHITECTS

PROPERTY KNOWN AS:
GRAYS HARBOR SEAPORT
BUILDINGS 7 AND 8
500 N CUSTER
ABERDEEN, WA 98520

PERFORMED BY:

MORAYA WILSON

AHERA **CERTIFICATION**:
BI/PD/-NES-01-27-16-01

KATHLEEN WILSON

AHERA **CERTIFICATION**:
BI/PD/-NES-01-27-16-04

JULY 25, 2016

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GRAYS HARBOR SEAPORT
BUILDINGS 7 AND 8
500 N CUSTER
ABERDEEN, WA 98520

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SECTION 3.0 – ASSESSMENT AND RECOMMENDATIONS……

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SECTION 1.0 SCOPE OF WORK

On July 25, 2016 Moraya Wilson (BI/PD-NES-01-27-16-01) and Kathleen Wilson (BI/PD-NES-01-27-16-04) accredited asbestos and hazardous materials inspectors for KD&S Environmental, conducted an asbestos containing materials survey of the property known as:

GRAYS HARBOR SEAPORT
BUILDINGS 7 AND 8
500 N CUSTER
ABERDEEN, WA 98520

The following suspect materials were investigated:

- **Asbestos Containing Material**

Field inspection, data collection, and report generation were based on the following Scope of Work:

1. Perform a visual inspection of the subject property to identify and inventory all accessible suspect asbestos containing materials.
2. Bulk sampling and analysis of identified suspect asbestos containing materials.
3. Provide quantity estimates of asbestos containing materials.
4. Provide a written report including sample descriptions, sample locations, and sample location drawing.

The survey was intended to identify any possible asbestos containing materials (ACM) which may be disturbed during demolition, remodeling or maintenance activities per 40 CFR 61 Subpart M and to maintain compliance with WAC 296-62-07721 and current applicable **Olympic Region Clean Air Agency** (**ORCAA**) Regulations. KD&S Environmental has made a best effort attempt to identify materials, which may be disturbed. In addition, the asbestos survey meets the "Good Faith" asbestos inspection requirements. It should be noted that "Good Faith" surveys are limited in scope and that those materials which required destructive means to access or sample (interstitial spaces) is not included in this report.

Suspect asbestos containing materials within the structure were identified and classified as either a surfacing material, thermal system insulation, or miscellaneous materials. Surfacing materials are those, which are either, spray applied or troweled-on for acoustical, decorative, or fireproofing purposes. Thermal system insulation (TSI) is insulation used to inhibit heat transfer or to prevent condensation on pipes, boilers, tanks, ducts and various other components. Miscellaneous materials include all other materials not included in the above categories such as floor tile, ceiling tile, roofing felt, cementitious materials, wallboard systems and products such as caulking, mastics and putties 65 Miscellaneous and surfacing samples were collected and submitted for laboratory analysis.

Limitations of the Assessment

This targeted assessment was limited to the referenced buildings and did not include areas beyond the "foot print" of the buildings. The conclusions within this report are professional opinions base solely upon visual site observations and interpretation of analytical data as described in this report. Typical construction techniques can render portions of the building inaccessible. As a result, additional ACBM may be present in inaccessible areas (i.e. within wall and ceiling cavities). Suspect ACBM within inaccessible areas should be presumed to contain asbestos until characterized.
The opinions presented herein apply to the site conditions existing at the time of the investigation and interpretation of current asbestos regulations. Recommendations provided may not apply to future conditions that exist at the above mention site.

Survey Methodology

The supporting documentation provided within survey report includes material summary table and the appendices that included site photographs, lab analytical reports, chain of custody forms, staff certification.

SECTION 2.0 ASBESTOS-CONTAINING MATERIALS (ACM) SUMMARY

Bulk samples collected by KD&S Environmental were submitted for sample analysis in accordance with method EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials". Seattle Asbestos performed analysis of suspect asbestos materials. The following suspect materials were found to contain asbestos in quantities equal to or greater than one percent (1%).

TOTAL ASBESTOS

GRAYS HARBOR SEAPORT
500 N CUSTER
ABERDEEN, WA 98520
BUILDINGS 7 AND 8

BUILDING 7

Sample #	Location	% ACM Category	Description of Material	Friable/ Non-Friable	Total SF
R-1	MIDDLE OF ROOF	MISCELLANEOUS SILVER COAT 2% CHRYSOTILE	HOT MOP W/SILVER COAT ON WOOD	FRIABLE	
R-2	MIDDLE OF ROOF	MISCELLANEOUS SILVER COAT 3% CHRYSOTILE	SILVER PATCH OVER HOT MOP ON WOOD	FRIABLE	
R-3	MIDDLE OF ROOF	MISCELLANEOUS SILVER COAT 3% CHRYSOTILE	HOT MOP ON WOOD	FRIABLE	
R-4	EAST SIDE OF ROOF	MISCELLANEOUS SILVER COAT 2% CHRYSOTILE	HOT MOP ON WOOD	FRIABLE	
R-5	NORTH SIDE OF ROOF	MISCELLANEOUS SILVER COAT 2% CHRYSOTILE	HOT MOP ON WOOD	FRIABLE	Approximately 14,500 square feet
BLDG 7-2	INTERIOR WAREHOUSE WALLS	MISCELLANEOUS TAR TYPE PAPER 21% CHRYSOTILE	PLYWOOD W/ ROLL DOWN TAR TYPE PAPER	FRIABLE	Less than 2 square feet on 2 pieces of plywood

BUILDING 8						
R-17	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 29% CHRYSOTILE HOT MOP 22% CHRYSOTILE	BOTTOM LAYER UNDER TOP SILVER COAT ON WOOD	FRIABLE		
R-22	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-23	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-24	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-25	WEST SIDE ROOF	MISCELLANEOUS HOT MOP 3% SILVER COAT 28% CHRYSOTILE HOT MOP 24% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-26	WEST SIDE ROOF	MISCELLANEOUS ROLL DOWN 3% CHRYSOTILE	ROLL DOWN W/HOT MOP ON METAL	NON-FRIABLE		
BLDG 8-19	WEST SIDE EXTERIOR ON GROUND	MISCELLANEOUS SILVER COAT (TOP) 3% CHRYSOTILE HOT MOP (TOP) 3% CHRYSOTILE SILVER COAT (BOTTOM) 3% CHRYSOTILE HOT MOP (BOTTOM) 2% CHRYSOTILE	SILVER COAT W/HOT MOP	FRIABLE	**To be confirmed by contractor during the bidding process. Approx. 7,550 square feet**	

**All square footages provided are approximations and any drawings are not to scale. Contractors are advised to verify the measurements on their own prior to bidding the work.*

SECTION 3.0 ASSESSMENT AND RECOMMENDATIONS

ASSESSMENT

The asbestos containing materials identified in the subject property fall into the Miscellaneous Category.

RECOMMENDATIONS

All identified asbestos containing material is regulated material and must be abated prior to any demolition or remodeling activity which may disturb these materials at the subject property. A Washington State Certified Asbestos Contractor must conduct abatement of asbestos containing materials.

NARRATIVE

AT PRESENT THIS SITE (500 N. CUSTER) BELONGS THE GRAYS HARBOR HISTORICAL SEAPORT. THE PROPERTY ORIGINALLY WAS OWNED BY WEYERHAEUSER AND WAS AN ACTIVE PLANER MILL. WEYERHAEUSER CLOSED OPERATIONS HELD AN AUCTION IN 2006 AND THE LARGE MACHINES WERE DISMANTLED. THE MACHINES WERE MOVED OFFSITE.

IN 2008 A BARGAIN SALE WAS COMPLETED WITH GRAYS HARBOR HISTORICAL SEAPORT TOOK POSSESSION.

BUILDING 7

BUILDINGS 7 IS A LARGE POLE BARN TYPE CONSTRUCTION. LARGE PIECES OF EQUIPMENT WAS PARKED IN THIS AREA.

BUILDING 8

THIS BUILDING INCLUDED THE PLANER, CONTROL ROOM, WAREHOUSING OF MATERIALS AND LUNCH ROOM.

SECTION 4.0 STATEMENT OF COMPLIANCE

In accordance with W.A.C. 296-62-07721 and current applicable ORCCA Regulations, KD& S Environmental Consulting performed an Asbestos Inspection of**:**

GRAYS HARBOR SEAPORT
BUILDINGS 7 AND 8
500 N CUSTER
ABERDEEN, WA 98520

Abatement of asbestos-containing materials must be conducted by a Washington State Certified Asbestos Abatement Contractor. Should employees or contract personnel encounter any suspect asbestos-containing materials it is their responsibility to:

1. Contact a representative of the owner.
2. Consult the inspection report to determine whether or not the suspect material contains asbestos.
3. Ensure that all employees and contractors are informed and advised of the location and type of materials that contain asbestos.

The following asbestos-containing materials were identified at the subject property:

BUILDING 7

Sample #	Location	% ACM Category	Description of Material	Friable/ Non-Friable	Total SF
R-1	MIDDLE OF ROOF	MISCELLANEOUS SILVER COAT 2% CHRYSOTILE	HOT MOP W/SILVER COAT ON WOOD	FRIABLE	
R-2	MIDDLE OF ROOF	MISCELLANEOUS SILVER COAT 3% CHRYSOTILE	SILVER PATCH OVER HOT MOP ON WOOD	FRIABLE	
R-3	MIDDLE OF ROOF	MISCELLANEOUS SILVER COAT 3% CHRYSOTILE	HOT MOP ON WOOD	FRIABLE	
R-4	EAST SIDE OF ROOF	MISCELLANEOUS SILVER COAT 2% CHRYSOTILE	HOT MOP ON WOOD	FRIABLE	
R-5	NORTH SIDE OF ROOF	MISCELLANEOUS SILVER COAT 2% CHRYSOTILE	HOT MOP ON WOOD	FRIABLE	**Approximately 14,500 square feet**

BLDG 7-2	INTERIOR WAREHOUSE WALLS	MISCELLANEOUS TAR TYPE PAPER 21% CHRYSOTILE	PLYWOOD W/ ROLL DOWN TAR TYPE PAPER	FRIABLE	Less than 2 square feet on 2 pieces of plywood	
BUILDING 8						
R-17	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 29% CHRYSOTILE HOT MOP 22% CHRYSOTILE	BOTTOM LAYER UNDER TOP SILVER COAT ON WOOD	FRIABLE		
R-22	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-23	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-24	WEST SIDE ROOF	MISCELLANEOUS SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-25	WEST SIDE ROOF	MISCELLANEOUS HOT MOP 3% SILVER COAT 28% CHRYSOTILE HOT MOP 24% CHRYSOTILE	BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD	FRIABLE		
R-26	WEST SIDE ROOF	MISCELLANEOUS ROLL DOWN 3% CHRYSOTILE	ROLL DOWN W/HOT MOP ON METAL	NON-FRIABLE		
BLDG 8-19	WEST SIDE EXTERIOR ON GROUND	MISCELLANEOUS SILVER COAT (TOP) 3% CHRYSOTILE HOT MOP (TOP) 3% CHRYSOTILE SILVER COAT (BOTTOM) 3% CHRYSOTILE HOT MOP (BOTTOM) 2% CHRYSOTILE	SILVER COAT W/HOT MOP	FRIABLE	**To be confirmed by contractor during the bidding process. Approx. 7,550 square feet**	

**All square footages provided are approximations and any drawings are not to scale. Contractors are advised to verify the measurements on their own prior to bidding the work.*

I Hereby Attest:

The inspection report has been made available to me. I will inform all subcontractors of the location and types of materials containing asbestos. I am authorized to sign on behalf of my company.

Contractor: _____ Owner's Rep: _____

Signature: _____ Signature: _____

Print Name: _____ Print Name: _____

Title: _____ Title: _____

Date: _____ Date: _____

ASBESTOS SAMPLE SUMMARY

GRAYS HARBOR SEAPORT
BUILDINGS 7 AND 8
500 N CUSTER
ABERDEEN, WA 98520

BUILDING 7- ROOF

SAMPLE NUMBER	MATERIAL LOCATION	AHERA CATEGORY	DESCRIPTION OF MATERIAL / ESTIMATED QUANTITY	ASBESTOS %
R-1	MIDDLE OF ROOF	MISCELLANEOUS FRIABLE	HOT MOP W/SILVER COAT ON WOOD	SILVER COAT 2% CHRYSOTILE
R-2	MIDDLE OF ROOF	MISCELLANEOUS FRIABLE	SILVER PATCH OVER HOT MOP ON WOOD	SILVER COAT 3% CHRYSOTILE
R-3	MIDDLE OF ROOF	MISCELLANEOUS FRIABLE	HOT MOP ON WOOD	SILVER COAT 3% CHRYSOTILE
R-4	EAST SIDE OF ROOF	MISCELLANEOUS FRIABLE	HOT MOP ON WOOD	SILVER COAT 2% CHRYSOTILE
R-5	NORTH SIDE OF ROOF	MISCELLANEOUS FRIABLE	HOT MOP ON WOOD	SILVER COAT 2% CHRYSOTILE

BUILDING 7- BUILDING

SAMPLE NUMBER	MATERIAL LOCATION	AHERA CATEGORY	DESCRIPTION OF MATERIAL / ESTIMATED QUANTITY	ASBESTOS %
BLDG 7-1	PIPE SHED #16	MISCELLANEOUS NON-FRIABLE	CONCRETE SLAG PIECES AROUND BOTTOM OF PIPE	NON-DETECT
BLDG 7-2	INTERIOR WAREHOUSE WALLS	MISCELLANEOUS NON-FRIABLE	PLYWOOD W/ ROLL DOWN TAR TYPE PAPER	TAR TYPE PAPER 21% CHRYSOTILE
BLDG 7-3	INTERIOR METAL POLES	MISCELLANEOUS NON-FRIABLE	TAPE ON POLES	NON-DETECT

BUILDING 8- ROOF

SAMPLE NUMBER	MATERIAL LOCATION	AHERA CATEGORY	DESCRIPTION OF MATERIAL / ESTIMATED QUANTITY	ASBESTOS %
R-6	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	TAR AND ROOFING ON CORRUGATED ALUMINUM ROOF	NON-DETECT
R-7	WEST END ROOF	MISCELLANEOUS FRIABLE	CORRUGATED ALUMINUM ROOF W/PAINT	NON-DETECT
R-8	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	HOT MOP PATCH TO JOIN ROOFS	NON-DETECT
R-9	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	COMPOSITION ROOFING UNDER GALVANIZED ROOFING	NON-DETECT
R-10	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	BLACK ROOFING PAPER UNDER METAL ROOF	NON-DETECT
R-11	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	METAL ROOF WITH ROOFING PAPER ON WOOD SHEATHING	NON-DETECT
R-12	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	GALVANIZED ROOFING OVER ROOFING PAPER	NON-DETECT
R-13	WEST END ROOF	MISCELLANEOUS NON-FRIABLE	GALVANIZED ROOF OVER ROOFING PAPER ON WOOD	NON-DETECT
R-14	SOUTH SIDE ROOF	MISCELLANEOUS NON-FRIABLE	PATCHING COMPOUND ON GALVANIZED ROOFING	NON-DETECT
R-15	SOUTHWEST SIDE ROOF	MISCELLANEOUS NON-FRIABLE	PATCHING COMPOUND	NON-DETECT
R-16	SOUTHWEST SIDE ROOF	MISCELLANEOUS NON-FRIABLE	HOT MOP ON ROLL DOWN COMPOSITION OVER MULTIPLE LAYERS	NON-DETECT
R-17	**WEST SIDE ROOF**	**MISCELLANEOUS FRIABLE**	**BOTTOM LAYER UNDER TOP SILVER COAT ON WOOD**	**SILVER COAT 29% CHRYSOTILE HOT MOP 22% CHRYSOTILE**
R-18	WEST SIDE ROOF	MISCELLANEOUS NON-FRIABLE	HOT MOP	NON-DETECT
R-19	WEST SIDE ROOF	MISCELLANEOUS NON-FRIABLE	HOT MOP	NON-DETECT
R-20	WEST SIDE ROOF	MISCELLANEOUS NON-FRIABLE	HOT MOP	NON-DETECT

R-21	WEST SIDE ROOF	MISCELLANEOUS NON-FRIABLE	HOT MOP	NON-DETECT
R-22	**WEST SIDE ROOF**	**MISCELLANEOUS FRIABLE**	**BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD**	**SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE**
R-23	**WEST SIDE ROOF**	**MISCELLANEOUS FRIABLE**	**BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD**	**SILVER COAT 31% CHRYSOTILE HOT MOP 23% CHRYSOTILE**
R-24	**WEST SIDE ROOF**	**MISCELLANEOUS FRIABLE**	**BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD**	**SILVER COAT 29% CHRYSOTILE HOT MOP 28% CHRYSOTILE**
R-25	**WEST SIDE ROOF**	**MISCELLANEOUS FRIABLE**	**BOTTOM SILVER COAT PAINT ON ROLL DOWN ON WOOD**	**HOT MOP 3% SILVER COAT 28% CHRYSOTILE HOT MOP 24% CHRYSOTILE**
R-26	**WEST SIDE ROOF**	**MISCELLANEOUS NON-FRIABLE**	**ROLL DOWN W/HOT MOP ON METAL**	**ROLL DOWN 3% CHRYSOTILE**
R-27	WEST SIDE ROOF AT VALVE	MISCELLANEOUS NON-FRIABLE	BLACK ROLL DOWN COMPOSITION	NON-DETECT
R-28	NORTH SIDE SHED ROOF	MISCELLANEOUS NON-FRIABLE	ROLL DOWN COMPOSITION	NON-DETECT
R-29	SHED ROOF AT REAR OF BUILDING 7	MISCELLANEOUS NON-FRIABLE	COMPOSITION ROOFING	NON-DETECT
R-30	CORNER OF BUILDING 8 NEAR SPRINKLER VALVE #14	MISCELLANEOUS NON-FRIABLE	PAINTING PATCHING COMPOUND	NON-DETECT

BUILDING 8

SAMPLE NUMBER	MATERIAL LOCATION	AHERA CATEGORY	DESCRIPTION OF MATERIAL / ESTIMATED QUANTITY	ASBESTOS %
BLDG 8-4	POLE BARN STRUCTURE OUTSIDE OF BUILDING 8 AROUND PILLARS DRYING AREA	MISCELLANEOUS NON-FRIABLE	TAR	NON-DETECT
BLDG 8-5	POLE BARN STRUCTURE OUTSIDE OF BUILDING 8 NEAR COVERED PIT	MISCELLANEOUS NON-FRIABLE	CONCRETE	NON-DETECT
BLDG 8-6	POLE BARN STRUCTURE OUTSIDE OF BUILDING 8 AROUND PILLARS	MISCELLANEOUS NON-FRIABLE	TAR	NON-DETECT
BLDG 8-7	INTERIOR ROOF PANELS ON WEST SIDE OF BUILDING	MISCELLANEOUS FRIABLE	WHITE PAINT ON GALVANIZED ALUMINUM PANELS	NON-DETECT
BLDG 8-8	INTERIOR ROOF PANELS ON WEST SIDE OF BUILDING	MISCELLANEOUS FRIABLE	WHITE PAINT ON GALVANIZED ALUMINUM PANELS	NON-DETECT
BLDG 8-9	INTERIOR DEBRIS PILES	MISCELLANEOUS FRIABLE	WHITE PAINT ON ROOF BEAMS	NON-DETECT
BLDG 8-10	INTERIOR ROOF BEAMS	MISCELLANEOUS FRIABLE	WHITE PAINT	NON-DETECT
BLDG 8-11	WEST END INTERIOR CHANNEL TO PLANER	MISCELLANEOUS NON-FRIABLE	WHITE/METALLIC INSULATION MATERIAL	NON-DETECT
BLDG 8-12	WEST END INTERIOR CHANNEL TO PLANER	MISCELLANEOUS NON-FRIABLE	WHITE/METALLIC INSULATION MATERIAL	NON-DETECT
BLDG 8-13	WEST END INTERIOR DEBRIS PILE	MISCELLANEOUS NON-FRIABLE	MISCELLANEOUS INSULATION TYPE PAPER	NON-DETECT
BLDG 8-14	WEST END INTERIOR EAST END OF PIT	MISCELLANEOUS NON-FRIABLE	COTTON TYPE INSULATION MATERIAL	NON-DETECT
BLDG 8-15	WEST END INTERIOR IN PIT	MISCELLANEOUS NON-FRIABLE	MISCELLANEOUS MATERIAL UNDER CMU AND CONCRETE	NON-DETECT
BLDG 8-16	INTERIOR STAIRS	MISCELLANEOUS NON-FRIABLE	COMPOSITION ROOFING	NON-DETECT
BLDG 8-17	EXTERIOR ON GROUND	MISCELLANEOUS FRIABLE	YELLOW PAINT ON GALVANIZED ALUMINUM PANELS	NON-DETECT
BLDG 8-18	EXTERIOR ON GROUND	MISCELLANEOUS FRIABLE	YELLOW PAINT ON GALVANIZED ALUMINUM PANELS	NON-DETECT

Sample Number	Material Location	AHERA Category	Description of Material / Estimated Quantity	Asbestos %
Bldg 8-19	**West side exterior on ground** ***A 3x4 piece of roofing was found on ground.*** ***No other pieces of roofing were found in that area***	**Miscellaneous Friable**	**Silver coat w/hot mop**	**Silver coat (top) 3% Chrysotile** **Hot mop (top) 3% Chrysotile** **Silver coat (bottom) 3% Chrysotile** **Hot mop (bottom) 2% Chrysotile**
Bldg 8-20	Exterior shower unit	Miscellaneous Non-Friable	Roofing paper under T1-11 siding	Non-Detect
Bldg 8-21	Blower room pipe	Miscellaneous Friable	Silver coat paint	Non-Detect
Bldg 8-22	Spray room roof edge	Miscellaneous Non-Friable	Roll down composition on wood	Non-Detect
Bldg 8-23	Spray room roof at seam	Miscellaneous Non-Friable	Roll down composition	Non-Detect
Bldg 8-24	Spray room roof beams	Miscellaneous Friable	White paint chips	Non-Detect
Bldg 8-25	Spray room roof beams	Miscellaneous Friable	White paint chips	Non-Detect
Bldg 8-26	P3 on concrete near spar shop sign	Miscellaneous Non-Friable	Miscellaneous insulation	Non-Detect
Bldg 8-27	Channel near spar shop sign	Miscellaneous Non-Friable	Black tar-like material	Non-Detect
Bldg 8-28	Lunch/locker room floor	Miscellaneous Friable	Beige pebble design vinyl sheeting on wood	Non-Detect
Bldg 8-29	Lunch/locker room floor	Miscellaneous Friable	Beige pebble design vinyl sheeting on wood	Non-Detect
Bldg 8-30	Lunch/locker room wall	Miscellaneous Non-Friable	Brown cove base w/mastic	Non-Detect
Bldg 8-31	Control room Floor	Miscellaneous Friable	Gray vinyl sheeting on plywood	Non-Detect

Sample Number	Material Location	AHERA Category	Description of Material / Estimated Quantity	Asbestos %
Bldg 8-32	Control room wall	miscellaneous Non-Friable	Gray cove base w/glue	Non-Detect
Bldg 8-33	Control room floor	Miscellaneous Friable	Gray vinyl sheeting	Non-Detect
Bldg 8-34	Control room wall	miscellaneous Non-Friable	Sheetrock	Non-Detect
Bldg 8-35	Ducting near spill response room	miscellaneous Non-Friable	Paper on ducting	Non-Detect

PHOTOS: BUILDING 7



Pole Barn Structure - Positive Roofing



Interior of Pole Barn Structure



Sample – Bldg 7-1 21% Chrysotile Less than 2 sq. ft.



Roofing – Bldg 7 Hot Mop with Silver Coat
Sample #R-1 2 % Chrysotile



Roofing – Bldg 7 Middle of Roof
Hop Mop with Silver Coat
Sample# R-3 3% Chrysotile



Roofing – Bldg 7 East Side of Roof
Hop Mop with Silver Coat
Sample# R-4 2% Chrysotile

PHOTOS: BUILDING 8



Example of Positive Roofing on Building 8

R-17 29% Chrysotile (Top Layer)

22% Chrysotile (Bottom Layer)



Example of Positive Roofing on Building 8



Example of Positive Roofing on Building 8

KD&S ENVIRONMENTAL, INC.
P.O. BOX 312, MONTESANO, WA 98563
OFFICE: (360) 249-5540 FAX: (360) 249-3475 EMAIL: INFO@KDSENV.COM

HAZARDOUS MATERIALS INVESTIGATION
ASBESTOS SURVEY

PERFORMED FOR:
GRAYS HARBOR SEAPORT

PROPERTY KNOWN AS:
OLD MILL BUILDING
500 NORTH CUSTER STREET
ABERDEEN, WA 98520

PERFORMED BY:



DEAN WILSON

AHERA CERTIFICATION:
BI/PD/-NES-01-17-17-02

MARCH 2, 2017

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OLD MILL BUILDING
500 NORTH CUSTER STREET
ABERDEEN, WA 98520

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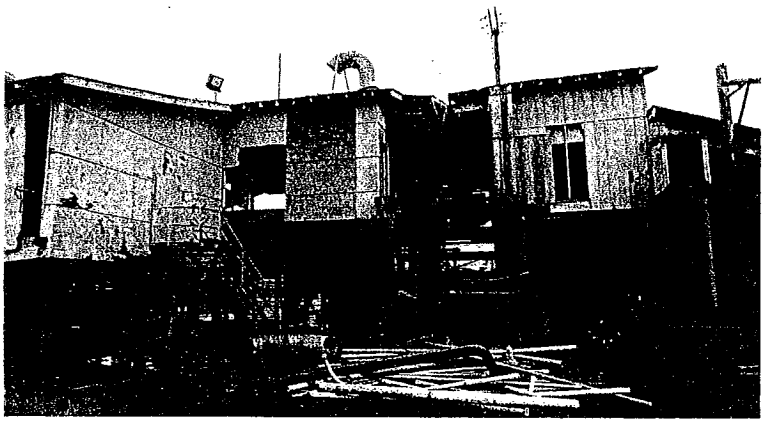


SECTION 1.0 SCOPE OF WORK

On March 2, 2017 Dean Wilson (BI/PD-NES-01-17-17-02) an accredited asbestos and hazardous materials inspectors for KD&S Environmental, conducted an asbestos containing materials survey of the property known as:

OLD MILL BUILDING
500 NORTH CUSTER STREET
ABERDEEN, WA 98520

The following suspect materials were investigated:

- **Asbestos Containing Material**

Field inspection, data collection, and report generation were based on the following Scope of Work:

1. Perform a visual inspection of the subject property to identify and inventory all accessible suspect asbestos containing materials.
2. Bulk sampling and analysis of identified suspect asbestos containing materials.
3. Provide quantity estimates of asbestos containing materials.
4. Provide a written report including sample descriptions, sample locations, and sample location drawing.

The survey was intended to identify any possible asbestos containing materials (ACM) which may be disturbed during demolition, remodeling or maintenance activities per 40 CFR 61 Subpart M and to maintain compliance with WAC 296-62-07721 and current applicable **Olympic Region Clean Air Agency (ORCAA)** Regulations. KD&S Environmental has made a best effort attempt to identify materials, which may be disturbed. In addition, the asbestos survey meets the "Good Faith" asbestos inspection requirements. It should be noted that "Good Faith" surveys are limited in scope and that those materials which required destructive means to access or sample (interstitial spaces) is not included in this report.

Suspect asbestos containing materials within the structure were identified and classified as either a surfacing material, thermal system insulation, or miscellaneous materials. Surfacing materials are those, which are either, spray applied or troweled-on for acoustical, decorative, or fireproofing purposes. Thermal system insulation (TSI) is insulation used to inhibit heat transfer or to prevent condensation on pipes, boilers, tanks, ducts and various other components. Miscellaneous materials include all other materials not included in the above categories such as floor tile, ceiling tile, roofing felt, cementitious materials, wallboard systems and products such as caulking, mastics and putties. 2 Miscellaneous samples were collected and submitted for laboratory analysis.

Limitations of the Assessment

This targeted assessment was limited to the referenced buildings and did not include areas beyond the "foot print" of the buildings. The conclusions within this report are professional opinions base solely upon visual site observations and interpretation of analytical data as described in this report. Typical construction techniques can render portions of the building inaccessible. As a result, additional ACBM may be present in inaccessible areas (i.e. within wall and ceiling cavities). Suspect ACBM within inaccessible areas should be presumed to contain asbestos until characterized.
The opinions presented herein apply to the site conditions existing at the time of the investigation and interpretation of current asbestos regulations. Recommendations provided may not apply to future conditions that exist at the above mention site.

Survey Methodology

The supporting documentation provided within survey report includes material summary table and the appendices that included site photographs, lab analytical reports, chain of custody forms, staff certification.

SECTION 2.0 ASBESTOS-CONTAINING MATERIALS (ACM) SUMMARY

Bulk samples collected by KD&S Environmental were submitted for sample analysis in accordance with method EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials". Seattle Asbestos performed analysis of suspect asbestos materials. The following suspect materials were found to contain asbestos in quantities equal to or greater than one percent (1%).

TOTAL ASBESTOS

OLD MILL BUILDING
500 NORTH CUSTER STREET
ABERDEEN, WA 98520

ALL POTENTIAL ACM ARE NON-DETECT

**All square footages provided are approximations and any drawings are not to scale. Contractors are advised to verify the measurements on their own prior to bidding the work.*

SECTION 3.0 ASSESSMENT AND RECOMMENDATIONS

ASSESSMENT

Samples taken were non-detect for asbestos. This demolition may proceed with the permitting process without the hindrance of abatement.

RECOMMENDATIONS

All identified asbestos containing material is regulated material and must be abated prior to any demolition or remodeling activity which may disturb these materials at the subject property. A Washington State Certified Asbestos Contractor must conduct abatement of asbestos containing materials.

NARRATIVE

THIS IS AN ABANDONED STRUCTURE AT THE OLD WEYERHAEUSER MILL THAT IS NOW BEING UTILIZED BY THE GRAYS HARBOR SEAPORT AUTHORITY. THE SEAPORT IS PLANNING ON DEMOLISHING THIS SECTION OF THE BUILDING. THE WOOD AND METAL STRUCTURE IS DOWN TO BARE BONES. THERE IS A SMALL OFFICE THAT HAS SHEET VINYL FLOORING AND SOME SHEETROCK. BOTH SAMPLES TESTED NEGATIVE FOR ASBESTOS. THERE WERE NO OTHER SUSPECT MATERIALS TO BE SAMPLED AT THIS FACILITY. A T-CLP SAMPLES WAS ALSO TAKEN TO DETERMINE IF THE DEMOLISHED MATERIALS COULD BE TAKEN AS GENERAL CONSTRUCTION DEBRIS. ANALYSIS SHOWS THAT THE T-CLP SAMPLE WAS LESS THAN THE EPA THRESHOLD OF 5% THEREFORE THE MATERIALS CAN BE DISPOSED OF AS GENERAL CONSTRUCTION DEBRIS.

SECTION 4.0 STATEMENT OF COMPLIANCE

In accordance with W.A.C. 296-62-07721 and current applicable ORCCA Regulations, KD& S Environmental Consulting performed an Asbestos Inspection of:

OLD MILL BUILDING
500 NORTH CUSTER STREET
ABERDEEN, WA 98520

Abatement of asbestos-containing materials must be conducted by a Washington State Certified Asbestos Abatement Contractor. Should employees or contract personnel encounter any suspect asbestos-containing materials it is their responsibility to:

1. Contact a representative of the owner.
2. Consult the inspection report to determine whether or not the suspect material contains asbestos.
3. Ensure that all employees and contractors are informed and advised of the location and type of materials that contain asbestos.

The following asbestos-containing materials were identified at the subject property:

ALL POTENTIAL ACM ARE NON-DETECT

**All square footages provided are approximations and any drawings are not to scale. Contractors are advised to verify the measurements on their own prior to bidding the work.*

I Hereby Attest:

The inspection report has been made available to me. I will inform all subcontractors of the location and types of materials containing asbestos. I am authorized to sign on behalf of my company.

Contractor: _____ Owner's Rep: _____

Signature: _____ Signature: _____

Print Name: _____ Print Name: _____

Title: _____ Title: _____

Date: _____ Date: _____

ASBESTOS SAMPLE SUMMARY
OLD MILL BUILDING
500 NORTH CUSTER STREET
ABERDEEN, WA 98520

SAMPLE NUMBER	MATERIAL LOCATION	AHERA CATEGORY	DESCRIPTION OF MATERIAL / ESTIMATED QUANTITY	ASBESTOS %
SP-1	MILL OFFICE FLOOR	MISCELLANEOUS FRIABLE	VINYL SHEETING	NON-DETECT
SP-2	MILL OFFICE FLOOR	MISCELLANEOUS NON-FRIABLE	JOINT COMPOUND ON SHEETROCK	NON-DETECT

KDS AND ENVIRONMENTAL INC

P.O. Box 312 (360) 249-5540 1-800-339-9546

Montesano, WA 98563 Fax (360) 249-3475 www.kdsenv.com

Service Disabled Veteran Owned Small Business SDVOSB CVE

ASBESTOS
BULK CHAIN OF CUSTODY

SUBMITTED BY:

Company: Grays Harbor Seaport
Address: P.O. Box 2019
City & State Aberdeen, WA 98520

SENT TO:

NOW Environmental

17260

FILE NO: 17-4967

Taken by: Dean

SAMPLE #	DATE	DESCRIPTION
SP-1	3/2/17	MILL OFFICE SHEET FLOORING
SP-2	3/2/17	MILL OFFICE JOINT COMPOUND
		E-Mail results please to sandie@kdsenv.com
		24 Hour Turnaround

RELINQUISHED BY: Dean Wilson DATE: 3/3/17

RECEIVED BY: Rachael Myers DATE: 3/6/17

ORION Environmental Services
34004 Ninth Avenue South, Suite A12, Federal Way, WA 98003
Phone: (253) 952-6717 • Fax: (253) 927-4714
Email: info@oriones.net • Web: www.oriones.net
WBE W2F9219763

Polarized Light Microscopy Test Report
EPA Method 600/R-98/116

Client: KD&S Environmental
Address: P.O. Box 312, Montesano, WA 98563
Attention: Dean Wilson
Project Name: Grays Harbor Seaport
Project Number: 17-4967

Rpt. Date: 3/6/2017
Page: 1 of 1
Invoice: 171260
Date Rcvd: 3/6/2017

Client Sample ID	Orion Sample ID	Material Description	Sample Treatment	% Asbestos Containing Material	Asbestos Type	Other Fibers
SP-1	20170306-53	Vinyl sheeting w/ gray felt backing		ND		cellulose
SP-2-a	20170306-54	Joint compound		ND		cellulose
SP-2-b		Wallboard		ND		cellulose

Dup: Laboratory QA/QC Duplicate; M; Mastic [(a), (b), (c), etc.]: Sample layers numbered from front to back.
Comments: For layered samples, each component has been analyzed separately. ND means non-detect for asbestos fibers by EPA Method 600/R-98/116.Disclaimers: PLM has been known to miss asbestos in a small percentage of samples that contain asbestos. Thus, these laboratory results represent due diligence, however negative or <1 % PLM results can not be guaranteed. Per EPA guidelines samples will be archived for 30 days then will be disposed of. This report may only be reproduced in full with written approval of ORION Environmental Services.

Analyzed By (Print)	Date	Reviewed By (Print)	Date
Donna McNeal	3/7/2017	Dennis Rauschenberg	3/7/2017
Analyzed By (Signature)	Time	Reviewed By (Signature)	Time

KDS AND ENVIRONMENTAL INC

P.O. Box 312 (360) 249-5540 1-800-339-9546

Montesano, WA 98563 Fax (360) 249-3475 www.kdsenv.com

Service Disabled Veteran Owned Small Business SDVOSB CVE

LEAD
CHAIN OF CUSTODY

SUBMITTED BY:

Company: Grays Harbor Seaport
Address: P.O. Box 2019
City & State Aberdeen, WA 98520

SENT TO:

NOW Environmental

171258

FILE NO: 17-4967

Taken by: Dean

SAMPLE #	DATE	DESCRIPTION
SPLBP	3/2/17	PAINT GRAB SAMPLE, OLD MILL BUILDING
		LEAD ANALYSIS PLEASE
		E-Mail results please to sandie@kdsenv.com
		24 Hour Turnaround

RELINQUISHED BY: Dean Wilson DATE: 3/3/17

RECEIVED BY: Rachael McPeek DATE: 3/6/17

Environmental Compliance & Consulting

Total Lead Test Report
EPA Method 7420

Client KD&S Environmental
P.O. Box 312
Montesano, WA 98563

Date March 7, 2017
Page Page 1 of 1
Invoice 171258
Date Received March 6, 2017

Project Number N/A
Project Name Garys Harbor Seaport

Client Number	ORION Number	Material Description	LOD (mg/kg)	Total Lead PPM (mg/kg)	% by Weight
SPLBP	170306-50	Paint grab, Old mill building	100.0	<100.0	<0.010

Quality Assurance Information

Method Blank: <0.5 mg/kg
Linear Regression Lower Limit: 0.990
Actual Batch Linear Regression: 0.999
Check Standard Per Set: +5.0 mg/l

Analyzed By
Allen Clark
Laboratory Analyst

Reviewed By
Donna McNeal
Laboratory Director, CEO

34004 9th Avenue South Suite A5 - Federal Way, Washington 98003
p. 253.952.6717 - f. 253.927.4714
www.oriones.net - info@oriones.net
WBE W2F9219763

365-230-330
Work practice standards.

(1) Standards for renovation activities. Renovations must be performed by certified firms using certified renovators as directed under WAC 365-230-370. The responsibilities of certified firms are set forth under WAC 365-230-360 and the responsibilities of certified renovators are set forth under WAC 365-230-380.

(a) Occupant protection. Firms must post signs clearly defining the work area and warning occupants and other persons not involved in renovation activities to remain outside of the work area. To the extent practicable, these signs must be in the primary language of the occupants. These signs must be posted before beginning the renovation and must remain in place and readable until the renovation and the postrenovation cleaning verification have been completed. If warning signs have been posted in accordance with 24 C.F.R. 35.1345 (b)(2) or 29 C.F.R. 1926.62(m), additional signs are not required by this section.

(b) Containing the work area. Before beginning the renovation, the firm must isolate the work area so that no dust or debris leaves the work area while the renovation is being performed. In addition, the firm must maintain the integrity of the containment by ensuring that any plastic or other impermeable materials are not torn or displaced, and taking any other steps necessary to ensure that no dust or debris leaves the work area while the renovation is being performed. The firm must also ensure that containment is installed in such a manner that it does not interfere with occupant and worker egress in an emergency.

(i) Interior renovations. The firm must:

(A) Remove all objects from the work area, including furniture, rugs, and window coverings, or cover them with plastic sheeting or other impermeable material with all seams and edges taped or otherwise sealed.

(B) Close and cover all ducts opening in the work area with taped-down plastic sheeting or other impermeable material.

(C) Close windows and doors in the work area. Doors must be covered with plastic sheeting or other impermeable material. Doors used as an entrance to the work area must be covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

(D) Cover the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area six feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater. Floor containment measures may stop at the edge of the vertical barrier when using a vertical containment system consisting of impermeable barriers that extend from the floor to the ceiling and are tightly sealed at joints with the floor, ceiling, and walls.

(E) Use precautions to ensure that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving the work area.

(ii) Exterior renovations. The firm must:

(A) Close all doors and windows within twenty feet of the renovation. On multistory buildings, close all doors and windows within twenty feet of the renovation on the same floor as the renovation, and close all doors and windows on all floors below that are the same horizontal distance from the renovation.

(B) Ensure that doors within the work area that will be used while the job is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

(C) Cover the ground with plastic sheeting or other disposable impermeable material extending ten feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents ten feet of such ground covering. Ground containment measures may stop at the edge of the vertical barrier when using a vertical containment system.

(D) If the renovation will affect surfaces within ten feet of the property line, the renovation firm must erect vertical containment or equivalent extra precautions in containing the work area to ensure that dust and debris from the renovation does not contaminate adjacent buildings or migrate to adjacent properties. Vertical containment or equivalent extra precautions in containing the work area may also be necessary in other situations in order to prevent contamination of other buildings, other areas of the property, or adjacent buildings or properties.

(c) Prohibited and restricted practices. The work practices listed below are prohibited or restricted during a renovation as follows:

(i) Open-flame burning or torching of painted surfaces is prohibited.

(ii) The use of machines designed to remove paint or other surface coatings through high speed operation such as sanding, grinding, power planing, needle gun, abrasive blasting, or sandblasting, is prohibited unless such machines have shrouds or containment systems and are equipped with a HEPA vacuum attachment to collect dust and debris at the point of generation. Machines must be operated so that no visible dust or release of air occurs outside the shroud or containment system.

(iii) Operating a heat gun on painted surfaces is permitted only at temperatures below 1,100 degrees Fahrenheit.

(d) Waste from renovations.

(i) Waste from renovation activities must be contained to prevent releases of dust and debris before the waste is removed from the work area for storage or disposal. If a chute is used to remove waste from the work area, it must be covered.

(ii) At the conclusion of each work day and at the conclusion of the renovation, waste that has been collected from renovation activities must be stored under containment, in an enclosure, or behind a barrier that prevents release of dust and debris out of the work area and prevents access to dust and debris.

(iii) When the firm transports waste from renovation activities, the firm must contain the waste to prevent release of dust and debris.

(e) Cleaning the work area. After the renovation has been completed, the firm must clean the work area until no dust, debris or residue remains.

(i) Interior and exterior renovations. The firm must:

(A) Collect all paint chips and debris and, without dispersing any of it, seal this material in a heavy-duty bag.

(B) Remove the protective sheeting. Mist the sheeting before folding it, fold the dirty side inward, and either tape shut to seal or seal in heavy-duty bags. Sheeting used to isolate contaminated rooms from noncontaminated rooms must remain in place until after the cleaning and removal of other sheeting. Dispose of the sheeting as waste

(ii) Additional cleaning for interior renovations. The firm must clean all objects and surfaces in the work area and within two feet of the work area in the following manner, cleaning from higher to lower:

(A) Walls. Clean walls starting at the ceiling and working down to the floor by either vacuuming with a HEPA vacuum or wiping with a damp cloth.

(B) Remaining surfaces. Thoroughly vacuum all remaining surfaces and objects in the work area, including furniture and fixtures, with a HEPA vacuum. The HEPA vacuum must be equipped with a beater bar when vacuuming carpets and rugs.

(C) Wipe all remaining surfaces and objects in the work area, except for carpeted or upholstered surfaces, with a damp cloth. Mop uncarpeted floors thoroughly, using a mopping method that keeps the wash water separate from the rinse water, such as the two-bucket mopping method, or using a wet mopping system.

(2) Standards for postrenovation cleaning verification.

(a) Interiors.

(i) A certified renovator must perform a visual inspection to determine whether dust, debris, or residue is still present. If dust, debris, or residue is present, these conditions must be removed by recleaning and another visual inspection must be performed.

(ii) After a successful visual inspection, a certified renovator must:

(A) Verify that each windowsill in the work area has been adequately cleaned, using the following procedure:

(I) Wipe the windowsill with a wet disposable cleaning cloth that is damp to the touch. If the cloth matches or is lighter than the cleaning verification card, the windowsill has been adequately cleaned.

(II) If the cloth does not match and is darker than the cleaning verification card, reclean the windowsill as directed in this section, then either use a new cloth or fold the used cloth in such a way that an unused surface is exposed, and wipe the surface again. If the cloth matches or is lighter than the cleaning verification card, that windowsill has been adequately cleaned.

(III) If the cloth does not match and is darker than the cleaning verification card, wait for one hour or until the surface has dried completely, whichever is longer.

(IV) After waiting for the windowsill to dry, wipe the windowsill with a dry disposable cleaning cloth. After this wipe, the windowsill has been adequately cleaned.

(B) Wipe uncarpeted floors and countertops within the work area with a wet disposable cleaning cloth. Floors must be wiped using an application device with a long handle and a head to which the cloth is attached. The cloth must remain damp at all times while it is being used to wipe the surface for postrenovation cleaning verification. If the surface within the work area is greater than forty square feet, the surface within the work area must be divided into roughly equal sections that are each less than forty square feet. Wipe each such section separately with a new wet disposable cleaning cloth. If the cloth used to wipe each section of the surface within the work area matches the cleaning verification card, the surface has been adequately cleaned.

(I) If the cloth used to wipe a particular surface section does not match the cleaning verification card, reclean that section of the surface as directed in this section, then use a new wet disposable cleaning cloth to wipe that section again. If the cloth matches the cleaning verification card, that section of the surface has been adequately cleaned.

(II) If the cloth used to wipe a particular surface section does not match the cleaning verification card after the surface has been recleaned, wait for one hour or until the entire surface within the work area has dried completely, whichever is longer.

(III) After waiting for the entire surface within the work area to dry, wipe each section of the surface that has not yet achieved postrenovation cleaning verification with a dry disposable cleaning cloth. After this wipe, that section of the surface has been adequately cleaned.

(iii) When the work area passes the postrenovation cleaning verification, remove the warning signs.

(b) Exteriors. A certified renovator must perform a visual inspection to determine whether dust, debris or residue is still present on surfaces in and below the work area, including windowsills and the ground. If dust, debris or residue is present, these conditions must be eliminated and another visual inspection must be performed. When the area passes the visual inspection, remove the warning signs.

(3) Optional dust clearance testing. Cleaning verification need not be performed if the contract between the renovation firm and the person contracting for the renovation or another federal, state, territorial, tribal or local law requires dust wipe sampling.

(a) The renovation firm to perform dust clearance sampling at the conclusion of a renovation covered by this section.

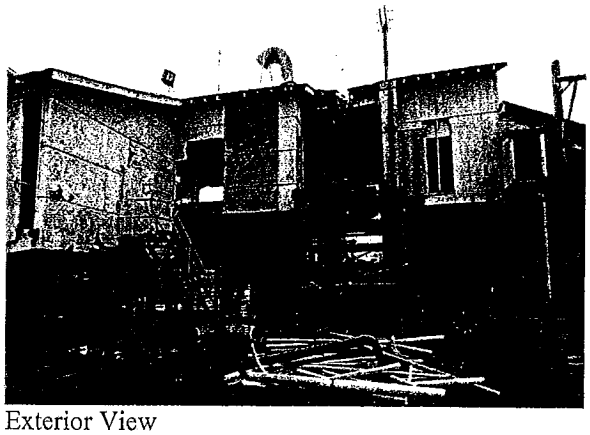
(b) The dust clearance samples are required to be collected by a certified inspector, risk assessor, or dust sampling technician.

(c) The renovation firm is required to reclean the work area until the dust clearance sample results are below the clearance standards in WAC 365-230-020 or any applicable local standard.

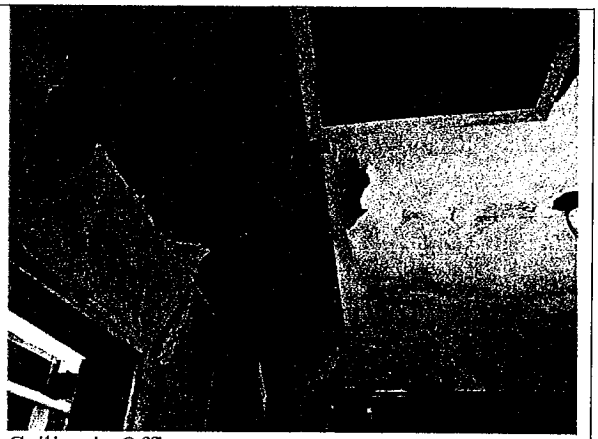
(4) Activities conducted after postrenovation cleaning verification. Activities that do not disturb paint such as applying paint to walls that have already been prepared, are not regulated by this subpart if they are conducted after postrenovation cleaning verification has been performed.

[Statutory Authority: RCW 70.103.030. WSR 14-03-104, § 365-230-330, filed 1/20/14, effective 2/20/14. Statutory Authority: RCW 70.103.10 [70.103.010], 70.103.20 [70.103.020], 70.103.30 [70.103.030], 70.103.40 [70.103.040], 70.103.50 [70.103.050], 70.10.80 [70.103.080], and 70.103.90 [70.103.090]. WSR 11-07-067, § 365-230-330, filed 3/21/11, effective 4/21/11.]

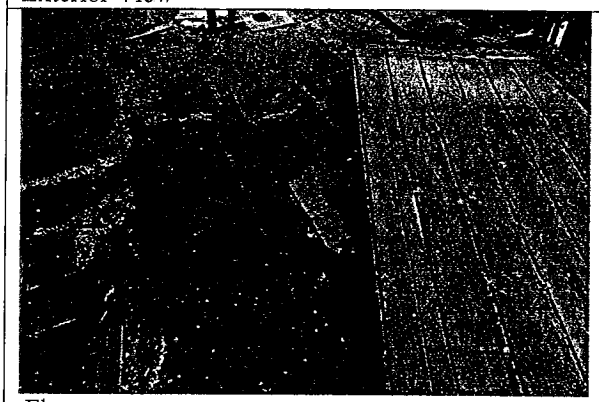
PHOTOS:



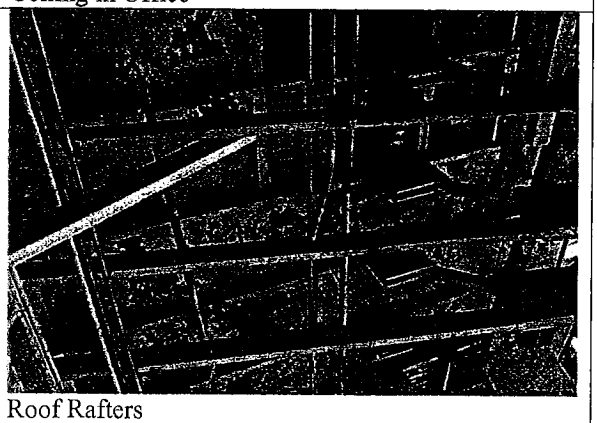
Exterior View



Ceiling in Office



Floor



Roof Rafters

AHERA

BUILDING INSPECTOR/PROJECT DESIGNER CERTIFICATE

This is to certify that

Dean Wilson

has attended and satisfactorily completed all requirements to maintain accreditation as an AHERA Building Inspector and Project Designer in accordance with the Toxic Substance Control Act Title (Section 206) and 40 CFR 763.

Accreditation No. BI/PD-NES-01-17-17-02

Course Date: January 17th, 2017
Valid through: January 17th, 2018

Donna McNeal

NOW Environmental Services, Inc.
34004 – 9th Avenue South, Suite # 12
Federal Way, Washington 98003
(253) 927-5233

APPENDIX C

TOPOGRAPHIC SURVEY

TOPOGRAPHIC SURVEY

IN SECTIONS 9 & 10, TOWNSHIP 17 NORTH, RANGE 9 WEST OF THE WILLAMETTE MERIDIAN.

STRUCTURE TABLE

CB 1443
RIM EL = 12.43'
NE 4" PVC IE = 11.53'

CB 1505
RIM EL = 11.62'
W 8" PVC IE = 10.07'
1/2 PLUGGED

CB 1579
RIM EL = 11.92'
SE 6" TILE-CONC IE = 11.07'

CB 1612
RIM EL = 11.83'
W 12" CMP IE = 9.73'
SEV. RSTD

CB 1655
RIM EL = 10.64'
N 12" CMP IE = 8.39'

CB 2380
BURIED UNDER ASPHALT

CB 4068
RIM EL = 11.24'
NE 12" CMP IE = 8.09'
WSW 8" CMP IE = 8.28'
TOP CB GRATE TO LID = 1.82'

CB 4069
RIM EL = 11.90'
NW 8" CMP IE = 9.49'
ENE 8" CMP IE = 9.54'
BOTH SEV. RSTD
MEASURE CB GRATE TO TOP LID = 0.94'

CB 4117
LID EL = 11.78'
MD TO RIM = 0.83'

CB 4117 A
RIM EL = 10.95'
N 8" CMP IE = 8.67'
E 8" CMP IE = 8.30'
W 8" CMP IE = 8.37'
CB GRATE EL = 9.96'
N = 1/2 PLGD

CB 4117 B
RIM EL = 10.95'
N 12" CMP IE = 8.76'
E 8" CMP IE = 8.31'
W 12" CMP IE = 8.50'
CB GRATE EL = 10.53'

CB 4128
RIM EL = 10.99'
NE 18" CMP IE = 6.97'
SW 18" CMP IE = N/A
BOTH SEV. RSTD

CB 4135
RIM EL = 10.00'
E 6" PVC IE = 8.52'

CB 4171
RIM EL = 11.84'
NE 6" PVC IE = 10.42'
SW 8" CMP IE = 10.39'

CB 4238
RIM EL = 10.01'
TOW EL = 7.23'
W/ GATE VALVE
FULL WATER

CB 4248
RIM EL = 8.87'
N 4" PVC IE = 7.77'
SE 6" PVC IE = 7.69'
W 6" PVC IE = 7.71'

CB 4282
RIM EL = 9.68'
N 6" PVC IE = 7.24'
W 6" PVC IE = 7.25'

CB 4407
RIM EL = 12.16'
E 10" PVC IE = 10.61'

CB 4408
RIM EL = 11.94'
N 10" PVC IE = 10.14'
S 12" CMP IE = 10.09'

CB 4664
RIM EL = 10.68'
N 8" CMP IE = 8.08'
S 8" CMP IE = 8.03'
W/ GATE VALVE

CB 4720
RIM EL = 10.28'
N 6" PVC IE = 9.06'
S 8" CMP IE = 9.10'
TOW EL = 8.93'

CB 4721
RIM EL = 10.18'
E 6" PVC IE = 8.98'
S 6" PVC IE = 8.98'
W 6" PVC IE = 8.98'
TOW EL = 9.20'

CB 4722
RIM EL = 9.95'
E 6" PVC IE = 8.85'
W 6" PVC IE = 8.90'
TOW EL = 9.15'

CB 4744
RIM EL = 10.44'
E 6" PVC IE = 9.29'

CB 4745
RIM EL = 9.86'
E 6" PVC IE = 8.71'
W 6" PVC IE = 8.71'
TOW EL = 9.16'

CB 4746
RIM EL = 9.82'
SE 6" PVC IE = 8.62'
W 6" PVC IE = 8.77'
TOW EL = 9.07'

CB 4747
RIM EL = 9.62'
W 6" PVC IE = 8.42'
TOW EL = 9.11'

CB 4748
RIM EL = 9.09
E 12" ADS IE = 6.25'
TOW EL = 6.49'

OWS 4753
LIDS EL = 11.13'
FULL WATER

CB 4754
RIM EL = 10.79'
S 8" DI IE = 8.33'

CB 4755
RIM EL = 10.10'
NE 18" CMP IE = 5.95'
SW 18" CMP IE = 6.00'

CB 4769
RIM EL = 10.30'
NE 6" PVC IE = 7.89'
NE 18" CMP IE = 7.00'
SW 18" CMP IE = 6.98'

CB 4770
RIM EL = 10.76'
NE 18" CMP IE = 6.87'
SW 18" CMP IE = 6.90'

CB 4771
RIM EL = 10.01'
NE-SW 18" CMP IE = 7.11'
WOODEN STRC.

CB 4861
RIM EL = 11.35'
SE 6" PVC IE = 9.38'

CB 5063
RIM EL = 10.95'
NW 12" PVC IE = 9.19'
SE 10" CMP IE = 9.37'

CB 5394
RIM EL = 11.17'
S 6" PVC IE = 9.47'

CB 5440
RIM EL = 11.64'
S 10" CMP IE = 10.54'
W 8" PVC IE = 10.63'

CB 5452
RIM EL = 12.22'
NE 18" CMP IE = 10.56'

CB 5453
RIM EL = 12.37'
NE 18" CMP IE = 9.91'
SE 8" DI IE = 10.48'
SW 18" CMP IE = 9.96'

CB 5454
RIM EL = 12.36'
W 8" DI IE = 10.38'
E 8" CMP IE = 9.86'
TOW ABOVE TOP-8" CMP

CB 5583
RIM EL = 11.86'
NE 8" CMP IE = 10.83'

CB 5639
RIM EL = 11.61'
E 8" PVC IE = 10.59'

CB 5658
RIM EL = 12.92'
NW 6" PVC IE = 11.47'
1.5" IRON PIPE RUNNING THROUGH CENTER OF 6"

CB 5725
RIM EL = 12.11'
N 8" PVC IE = 10.23'

CB 5900
RIM EL = 10.81'
S 4" CONC. IE = 9.94'

CB 5901
RIM EL = 10.85'
N 4" CONC IE = 9.98'
S 4" CONC IE = 9.98'

CB 5902
RIM EL = 10.98'
N 4" CONC IE = 9.78'
W 6" CONC IE = 9.21'

CB 5913
RIM EL = 9.17'
S 8" CONC IE = 7.18'

CB 5929
RIM EL = 10.89'
E 8" CONC IE = 8.94'

CB 6388
RIM EL = 10.16'
NNW 8" CMP IE = 8.21'

CB 6389
RIM EL = 9.74'
N 6" PVC IE = 7.62'
NE 18" CMP IE = 5.29'
SW 18" CMP IE = 5.38'

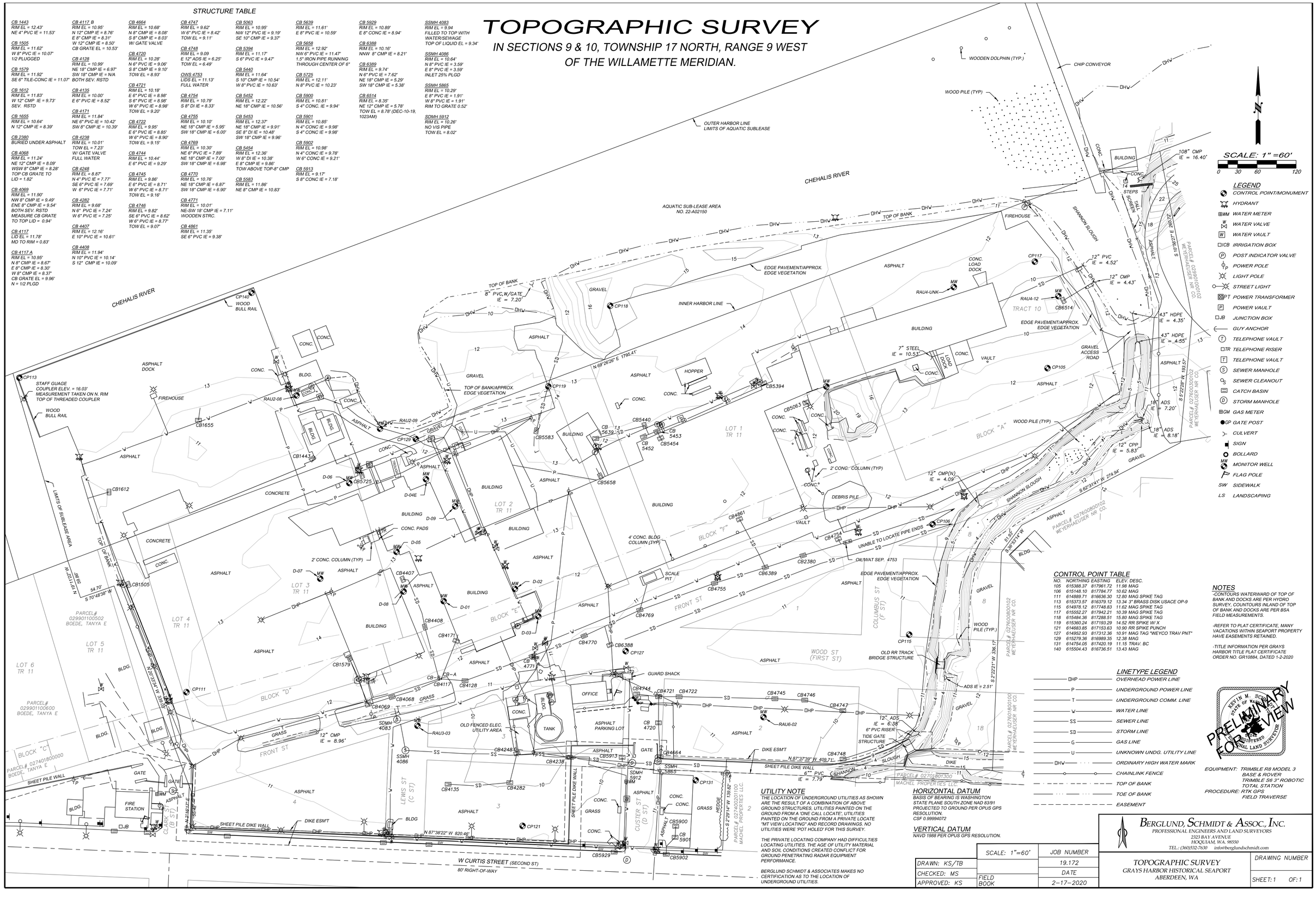
CB 6514
RIM EL = 8.35'
NE 12" CMP IE = 5.78'
TOW EL = 8.78' (DEC-10-19, 1023AM)

SSMH 4083
RIM EL = 9.94
FILLED TO TOP WITH WATER/SEWAGE
TOP OF LIQUID EL = 9.34'

SSMH 4086
RIM EL = 10.64'
N 8" PVC IE = 3.59'
E 8" PVC IE = 3.59'
INLET 25% PLGD

SSMH 5865
RIM EL = 10.29'
E 8" PVC IE = 1.91'
W 8" PVC IE = 1.91'
RIM TO GRATE 0.52'

SDMH 5912
RIM EL = 10.26'
NO VIS PIPE
TOW EL = 8.02'



LEGEND

- CONTROL POINT/MONUMENT
- HYDRANT
- WM WATER METER
- W WATER VALVE
- W WATER VAULT
- ICB IRRIGATION BOX
- P POST INDICATOR VALVE
- POWER POLE
- LIGHT POLE
- STREET LIGHT
- PT POWER TRANSFORMER
- P POWER VAULT
- JB JUNCTION BOX
- GUY ANCHOR
- T TELEPHONE VAULT
- TR TELEPHONE RISER
- T TELEPHONE VAULT
- S SEWER MANHOLE
- SEWER CLEANOUT
- CATCH BASIN
- D STORM MANHOLE
- GM GAS METER
- GP GATE POST
- CULVERT
- SIGN
- BOLLARD
- MW MONITOR WELL
- FLAG POLE
- SW SIDEWALK
- LS LANDSCAPING

CONTROL POINT TABLE

NO.	NORTHING	EASTING	ELEV. DESC.
105	615388.37	817981.72	11.98 MAG
106	615148.10	817784.77	10.62 MAG
111	614889.71	816636.30	12.80 MAG SPIKE TAG
113	615373.57	816379.12	13.34 3" BRASS DISK USACE OP-9
115	614978.12	817748.83	11.62 MAG SPIKE TAG
117	615552.27	817942.21	10.39 MAG SPIKE TAG
118	615484.36	817288.51	15.80 MAG SPIKE TAG
119	615360.24	817183.29	14.52 RR SPIKE W/ X
121	614683.85	817153.63	10.90 RR SPIKE PUNCH
127	614952.93	817312.36	10.91 MAG TAG "WEYCO TRAV PNT"
129	615279.36	816989.35	12.38 MAG
131	614754.05	817420.19	11.15 TRAV. BC
140	615504.43	816736.51	13.43 MAG

NOTES

-CONTOURS WATERWARD OF TOP OF BANK AND DOCKS ARE PER HYDRO SURVEY, COUNTOURS INLAND OF TOP OF BANK AND DOCKS ARE PER BSA FIELD MEASUREMENTS.

-REFER TO PLAT CERTIFICATE, MANY VACATIONS WITHIN SEAPORT PROPERTY HAVE EASEMENTS RETAINED.

-TITLE INFORMATION PER GRAYS HARBOR TITLE PLAT CERTIFICATE ORDER NO. GR10884, DATED 1-2-2020

LINETYPE LEGEND

- DHP OVERHEAD POWER LINE
- P UNDERGROUND POWER LINE
- T UNDERGROUND COMM. LINE
- W WATER LINE
- SS SEWER LINE
- SD STORM LINE
- G GAS LINE
- U UNKNOWN UNDG. UTILITY LINE
- DHW ORDINARY HIGH WATER MARK
- CHAINLINK FENCE
- TOP OF BANK
- TOE OF BANK
- EASEMENT

KEVIN M. SCHMIDT — STATE OF WASHINGTON — REGISTERED PROFESSIONAL LAND SURVEYOR

PRELIMINARY FOR REVIEW

EQUIPMENT: TRIMBLE R8 MODEL 3 BASE & ROVER
TRIMBLE S6 3" ROBOTIC TOTAL STATION
PROCEDURE: RTK GPS FIELD TRAVERSE

UTILITY NOTE

THE LOCATION OF UNDERGROUND UTILITIES AS SHOWN ARE THE RESULT OF A COMBINATION OF ABOVE GROUND STRUCTURES, UTILITIES PAINTED ON THE GROUND FROM A 'ONE CALL LOCATE', UTILITIES PAINTED ON THE GROUND FROM A PRIVATE LOCATE "MT VIEW LOCATING" AND RECORD DRAWINGS. NO UTILITIES WERE 'POT HOLED' FOR THIS SURVEY.

THE PRIVATE LOCATING COMPANY HAD DIFFICULTIES LOCATING UTILITIES. THE AGE OF UTILITY MATERIAL AND SOIL CONDITIONS CREATED CONFLICT FOR GROUND PENETRATING RADAR EQUIPMENT PERFORMANCE.

BERGLUND SCHMIDT & ASSOCIATES MAKES NO CERTIFICATION AS TO THE LOCATION OF UNDERGROUND UTILITIES.

HORIZONTAL DATUM

BASIS OF BEARING IS WASHINGTON STATE PLANE SOUTH ZONE NAD 83/91 PROJECTED TO GROUND PER OPUS GPS RESOLUTION.
CSF 0.99994072

VERTICAL DATUM

NAVD 1988 PER OPUS GPS RESOLUTION.

DRAWN: KS/TB	SCALE: 1"=60'	JOB NUMBER
CHECKED: MS		19.172
APPROVED: KS	FIELD BOOK	DATE
		2-17-2020

BERGLUND, SCHMIDT & ASSOC., INC.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
2323 BAY AVENUE
HOQUIAM, WA. 98550
TEL.: (360)532-7630 info@berglundschmidt.com

TOPOGRAPHIC SURVEY
GRAYS HARBOR HISTORICAL SEAPORT
ABERDEEN, WA

DRAWING NUMBER

SHEET: 1 OF: 1

APPENDIX D

PRELIMINARY GEOTECHNICAL REPORT

PRELIMINARY GEOTECHNICAL REPORT
GRAYS HARBOR HISTORICAL SEAPORT
SEAPORT LANDING SITE

500 N Custer Street
Aberdeen, Washington

ZGA Project No. 2279.00
February 10, 2020

Prepared for:
Grays Harbor Historical Seaport



Prepared by:

ZipperGeo
Geoprofessional Consultants

ZipperGeo
Geoprofessional Consultants

ZGA Project No. 2279.00
February 10, 2020

Grays Harbor Historical Seaport
PO Box 2019
Aberdeen, Washington 98520

Attention: Ms. Brandi Bednarik

Subject: Preliminary Geotechnical Report
Grays Harbor Historical Seaport – Seaport Landing Site
500 N Custer Street
Aberdeen, Washington

Dear Ms. Bednarik:

In accordance with your request and written authorization, Zipper Geo Associates, LLC (ZGA) has completed a Preliminary Geotechnical Report for the Grays Harbor Historical Seaport located in Aberdeen, Washington. Our work was completed in general accordance with our proposal dated September 10, 2019. Authorization to proceed with our work was provided by Grays Harbor Historical Seaport through signature of our proposal on November 4, 2019. We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Zipper Geo Associates, LLC

Robert A. Ross, P.E.
Principal Geotechnical Engineer

David C. Williams, LG, LEG
Principal Geologist

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PRELIMINARY GEOTECHNICAL REPORT
GRAYS HARBOR HISTORICAL SEAPORT – SEAPORT LANDING SITE
500 N CUSTER STREET
ABERDEEN, WASHINGTON
ZGA Project No. 2279.00
February 10, 2020

1.0 INTRODUCTION

The Grays Harbor Historical Seaport Authority (GHHSA) and the City of Aberdeen, Washington (the City) are leading an effort to redevelop Aberdeen's South Waterfront. The South Waterfront consists of approximately 60 acres of waterfront property located along the south shoreline of the Chehalis River in Aberdeen, Washington. The South Waterfront includes three separate sites; the City Wetland site, the Pakonen Boatyard site, and the Seaport Landing site. The Seaport Landing site, owned by the GHHSA is the focus of this report.

Historically, the Seaport Landing site (the Site) has been utilized for production of various lumber products dating back to the late 1800s. Based on our review of various documents available from the Washington State Department of Ecology (DOE), previous use at the site has resulted in various areas of environmental contamination that will require cleanup prior to redevelopment. Further characterization of regulated environmental contaminants at the Site is currently being performed by Maul Foster & Alongi, Inc. (MFA).

Work required to remediate contaminated areas at Site may involve excavation and dredging to remove contaminated soils. Additionally, redevelopment at the site may also include restoration of Shannon Slough, which borders the site to the east. Ultimately, site development may include new buildings. The purpose of this report is to provide preliminary geotechnical recommendations related to the following aspects of site redevelopment:

- Remedial excavation work to remove contaminated soils
- Restoration of Shannon Slough
- Future site development

This report is an instrument of service and the conclusions presented herein are in respect to the specific site and stated project understanding as described above. In the event that the scope of the project changes from our current understanding, the conclusions in this report may require modification. This report has been prepared with generally accepted geotechnical consulting practice for the exclusive use of Grays Harbor Historical Seaport organization and its agents, for specific application to the subject project site and stated purpose.

2.0 SITE DESCRIPTION

The Seaport Landing site consists of several parcels of land owned by GHHSA totaling approximately 23.6 acres (the Upland portion). The Site also includes about 14.5 acres of tidelands subleased by GHHSA from the Weyerhaeuser Timber Company (the Tidelands). Weyerhaeuser leases the tidelands from the

Washington State Department of Natural Resources. The Site is bordered to the north by the Chehalis River; to the south by developed commercial and residential properties; to the east by Shannon Slough and developed industrial property beyond; and to the west by the Pakonen Boatyard site, a former boat dock and marine services center. The Upland portion of the Site is currently developed with 14 main buildings and numerous outbuildings totaling approximately 148,000 square feet of building space. Outside of the building areas, the ground surface is generally covered with asphalt concrete pavement. The west end of the Tidelands area is currently developed with a pile-supported wharf structure and limited, small existing buildings. Within the Tidelands area, areas east of the wharf structure extending to Shannon Slough generally consist of tidal flats that were previously filled during historic uses of the site.

Topographically, the Upland portion of the site is generally flat to gently sloping and occurs at an elevation generally ranging from about 10 to 14 feet (NAVD 88 Datum). Two distinct topographical areas occur within the Tidelands area east of the Wharf area, the Pocket Beach and previously filled tidelands. The Pocket Beach area consists of a roughly 100 foot (east-west) by 200 foot (north-south) area directly east of the Wharf area. The Pocket Beach is a relatively flat, tidally influenced, low lying area flanked by steep slopes along the east, west, and south sides. The Pocket Beach area generally slopes gently downward to the Chehalis River from a high elevation of about 9 feet down to about elevation 6 feet. The steep slopes flanking the Pocket Beach have a total relief of about 4 to 5 feet. East of the Pocket Beach, the ground surface is generally level extending north to the banks of the Chehalis River.

Based on our review of a Bathymetry and Topographic figure presented in a 2019 MFA report, the channel bank of the Chehalis River north of the Site slopes downward from a high elevation of about 13 feet down to -33 feet. Slopes of the channel bank range from about 6 to 23 degrees. The steepest portion of the channel bank occurs both along the tidally influenced shoreline and with open water north of the Pocket Beach area between about elevation -8 to -32.

Shannon Slough traverses from south to north along the east side of the Site generally paralleling the east property boundary of the Site. Shannon Slough discharges to the Chehalis River. Based on our review of the 2019 MFA figure referenced above, the channel banks of Shannon Slough are inclined at about 16 to 18 degrees.

The surface water elevation of the Chehalis River in the vicinity of the Site is tidally influenced by Grays Harbor and the Pacific Ocean. The Pocket Beach and other beach areas within the Tidelands area are fully submerged during high tide (MFA, 2019). Based on our review of survey data provided by MFA, the estimated ordinary high water is at about elevation 9 feet (NAVD 88 Datum).

3.0 SUBSURFACE CONDITIONS

3.1 General

Our understanding of subsurface soil and groundwater conditions at the site is based on subsurface explorations completed at the site as part of our current services, review of information completed by others at the Site, review of published geologic mapping, and review of previous explorations completed by others at nearby sites. Specifically, the following sources were referenced in describing our understanding of subsurface soil and groundwater conditions at the Site:

- Soils and Foundations Investigation, Sanitary Sewer Systems Improvements for South Aberdeen prepared by Roger Lowe Associates (RLA, 1977)
- Army Corps of Engineers Report on the Chehalis River at South Aberdeen and Cosmopolis (ACOE, 1979)
- Subsurface Exploration and Geotechnical Engineering, Proposed Retail Store, Aberdeen, Washington prepared by RZA AGRA, Inc. (RZA, 1992)
- Excerpts from Army Corps of Engineers Chehalis River Foundation Exploration (ACOE, 1993)
- Geotechnical Baseline Report, SR520 Pontoon Construction Design-Build Project prepared by Landau Associates (Landau, 2009)
- Geotechnical Engineering Recommendations, SR 520 Pontoon Casting Facility, Aberdeen, Washington prepared by Shannon & Wilson, Inc. (S&W, 2011)
- Seaport Landing Site, Targeted Brownfields Assessment, Aberdeen, Washington prepared by Ecology and Environmental (EAE, 2018)
- In-Water Remedial Investigation Work Plan, Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site prepared by Maul Foster and Alongi (MFA, 2019)

3.2 Geology of the Chehalis River Flood Plain

The project Site is located within the Chehalis River flood plain. Geologic conditions within the Chehalis River flood plain consist primarily of recent alluvial sediments overlain by older Pliocene-age glacial recessional outwash deposits. During recent glaciation periods, sea level was lowered about 300 feet resulting in the Chehalis River cutting deep canyons in Pliocene sediments. As the glaciers receded, sea level rose up the canyon as far as present day Montesano. The sea level rise resulted in deposition of Chehalis River alluvial sediments which filled the deep canyons (ACOE, 1979).

Early in the process of alluvial filling, relatively thin transitional alluvial stream and river deposits of sand, silt, and gravel were deposited over the glacial outwash sediments. As sea levels continued to rise, marsh sediments consisting of silt and sand with lenses of abundant organic materials began to accumulate over the transitional deposits. Additional rise in sea levels resulted in the area became submerged with deeper water resulting in still water deposits of highly plastic silts and clays with organic silts and zones of woody debris (ACOE, 1979) (Landau, 2009).

The Pliocene recessional outwash deposits which underlie the recent alluvial deposits consist primarily of competent, medium dense to very dense sandy gravel to gravelly sand. The thickness of these Pliocene deposits at the site is unknown. The Pliocene deposits are underlain by siltstone bedrock.

3.3 Site Specific Soil Conditions

To characterize subsurface soil conditions at the Site, we completed 9 geotechnical test borings at the Site. The locations of our test borings are shown on the attached Figure 1, Site and Exploration Plan. The explorations were completed to a depth of about 26 feet below the existing ground surface (BGS). A discussion of methods used to complete the borings as well as detailed boring logs are provided in Appendix A.

In addition to completing test borings, we reviewed information presented in reports completed by others. Specific reports we reviewed are summarized in Section 3.1 above. The following sections present our interpretation of the geologic sequence at the Site based on our test borings and information completed by others. In addition, an conceptual geologic cross section of the site is provided in Figure 2.

3.3.1 Fill

Prior to development, the site generally consisted of tidelands. As development progressed, the tidelands were filled. In the early stages of site development, mill structures were constructed overwater on piers that extended several hundred feet from the original Chehalis River shoreline. As development progressed, land beneath the piers was filled bringing the site to current grades (EAE, 2018). The listed references in Section 3.1 generally describe the fill materials as lumber, planks, sawdust, refuse, earth, and rock. MFA (2019) describes, in detail, shoreline modifications and historical fill events, and the reader is referred to MFA (2019) for a detailed description of those events.

Soils interpreted to be fill were encountered in all of our explorations completed at the Site directly below the ground surface. The thickest fill deposits were found in borings completed in the upland portion of the site including RAU2-GA3, RAU3-GA1, RAU3-GA2, RAU7-GA1, and RAU7-GA2. A generalized summary of the composition and thickness of soils interpreted to be fill in these borings is provided below.

- **RAU3-GA1 & RAU2-GA3:** Encountered 9- to 18-inches of asphalt concrete pavement over 4- to 5-feet of gravelly, silty sand, over woody debris extending to estimated depths of about 17 to 20 feet below the exiting ground surface.

- **RAU3-GA2:** Encountered 6 inches of asphalt concrete pavement over sand and gravel with a variable silt content extending to an estimated depth of about 15 feet below the existing ground surface.

- **RAU2-GA1 & RAU2-GA2 (Pocket Beach):** Encountered 3 feet of sawdust fill in RAU2-GA1 and 9 feet of sawdust and woody debris fill in RAU2-GA2.

- **RAU7-GA1 & RAU7-GA2:** Encountered 6 to 14 inches of asphalt concrete pavement underlain by sand and gravel fill with a variable silt content extending to about 17 feet below the existing ground surface. Woody debris was encountered near the interpreted bottom of fill in boring RAU7-GA2.

- **RAU6-GA1 & RAU6-GA2:** Encountered 2.5 to 3 feet of sand and gravel fill. These borings were completed at what appears to be near the old Chehalis River shoreline as indicated by the relatively thin fills encountered.

3.3.2 Recent Alluvium

Below the fill, all of our borings encountered recent alluvium deposits consisting of very soft to soft organic silt and silt with a variable sand and organic/woody debris content. In some of the borings, the alluvium silts were underlain by very loose sands with a variable silt content near the bottom of the boring. All of our borings were completed at about 26 feet BGS within what we interpret to be recent alluvium deposits.

Four borings completed in 1986 are referenced in ACOE (1993), 86-PA-10, -11, -12, and -13. These borings appear to have been completed in the upland portions of the site, and their estimated locations are shown on the attached Figure 1. The ACOE (1993) borings depict the very soft to soft organic silt transitioning to loose to medium dense silty sand to sandy silt at a depth of about 30 to 35 feet BGS. Boring 86-PA-9 from ACOE (1993) was completed about 1,000 feet southwest of the Site and appears to be the only previous boring that penetrated the recent alluvium and encountered Pliocene recessional outwash deposits. Boring 86-PA-9 indicates the recent alluvium transitions to recessional outwash deposits at about 115 to 120 feet BGS.

Landau Associates completed a Geotechnical Baseline Report in support of the SR520 Pontoon Construction project (Landau, 2009) that contains a large body of soils data and a thorough characterization of soil deposits in the area. The SR520 Pontoon project site is located about 1-¾ miles southwest of the Seaport Landing site. Landau (2009) generally characterizes the recent alluvial deposits as about 30 to 40 feet of highly plastic, very soft to soft silts underlain by about 50 to 60 feet of low plasticity sandy silts and silty sands resulting in an overall recent alluvium thickness of about 80 to 100 feet.

3.3.3 Pliocene Recessional Outwash

Based on information presented in Landau (2009) and ACOE (1993), the recent alluvial deposits at the Site appear to be underlain by Pliocene recessional outwash deposits. Both referenced reports indicate the

recessional outwash deposits generally consist of dense to very dense sand and gravel. As mentioned above, boring 86-PA-9 from ACOE (1993) indicates the recessional outwash unit begins at about 115 to 120 feet below existing site grade, or an elevation of about -105 to -110 feet. Information in Landau (2009) indicates the recessional outwash top exists at about elevation -90 to -110 feet at the SR520 Pontoon Site, relatively similar to what boring 86-PA-9 indicates.

3.4 Groundwater Conditions

As part of our services, we characterized expected groundwater elevations at the site through observation of our borings as well as groundwater data from the references cited in Section 3.1 above. In our borings completed within the Pocket Beach area, we observed groundwater generally at the existing ground surface. In our borings completed within the upland areas of the site, we observed groundwater at depths ranging from about 4 to 6 feet below existing site grade.

References cited in Section 3.1 generally indicated similar groundwater elevations as those encountered in our borings. The references further indicate that groundwater flow direction is towards the northwest, and that groundwater elevations at the Site may be tidally influenced.

S&W (2011) provides a brief description of hydrogeologic conditions at the SR 520 Pontoon site. S&W states the SR 520 site is underlain by at least three aquifers including a shallow perched, upper, and lower aquifer. The perched aquifer consist of a thin zone of saturated soil within fill soils that is perched atop the underlying, low permeability high plasticity alluvial silts. The upper aquifer is describe as a thin saturated zone within with high plasticity alluvial silts, and the lower aquifer is described as within the lower plasticity silty sands to sandy alluvial silts below the higher plasticity alluvial silts and above the Pliocene recessional outwash deposits.

3.5 Soil Physical Properties

Our services included limited laboratory testing on samples obtained from our explorations including moisture content and Atterberg Limits testing. Results of moisture content testing are presented on the boring logs provided in Appendix A. In addition to our laboratory testing, Landau (2009) and S&W (2011) provides a significant body of physical property laboratory testing data on soils similar to those expected at the Site. A majority of the testing was completed as related to Landau (2009). S&W (2011) presented table summaries of Landau's data along with limited testing completed by them. Figures B-1 through B-5 provided in Appendix B present summary graphs of laboratory testing data provided in Landau (2009), S&W (2011), and results from our testing where applicable. Data summarized include Atterberg Limits, liquidity index, moisture content, wet density, and void ratio. The laboratory testing data shown in these figures is limited to those tests completed on samples within the upper 15 to 20 feet BGS and focuses mainly on the high plasticity alluvial silts.

S&W (2011) completed dewatering analysis in support of evaluating the feasibility of temporary and permanent dewatering at the SR 520 Pontoon site. S&W based their analysis on pumping tests within the upper and lower aquifers as well as estimated parameters for other soil layers. A summary of data used in S&W (2011) in order of increasing depth BGS is provided below.

Soil Type	Horiz. Hydraulic Conductivity (ft/day)
Mixed fill	0.3
Wood waste fill	130
Alluvial high plasticity silts	0.03
Alluvial silty sands to sandy silts	6 to 15

Landau (2009) completed various strength tests including unconsolidated undrained (UU), consolidated undrained triaxial (CU), and direct simple shear (DSS) tests. S&W (2011) used data from Landau (2009) to complete an approximate Stress History and Normalized Soil Engineering Parameter (SHANSEP) analysis. Based on the SHANSEP analysis, S&W (2011) reported an estimated relationship between undrained shear strength and effective vertical stress for the very soft to soft, highly plastic alluvial silts as follows:

- $S_U/p' = 0.22\ OCR^{0.8}$,
  where S_U = undrained shear strength, p' = in situ vertical effective stress, and OCR = over-consolidation ratio

S&W estimated OCRs within the very soft to soft, highly plastic alluvial silts ranging from about 1.33 to 4 with an average of about 2.15. However, the SR520 site appears to have a thicker section of fill soils overlying the alluvial silts as compared to the Seaport Landing site. Thicker fill atop the alluvial silts would result in higher OCRs. For purposes of our feasibility-level analysis, we have assumed an OCR of 2.0.

S&W (2011) summarized consolidation tests completed as part of Landau (2009). S&W (2011) reported compression indices ($C_{C\varepsilon}$) within the highly plastic alluvial silts ranging from 0.14 to 0.22 with an average of about 0.20.

For volume estimates of dredged material, the actual volume of dredged material will exceed the in-place neat volume quantity. Typical bulk factors for soils expected at the site range from 20 to 40 percent. Technical guidelines for environmental dredging published by the EPA suggest using a bulking factor of 50 percent for feasibility-level estimates.

Limited grain size analyses on the highly plastic alluvial silts were reported in S&W (2011). S&W (2011) reported results of three grain size analysis tests on the highly plastic alluvial silts. The results indicate a fines content (silt and clay sized particles) of about 92 to 98 percent. Of those three tests, one included a

hydrometer test. The hydrometer test indicated a clay size particle (less than 0.002mm) content of about 16 percent and a silt size particle (0.08mm to 0.002mm) of about 76 percent.

4.0 PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

4.1 General

Our scope of work included providing preliminary geotechnical conclusions and recommendations for proposed future work at the Site including the following:

- Remedial cleanup work to remove contaminated soils within the Pocket Beach area
- Remedial cleanup work to remove contaminated soils within the upland portions of the Site
- Shannon Slough channel bank restoration
- Future development of the Site

The following sections present our preliminary conclusions and recommendations for the above-listed factions of future work.

4.2 Pocket Beach Remedial Cleanup Work

4.2.1 Understanding of Proposed Work

Based on our conversations with MFA, we understand a “dredge and cap” approach is currently being considered to cleanup environmental contaminants within the Pocket Beach area. The dredge and cap approach would consist of excavation to remove contaminated soils, and then backfilling the excavation to restore the area. Due to the location of work and expected debris, we have assumed that dredging will be performed using mechanical methods versus hydraulic methods. Whether or not the work will be completed as a “dry excavation” using conventional excavation methods operating within dewatered contaminants using sheet pile enclosures or cofferdams has yet to be determined. We understand the maximum anticipated excavation depth is approximately 10 feet below existing site grade. Depending on requirements for contaminate release control, sediment resuspension control, and physical constraints, the work may require temporary sheet pile shoring and dewatering. The following sections present our preliminary geotechnical conclusions and recommendations for expected geotechnical aspects of the work within the Pocket Beach area.

4.2.2 Slope Stability

Many aspects of the work may require slope stability analysis including dredged/excavated slope stability, global stability of sheet pile/cofferdam structures, and stability of dredge spoil stockpiles. Various load cases will also need to be analyzed to address varying water levels due to tidal fluctuations, drained versus undrained conditions, surcharge conditions, and other cases that cannot be identified until design of the remedial work is advanced. However, for preliminary planning purposes and feasibility-level analysis, we

completed slope stability analyses in order to evaluate unsupported dredged/excavated slope stability. We completed our slope stability analyses using the computer program Slide developed by Rocscience. Our analyses focused on the expected worst case scenario for stability using undrained strength parameters. For undrained shear strength, we used the relationship described by in S&W (2011) as discussed in Section 3.5 above.

For unsupported, temporary dredged slopes, we assumed a maximum slope height of 10 feet and a high water elevation of 10 feet (NAVD 88). We further assumed the excavation would be completed without dewatering and would extend below the water surface. The results of our slope stability analysis indicate a 1.34 factor of safety could be achieved by limiting the dredge slope angle to 3H:1V. The Washington State Department of Transportation's (WSDOT) Geotechnical Design Manual (GDM) specifies a minimum safety factor of 1.25 for temporary slope stability.

4.2.3 Temporary Shoring

If the preferred approach to cleanup in the Pocket Beach area consists of dry excavation methods, temporary, water-tight shoring will be required. In order to create water-tight shoring, to limit groundwater inflow into the excavation, and prevent bottom heave of the excavated surface, sheet piles may have to extend a significant depth below the excavation line. For feasibility analysis purposes, we estimate sheet pile cofferdam walls with an exposed maximum height of about 10 feet would need to extend about 25 to 40 feet below the excavation line at the bottom of the walls in order provide groundwater cutoff and prevent bottom heave. For feasibility analysis, Figure 3 provides preliminary lateral earth pressure diagrams for conceptual design of sheet pile walls. Figure 3 assumes shoring would be cantilever sheet pile type and active earth pressures.

4.2.4 Temporary Dewatering

If the preferred approach to cleanup in the Pocket Beach area consists of dry excavation methods, temporary construction dewatering will be required. Preliminary dewatering analysis is beyond the scope of this report. However, information presented in Section 3.5 could be used for feasibility level analysis by a qualified dewatering designer.

Temporarily lowering the groundwater table within shored remedial excavations will lower the groundwater table outside of excavations. Lowering the groundwater table through construction dewatering will generate a risk of dewatering-induced ground settlement. The lateral extents and magnitude of settlement depend on the excavation depth and level of groundwater drawdown required to complete the excavation.

4.3 Upland Remedial Cleanup Work

4.3.1 Understanding of Proposed Work

Work at the Site may include remedial cleanup activities in the upland areas of the site. For purposes of this report, we have assumed that this work would be completed using conventional excavation methods extending to a maximum anticipated depth of 15 feet below existing site grade.

4.3.2 Excavation and Shoring Methods

Based on our review of 1997 report completed by EMCON (Independent Remedial Action Report, Weyerhaeuser Aberdeen Sawmill, Aberdeen, Washington), remedial excavation work in the upland portions of the site has been attempted in the past with limited success due to heavy groundwater inflows and physical constraints such as the proximity of remedial excavations to existing buildings. According to EMCON (1997), a 1991 remedial excavation was planned to extend 14 to 15 feet below existing site grade just west of the grader building. The report indicated dewatering was attempted; however, after pumping 20,000 gallons of water at 650 gallons per minute only a 6 inch drawdown could be achieved. Dewatering efforts were abandoned and an excavation was completed below the groundwater table without dewatering to a depth of 14 feet below grade.

The primary geotechnical constraints with conventional excavation methods to remove contaminated soils in the upland portions of the site are groundwater inflow and excavation sidewall stability. As EMCON experienced in 1991, excavations below the groundwater table at the site will experience high groundwater inflows. Unsupported excavations may experience sidewall caving and soil inflow resulting in excavation quantities potentially significantly larger than neat line planned volumes. Additionally, unsupported excavations could result in the development of undetectable voids below the ground surface that create future problems such as sinkholes. In order to complete remedial excavations under the identified constraints, the following methods were identified for consideration:

- Open excavations with no dewatering or sidewall support
- Dry excavation using sheet pile shoring and dewatering
- Stabilized excavations using ground freezing techniques
- Slurry stabilized excavations

Site soil conditions will play a major role in the feasibility of above-listed method alternatives. Material encountered in remedial excavations will vary, and as such, the feasibility of excavation methods will vary. Soils within remedial excavations are expected to consist entirely of wood waste, loose sand and gravel fill with a variable wood waste content over wood waste, variable combinations of wood waste and sand and gravely fill, and very soft silts. Discussions regarding each method alternative are presented in the following sections.

4.3.2.1 Open Excavations with No Dewatering or Sidewall Support

The performance of open excavations with no dewatering or sidewall support will vary based on soil conditions. The following presents our opinion on open excavation performance by soil type.

- **Wood Waste**: The performance of excavations completed below the groundwater table in material composed largely of wood waste will vary based on the composition of wood waste encountered. Sawdust wood waste will likely run into open excavations creating quantities in excess of neat line volumes. Coarse wood waste consisting of material similar to wood chips may or may not run into open excavations. Nested continuous large woody debris such as logs and waste lumber may remain stable but could be difficult to excavate. Wood waste likely also contains soil within the matrix. The soil within the matrix will likely run into open excavations therefore possibly creating voids below the ground surface and outside excavation limits. Running matrix soils would also result in quantities in excess of neat line volumes.

- **Loose Sand and Gravel Fill with Variable Wood Waste:** Excavations below the groundwater table in loose sand and gravel fill will cave, ravel and run to the extent it will likely not be feasible to extend an excavation more than a few feet below the groundwater table.

If the open excavation method is desirable, we recommend the project team consider completing test excavations at the site to further evaluate feasibility. It should also be noted that individuals entering remedial excavations to collect confirmation samples would not be feasible with this method.

4.3.2.2 Dry Excavations with Sheet Piles and Dewatering

In order to complete "dry excavations" to remove contaminated soil in the upland areas of the Site, sheet pile cutoff walls and dewatering within the excavation would be required. Driving sheet piles within areas where soil materials consist largely of wood waste may not be feasible as the woody debris may obstruct driving the sheet piles. Driving sheet piles in areas where soils consist largely of sand and gravel fill with limited woody debris may be feasible. The depth of sheet piles below the excavation line to create a groundwater cutoff and prevent bottom heave may be significant.

4.3.2.3 Excavations Stabilized by Ground Freezing

Ground freezing can generally be described as excavation stabilization using artificially frozen ground to support soils and limit groundwater inflows. The process of ground freezing consists of drilling and installing a series of closely-spaced pipes and circulating a coolant through these pipes. The refrigerated coolant extracts heat from the ground, converting the soil pore water to ice resulting in an extremely strong, impermeable material.

Ground freezing is expected to be feasible in areas where soils consist largely of sand and gravel fills with limited wood waste and the alluvial silts. The feasibility of ground freezing in areas where soils consist largely of wood waste is unknown. To evaluate feasibility of ground freezing in wood waste, we recommend the project team consult with a ground freezing contractor.

4.3.2.4 Slurry-Supported Excavations

Slurry-support methods may be feasible for excavations to remove contaminated soil within the upland portions of the Site. Using the slurry-support method, an excavation is created to the desired depth. As the work proceeds, the excavation is filled with a dense, highly viscous fluid, the slurry. The slurry maintains stability of the excavation sidewalls. The slurry typically consists of a mixture of bentonite and water or cement, bentonite, and water. Once complete, the excavation is filled with either a soil bentonite mixture or, in the case of cement-bentonite slurry, the slurry is left in place and hardens to a consistency similar to medium stiff to stiff clay (excavatable). With soil-bentonite backfills, the resulting soil backfill is soft and weak. The use of cement-bentonite slurry may be more appropriate for the Site considering possible future development. The use of slurry supported excavations may also provide an additional benefit in limiting the flow of groundwater contaminates off site.

One potential disadvantage of cement-bentonite slurry with regards to the intent of the work (remedial excavation) is set up time. Cement-bentonite slurry typically begins to set up within about 2 to 3 hours. However, the setup time can be extended through the use of additives in the mixture. The work may have facets that are sensitive to time such as confirmatory sampling to ensure contaminant removal. As such, set up time should be considered in evaluating the use of cement-bentonite slurry-supported excavations. A hybrid alternative such as using an initial bentonite slurry to complete the excavation, and then displacing the bentonite slurry with a cement-bentonite slurry could be considered. We recommend additional analysis be completed to evaluate the overall feasibility of slurry-supported excavation methods.

Slurry-supported excavations are expected to be feasible in areas where soils consist largely of sand and gravel fills with limited wood waste and the alluvial silts. Slurry-supported excavations in areas where soils consist largely of wood waste may not be feasible due to the high permeability of the material. To further evaluate feasibility of slurry methods in wood waste, we recommend the project team consult with a geotechnical contractor who specializes in this type of work such as Hayward Baker, Malcolm Drilling or Keller.

4.3.3 Excavation Backfilling

The primary geotechnical concern for backfilling remedial excavations is the ability of the backfill to obtain strength and settlement characteristics capable of supporting future development. However, we expect that the only aspect of future development that will require some level of strength for support is pavements. Any new buildings that are proposed will require pile foundation support as discussed in

Section 4.5.1. Proposed future underground utilities should be aligned outside of remedial excavation areas as the backfill will settle over time and could damage underground utilities that traverse through backfilled remedial excavations.

Remedial excavations that will be completed as dry excavations using either sheet pile shoring or ground freezing should be backfilled with free draining, granular material (such as WSDOT Gravel Borrow) placed in thin lifts and compacted to at least 92 percent of the maximum dry density as determined by the ASTM D1557 test method.

For remedial excavations completed as open excavations with no dewatering or sidewall support, consideration could be given to backfilling with dozed, free draining granular material. However, backfilling with dozed material below the groundwater table will result in a weak fill susceptible to significant future settlement, therefore likely resulting in frequent pavement maintenance and resurfacing. If the frequent maintenance and resurfacing is not desirable, consideration could be given to alternative backfilling methods such as backfilling with controlled density fill placed by tremie methods to displace water. Or alternatively, creating a mixture of soil/cement/bentonite or other additives with groundwater that will solidify over time.

Remedial excavations completed using slurry methods, we recommend using a slurry that will harden in place. The mixture should be designed to provide adequate strength to support pavement subgrades. The strength of the mixture should be limited to that which is excavatable.

Regardless of the method ultimately selected to backfill remedial excavations, the backfill will likely experience some magnitude of future settlement. Specifically, any backfill material used will likely have a density greater than what is currently in place. This added weight will result in consolidation settlement of the soft silts below the newly placed fill over a substantial period of time.

4.3.4 Physical Constraints

Excavations required to remove contaminated soils may be located in close proximity to existing buildings, and therefore potentially destabilizing them. The potential for destabilization depends on how the buildings currently derive vertical support. We have found no indication that the existing buildings are pile-supported, but some could be as the site has a long history of using timber piles to support various things. However, concerns with destabilizing buildings and utilities during past remedial excavations are documented, and therefore the buildings may not be pile supported.

Underpinning building foundations is often used to temporarily support building foundations in close proximity to excavations. Underpinning of building foundations for lightly loaded structures such as those at the Site can typically be achieved using driven, small diameter, steel pipe piles (pin piles) or helical piers. However, the feasibility of either of these methods (pin piles or helical piers) in areas of the Site that are

underlain primarily by wood waste at shallow depths is in question. Specifically, the depth (and therefore capacity) to which pin piles or helical anchors can be installed may be limited by the presence of wood waste. If temporary foundation support is deemed necessary, we recommend the feasibility of using pin piles or helical piers be further evaluated by installing test piles/piers at the site and conducting load testing. However, for preliminary purposes and rough order of magnitude cost estimates, an individual vertical capacity of 2 to 5 kips per pile may be assumed.

4.4 Shannon Slough Restoration

Our scope of services included preliminary evaluation of channel bank slope stability as related to potential future restoration of Shannon Slough. The maximum slope height expected for channel banks along Shannon Slough is about 15 feet, which occurs near the slough confluence with the Chehalis River. Assuming a maximum slope height of 15 feet, our slope stability analysis indicates channel bank slopes on the order of 4H:1V would provide a static factor of safety of about 1.4. Based on our review of topographic contours presented in MFA (2019), the existing channel banks appear to be sloped at about 3H:1V. Our slope stability analysis indicates a safety factor of about 1.1 for existing conditions. Where slope failures would not impact an existing or proposed structure, WSDOT recommends a minimum safety factor of 1.25. During a design seismic event, channel banks inclined at 4H:1V would likely experience deformation. As we do not expect future development in close proximity to the channel banks, we expect that mitigating potential seismic failures of the channel banks will not be considered necessary.

4.5 Future Development

We understand redevelopment at the site is intended to create a mixed-use, working waterfront that incorporates historic elements of Grays Harbor, and provides a homeport for both the Lady Washington and Hawaiian Chieftain tall ships. The highest priorities for development include conversion of the former Maintenance Shop into an educational/interpretive center, and development of a hotel on the site (EAE 2018). We understand the hotel and possibly restaurants or other similar attractions are planned for the western portion of the site.

Soil and groundwater conditions at the site present several geotechnical elements that will require consideration and evaluation during planning and design for future development of the Site. A general summary of identified elements is provided below.

- **Seismic Hazards:** The site is underlain by soils susceptible to liquefaction during a design seismic event. Liquefaction at the site will result in widespread, ground surface settlement. Liquefaction may also result in lateral displacement of the ground towards the Chehalis River (i.e. lateral spreading). Mitigation of liquefaction settlement hazards to buildings can be mitigated by supporting proposed buildings on deep pile foundations. The occurrence of lateral spreading, and the impacts and mitigation of lateral spreading will require additional work that is beyond the scope of this report.

- **Groundwater Conditions**: Groundwater exists at a relatively shallow depth below the existing ground surface at the site. A shallow groundwater table beneath the site will pose difficulties where excavations extended below the groundwater table.

- **Underground Obstructions**: Within the proposed future development areas, the site is underlain by a significant thickness of wood waste. Old timber piles also exist below the ground surface. The presence of wood waste and old timber piles may obstruct future pile foundations and proposed new underground utilities that extend through areas of wood waste and timber piles.

- **New Fill and Consolidation Settlement**: Placing new fill above existing site grades will initiate consolidation settlement. Settlement magnitudes could be significant and carry on for years.

Further discussion regarding the above-identified geotechnical elements is provided in the following section.

4.5.1 Seismic Hazards

Based on references cited in Section 3.1 above, we estimate that recent alluvial soils susceptible to liquefaction exist below the Site at depths ranging from roughly 30 to 120 feet below existing site grade. During an earthquake with adequate ground motions, a portion of the alluvial silts may liquify. The impacts of liquefaction will be widespread settlement of the ground surface and anything supported on the ground surface or in the liquefiable soils. The magnitude of settlement will depend on the strength of the earthquake. For a building code-based seismic design event, the ground surface could experience several inches of settlement.

For building foundations and slabs, liquefaction is typically mitigated by supporting buildings and slabs on pile foundations that extend through the liquefiable soils to more competent soils such as the Pliocene recessional outwash deposits expected below the recent alluvial soils. The risk of liquefaction damage to underground utilities, pavements, and other non-critical facilities is typically not mitigated. However, in some cases, for extremely critical structures such as hospitals, risk mitigation for certain critical infrastructure components may be warranted. Additionally, underground utilities carrying hazardous substances may be sensitive to liquefaction settlement. Where planned underground utilities connect to pile-supported buildings, flexible connections may be required.

The Site is bordered to the north by the Chehalis River. The channel banks of the river essentially create an underwater slope, or free face at the northern boundary of the Site. If liquefaction occurs, the non-liquefiable soils above the liquefiable soils can slide as intact blocks over the lower, liquified deposits resulting in surface displacements proceeding down-slope towards the free face. This lateral surface displacement towards a free face due to liquefaction is commonly referred to as lateral spreading.

Infrastructure located within a lateral spreading zone may experience damage, the magnitude of which is dependent on the magnitude of lateral deformation. Mitigation of lateral spreading impacts can be achieved by the following methods:

- Locating infrastructure outside the zone of lateral spreading.
- Ground improvement to mitigate liquefaction and therefore mitigate lateral spreading
- Isolate the infrastructure from lateral spreading by building structures such as underground retaining walls to support lateral spread zones.
- Design the infrastructure to resist the loads imposed by lateral spreading.

We suspect that lateral spreading at the Site is a hazard that will require consideration during design and planning of future development. However, additional analysis which is beyond the scope of our current services is required to further evaluate lateral spreading and options to mitigate it if necessary.

4.5.2 Construction Dewatering

The groundwater table at the Site is located at a relatively shallow depth below existing site grades. Excavations that extend below the groundwater table for installation of underground utilities or other improvements will experience high groundwater inflows. Dewatering excavations without groundwater cutoff of flow from the upper fill soils may be difficult as the fill materials within proposed development areas are expected to consist largely of wood waste with high permeability. To the extent feasible, we recommend underground utilities and other improvements be located above the groundwater table. If not feasible, other methods such as sheet pile cut off walls or ground freezing as discussed above should be considered.

If dewatering without cutoff is deemed feasible, the project team should be aware of dewatering-induced settlement risk. Lowering the groundwater table through construction dewatering will result in drawdown of the groundwater table outside of the excavation extents. This drawdown will result in ground settlement outside the areas of dewatering. The lateral extents and magnitude of settlement depend on the excavation depth and level of groundwater drawdown required to complete the excavation. For deeper excavations, the impacts could reach hundreds of feet. Mitigation of groundwater drawdown outside of excavation limits is feasible with recharge wells or trenches. However, the success of recharge wells may be variable and will be dependent on several factors.

4.5.3 Underground Obstructions

The presence of wood waste and existing timber piles may obstruct future work such as deep foundation construction (driven piles), ground improvement (liquefaction and lateral spreading mitigation), and other below grade improvements. Design and planning for future development at the site should consider the impacts of underground obstructions.

4.5.4 Consolidation Settlement

New fill placed above existing site grades will result in consolidation of the underlying soft alluvial silts and wood waste fill. Consolidation could result in significant ground settlement over a relatively short period of time followed by continued settlement over a long period of time. One particular example of local consolidation settlement that occurred at the Aberdeen waste water treatment plant is presented in Landau (2009). Landau (2009) reported the following:

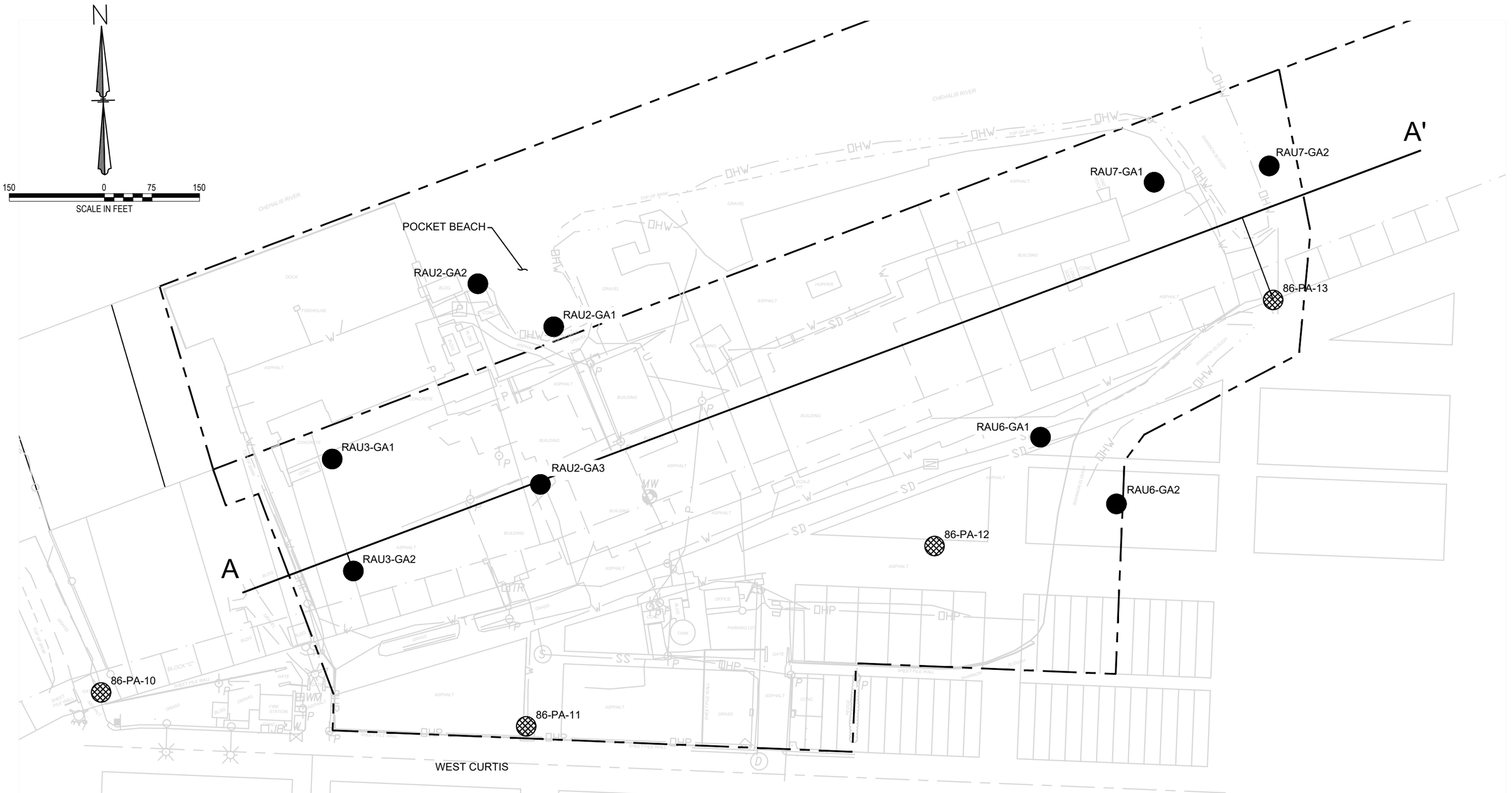
> "A report by Shannon and Wilson…..indicates that about 5 ft of fill was placed on the adjacent wastewater treatment plant site during the original plant construction in 1959 and that it caused about 14 to 16 inches of (primary) settlement. The report also indicates that several inches of (secondary) settlement occurred in the 10 to 20 years following the 1959 construction."

The potential impacts of primary and secondary consolidation settlement can be mitigated by using a pre-load fill. Pre-loading consists of initially placing fill to raise a site to design grade, and then placing a thickness of temporary fill (pre-load fill) above design site grades in an effort to "squeeze out" a significant portion of the expected settlement. After the pre-load fill is placed, the site must lie dormant for a period of time, typically on the order of months. The pre-load settlement rate is often accelerated through the installation of vertical drainage elements called wick drains. Without wick drains at the Site, the duration of pre-load could be on the order of years.

5.0 CLOSURE

The conclusions presented in this report are based, in part, on relatively shallow explorations completed by ZGA at the site. For understanding deeper subsurface soil conditions, we relied exclusively on work completed by others. The conclusions in this report should be considered preliminary and conceptual in nature. As the project moves forward and the scope of work is better defined, we recommend additional geotechnical work be completed such as deep subsurface explorations, laboratory testing, and analysis.

This report has been prepared for the exclusive use of the Grays Harbor Historical Seaport. and their agents for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made.



LEGEND

RAU3-GA2 — 2019 BORINGS COMPLETED BY ZGA

86-PA-11 — ACOE (1993) BORINGS

REFERENCE: PRELIMINARY TOPOGRAPHIC SURVEY PREPARED BY BERGLUND, SCHMIDT & ASSOCIATES iNC. DATED NOVEMBER 25, 2019. VERTICAL DATUM NAVD88.

SEAPORT LANDING
500 N CUSTER ST
ABERDEEN, WASHINGTON

SITE AND EXPLORATION PLAN

DATE: FEBRUARY 2020 Job No. 2279.00

Zipper Geo Associates, LLC
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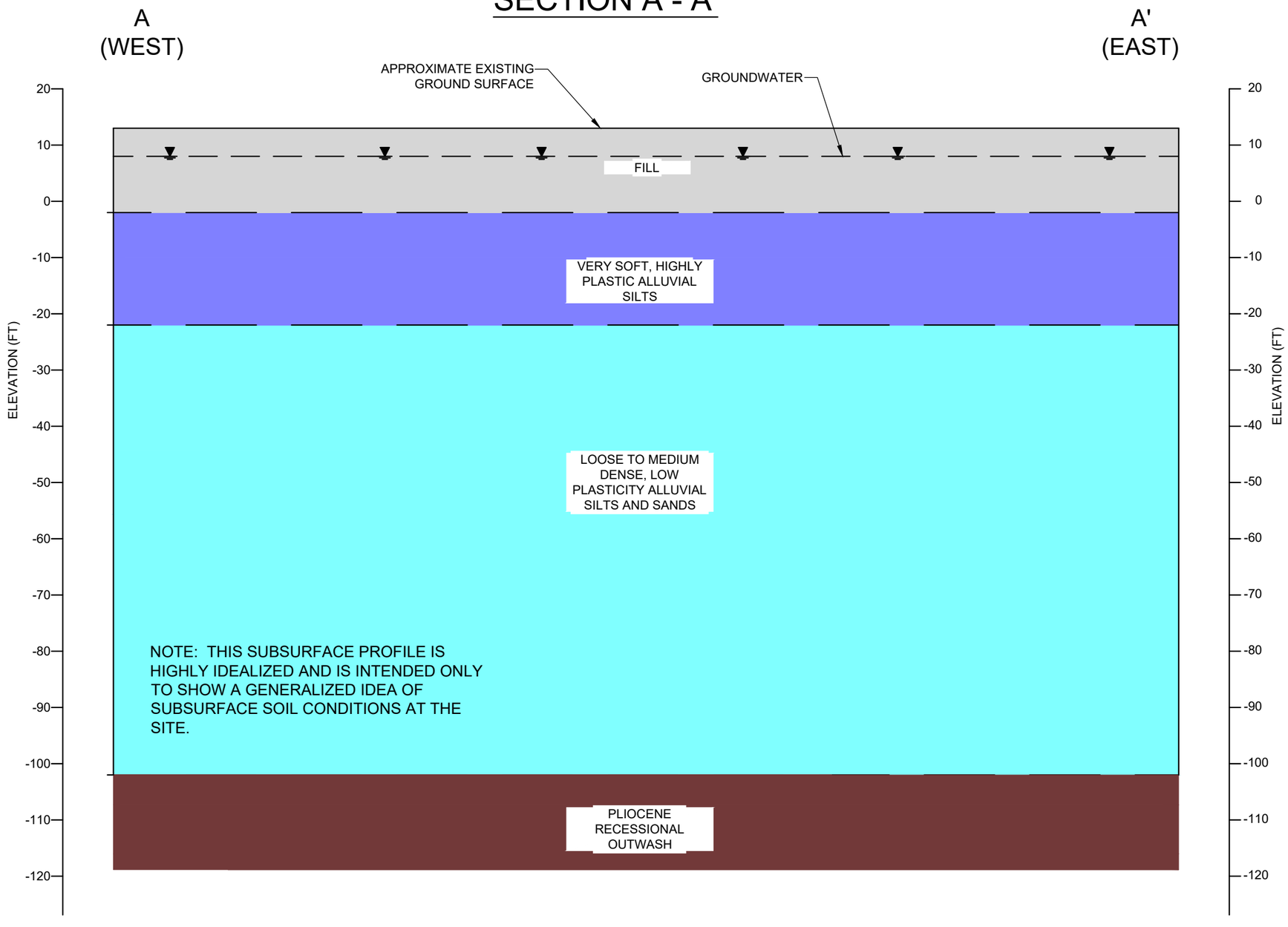
Lynnwood, WA

FIGURE 1

SHT. 1 of 1

SECTION A - A'



GEOLOGIC UNIT DESCRIPTIONS

- FILL: Wood waste, sand and gravel, and various mixtures of wood waste, sand, gravel, and silt
- RECENT ALLUVIAL SILT: Very soft, highly plastic silts and organic silts
- RECENT ALLUVIAL SAND: Loose to medium dense silty sand and sandy silt
- PLIOCENE RECESSIONAL OUTWASH: Dense to very dense sand and gravel

SEAPORT LANDING
500 N CUSTER ST
ABERDEEN, WASHINGTON

CONCEPTUAL SUBSURFACE PROFILE

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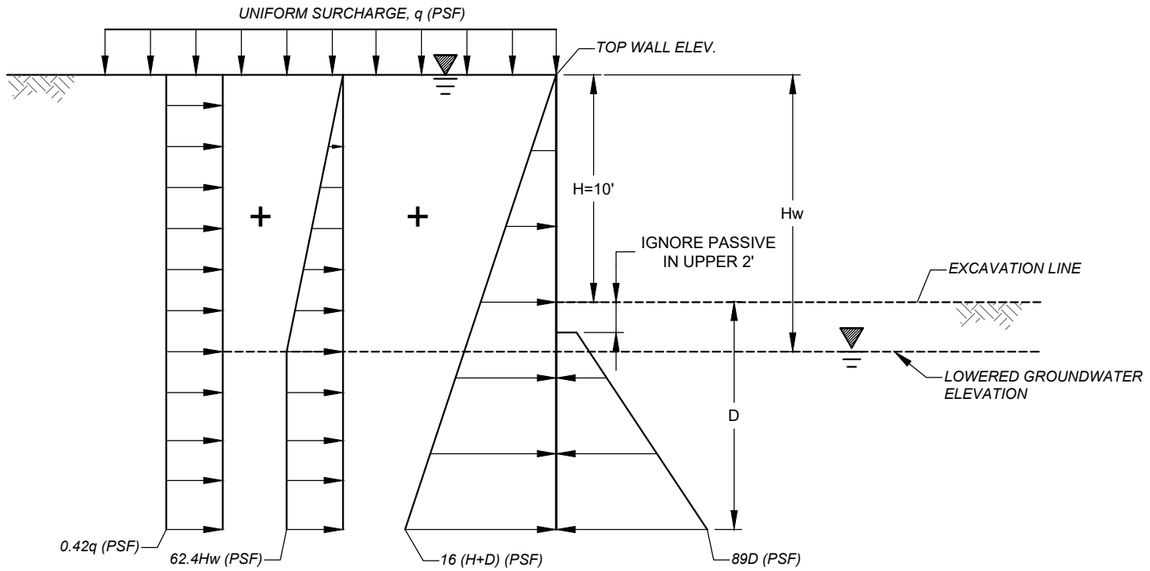
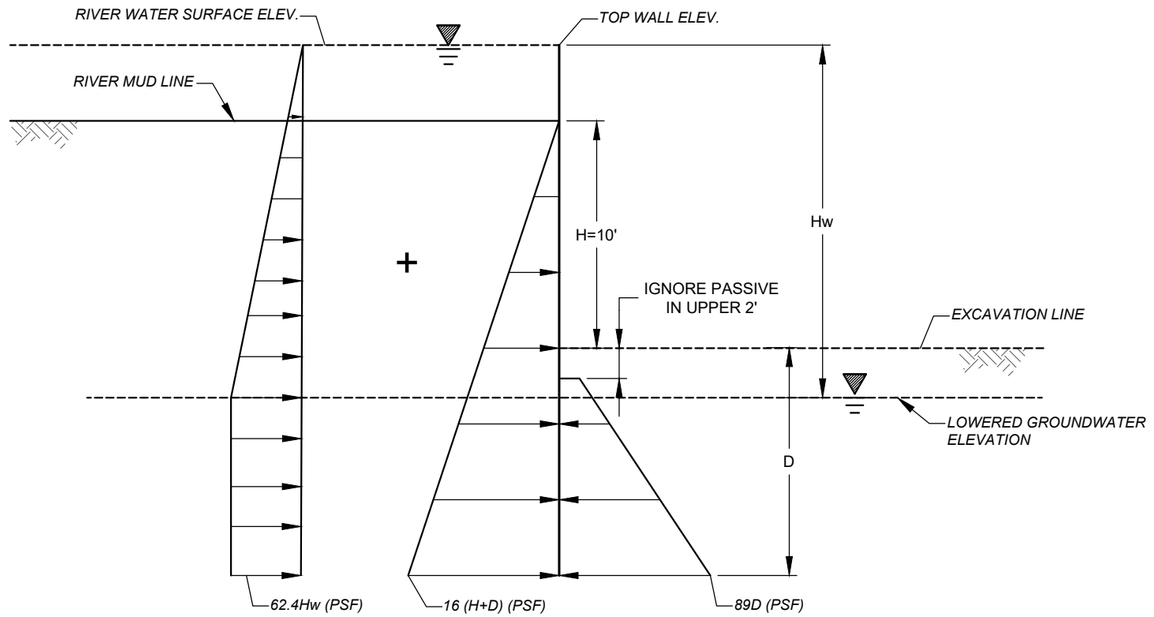
FIGURE 2
SHT. 1 of 1

NOTE: INFORMATION PRESENTED IN THIS FIGURE SHOULD BE CONSIDERED PRELIMINARY AND ONLY USED FOR CONCEPTUAL, FEASIBILITY LEVEL PLANNING AND ANALYSIS.



UPLAND SIDE



RIVER SIDE

1 - POCKET BEACH SHEET PILE WALL PRELIMINARY LATERAL EARTH PRESSURE DIAGRAMS

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LATERAL EARTH PRESSURES

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Lynnwood, WA

FIGURE 3
SHT. 1 of 1

APPENDIX A

SUBSURFACE EXPLORATIONS PROCEDURES AND LOGS

Our field exploration for this project included 9 borings advanced on December 4th and 5th, 2019. Approximate exploration locations are shown on the Site and Exploration Plan, Figure 1. Exploration locations were determined using a hand-held GPS device by a staff member of MFA and subsequently provided to ZGA. Exploration locations were also located in the field from existing site features with a fiberglass tape relative to a topographic map of the site, dated November 25th, 2019, prepared by Berglund, Schmidt & Associates. As such, the exploration locations should be considered accurate to the degree implied by the measurement method. The approximate ground surface elevation at each exploration location was determined by interpolating the information provided on the topographic plan. The following sections describe our procedures associated with the exploration. Descriptive logs of the explorations are enclosed in this appendix.

Soil Boring Procedures

Our exploratory borings were advanced with a hollow stem auger, using a track-mounted drill rig operated by an independent drilling firm working under subcontract to our firm. An engineering geologist from our firm continuously observed the borings, logged the subsurface conditions encountered, and obtained representative soil samples. All samples were stored in moisture-tight containers and transported to our laboratory for further visual classification and testing. After each boring was completed, the borehole was backfilled with bentonite and the surface was patched. Drilling equipment was decontaminated between each boring by the drilling contractor.

Throughout the drilling operation, soil samples were obtained at 2.5- to 5-foot depth intervals by means of the Standard Penetration Test (ASTM: D-1586). This testing and sampling procedure consists of driving a standard 2-inch outside diameter steel split spoon sampler 18 inches into the soil with a 140-pound hammer free falling 30 inches. The number of blows required to drive the sampler through each 6-inch interval is recorded, and the total number of blows struck during the final 12 inches is recorded as the Standard Penetration Resistance, or "blow count" (N value). If a total of 50 blows is struck within any 6-inch interval, the driving is stopped and the blow count is recorded as 50 blows for the actual penetration distance. The resulting Standard Penetration Resistance values indicate the relative density of granular soils and the relative consistency of cohesive soils.

The enclosed boring logs describe the vertical sequence of soils and materials encountered in each boring, based primarily upon our field classifications and supported by our subsequent laboratory examination and testing. Where a soil contact was observed to be gradational, our logs indicate the average contact depth. Where a soil type changed between sample intervals, we inferred the contact depth. Our logs also graphically indicate the blow count, sample type, sample number, and approximate depth of each soil sample obtained from the boring, as well as any laboratory tests performed on these soil samples. If any groundwater was encountered in a borehole, the approximate groundwater depth, and date of observation, is depicted on the log. Groundwater depth estimates are typically based on the moisture content of soil samples, the wetted portion of the drilling rods, the water level measured in the borehole after the auger has been extracted, or through the use of an observation well.

The boring logs presented in this appendix are based upon the drilling action, observation of the samples secured, laboratory test results, and field logs. The various types of soils are indicated as well as the depth where the soils or characteristics of the soils changed. It should be noted that these changes may have been gradual, and if the changes occurred between samples intervals, they were inferred.

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU2-GA1**
Top Elevation: 8 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES	Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.					▲ Standard Penetration Test △ Hammer Weight and Drop: 0 50 100		
0	Approximately 2 inches of cattail and grass roots				12/4/19			
	Soft, saturated, brown, sawdust (FILL)							
	Very soft, saturated, dark grayish brown, organic SILT with fine sand, with woody debris, strong organic sulfur odor (ALLUVIUM)	S-1	I	18"		▲ ○	2	Wc=112%
5	@ 5 feet: decreasing woody debris	S-2	I	18"		▲ ——○——	0	Wc=87%
	Very soft, saturated, grayish blackish brown, organic SILT with fine sand and woody debris (ALLUVIUM)	S-3	I	18"		▲ ○	0	Wc=94%
	@ 8 feet: decreasing woody debris							
10	@ 10 feet: increasing woody debris	S-4	I	12"		▲ ○	0	Wc=115%
15	Very soft, saturated, grayish blackish brown, organic SILT with fine sand (ALLUVIUM)	S-5	H	3"		▲ ○	2	Wc=95%
20	Very soft, saturated, dark brown to dark gray, fine to medium sandy SILT, some woody debris (ALLUVIUM)	S-6	I	12"		▲ ○	2	Wc=64%
	Very loose, saturated, dark gray, fine SAND with silt (ALLUVIUM)							
25								

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ——○—— Liquid Limit

Natural Water Content

Seaport Landing
500 North Custer Street
Aberdeen, WA

Date: February 2020 Project No.: 2279.00

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Lynnwood, WA

BORING LOG: **RAU2-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU2-GA1**
Top Elevation: 8 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
25	Very loose, saturated, dark gray, SAND with silt	S-7 12"		▲	3	
	Boring completed at 26.5 feet on 12/4/19. Groundwater observed at the ground surface after drilling. Boring backfilled with bentonite.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊣—○—⊢ Liquid Limit

Natural Water Content

Seaport Landing
500 North Custer Street
Aberdeen, WA

Date: February 2020 Project No.: 2279.00

Zipper Geo Associates
19019 36th Ave. W, Suite E
Lynnwood, WA

BORING LOG: **RAU2-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU2-GA2**
Top Elevation: 8 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60 80 100		
0	Approximately 2 inches of cattail and grass roots Soft, saturated, brown, sawdust (FILL)			12/4/19			
	Saturated WOODY DEBRIS (FILL)	S-1	15"		▲	14	Wc=345%
5	Very soft, saturated, brown, SAWDUST with some fibrous woody debris (FILL)	S-2	6"		▲	1	Wc=440%
		S-3	15"		▲	0	Wc=554%
10	Very soft, saturated, dark grayish brown, organic SILT with fine sand (ALLUVIUM)	S-4	9"		▲ ○	0	Wc=82%
15	Very soft, saturated, dark grayish brown, organic SILT with fine sand (ALLUVIUM)	S-5	9"		▲ ○	0	Wc=77%
20	Very soft, saturated, dark grayish brown, organic SILT with fine to medium sand, some dark brown woody debris (ALLUVIUM)	S-6	18"		▲ ○	0	Wc=74%
	Very loose, saturated, dark grayish brown, silty fine to medium SAND to sandy SILT (ALLUVIUM)						
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU2-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU2-GA2**
Top Elevation: 8 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
25	Very loose, saturated, dark grayish brown, silty fine to medium SAND to sandy SILT (ALLUVIUM)	S-7 12"		▲	3	
	Boring completed at 26.5 feet on 12/4/19. Groundwater observed at the ground surface after drilling. Boring backfilled with bentonite.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

- ◇ % Fines (<0.075 mm)
- ○ % Water (Moisture) Content
- Plastic Limit ⊢—○—⊣ Liquid Limit
- Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

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BORING LOG: **RAU2-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU2-GA3**
Top Elevation: 13 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/5/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.						
0	Approximately 9 to 10 inches of asphalt, no base course						
	Very loose, wet, gray to light brown, gravelly silty SAND, (FILL)	S-1	6"		▲ ○	1	
5	Very soft, wet, dark brown to black, WOODY DEBRIS, fine fibrous to 1" to 2" pieces with some sandy silt (FILL)	S-2	6"	▼ 12/5/19	▲	2	
		S-3	9"		▲	50/3"	
10	Saturated WOODY DEBRIS (FILL)	S-4	9"		▲	50/2"	
15	No recovery	S-5	0"		▲	5	
20	Very soft, saturated, gray, SILT with fine sand (ALLUVIUM)	S-6	3		▲	1	
25							

SAMPLE LEGEND
- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

TESTING KEY
- GSA = Grain Size Analysis
- 200W = 200 Wash Analysis
- Consol. = Consolidation Test
- Att. = Atterberg Limits
- Wc = Water Content

◇ % Fines (<0.075 mm)
○ % Water (Moisture) Content
Plastic Limit ⊣○⊢ Liquid Limit
Natural Water Content

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Aberdeen, WA

Date: February 2020 Project No.: 2279.00

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Lynnwood, WA

BORING LOG: RAU2-GA3

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU2-GA3**
Top Elevation: 13 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/5/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: _____ 0 20 40 60		
25	Very soft, saturated, gray, SILT with fine sand (ALLUVIUM)	S-7 18"			0	
	Boring completed at 26.5 feet on 12/5/19. Groundwater observed at approximately 5 feet below ground surface after drilling. Boring backfilled with bentonite and surfaced with concrete.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

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Wc = Water Content

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Aberdeen, WA

Date: February 2020 Project No.: 2279.00

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Lynnwood, WA

BORING LOG: **RAU2-GA3**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU3-GA1**
Top Elevation: 12.5 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES	Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.					▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60 80 100		
0	Approximately 1.5 feet of asphalt, no base course							
	Loose, moist, gray, gravelly silty SAND (FILL)	S-1	I	6"	12/4/19	▲	7	
5	Saturated, black WOODY DEBRIS with some gravelly, silty sand (FILL)	S-2	I	9"		▲	5	
	WOODY DEBRIS (FILL)	S-3	I	9"		▲	28	
10	WOODY DEBRIS (FILL)	S-4	I	9"		▲	11	
15	Poor recovery, wood stuck in shoe (FILL)	S-5	H	3"		▲	5	
20	WOODY DEBRIS (FILL)	S-6	I	18"		▲ ○	3	Wc=86%
	Soft, saturated, gray, organic SILT with fine sand, some woody debris (ALLUVIUM)							
25								

SAMPLE LEGEND

- I 2-inch O.D. split spoon sample
- II 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊣—○—⊢ Liquid Limit

Natural Water Content

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Aberdeen, WA

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BORING LOG: **RAU3-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU3-GA1**
Top Elevation: 12.5 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60	Blow Counts	Testing
25	*The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.*					
	Very soft, saturated, gray, sandy SILT to SILT with fine sand	S-7 18"			0	
	Boring completed at 26.5 feet on 12/4/19. Groundwater observed at approximately 4 feet. Boring backfilled with bentonite and surfaced with concrete.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU3-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU3-GA2**
Top Elevation: 13.5 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.						
0	Approximately 6 inches of asphalt, no base course						
	Medium dense, wet, dark brown, sandy GRAVEL to gravelly SAND (FILL)	S-1	12"		○ ▲	28	Wc=14%
5	Loose, wet, gray to light brown, gravelly SAND to sandy GRAVEL, some silt	S-2	18"	▼	▲ ○	8	Wc=18%
	Very loose, saturated, gray to light brown, silty gravelly SAND (FILL)	S-3	3"		▲	2	
10	Very loose, saturated, gray to light brown, gravelly SAND with silt to sandy GRAVEL with silt (FILL)	S-4	12"		▲ ○	4	Wc=16%
15	Very loose, saturated, black to dark gray, SAND, some silt, wood fragment approximate 1/2 inch long (FILL?)	S-5	6"		▲	3	
20	Very soft, saturated, gray, sandy SILT (ALLUVIUM)	S-6	9"		▲ ○	1	Wc=54%
25							

SAMPLE LEGEND
- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)
○ % Water (Moisture) Content
Plastic Limit ⊢—○—⊣ Liquid Limit
Natural Water Content

TESTING KEY
- GSA = Grain Size Analysis
- 200W = 200 Wash Analysis
- Consol. = Consolidation Test
- Att. = Atterberg Limits
- Wc = Water Content

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BORING LOG: **RAU3-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU3-GA2**
Top Elevation: 13.5 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
25	Very soft, saturated, gray, SILT with fine sand (ALLUVIUM)	S-7 18"			0	
	Boring completed at 26.5 feet on 12/4/19. Groundwater observed at approximately 5 feet at the time of drilling. Boring backfilled with bentonite and surfaced with concrete.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU3-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU6-GA1**
Top Elevation: 10.5 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/5/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60 80 100	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.						
0	Approximately 9 inches of asphalt, no base course						
	1 inch of very loose, wet, black, gravelly SAND with silt, subrounded and subangular gravel (FILL)						
	Very soft, wet to saturated, gray, organic SILT, with fine sand, trace woody debris (ALLUVIUM)	S-1	18"			2	Wc=55%
5		S-2	18"	12/5/19		0	Wc=57%
	Increased black to brown woody debris	S-3	12"			2	Wc=88%
10		S-4	18"			0	Wc=89%
15	Trace woody debris	S-5	18"			0	WC=69%
20	1/4 to 1/2 inch fine to medium sand lenses	S-6	18"			3	Wc=53%
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc =Water Content

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

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BORING LOG: **RAU6-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU6-GA1**
Top Elevation: 10.5 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/5/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
25	Very loose, saturated, gray, silty SAND to SAND with silt, 1/8 to 1/4 inch lenses of silt, some woody debris	S-7 18"		▲ ○	3	Wc=45 %
	Boring completed at 26.5 feet on 12/5/19. Groundwater level estimated @ 6 feet. Boring backfilled with bentonite and surfaced with concrete.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

- ◇ % Fines (<0.075 mm)
- ○ % Water (Moisture) Content
- Plastic Limit ⊢—○—⊣ Liquid Limit
- Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU6-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU6-GA2**
Top Elevation: 12 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/5/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				▲ Standard Penetration Test △ Hammer Weight and Drop: 0 50 100		
0	Approximately 1 inch of gravel and grass roots						
	Very loose, wet, brown to gray, gravelly silty SAND (FILL)						
	Soft, wet grading to saturated, brown grading to light brown, organic SILT with fine sand, some brown to black wood (ALLUVIUM)	S-1	18"			4	Wc=47%
5		S-2	18"	12/5/19		4	Wc=48%
	Very soft, wet to saturated, mottled, grayish brown, organic SILT with some fine sand and dark brown to black woody debris (ALLUVIUM)	S-3	6"			0	Wc=59%
10		S-4	18"			0	Wc=86%
15	grades to with less woody debris	S-5	18"			0	Wc=79%
20	Very soft, saturated, brownish gray, silty fine SAND to fine sandy SILT (ALLUVIUM)	S-6	18"			0	Wc=56%
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU6-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU6-GA2**
Top Elevation: 12 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/5/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.					
25	grades to soft (ALLUVIUM)	S-7 18"		▲	4	
	Boring completed at 26.5 feet on 12/5/19. Groundwater level estimated at 6 feet. Boring backfilled with bentonite.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU6-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU7-GA1**
Top Elevation: 10 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
0	Approximately 6 inches of asphalt, no base course						
	Dense, moist to wet, gray to light brown, sandy GRAVEL with some silt (FILL)	S-1	9"			35	Wc=12%
5	grades to saturated	S-2	18"	12/4/19		26	Wc=19%
	Medium dense, wet, gray, fine to medium SAND with trace to some gravel (FILL)						
	grades to very loose and wet to saturated	S-3	18"			2	Wc=27%
10	Decreasing fines content	S-4	15"			2	Wc=24%
15		S-5	12"			0	Wc=28%
20	Very soft, saturated, gray, SILT with some fine sand (ALLUVIUM)	S-6	18"			0	Wc=68%
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊣—○—⊢ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU7-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU7-GA1**
Top Elevation: 10 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
25	Very loose, wet, gray, silty fine to medium SAND to fine to medium SAND with silt @ 26 feet: 1/4 inch layer of wood fragments	S-7 18"		▲	0	
	Boring completed at 26.5 feet on 12/5/19. Groundwater level estimated at 5 feet at time of drilling. Boring backfilled with bentonite and surfaced with concrete.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU7-GA1**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU7-GA2**
Top Elevation: 16 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES	Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.					▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60		
0	Approximately 14 inches of asphalt, no base course							
	Very dense, moist, dark brown, sandy GRAVEL (FILL)	S-1	H	3"		▲ 50/4"		
5	Medium dense, wet to saturated, dark brown, gravelly SAND with silt (FILL)	S-2	I	12"	▼ 12/5/19	○ ▲	13	Wc=14%
	grades to very loose and saturated (FILL)	S-3	I	12"		○ ▲	4	Wc=20%
10		S-4	I	12"		○ ▲	4	Wc=20%
	Loose, saturated, gray to brown, fine to medium GRAVEL with some silt and trace woody debris (FILL)							
15	@ 16 feet: woody debris	S-5	I	12"		▲	6	
20	Very loose, saturated, dark brown, silty SAND with woody debris (Transitional FILL/ALLUVIUM)	S-6	I	9"		▲	3	
	Very soft, saturated, gray SILT with fine sand (ALLUVIUM)							
25								

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. (11/2/12)

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊣○⊢ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU7-GA2**

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: Holocene	Bore Hole Dia.: 8"	**RAU7-GA2**
Top Elevation: 16 FT	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 12/4/2019	Drill Rig: Track	Logged by: KRN	

Depth (ft)	SOIL DESCRIPTION	Sample Number / SAMPLES / Recovery	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blow Counts	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.			▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60 80		
25	Very soft, wet, gray, SILT with fine sand (ALLUVIUM)	S-7 15"		▲ ○	2	Wc=75%
	Boring completed at 26.5 feet on 12/4/19. Groundwater observed at approximately 7 feet surface after drilling. Boring backfilled with bentonite and surfaced with concrete.					
30						
35						
40						
45						
50						

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Wc = Water Content

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BORING LOG: **RAU7-GA2**

APPENDIX B
LABORATORY TESTING PROCEDURES AND RESULTS

LABORATORY TESTING PROCEDURES

A series of laboratory tests were performed during the course of the this study to evaluate the index and geotechnical engineering properties of the subsurface soils. Descriptions of the types of tests performed are given below.

Visual Classification

Samples recovered from the exploration locations were visually classified in the field during the exploration program. Representative portions of the samples were carefully packaged in moisture tight containers and transported to our laboratory where the field classifications were verified or modified as required. Visual classification was generally done in accordance with the Unified Soil Classification system. Visual soil classification includes evaluation of color, relative moisture content, soil type based upon grain size, and accessory soil types included in the sample. Soil classifications are presented on the exploration logs in Appendix A.

Moisture Content Determinations

Moisture content determinations were performed on representative samples obtained from the exploration in order to aid in identification and correlation of soil types. The determinations were made in general accordance with the test procedures described in ASTM: D-2216. The results are shown on the exploration logs in Appendix A.

Atterberg Limits

Atterberg limits are used primarily for classification and indexing of cohesive soils. The liquid and plastic limits are two of the five Atterberg limits and are defined as the moisture content of a cohesive soil at arbitrarily established limits for liquid and plastic behavior, respectively. Liquid and plastic limits were established for selected samples in general accordance with ASTM: D-423 and ASTM: D-424, respectively. The results of the Atterberg limits are presented on a plasticity chart in this appendix where the plasticity index (liquid limit minus plastic limit) is related to the liquid limit. The plastic limits and liquid limits are also presented adjacent to appropriate samples on the exploration logs in Appendix A.

ALLUVIAL HIGH PLASTICITY SILT ATTERBERG LIMITS (Landau (2009), S&W (2011) & ZGA Samples)
(0-15 FT BGS)

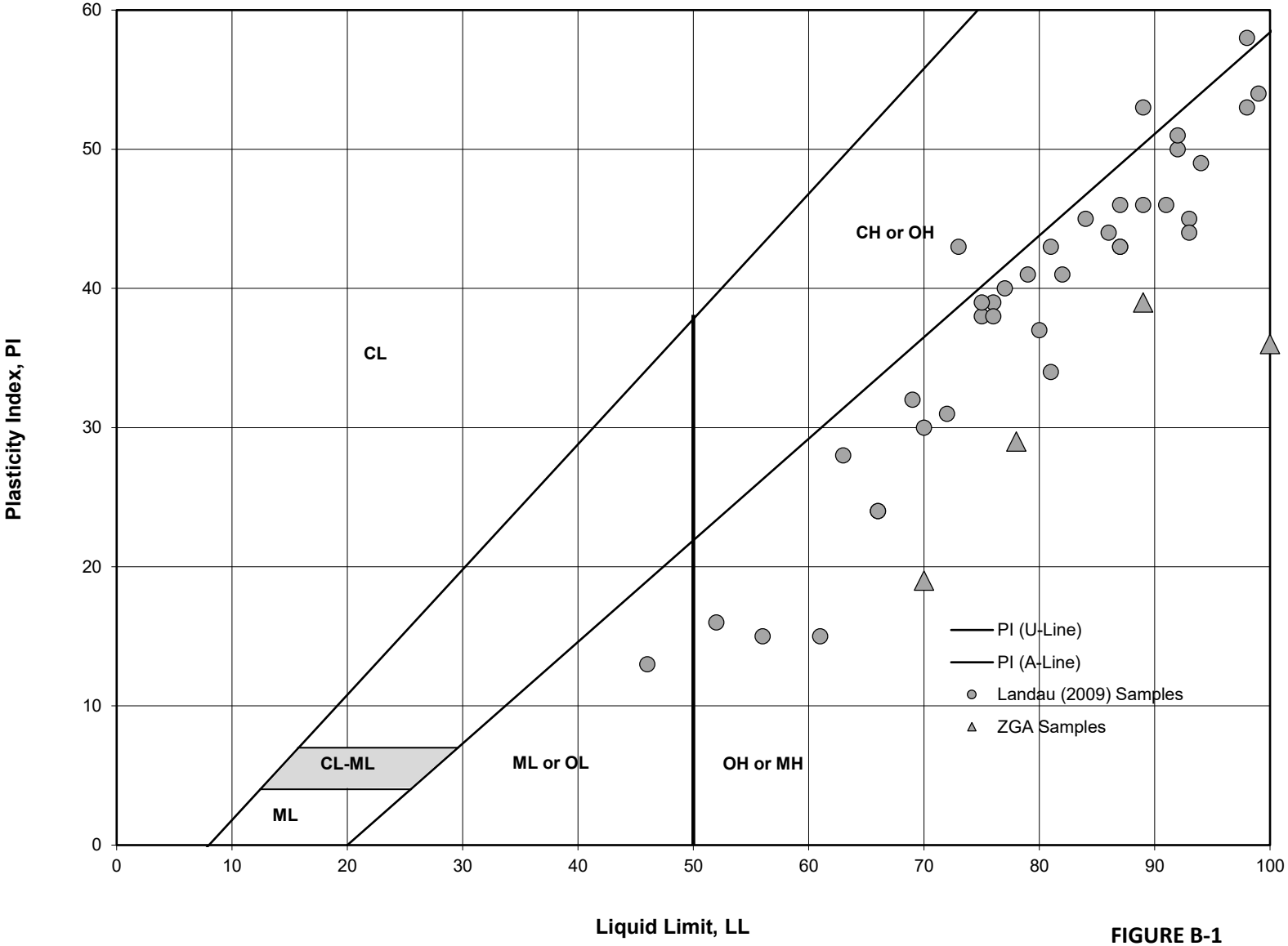


FIGURE B-1

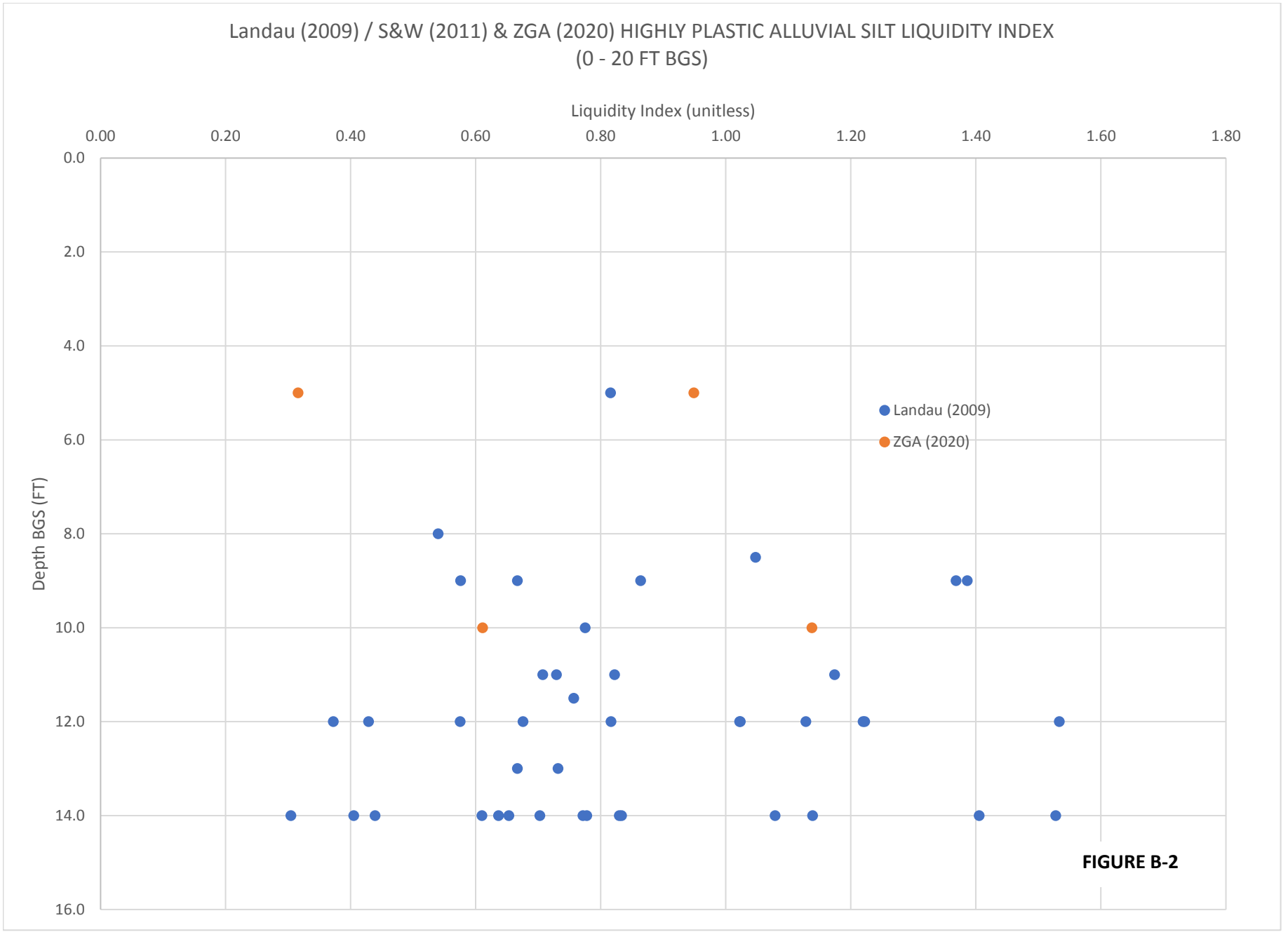

Landau (2009) / S&W (2011) & ZGA (2020) HIGHLY PLASTIC ALLUVIAL SILT LIQUIDITY INDEX
(0 - 20 FT BGS)
Liquidity Index (unitless)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
Depth BGS (FT)
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
Landau (2009)
ZGA (2020)

FIGURE B-2

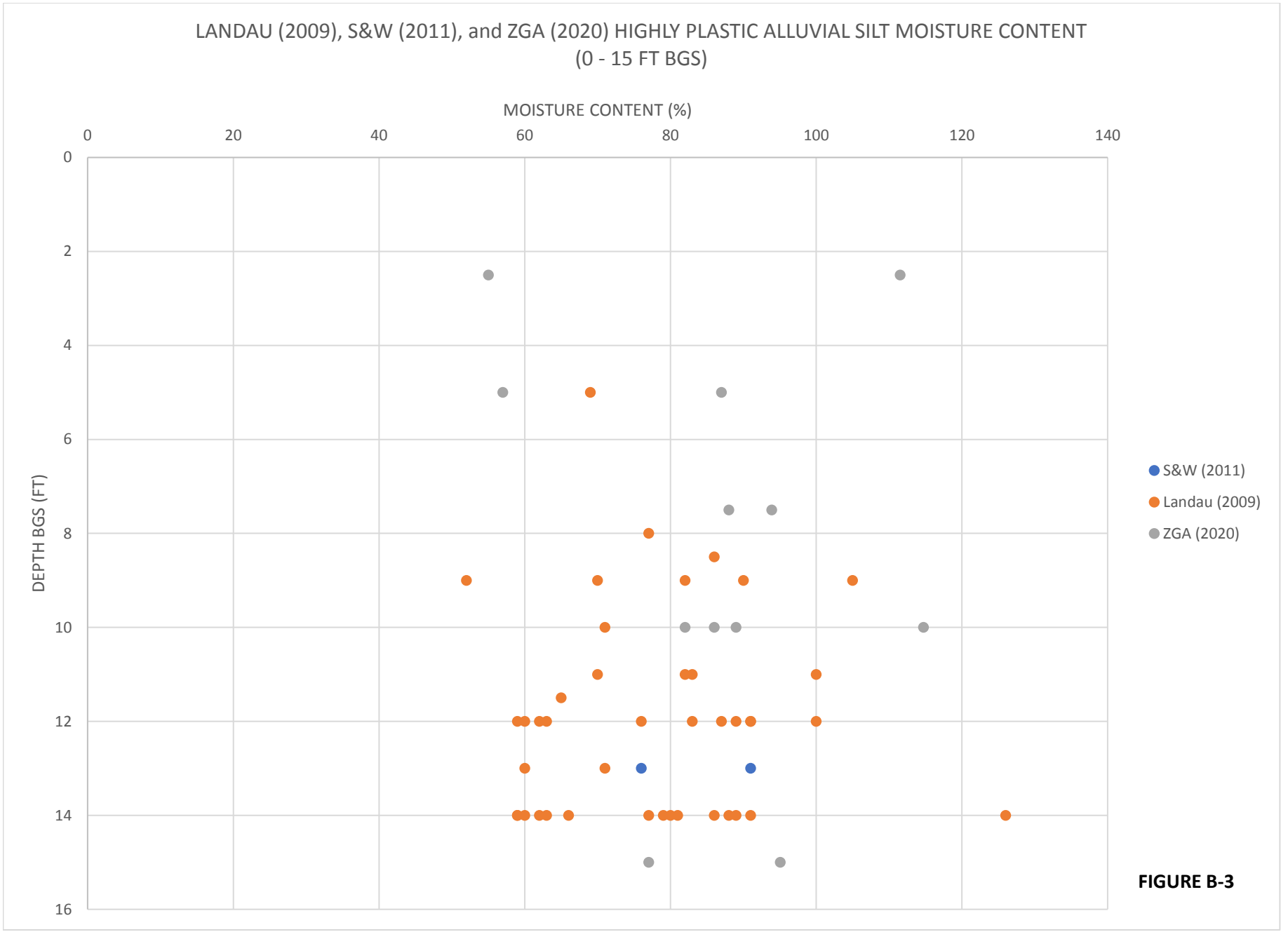

LANDAU (2009), S&W (2011), and ZGA (2020) HIGHLY PLASTIC ALLUVIAL SILT MOISTURE CONTENT
(0 - 15 FT BGS)
MOISTURE CONTENT (%)
0
20
40
60
80
100
120
140
DEPTH BGS (FT)
0
2
4
6
8
10
12
14
16
S&W (2011)
Landau (2009)
ZGA (2020)

FIGURE B-3

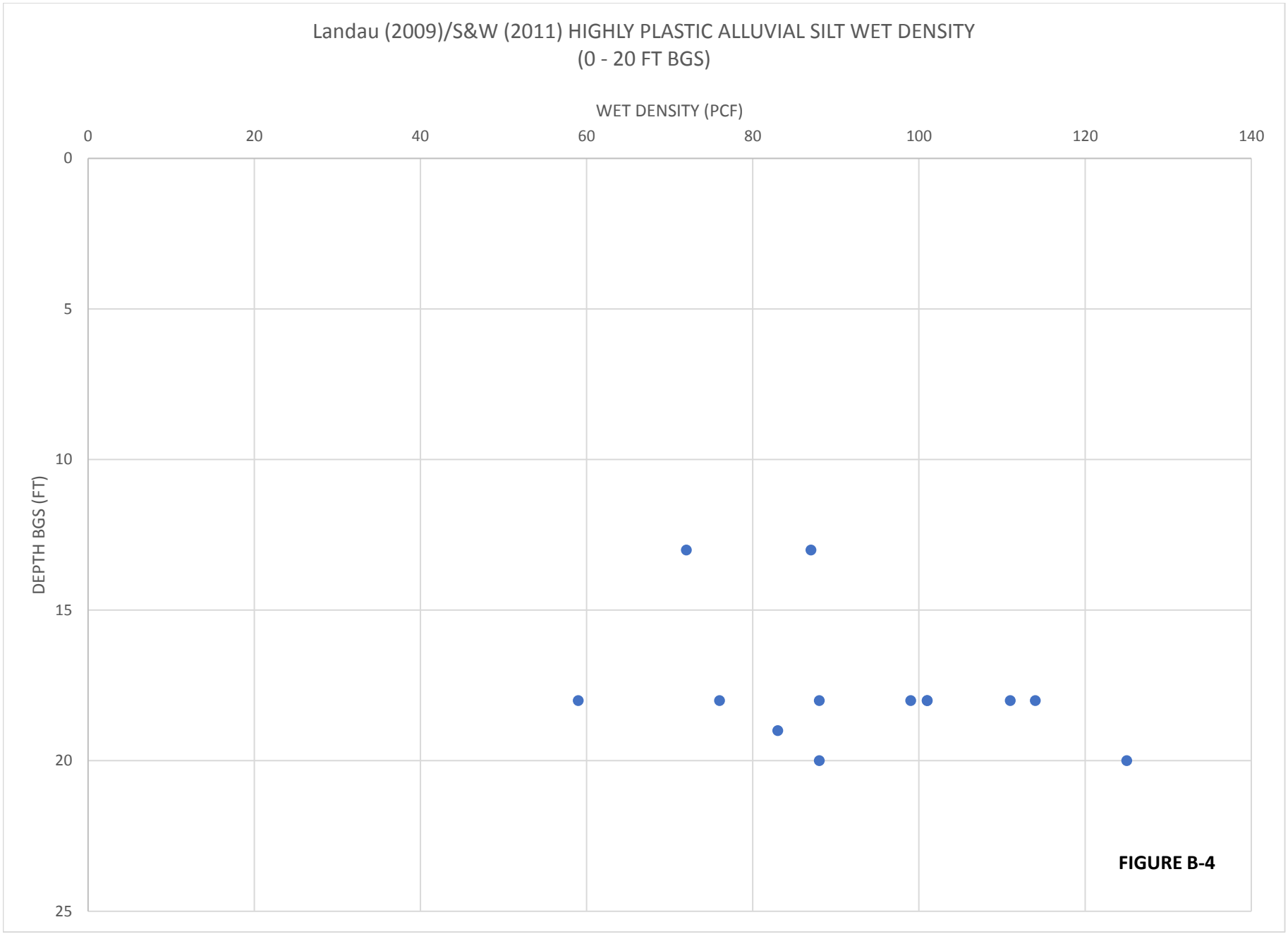
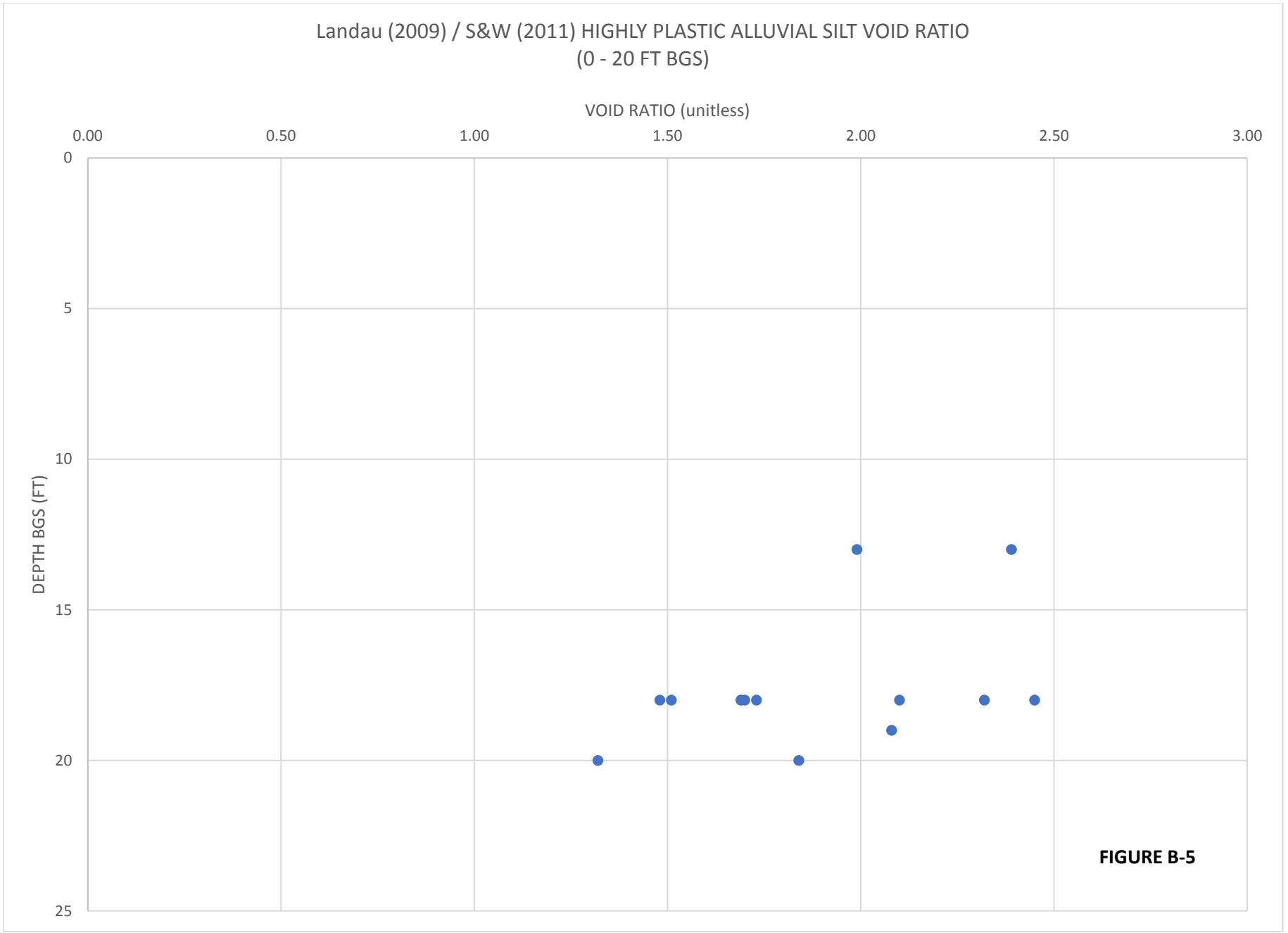

Landau (2009)/S&W (2011) HIGHLY PLASTIC ALLUVIAL SILT WET DENSITY
(0 - 20 FT BGS)
WET DENSITY (PCF)
0
20
40
60
80
100
120
140
DEPTH BGS (FT)
0
5
10
15
20
25

FIGURE B-4


Landau (2009) / S&W (2011) HIGHLY PLASTIC ALLUVIAL SILT VOID RATIO
(0 - 20 FT BGS)
VOID RATIO (unitless)
0.00
0.50
1.00
1.50
2.00
2.50
3.00
DEPTH BGS (FT)
0
5
10
15
20
25
FIGURE B-5

APPENDIX E

GROUNDWATER—SURFACE WATER INTERACTION LETTER

December 12, 2022
Project No. M1044.02.013

Tom Middleton, LHG
Washington State Department of Ecology
PO Box 47775
Olympia, Washington 98504-7775

Re: Seaport Landing Groundwater-Surface Water Interactions

Dear Tom Middleton:

On behalf of Grays Harbor Historical Seaport Authority, Maul Foster & Alongi, Inc. (MFA), has prepared this report evaluating groundwater and surface water interactions at the Seaport Landing property, formerly the Weyerhaeuser Sawmill Aberdeen, located at 500 N Custer Street in Aberdeen, Washington (the Site; see Figure 1-2 of the remedial investigation [RI] report, to which this report is an appendix). The data were collected to support the RI of the Site, required by the Washington State Department of Ecology Agreed Order DE 15953, dated March 28, 2019. This investigation was conducted in order to characterize the flow regime of shallow site groundwater and evaluate interactions between groundwater and tidally influenced surface water at the Site. This report is an Appendix to the *Upland Remedial Investigation Report, Weyerhaeuser Sawmill Aberdeen/Seaport Landing*, (RI report) for the Site.

BACKGROUND

The Site is located approximately two miles upriver from Grays Harbor, along the alluvial meander plain of the Chehalis River. The Site includes approximately 23.6-acres of upland property, which is owned by Grays Harbor Historical Seaport Authority, and the adjacent approximately 16.9-acres of tidelands in the Chehalis River, which are leased from the Washington State Department of Natural Resources. The primary surface water body in the vicinity of the Site is the Chehalis River, which flows to the west along the northern portion of the Site. The Chehalis River is tidally connected to Grays Harbor and the Pacific Ocean, resulting in a mixed semidiurnal tidal regime (i.e., two different high and two different low tides per lunar day). The shoreline of the river curves inward near the western end of the Site forming a pocket beach (see Figure 1-2 of the RI report). Shannon Slough flows along the southern and eastern portion of the Site, through a culvert and tide gate prior to entering the Chehalis River at an embayment in the upstream corner of the Site.

Depth to groundwater in the upland areas of the Site is approximately 4 to 5 feet below ground surface. Based on preliminary water level data, groundwater on the western portion of the Site generally flows toward the Chehalis River and may be tidally influenced. Groundwater flow on the eastern portion of the Site is toward Shannon Slough. A 2010 investigation determined that

water originating from seeps in the pocket beach area had a different chemical signature than Chehalis River water, suggesting that the seeps are more consistent with Site groundwater and do not represent bank storage of river water inundated during high tide (Floyd Snider 2010).

PROCEDURES

On December 27, 2019, in accordance with the *Upland RI Work Plan (RIWP)*, VanEssen Instruments CTD-Diver non-vented pressure transducers were installed in ten monitoring wells (five newly installed and five existing wells) across the Property and in a staff gauge on the downstream end of the wharf (Figure 1) (MFA 2019). The pressure transducer network consisted of a north-south transect of six monitoring wells approximately perpendicular to the Chehalis River in the west-center of the Site as well as four monitoring wells along the south and east boundaries of the Site to provide a site-wide indication of groundwater fluctuations. The location RAU4-03 was proposed to be part of the pressure transducer network under the RIWP; however, it was not completed as a monitoring well due to a lack of groundwater in the boring to a depth of approximately 15 feet below ground surface. The next closest boring, RAU4-12, was completed as a monitoring well with a pressure transducer in lieu of RAU4-03.

The pressure transducers operated from December 27, 2019, to May 3, 2021, monitoring the water level elevations, conductivity, and temperature in 15-minute intervals. Water levels were manually collected at three monitoring wells where pressure transducers were not installed (D-05, D-07, and D-09) (Figure 1). Monitoring wells D-01 and D-06 were originally scoped to be included for manual measurement under the RIWP; however, the well monuments were unable to be opened in the field. Locations where transducer data and manual water level measurements were collected are documented in Table 1. Data from the pressure transducers were downloaded in conjunction with the collection of manual water level measurements with an electronic well sounding (water level) probe on December 27, 2019; February 12, 2020; May 26, 2020; July 21, 2020; November 9, 2020; and May 3, 2021. Transducer data were corrected for barometric pressure using data collected from a barometric pressure logger placed on the Site, using Van Essen Instruments Diver-Office software.

DATA EVALUATION

Comparison of Manual and Transducer Water Level Data

The manual water level measurements were compared against the readings from the pressure transducers to verify the accuracy of the continuous monitoring data. Manual water level measurements are provided in Table 2, and hydrographs showing manual and transducer water level elevations are provided in Figures 2a through 2j. Generally, the manual measurements matched closely with the water level elevations recorded by the pressure transducer. Consistent discrepancies between the manual and transducer water levels occurred in three monitoring wells:

- **D-02.** Manual water levels at monitoring well D-02 were consistently approximately 1 foot lower than the water levels measured by the pressure transducer, with the exception of the final manual measurement collected on May 3, 2021, which was within 0.01 feet of the transducer measurement.
- **D-03.** Manual water level measurements at monitoring well D-03 were consistently approximately 0.6 feet higher than the water levels measured by the pressure transducer, with the exception of the final measurement collected on May 3, 2021, which was approximately 0.5 feet lower than the corresponding transducer measurement.
- **RAU3-03.** Manual water level measurements at monitoring well RAU3-03 were consistently lower than the water levels measured by the pressure transducer. Manual water levels ranged from approximately 0.5 to 1 foot lower than the corresponding transducer measurements.

All three wells are located in the uplands within approximately 200 feet of each other and are among the monitoring wells with the highest water level elevations. It is unclear what accounts for the discrepancy between manual and transducer water level measurements at these three wells. MFA considered and eliminated the following potential explanations for the discrepancies:

- MFA evaluated the possibility that small temporal differences between manual and transducer measurements (typically less than 15 minutes) could be associated with true changes in water level elevations as the result of tidal or other fluctuations. This was determined not the be the cause of the discrepancies because the three wells are located relatively far upland, away from the Chehalis River, and no tidal signal or other rapid water level fluctuations were observed at these locations.
- MFA confirmed the parameters used to convert transducer pressure readings to water level elevations were correct, including top of casing elevations and barometric pressure readings from the on-site barometric pressure logger.
- MFA consulted with the instrument manufacturer, Van Essen Instruments, which confirmed that the discrepancies were not the result of systematic instrument error, and that barometric pressure compensation was performed correctly.
- MFA reviewed field data logs and consulted with field staff to evaluate the potential for erroneous or anomalous manual water level measurements. Measurements at D-02, D-03, and RAU3-03 were collected using the same instruments and procedures as other monitoring wells where no discrepancies were observed. No anomalies were observed in the field at these wells that would distinguish them from other monitoring wells on site.

To evaluate the implications of the discrepancy between manual and transducer water level measurements, the groundwater potentiometric surface from July 21, 2020, was generated using both manual measurements and transducer data (Figures 3 and 4), and the surfaces were compared. Variations between the potentiometric surfaces generated using manual and transducer data are limited to the area surrounding D-02, D-03, RAU3-03, and D-09. The potentiometric surface generated by manual water level measurements shows an area of apparent groundwater mounding which peaks around monitoring well D-09 (where water levels were only measured manually), whereas the potentiometric surface generated by transducer data shows an area of mounding around monitoring well D-02. The slope of the hydraulic gradient radiating away from this area of apparent groundwater mounding is steeper in the manual data set. These variations are relatively minor and do not result in different interpretations of groundwater flow directions or the direction of the hydraulic gradient between site groundwater and the Chehalis River. Because no source of error associated with transducer measurements was apparent, and because the discrepancies between manual and transducer measurements do not result in conflicting interpretations of groundwater flow directions, MFA proceeded with evaluation of transducer data from monitoring wells D-02, D-03, and RAU3-03 as described below.

Groundwater Discharge

MFA prepared potentiometric surface maps and hydrographs to evaluate patterns of groundwater flow directions and discharge to surface water.

Transducer data were used to generate potentiometric surfaces for high and low tide conditions during four different periods to evaluate tidal and seasonal variations in groundwater flow (Figures 4 through 11). Transducer data were used rather than manual measurements because transducer data allowed for generation of potentiometric surfaces based on simultaneous data, which avoids inconsistencies associated with tidal fluctuations in water levels and corresponded more closely with the times of highest and lowest tide conditions.

At low tide, the Chehalis River lies approximately nine to twelve feet lower than the groundwater elevation observed in the ten monitoring wells with transducers. Groundwater potentiometric surface contour maps based on the transducer data at low tide show that groundwater flows out from an area of apparent groundwater mounding at the center of the property roughly centered at or near monitoring well D-02. Groundwater north and northeast of this area flows north toward the bank of the Chehalis River. Groundwater west of this area flows west toward the inlet in the Chehalis River west of the wharf. Groundwater east and south of this area flows east toward Shannon Slough, which then discharges to the Chehalis River. Water levels were highest in fall and winter, and lowest in summer (Figures 5, 7, 9, and 11).

At high tide, the elevation of the Chehalis River rises 11 to 12 feet above the low tide elevation with the highest high tide in the fall at 9.67 feet North American Vertical Datum of 1988 (NAVD 88) and the lowest in the spring at 8.25 feet NAVD 88. The hydraulic gradient at the Site is less steep during high tides than low tides, but the groundwater flow pattern remains the same, with groundwater flowing away from area of apparent groundwater mounding to the north, west, and east and discharging to the Chehalis River and Shannon Slough (Figures 4, 6, 8, and 10).

A hydrograph displaying water levels for the Chehalis River and each monitoring well equipped with a transducer is provided in Figure 12. The elevation of the Chehalis River fluctuates from approximately -4 to 10 feet NAVD 88 based on tidal cycles. Groundwater elevations measured at monitoring wells generally range from approximately 8 to 12 feet NAVD 88. Water level elevations are slightly lower at the two monitoring wells closest to the riverbank (i.e., RAU2-08 and RAU4-12). Groundwater elevations range from approximately 6 feet to 9 feet NAVD 88 at RAU2-08 and from approximately 3 feet to 6 feet NAVD 88 at RAU4-12. In general, the hydrograph suggests that groundwater is generally upgradient from the surface water, but there may be temporary reversals of the gradient when tidal fluctuations result in surface water levels that are higher than groundwater levels at the riverbank.

Because tidal fluctuations are present in the Chehalis River, pressure waves generated by the tidal fluctuations propagate upland in groundwater. As a result, groundwater levels fluctuate with tidal cycles to varying degrees and at varying times based on distance from the Chehalis River. These fluctuations in groundwater and surface water levels result in a situation in which individual sets of water level measurements cannot fully characterize groundwater levels. Synoptic measurements, including the transducer measurements used to produce the potentiometric surfaces discussed above, are useful for evaluating groundwater flow at individual points in time, but do not capture the net effect of tidal fluctuations on hydraulic gradients and groundwater flow. To evaluate the mean hydraulic gradient between upland monitoring wells and the Chehalis River, MFA calculated averaged water levels for the Chehalis River and each monitoring well using the Serfes filtering method, which uses a rolling average calculation of 71 consecutive hourly measurements to filter out all diurnal and semidiurnal lunar and solar harmonics from the data set (Serfes 1991).

The Serfes averaged data are plotted in Figures 13a through 13j. This data set confirms that mean groundwater elevations are consistently above the mean surface water elevations at all monitoring wells, with the exception of RAU4-12. At most monitoring wells, the averaged groundwater elevations are approximately 5 to 6 feet above the averaged Chehalis River water elevations throughout the year. Monitoring well RAU2-08 is located approximately 60 feet upland from the Chehalis River, and averaged groundwater levels were approximately 3 feet above averaged Chehalis River water elevations throughout the year (Figure 13e). These data confirm that the net direction of groundwater flow is from the uplands to the Chehalis River,

that groundwater is discharging to surface water throughout the Site, and temporary reversals of the hydraulic gradient at the riverbank are unlikely to result in significant flow of water from the Chehalis River into site groundwater.

Unlike averaged water levels at other monitoring wells, averaged water levels at RAU4-12 were consistently 3 to 6 feet lower than averaged water levels at other monitoring wells on the Site, typically within a few inches of Chehalis River water levels, and, at some times, were slightly lower than Chehalis River water levels (Figure 13h). RAU4-12 is located approximately 65 feet upland of Shannon Slough, adjacent to the tide gate. The tide gate is fitted to the culvert at the outlet of Shannon Slough to prevent backflow of water up Shannon Slough at high tide. When the tide gate is closed, the water level in Shannon Slough is a product of water from upland sources pooling behind the tide gate. Shannon Slough is able to drain back into the Chehalis River when the water level in the river is below the tide gate at 4.35 feet NAVD 88, which occurs approximately half the time. Although no water levels are available for any location in Shannon Slough, the water levels downstream of the tide gate, in the vicinity of RAU4-12, likely closely correspond to the water levels in the Chehalis River. Although this setting is hydraulically complex, the averaged water level data from RAU4-12 indicate that groundwater at this location is in close hydraulic connection with surface water in the adjacent Shannon Slough.

Groundwater-Surface Water Interaction Zone

To evaluate groundwater surface water interactions, MFA identified a 48-hour period during each season and performed a detailed evaluation of data logged by the transducers at each monitoring location, including water level elevations, conductivity, and temperature. These data are presented in Attachment A. Each figure includes both time series plots and box plots of the data from a monitoring well and from the Chehalis River, allowing for direct comparison of conditions in surface water and groundwater over the 48-hour period.

Water Levels

The majority of the monitoring wells do not display an observable tidal signal over any of the 48-hour periods reviewed. Monitoring wells D-02, D-03, D-04E, D-08, RAU3-03, and RAU6-02 show minor changes in water levels over each 48-hour period (typically less than 0.2 foot) that do not correspond with tidal patterns. In contrast, RAU2-08 and RAU2-09, which are the wells closest to the river in the western portion of the Site, clearly reflect a tidal signal with a 0.6-to-2-foot increase in elevation at high tide. The tidal response diminishes with distance from the river, which is typical in groundwater adjacent to tidally influenced surface water bodies. At RAU2-08, the tidal signal closely follows the period and pattern of the Chehalis River tidal signal (see Attachment A of this report, Figures A-6, A-17, A-28, and A-39). At RAU2-09, the tidal signal occurs at half the frequency of the Chehalis River tidal signal, and fluctuations at RAU2-09 appear to correspond with only the higher of the two mixed

semidiurnal high tides that occur in the Chehalis River (see Attachment A, Figures A-7, A-18, A-29, and A-40).

Monitoring well RAU4-12 is adjacent to Shannon Slough, immediately upstream of the confluence of Shannon Slough and the Chehalis River and downstream of the tide gate on Shannon Slough. At RAU4-12, there is a clear tidal signal in the water levels; however, the amplitude of the tidal fluctuations is relatively low, with only approximately 0.3 to 0.5 feet of elevation change observed over each tidal cycle (Figures A-9, A-20, A-31, and A-42). Finally, at monitoring well RAU4-UNK, a small tidal signal, with approximately 0.1 to 0.2 feet of elevation change, is apparent during the December and October periods, but not in April and July (Figures A-10, A-21, A-32, and A-43).

The box plots indicate that water level elevations at most monitoring wells are either above the range of water level elevations observed in the Chehalis River or within the upper quartile of water level elevations observed in the Chehalis River. The only monitoring well where mean water level elevations are within the box representing the second and third quartiles of Chehalis River water levels is RAU4-12, where water level elevations are three to six feet lower than other monitoring wells on the Site (Figures A-9, A-20, A-31, and A-42).

Combined, these water level data indicate that the propagation of the Chehalis River tidal signature into upland groundwater is limited to monitoring wells within approximately 65 feet of the riverbank. This tidal signal is propagated by changes in water pressure rather than advection of surface water into upland groundwater (Serfes 1991), and is not an indication of bank storage of surface water.

Conductivity

Evaluation of conductivity is particularly relevant to the assessment of groundwater-surface water interactions at the Site because the Chehalis River is closely connected to Grays Harbor and the Pacific Ocean, and, as a result, has large fluctuations in conductivity associated with influxes of saline seawater during each tidal cycle. As shown in Figures A-1, A-12, A-23, and A-34, conductivity of the Chehalis River fluctuates between close to 0 microSiemens per centimeter (uS/cm) to almost 35,000 uS/cm, which is a typical value for conductivity in seawater off the coast of Washington state (Tyler et al. 2017). These fluctuations in conductivity correspond with tidal fluctuations, providing a distinct signal associated with Chehalis River water.

As shown in Figures A-1, A-12, A-23, and A-34, most of the monitoring wells on the Site have comparatively low conductivity relative to the range observed in the Chehalis River, typically ranging between 100 and 1,000 uS/cm. Three of the wells stand out with much higher conductivity values relative to conductivity values for most other monitoring wells during all four seasons.

- **RAU2-08** shows elevated conductivity in all four 48-hour periods evaluated, with the lowest conductivity levels in April between approximately 8,000 to 10,000 uS/cm and the highest conductivity measurements in October at approximately 30,000 uS/cm (Figures A-6, A-17, A-28, and A-39).

- **RAU2-09** shows a similar pattern, with elevated conductivity levels during all four seasons. October had the highest conductivity levels of the four 48-hour periods evaluated, with conductivity ranging from approximately 29,700 uS/cm to approximately 29,200 uS/cm. April had the lowest conductivity levels of the four 48-hour periods evaluated, with measurements ranging from approximately 7,000 uS/cm to approximately 7,400 uS/cm (Figures A-7, A-18, A-29, and A-40).

- **RAU4-12** has consistently elevated conductivity levels relative to most monitoring wells on the Site, but lower conductivity levels than RAU2-08 and RAU2-09. Like RAU2-08 and RAU2-09, the lowest conductivity levels at RAU4-12 occurred in April at approximately 6,800 uS/cm. The highest conductivity levels were present at RAU4-12 in December at approximately 8,100 uS/cm (Figures A-9, A-20, A-31, and A-42).

The monitoring wells with comparatively elevated conductivity levels are the three monitoring wells closest to surface water bodies adjoining the Site. RAU2-08 is approximately 60 feet upland of the Chehalis River, RAU2-09 is approximately 60 feet upland of the Chehalis River pocket beach, and RAU4-12 is approximately 65 feet upland of Shannon Slough. These locations suggest that the elevated conductivity in groundwater at these monitoring wells is the result of interaction with adjacent surface water. This is consistent with the fact that the highest conductivity levels measured at RAU2-08 and RAU2-09 are similar to the highest conductivity levels in Chehalis River water, while the highest conductivity levels at RAU4-12 are much lower (approximately 8,000 uS/cm compared to 30,000 uS/cm). No conductivity data are available for the Shannon Slough, but the freshwater discharge from Shannon Slough is expected to dilute the Chehalis River water, resulting in much lower conductivity levels in the vicinity of RAU4-12.

Unlike the Chehalis River, none of the monitoring wells with elevated conductivity levels shows periodic fluctuations in conductivity associated with tidal influxes of saline water from Grays Harbor. This suggests that the elevated conductivity in groundwater adjacent to surface water bodies is more likely the result of ongoing chemical dispersion and diffusion than advection of surface water into upland groundwater.

Temperature

Chehalis River temperatures fluctuate periodically with tidal patterns. In October and December, the Chehalis River is warmer at high tide and colder at low tide. Conversely, in April

and July, the Chehalis River is colder at high tide, warmer at low tide. Overall Chehalis River temperatures are highest in July and lowest in December.

Unlike surface water, there are no periodic fluctuations observed in groundwater temperatures in any monitoring wells at the Site, with the exception of RAU2-08 in the month of April (Figure A-17) and RAU2-09 in the month of July (Figure A-29). Generally, groundwater temperatures are higher than surface water temperatures during October and December, and lower than surface water temperatures in April and July. Groundwater temperatures are consistent and distinct from surface water temperatures, suggesting that the physical advection of surface water into upland groundwater—or mixing of surface water and groundwater—is limited at all upland monitoring wells, including wells adjacent to the Chehalis River and Shannon Slough.

At monitoring well RAU2-08 during the April 48-hour evaluation period, groundwater temperatures are consistently lower than surface water temperatures, but appear to temporarily increase at times that correspond with high tides. At monitoring well RAU2-09 during the July 48-hour evaluation period, groundwater temperatures are consistently approximately 13 degrees Celsius, but rise rapidly to 14.2 degrees Celsius at high tide, which is approximately the same temperature as Chehalis River surface water at high tide. These data indicate that, at these locations adjacent to the Chehalis River, there may be seasonal conditions that facilitate physical mixing of surface water and groundwater for limited portions of the year.

CONCLUSIONS

Groundwater at the Site discharges to surface water. Groundwater in the northern and northwestern portion of the Site discharges directly to the Chehalis River. Groundwater in the southern and southeastern portion of the Site discharges to Shannon Slough, which flows into the Chehalis River at the northeastern corner of the Site.

Multiple lines of evidence indicate that significant interaction between surface water and groundwater are limited to three monitoring wells: RAU2-08, RAU2-09, and RAU4-12. RAU2-08 and RAU2-09 are immediately adjacent to the Chehalis River, while RAU4-12 is immediately adjacent to the Shannon Slough. Water levels in all three of these monitoring wells display periodic tidal fluctuations that reflect patterns observed in the Chehalis River. Conductivity measurements at these three wells are substantially elevated relative to other monitoring wells on the Site and are within the range of conductivity levels observed in the Chehalis River. The available data, including temperature data, indicate that groundwater-surface water interactions at these three monitoring wells are dominated by processes including chemical dispersion and diffusion, and propagation of pressure waves upland from fluctuating hydraulic head in the Chehalis River. The data suggest that physical advection of surface water into upland

groundwater, driven by temporary reversals of the hydraulic gradient, is very limited both spatially and seasonally.

Although the data indicate that there is some interaction between surface water and groundwater at monitoring wells located immediately adjacent to the Chehalis River, the concentrations of contaminants measured at these wells are representative of groundwater and are therefore most appropriately compared to groundwater screening levels. No substantial physical advection of surface water onto the uplands is occurring. Substantial groundwater and surface water mixing only occurs when groundwater discharges to the Chehalis River or Shannon Slough, where the volume of groundwater discharged is a small portion of the total water volume. Even at monitoring wells where there is evidence of groundwater-surface water interactions, surface water screening levels are inappropriate for drawing risk conclusions, because groundwater samples are not representative of surface water conditions.

Sincerely,

Maul Foster & Alongi, Inc.

Courtney Savoie, LHG
Senior Hydrogeologist

Amanda Bixby, GIT
Staff Geologist

Attachments: Limitations
References
Tables
Figures
Attachment A—Water Level, Conductivity, and Temperature Plots

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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MFA. 2019. *Upland Remedial Investigation Work Plan–Weyerhaeuser Sawmill Aberdeen/Seaport Landing.* Prepared for Grays Harbor Historical Seaport Authority. Maul Foster & Alongi, Inc. Seattle, Washington. December 31.

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TABLES



DRAFT

Table 1
Water Level Monitoring Locations
Weyerhauser Sawmill Aberdeen/Seaport Landing Site

Well	Monitoring Method	Manual Measurement Dates	Transducer Data Range
D-02	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
D-03	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
D-04E	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
D-05	Manual	Feb 12, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	NA
D-07	Manual	Feb 12, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	NA
D-08	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
D-09	Manual	Feb 12, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	NA
RAU4-UNK	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
RAU2-08	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
RAU2-09	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
RAU3-03	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
RAU4-12	Manual and Transducer	Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021

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Table 1
Water Level Monitoring Locations
Weyerhauser Sawmill Aberdeen/Seaport Landing Site

Well	Monitoring Method	Manual Measurement Dates	Transducer Data Range
D-02	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
D-03	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
RAU6-02	Manual and Transducer	Dec 27, 2019; Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021
Staff Gauge	Manual and Transducer	Feb 12, 2020; May 26, 2020; Jul 21, 2020; Nov 9, 2020; May 3, 2021	Start: Dec 27, 2019 End: May 3, 2021

Note
NA = not applicable; no transducer installed at this location.

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Table 2
Manual Water Level Measurements
Weyerhauser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

Location	Date	Time	Manual Depth to Water (feet below TOC)	Survey Elevation (feet NAVD 88)	Water Level Elevation (feet NAVD 88)
D-02	2/12/2020	10:46	2.78	12.40	9.62
	5/26/2020	12:35	3.78		8.62
	7/21/2020	17:35	4.25		8.15
	11/9/2020	11:12	3.56		8.84
D-03	2/12/2020	10:32	2.31	11.81	9.50
	5/26/2020	12:45	2.60		9.21
	7/21/2020	17:41	2.93		8.88
	11/9/2020	11:19	2.84		8.97
	5/3/2021	15:07	3.75		8.06
D-04E	12/11/2019	12:26	3.50	12.81	9.31
	12/27/2019	13:31	3.87		8.94
	2/12/2020	11:25	3.30		9.51
	5/26/2020	12:15	4.25		8.56
	7/21/2020	17:30	4.65		8.16
	11/9/2020	11:02	4.08		8.73
	5/3/2021	14:40	4.21		8.60
D-08	12/11/2019	14:50	2.98	12.36	9.38
	12/27/2019	--	--[a]		--
	2/12/2020	11:51	2.86		9.50
	5/26/2020	13:08	3.89		8.47
	7/21/2020	16:52	4.28		8.08
	11/9/2020	11:32	3.70		8.66
	5/3/2021	13:56	3.92		8.44
RAU2-08	12/11/2019	12:00	4.85	14.40	7.44
	12/27/2019	13:23	4.00		8.29
	2/12/2020	11:16	5.36		6.93
	5/26/2020	11:47	5.94		6.35
	7/21/2020	17:14	5.70		6.59
	11/9/2020	10:44	6.18		6.11
	5/3/2021	14:52	5.97		6.32
RAU2-09	12/11/2019	12:13	2.97	13.86	8.86
	12/27/2019	13:27	2.65		9.18
	2/12/2020	11:05	3.12		8.71
	5/26/2020	12:00	3.50		8.33
	7/21/2020	17:19	3.37		8.46
	11/9/2020	10:54	3.57		8.26
	5/3/2021	14:44	3.38		8.45

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Table 2
Manual Water Level Measurements
Weyerhauser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

Location	Date	Time	Manual Depth to Water (feet below TOC)	Survey Elevation (feet NAVD 88)	Water Level Elevation (feet NAVD 88)
RAU3-03	12/11/2019	12:45	1.25	5.61	8.61
	12/27/2019	13:36	1.50		8.36
	2/12/2020	11:40	0.82		9.04
	5/26/2020	12:58	1.19		8.67
	7/21/2020	16:42	1.84		8.02
	11/9/2020	11:27	1.68		8.18
	5/3/2021	13:52	1.14		8.72
RAU4-12	12/11/2019	--	--[a]	8.09	--
	2/12/2020	12:30	3.85		4.24
	5/26/2020	13:33	2.29		5.80
	7/21/2020	16:27	4.65		3.44
	11/9/2020	11:58	4.35		3.74
	5/3/2021	13:28	4.00		4.09
RAU4-UNK	12/11/2019	14:30	8.75	11.15	2.40
	12/27/2020	--	--[a]		--
	2/12/2020	12:24	8.45		2.70
	5/26/2020	12:41	7.85		3.30
	7/21/2020	15:17	7.28		3.87
	11/9/2020	11:57	7.92		3.23
	5/3/2021	12:24	7.93		3.22
RAU6-02	12/11/2019	14:35	3.41	10.35	6.94
	2/12/2020	12:34	2.51		7.84
	5/26/2020	13:55	1.73		8.62
	7/21/2020	16:35	1.86		8.49
	11/9/2020	12:07	2.11		8.24
	5/3/2021	13:40	2.05		8.30
Surface Water	2/12/2020	10:08	13.70	16.03	2.33
	5/26/2020	11:31	17.55		-1.52
	7/21/2020	17:04	9.99		6.04
	11/9/2020	10:30	11.45		4.58
	5/3/2021	15:19	15.65		0.38

Notes

-- = no measurement.

NAVD 88 = North American Vertical Datum of 1988

TOC = top of casing

[a]Well inaccessible due to standing water covering monument.

FIGURES



Path: X:\1044_02_13\Projects\Fig1_Water_Level_Monitoring_Locations.mxd
Print Date: 10/20/2022
Approved By: csavoie
Produced By: jroberts
Project: M1044.02.13



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Measured Manually and with Transducer

- River Height Staff Gauge
- Monitoring Well

Measured Manually

- Monitoring Well

Figure 1
Water Level Monitoring Locations

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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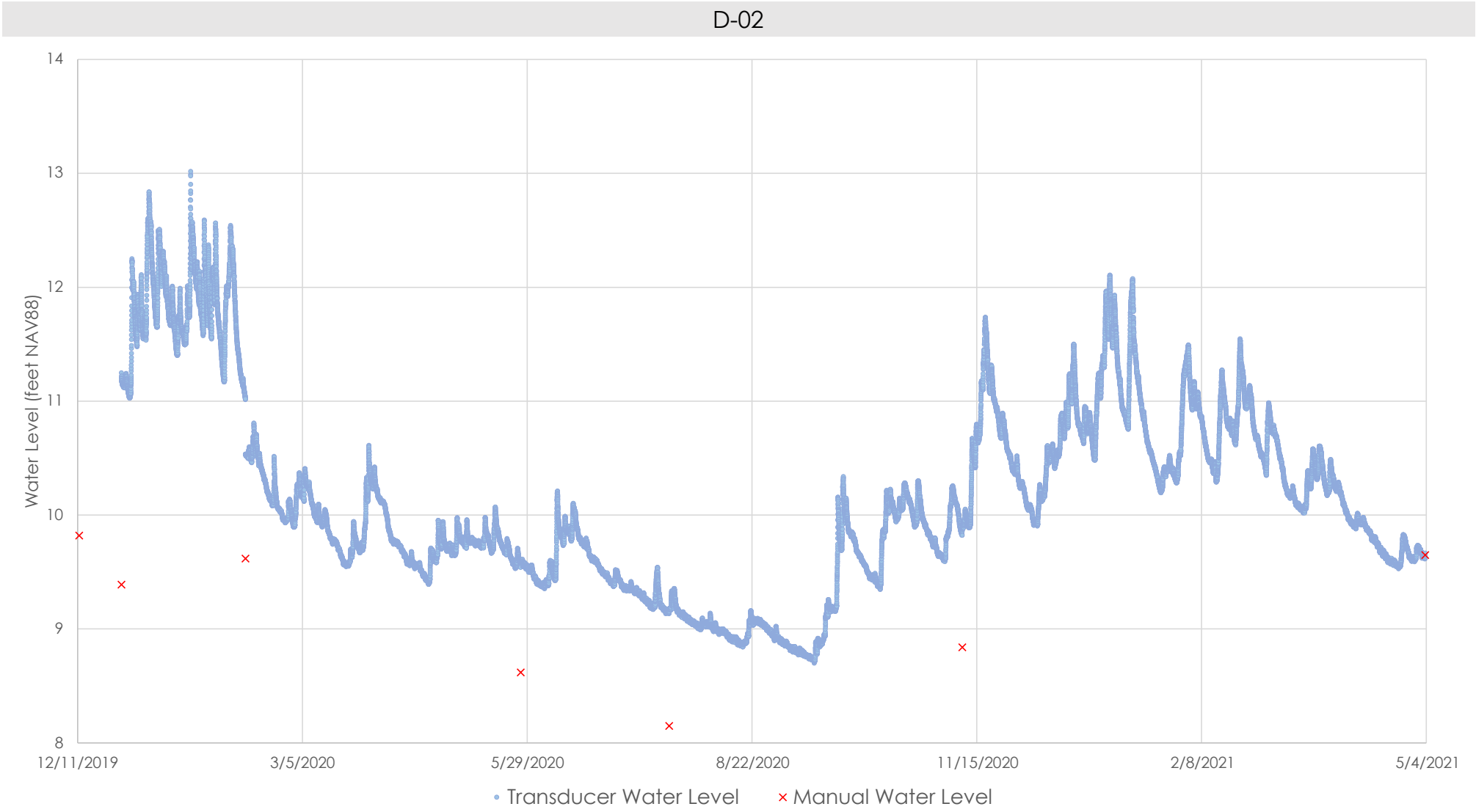
Figure 2a
D-02 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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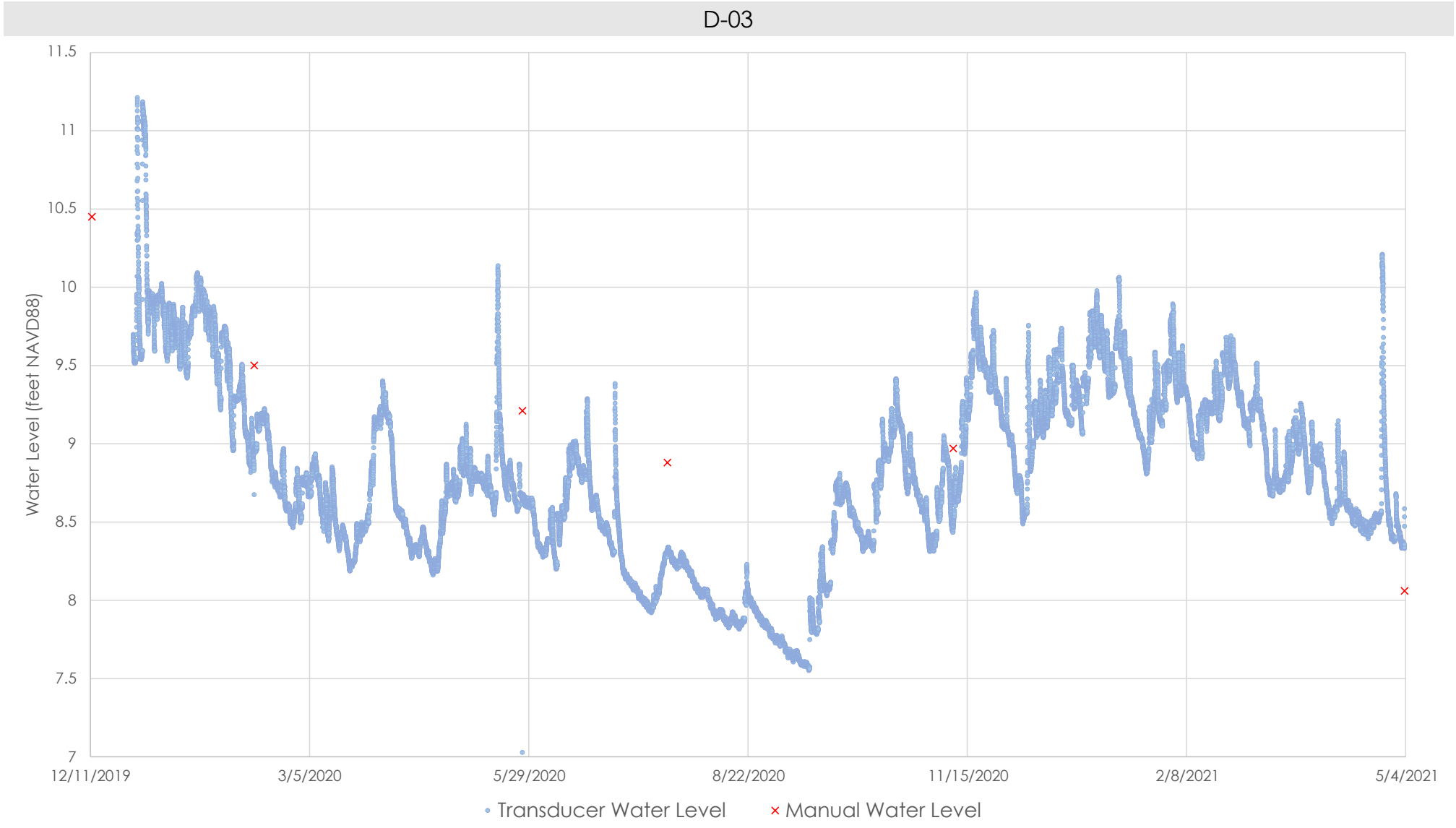
Figure 2b
D-03 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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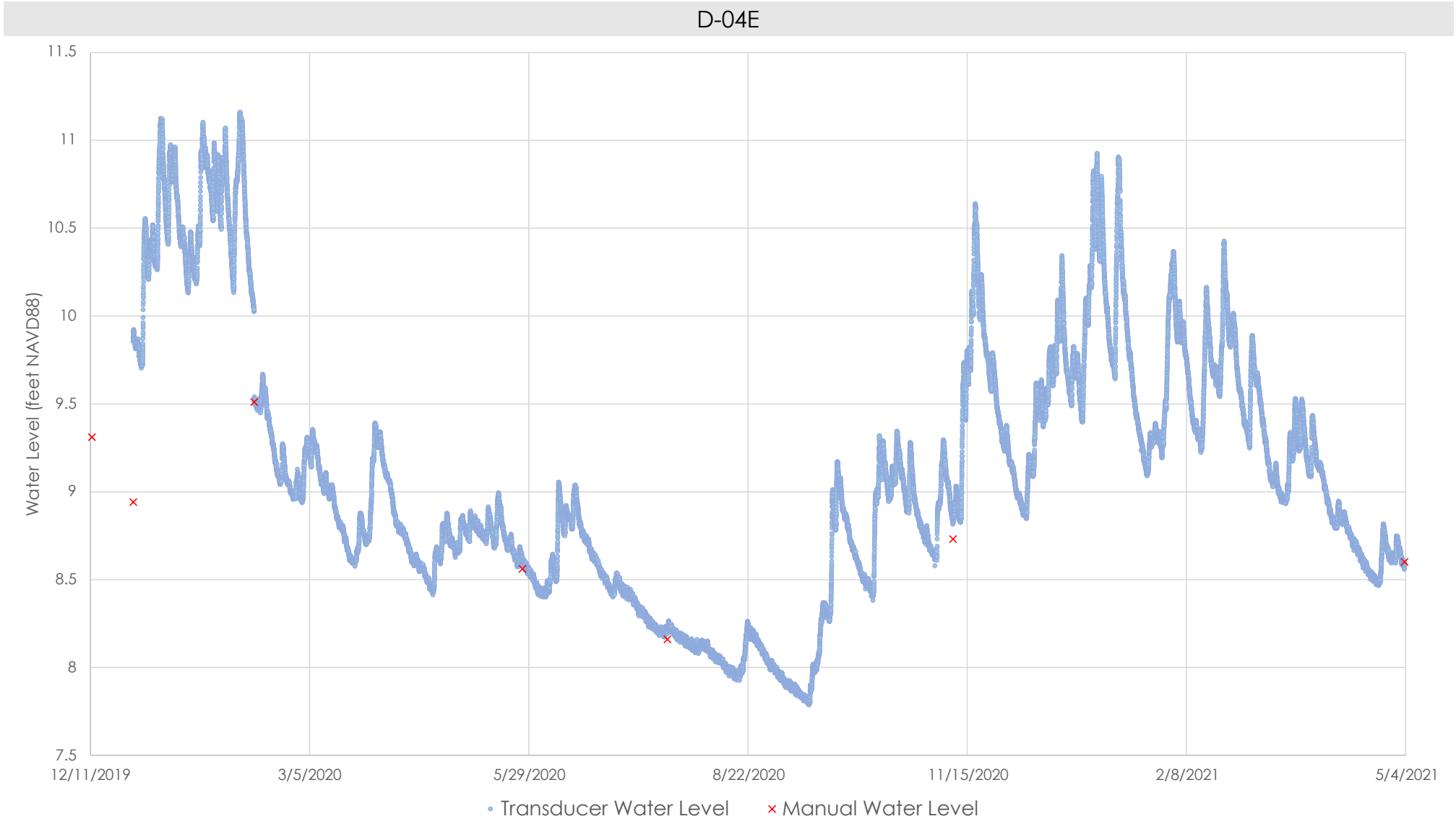
Figure 2c
D-04E Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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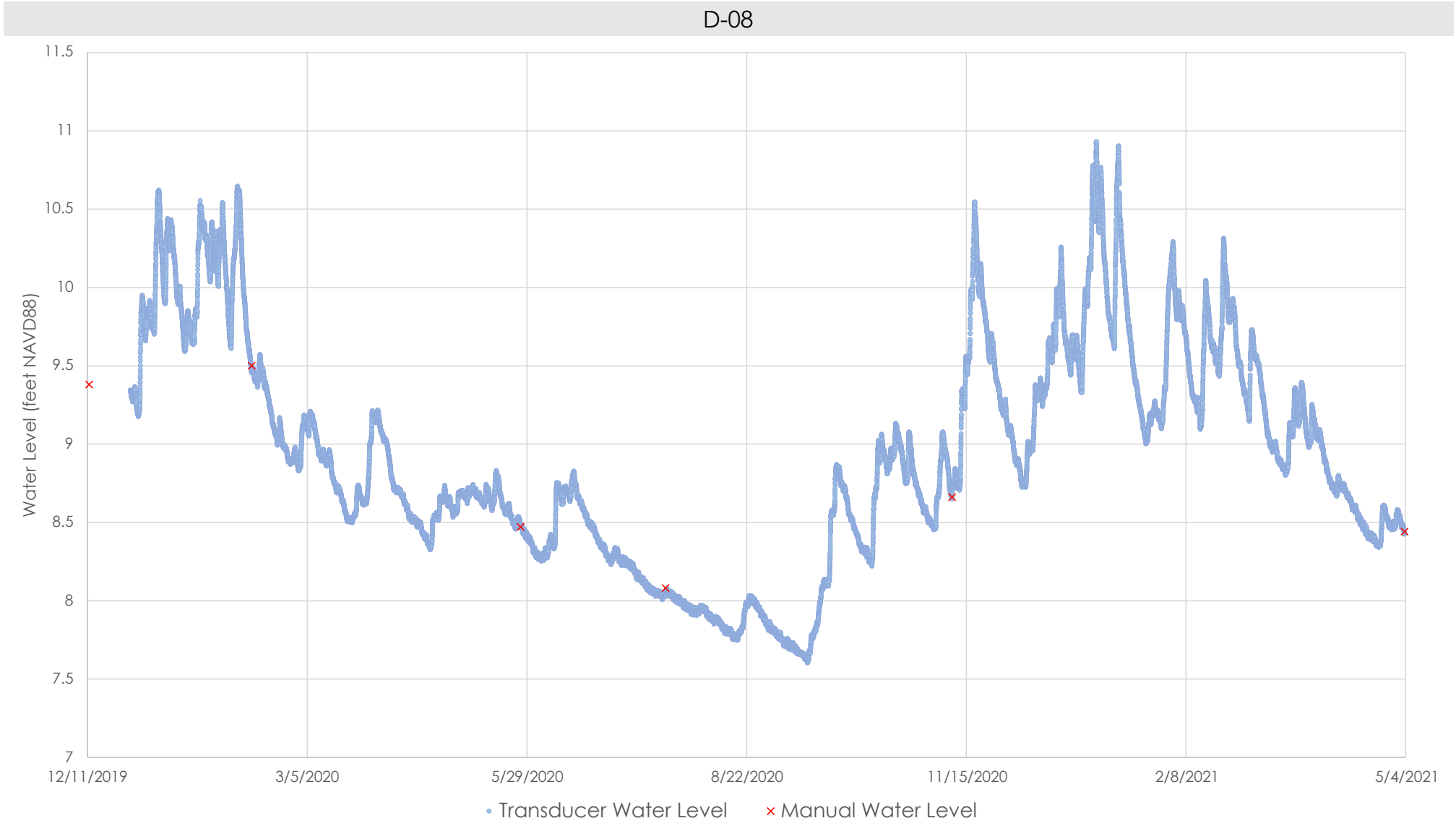
Figure 2d
D-08 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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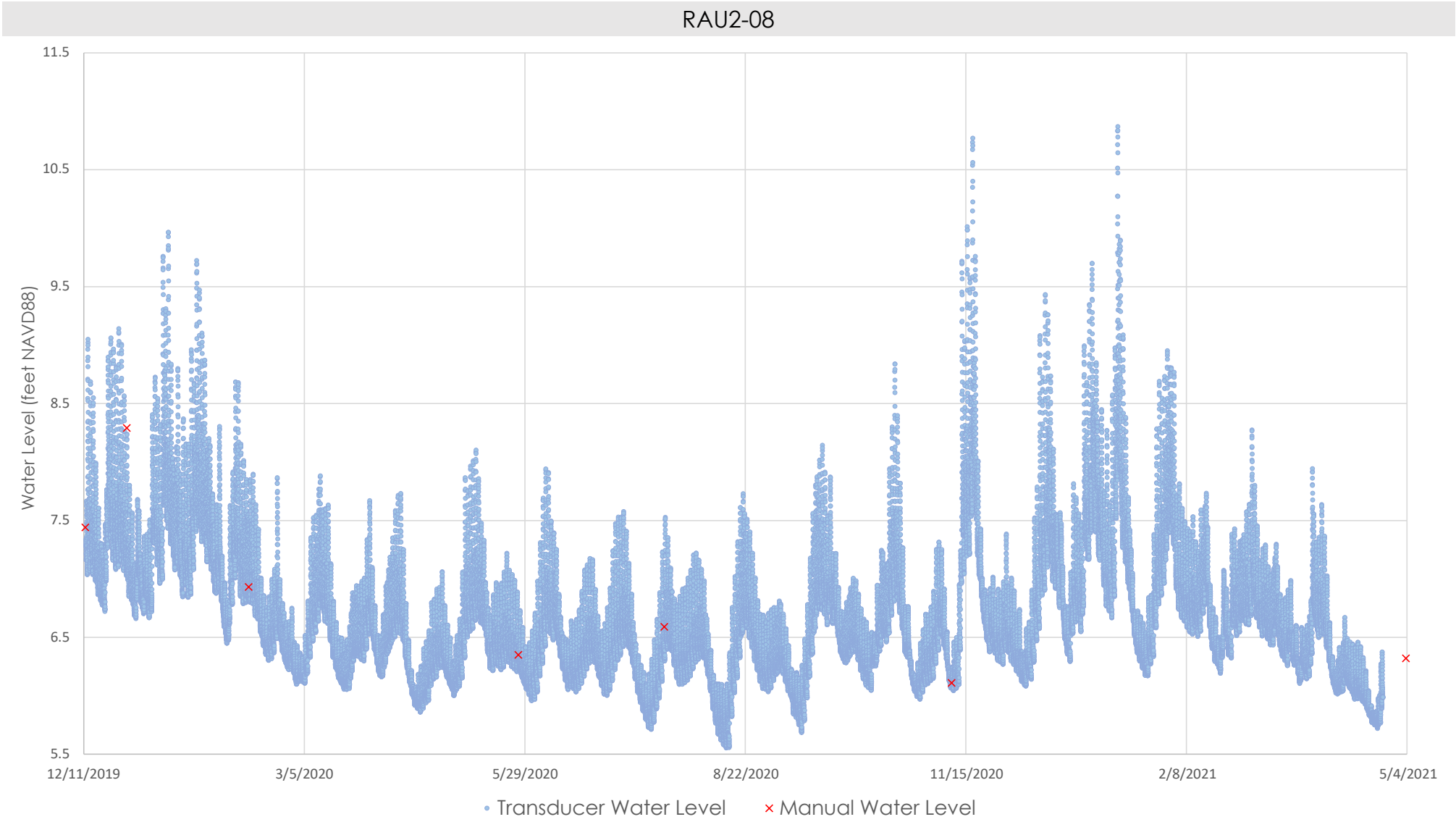
Figure 2e
RAU2-08 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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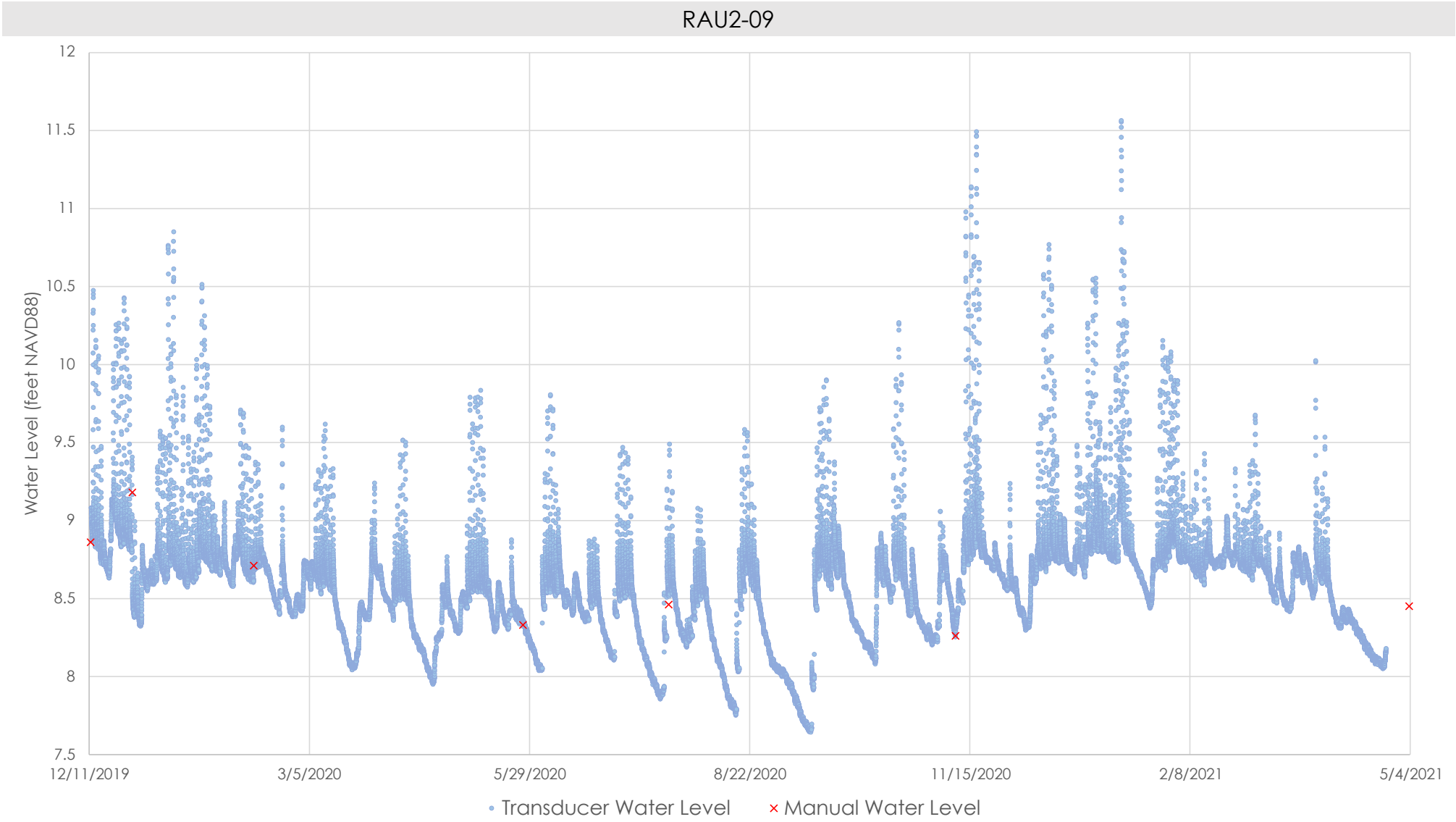
Figure 2f
RAU2-09 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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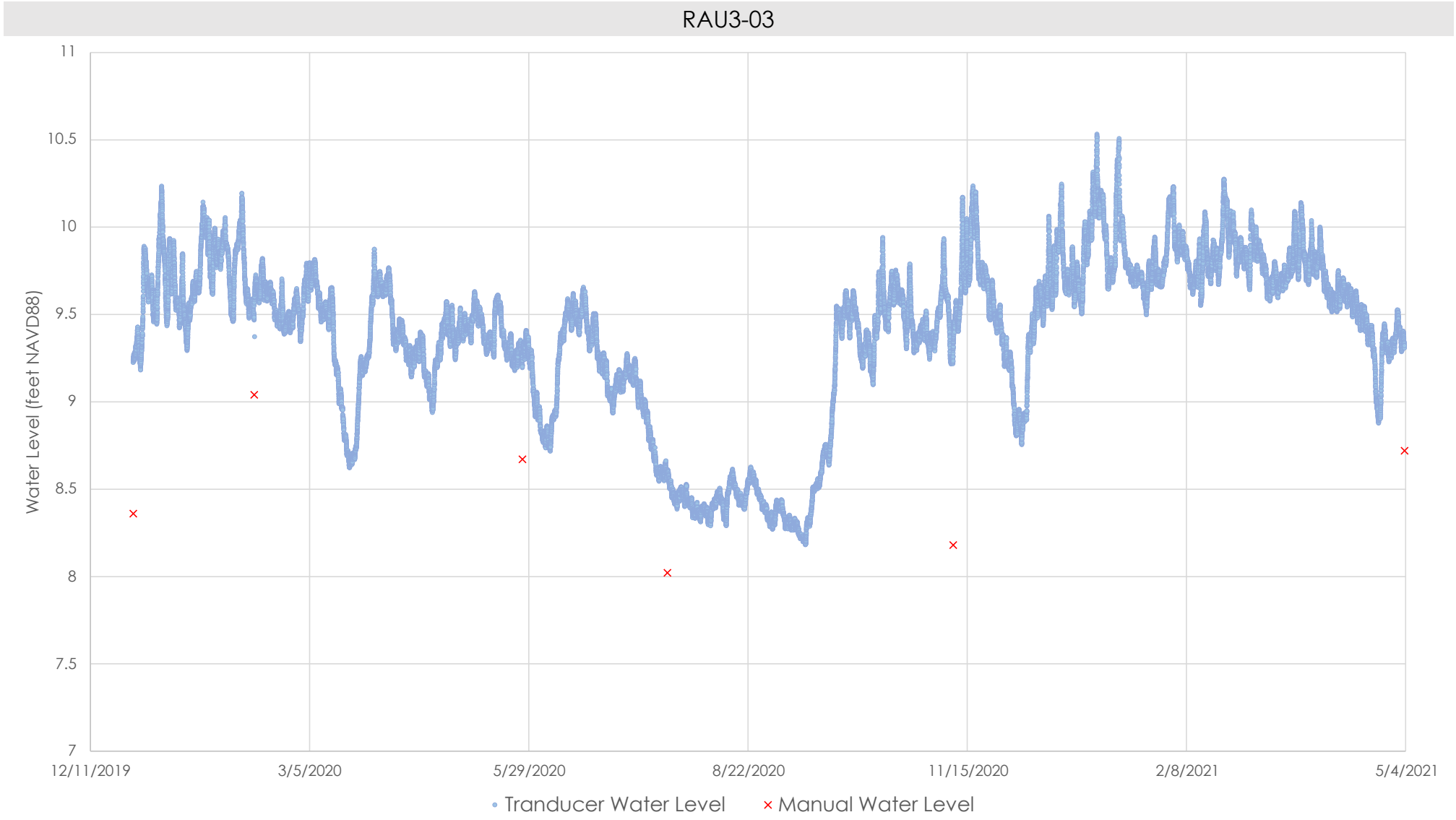
Figure 2g
RAU3-03 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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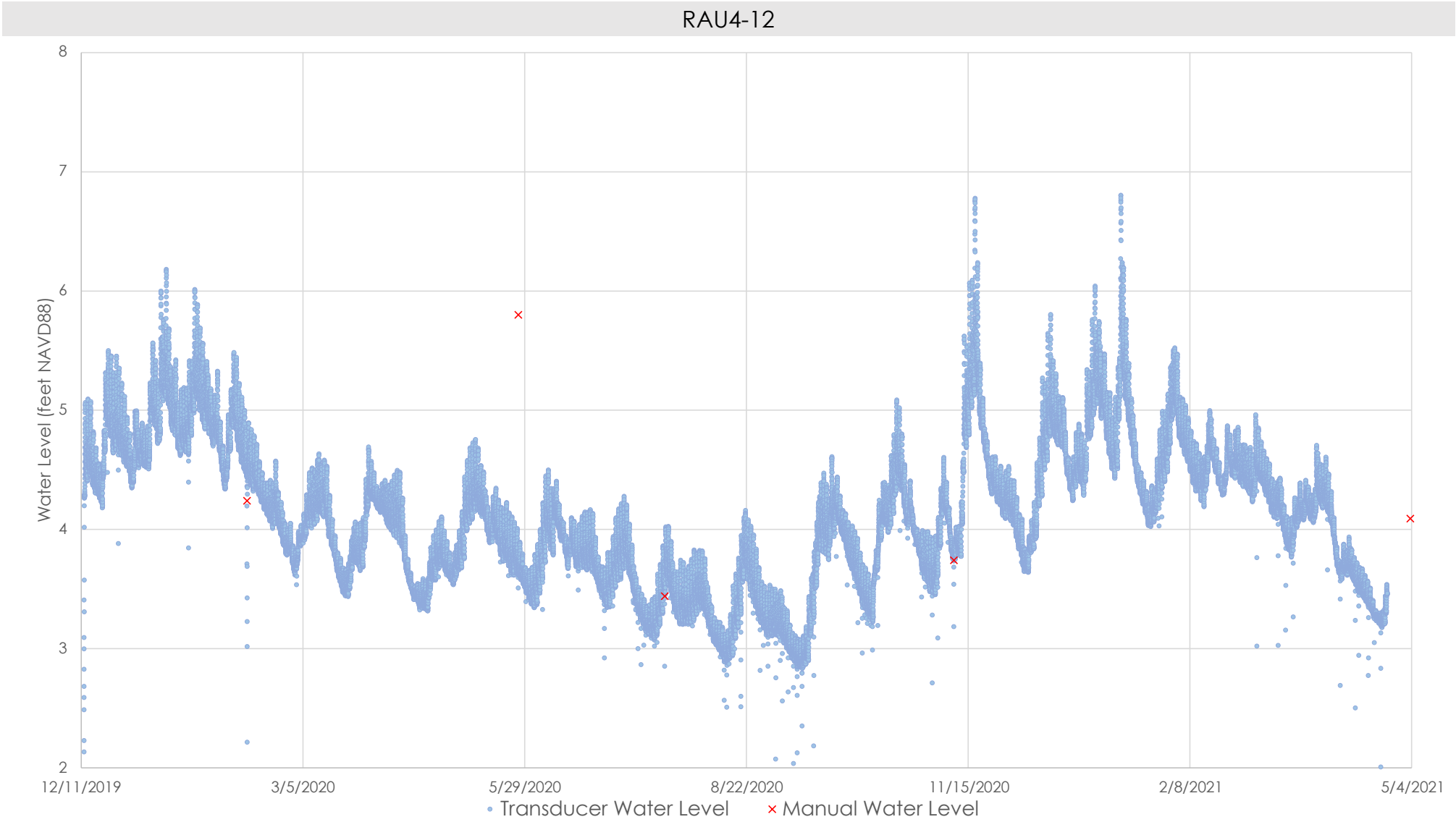
Figure 2h
RAU4-12 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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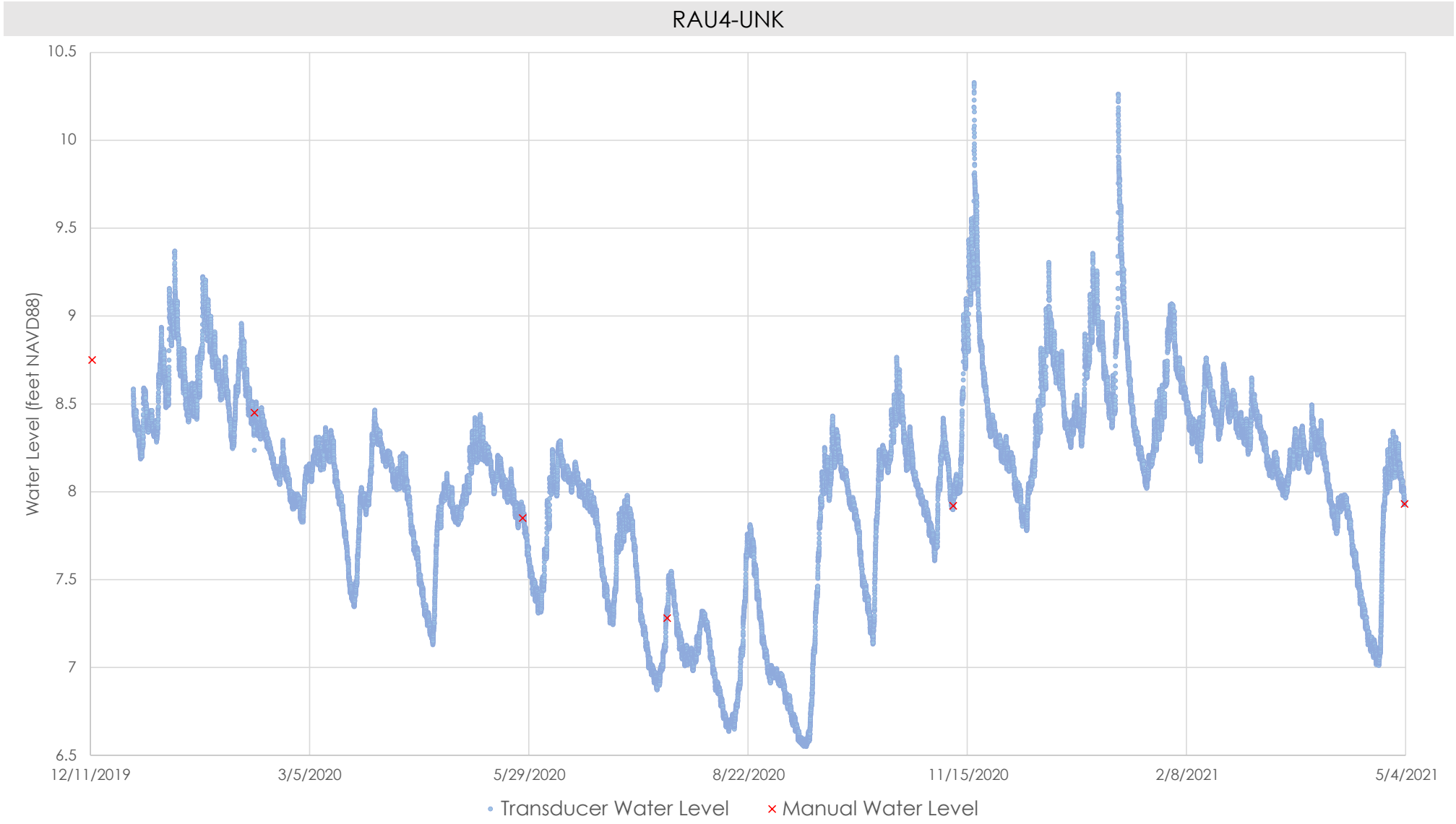
Figure 2i
RAU4-UNK Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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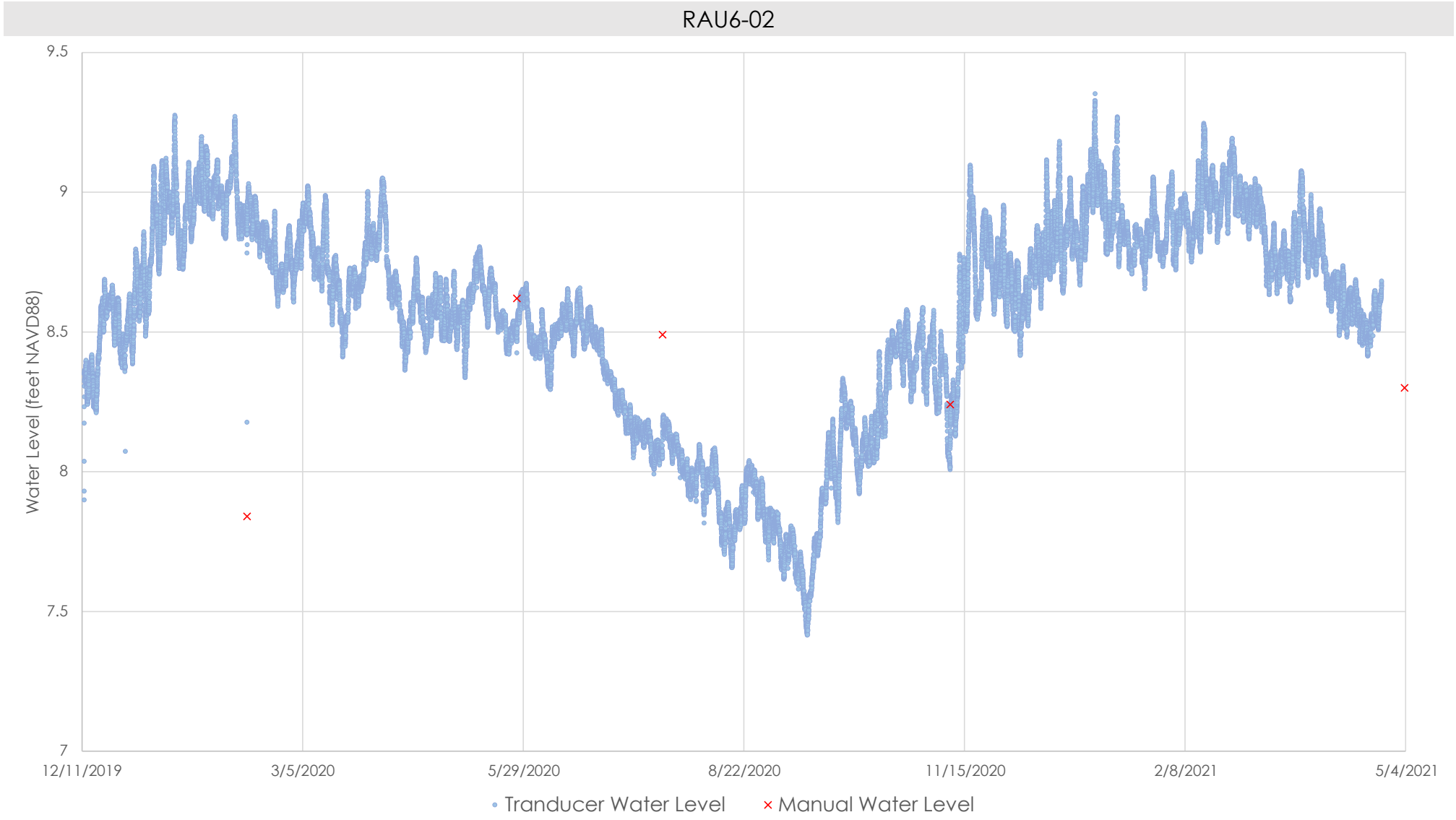
Figure 2j
RAU6-02 Hydrograph
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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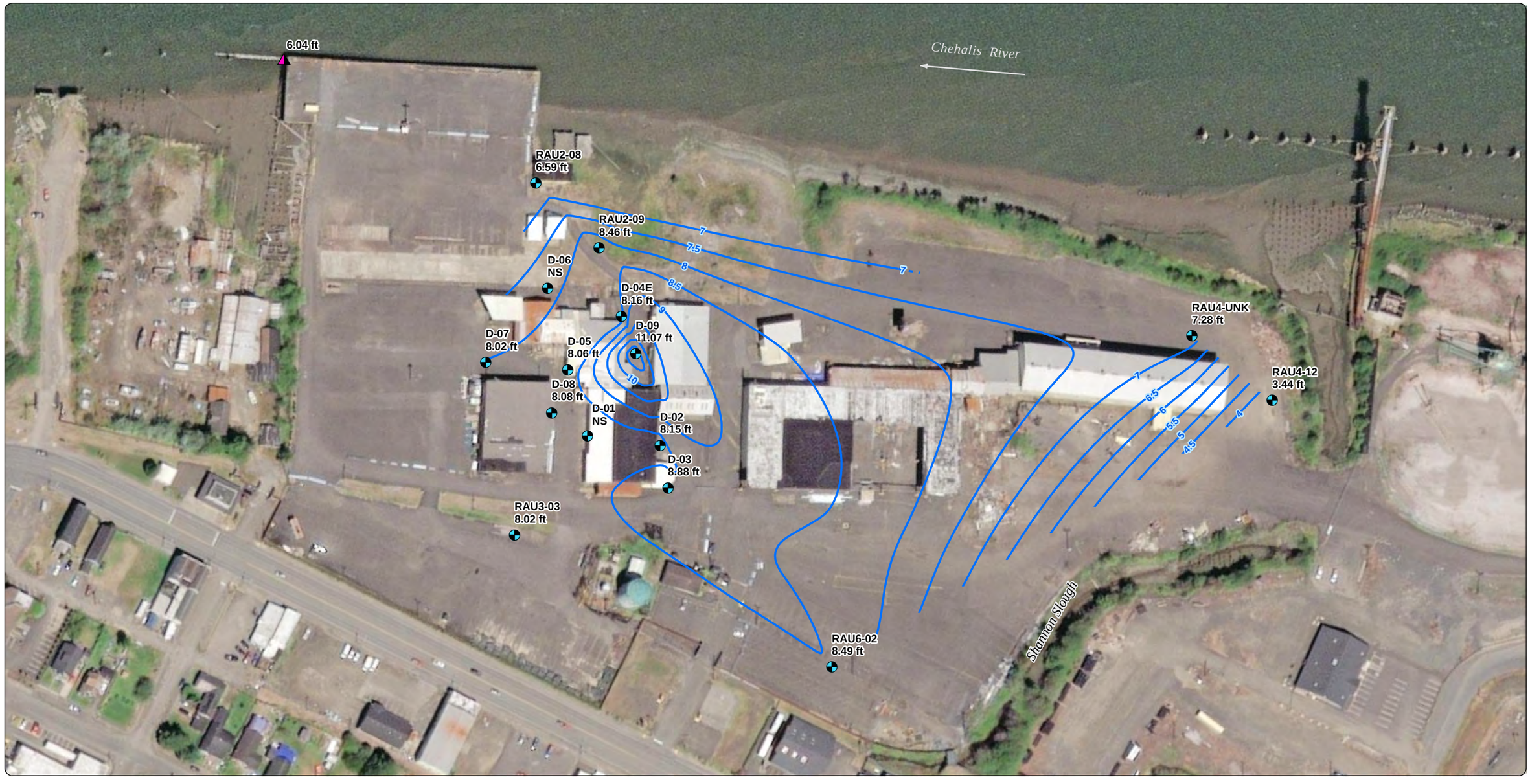
Print Date: 10/20/2022
Approved By: jmstinger
Produced By: jroberts
Project: M1044.02.13



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Manual groundwater level monitoring from wells was conducted from 4:15 p.m. to 5:45 p.m. At this time, the Chehalis River was ebb tide. On July 21, 2020, high tide was 9.2 feet above sea level at 3:24 p.m. and low tide was 2.8 feet above sea level at 8:38 p.m. At 5:00 p.m., Chehalis River was approximately 7 feet above sea level.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NS = not sampled.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 3
Manually Measured Groundwater Elevation Map
July 21, 2020
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Path: X:\1044_02_13\Projects\Fig4_GWE_20200721_High_Tide.mxd
Print Date: 10/20/2022
Approved By: csavoie
Produced By: jroberts
Project: M1044.02.13



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on July 21, 2020 at 1:45 p.m. Times were selected to correspond with the highest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 4
Transducer Groundwater Elevation Map
July 21, 2020 High Tide
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Print Date: 10/20/2022
Approved By: csavoie
Produced By: jroberts
Project: M1044.02.13



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on July 21, 2020 at 8:30 a.m. Times were selected to correspond with the lowest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 5
Transducer Groundwater Elevation Map
July 21, 2020 Low Tide
Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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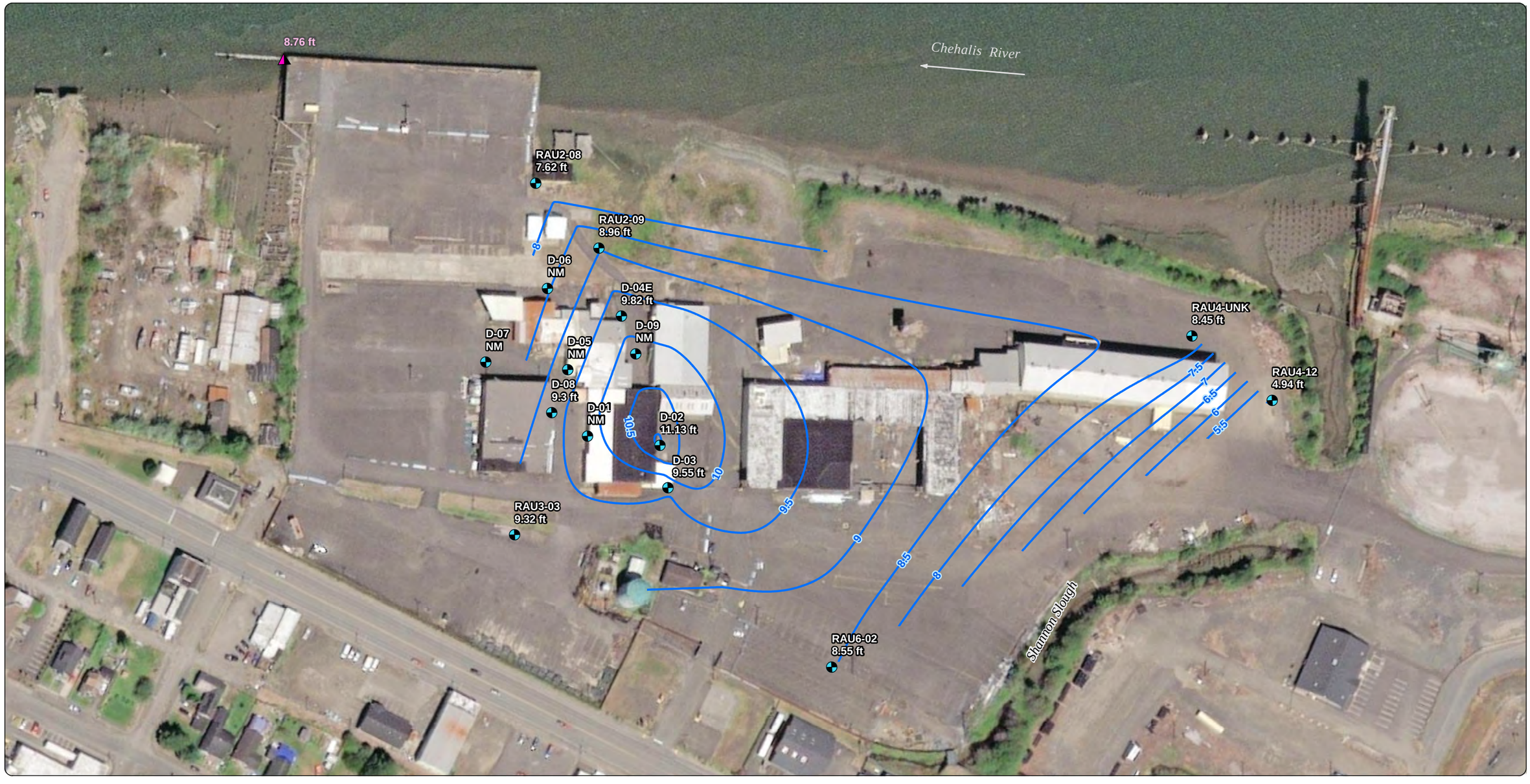
Path: X:\1044_02_13\Projects\Fig6_GWE_20191228_High_Tide.mxd

Print Date: 10/20/2022

Approved By: csavoie

Produced By: jroberts

Project: 1044.02.06



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on December 28, 2019 at 2:00 pm. Times were selected to correspond with the highest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 6
Transducer Groundwater Elevation Map
December 28, 2019 High Tide

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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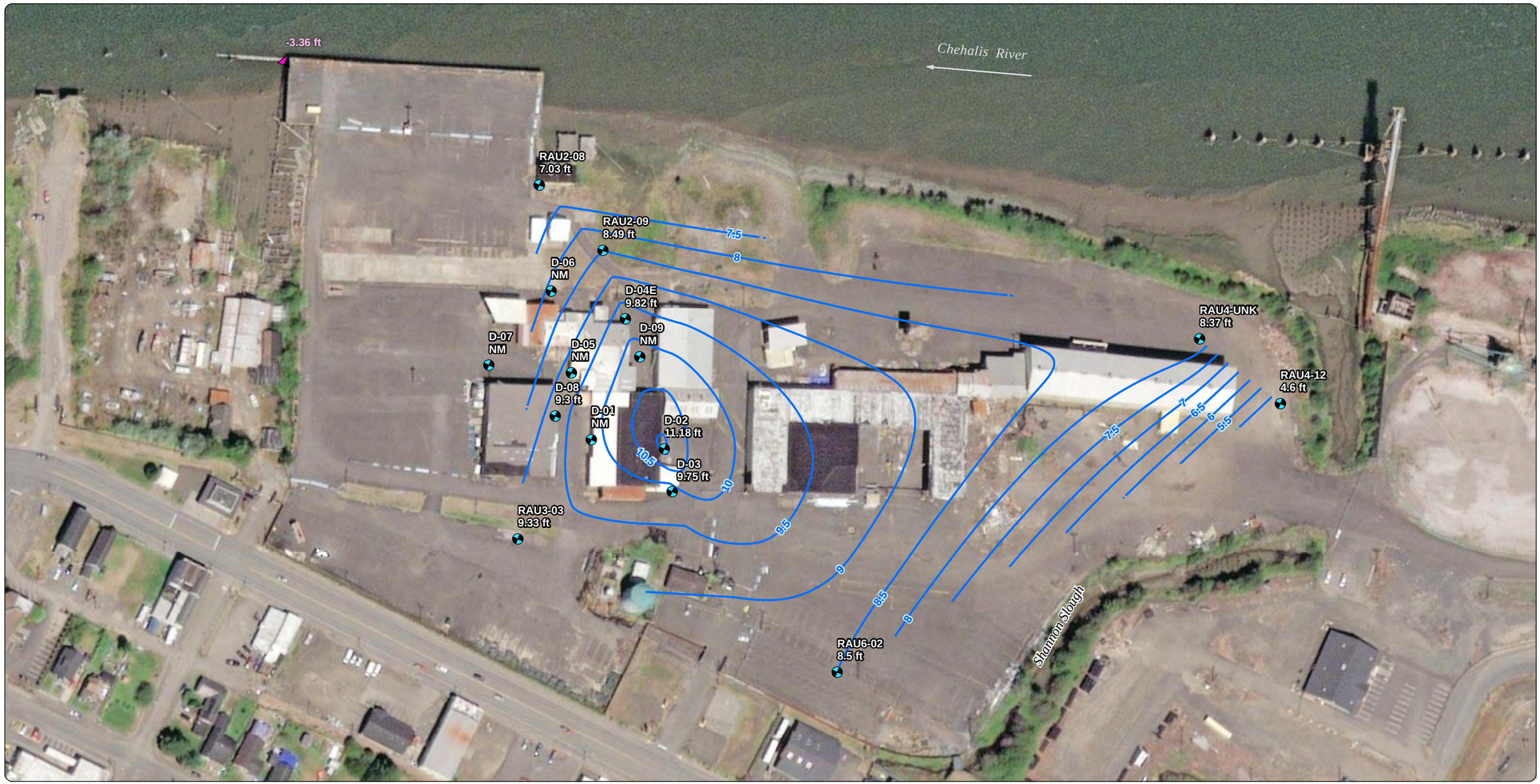
Project: 1044.02.06



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on December 28, 2019 at 8:45 p.m. Times were selected to correspond with the lowest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 7
Transducer Groundwater Elevation Map
December 28, 2019 Low Tide

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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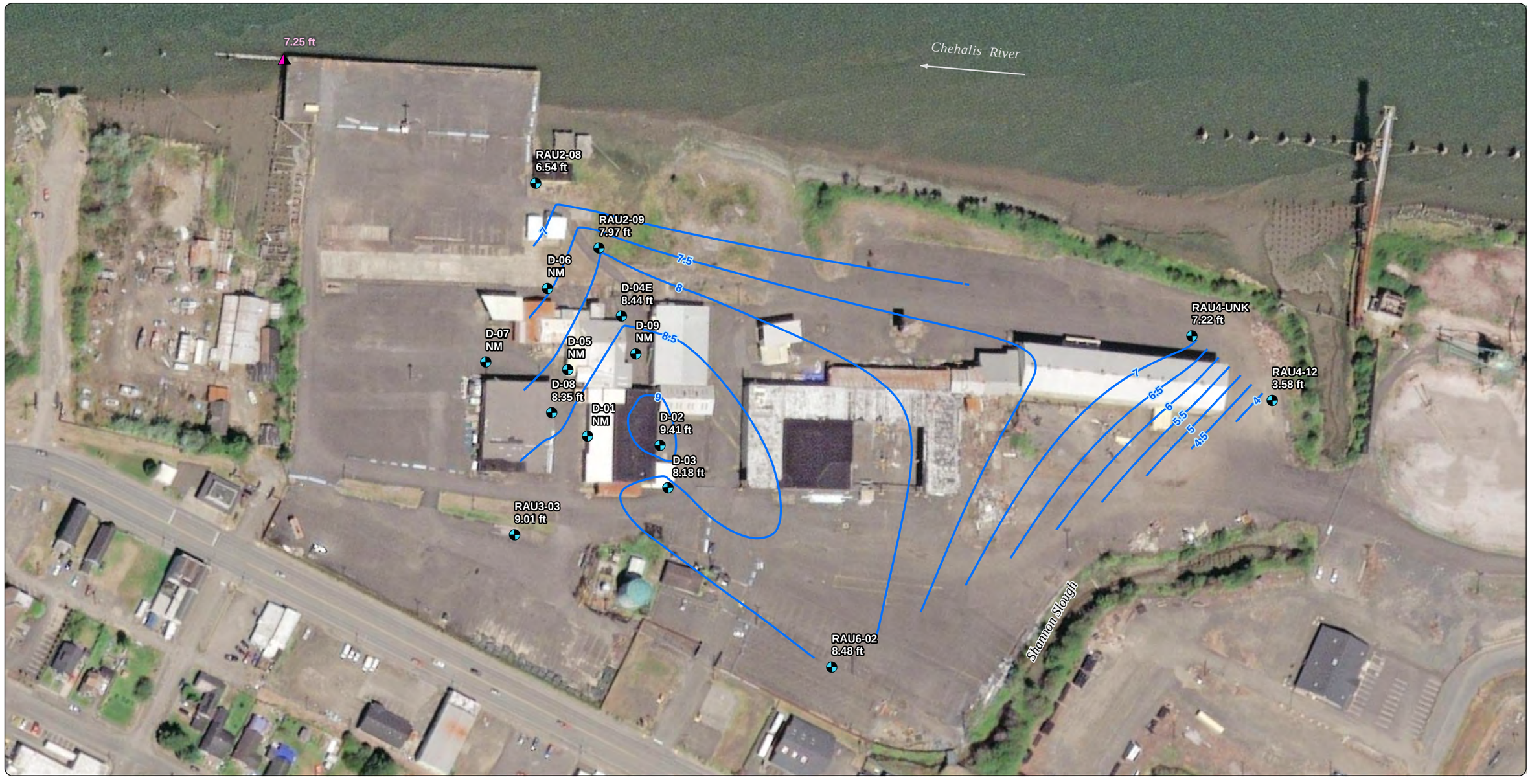

Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on April 22, 2020 at 1:30 p.m. Times were selected to correspond with the highest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 8
Transducer Groundwater Elevation Map
April 22, 2020 High Tide

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Print Date: 10/20/2022
Approved By: csavoie
Produced By: jroberts
Project: 1044.02.06



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on April 22, 2020 at 7:45 a.m. Times were selected to correspond with the lowest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 9
Transducer Groundwater Elevation Map
April 22, 2020 Low Tide

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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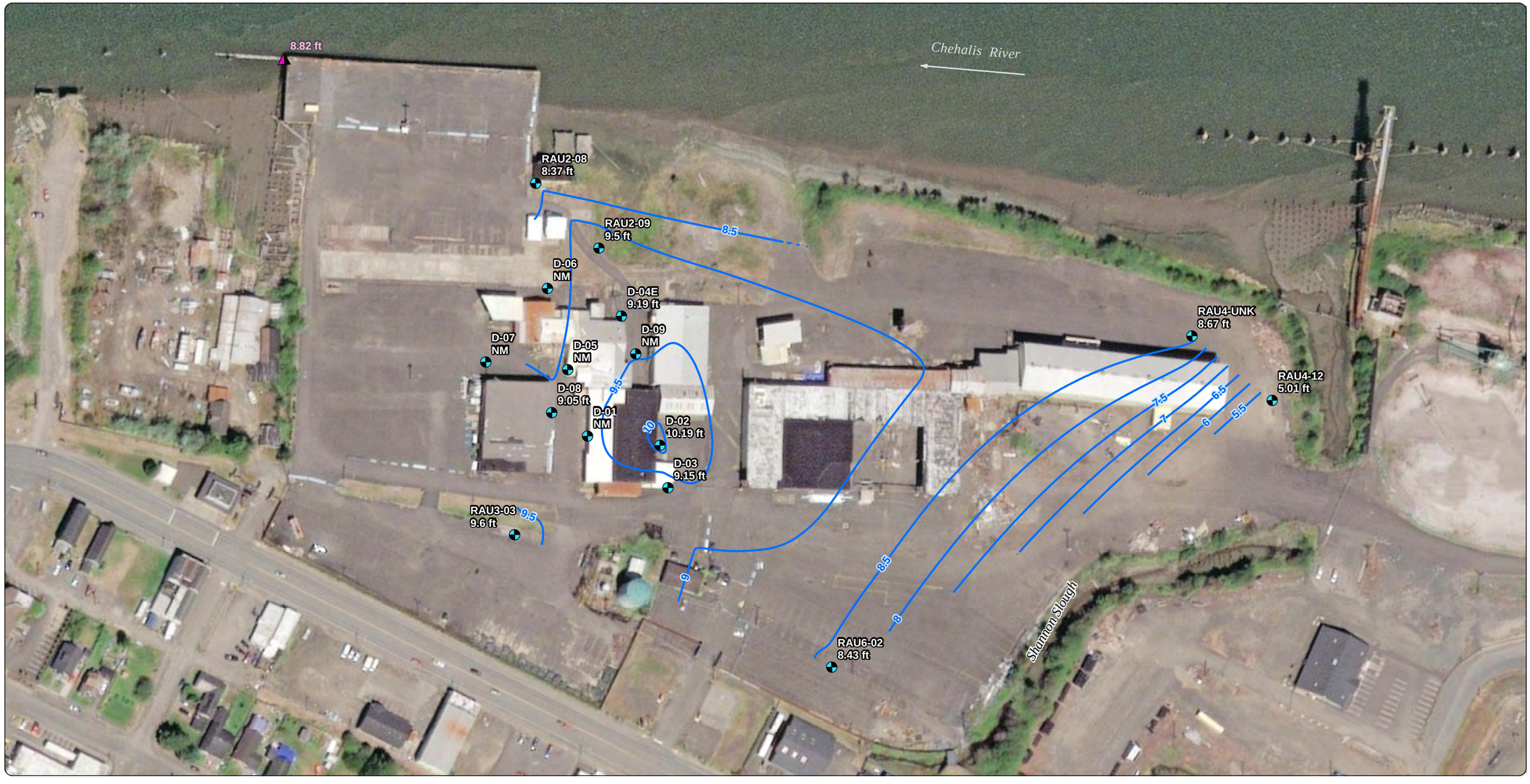

Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on October 19, 2020 at 3:30 p.m. Times were selected to correspond with the highest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 10
Transducer Groundwater Elevation Map
October 19, 2020 High Tide

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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Project: M1044.02.13 Produced By: jroberts Approved By: csavole Print Date: 10/20/2022

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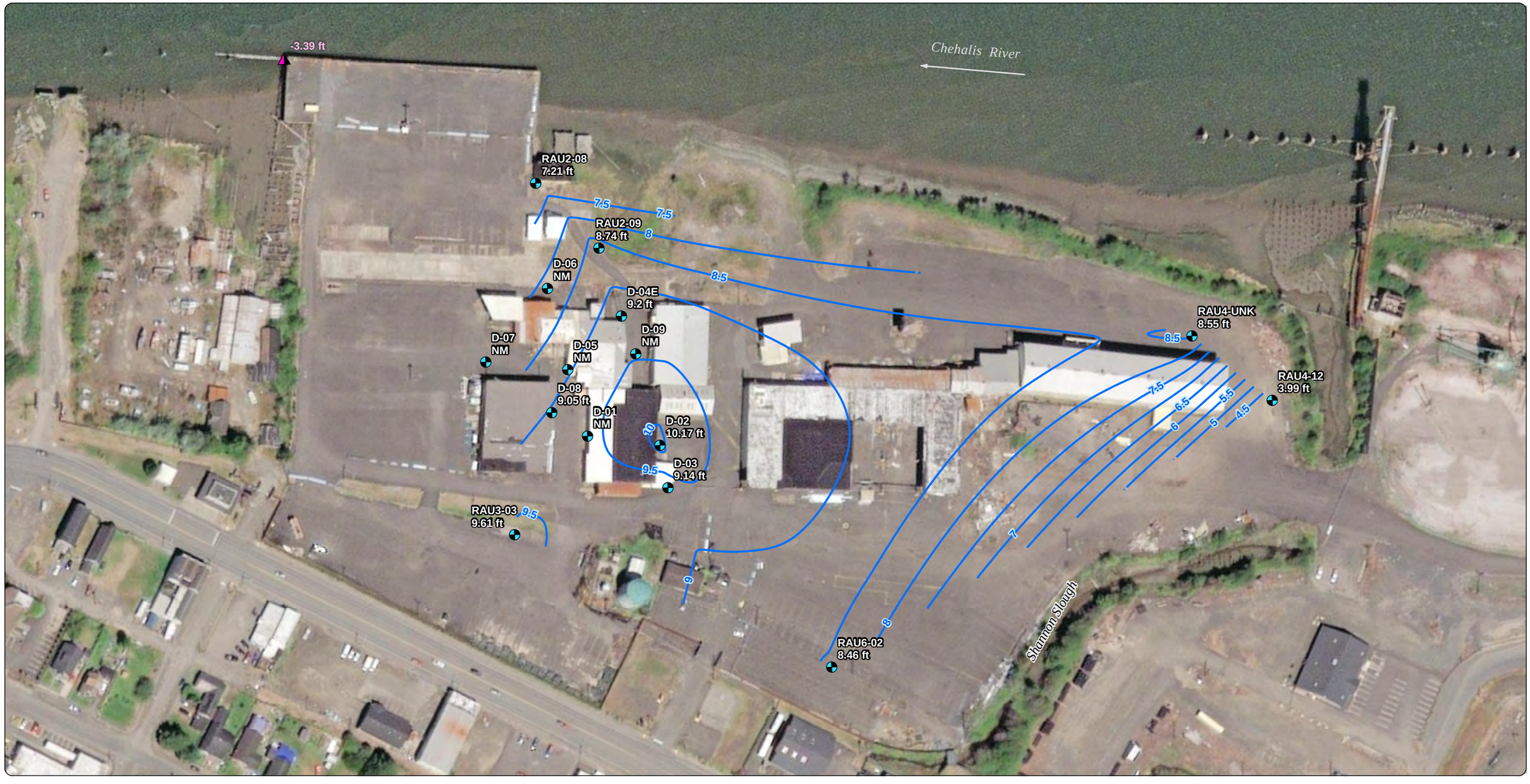
Print Date: 10/20/2022
Approved By: csavoie
Produced By: jroberts
Project: M1044.02.13



Data Source
Aerial photograph obtained from Esri ArcGIS Online.

Notes
Water level elevations for each monitoring well were obtained from measurements collected from pressure transducers at each well on October 19, 2020 at 9:15 p.m. Times were selected to correspond with the lowest recorded tide stage on each date.
ft = feet.
NAVD88 = North American Vertical Datum of 1988.
NM = not measured; transducer not deployed at location.

Legend
- Monitoring Well
- Staff Gauge to Measure River Height
- Groundwater Elevation Contour (0.5 ft interval, NAVD88)

Figure 11
Transducer Groundwater Elevation Map
October 19, 2020 Low Tide

Weyerhaeuser Sawmill
Aberdeen/Seaport Landing Site
Aberdeen, Washington

0 100 200
Feet

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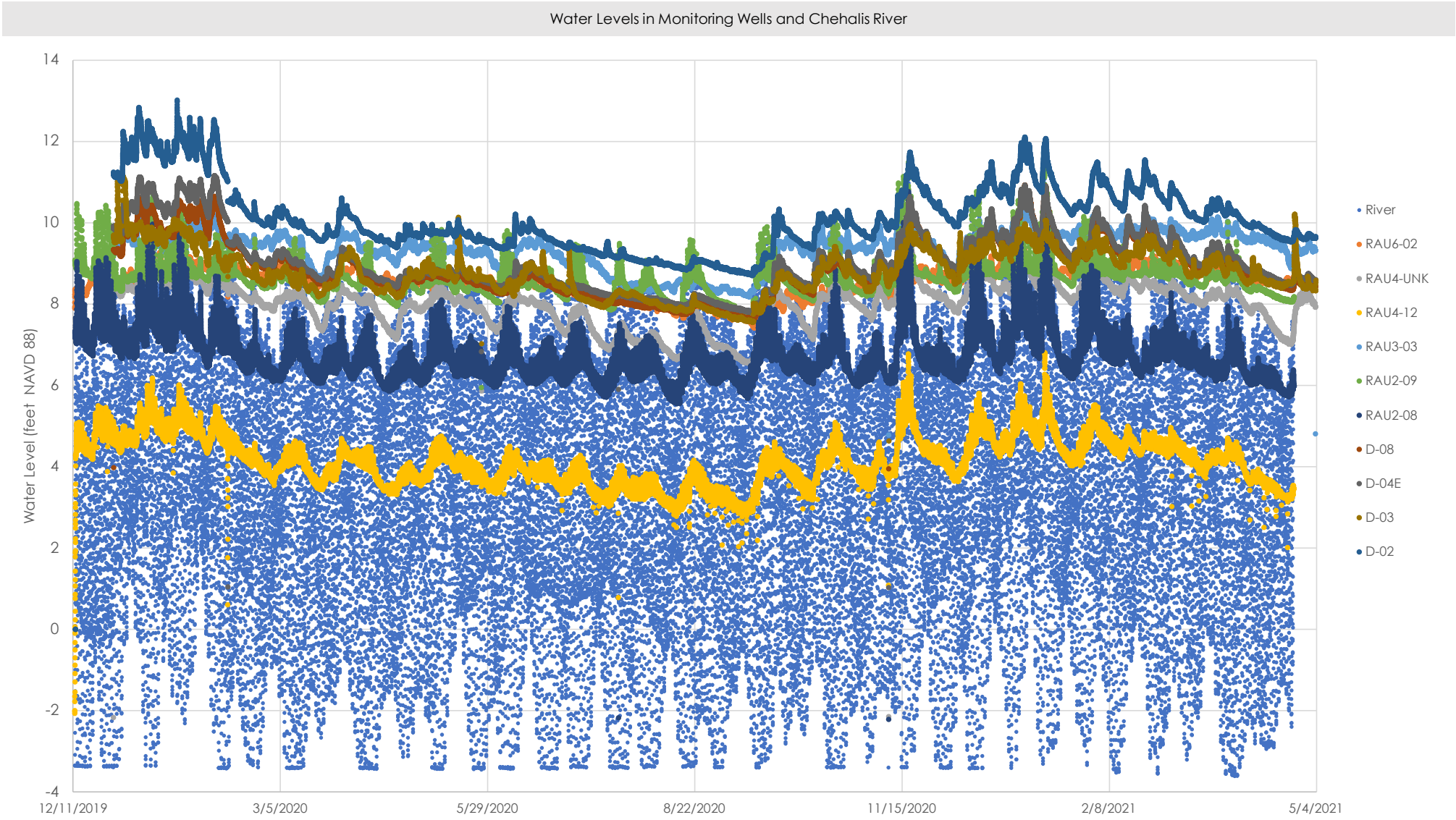
Figure 12
Transducer Hydrograph All Locations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 88 = North American Vertical Datum of 1988.

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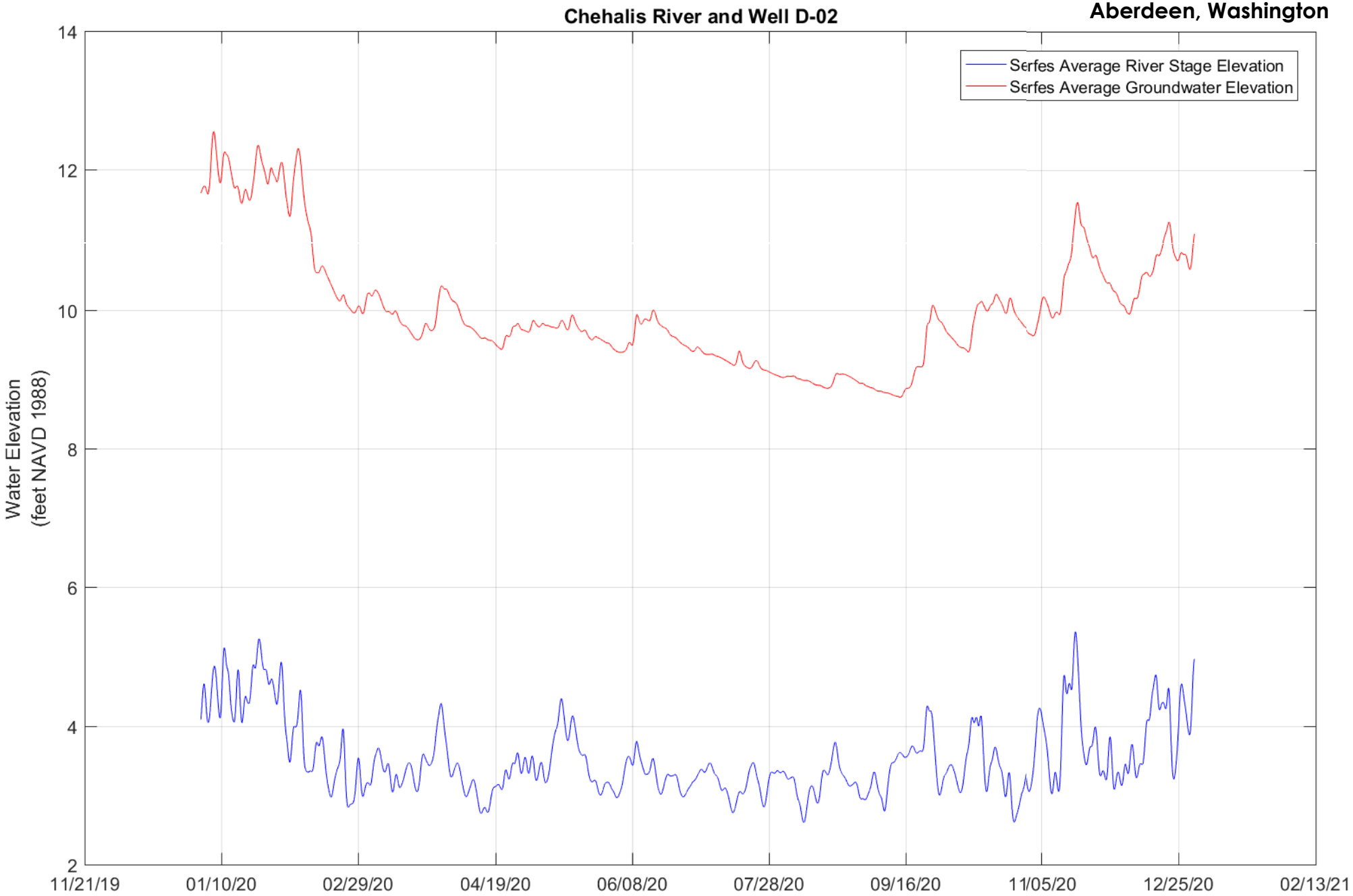
Figure 13a
Serfes Averaged Water Level Elevations
DRAFT **Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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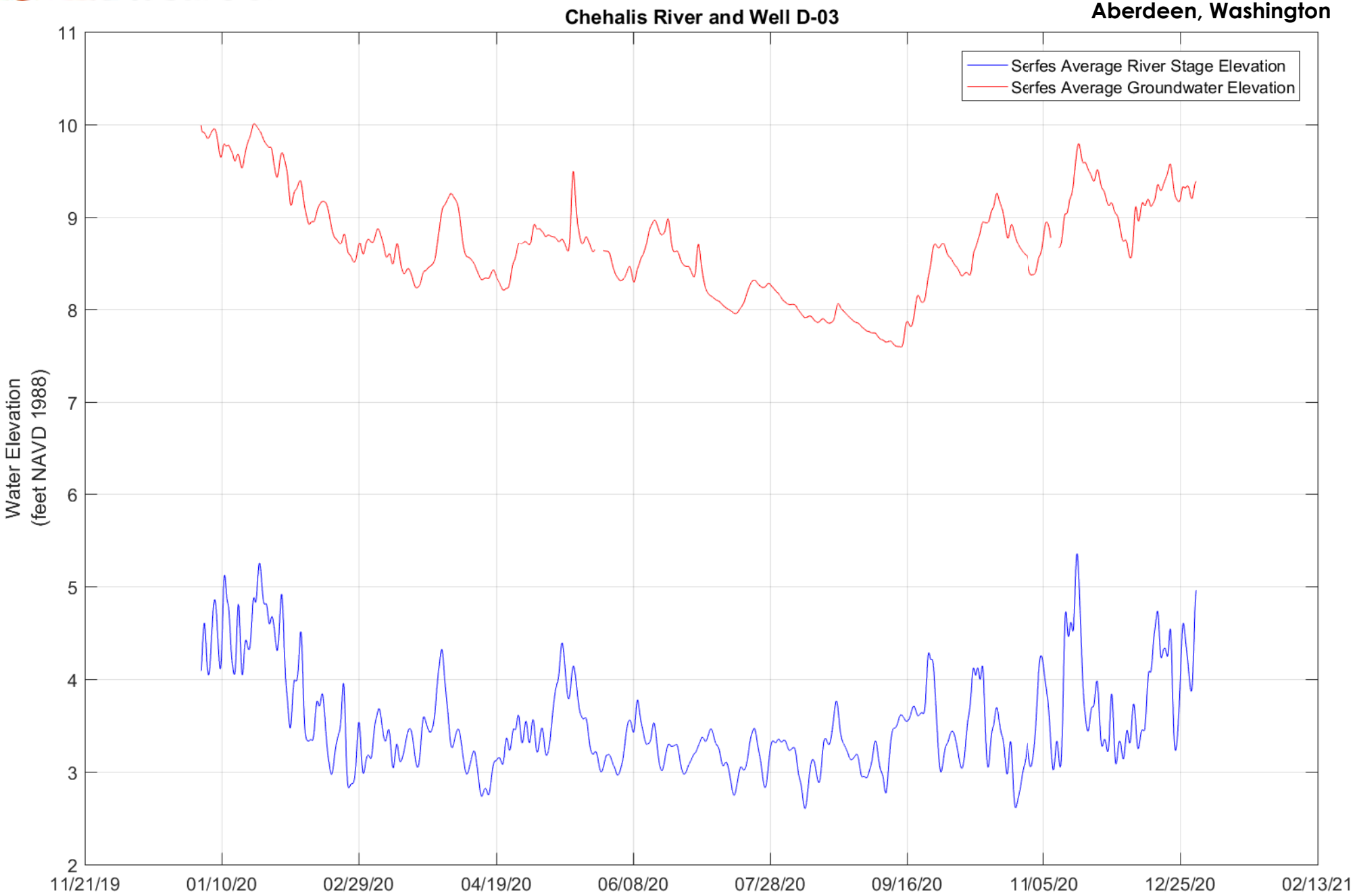
Figure 13b
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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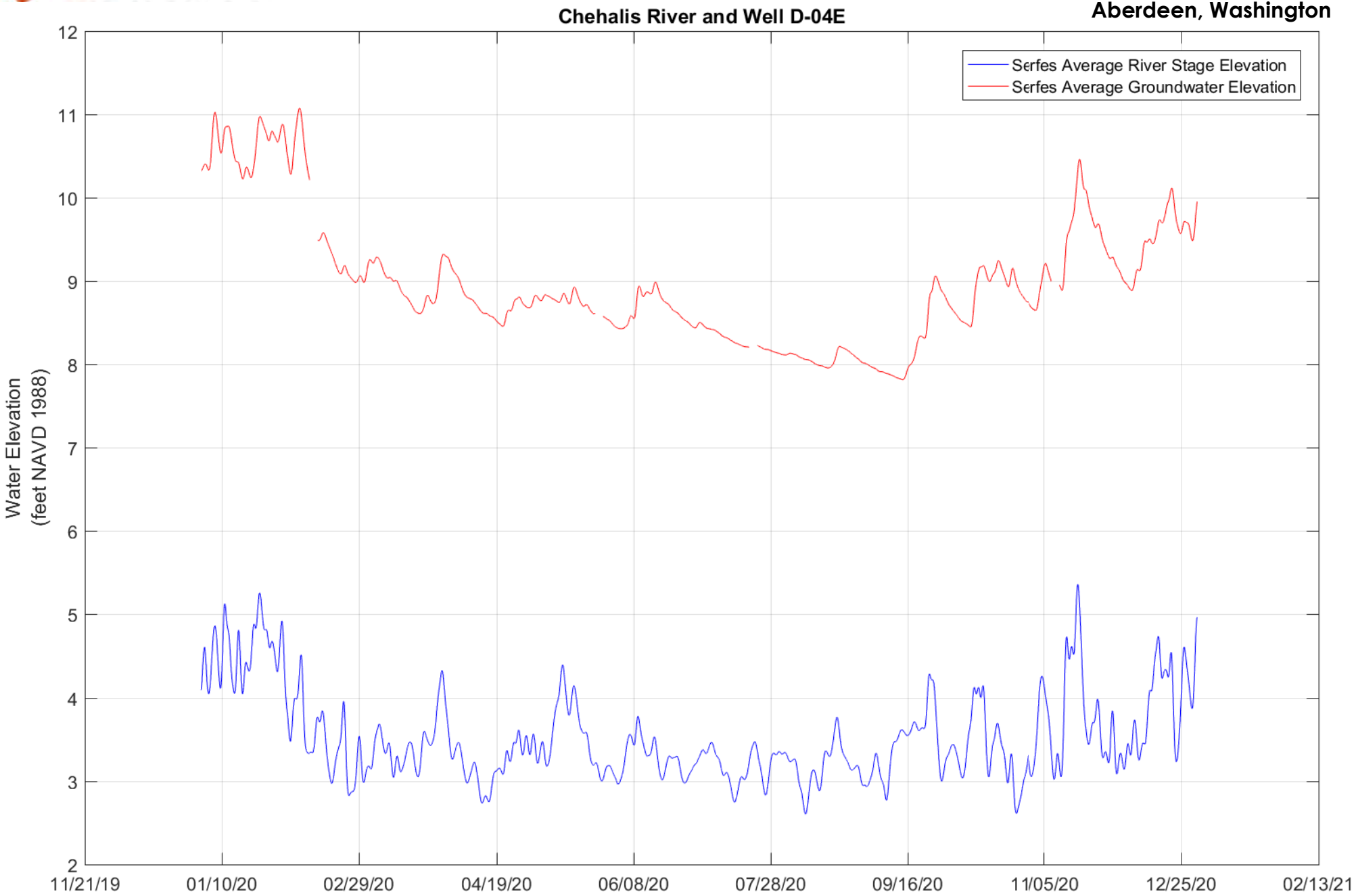
Figure 13c
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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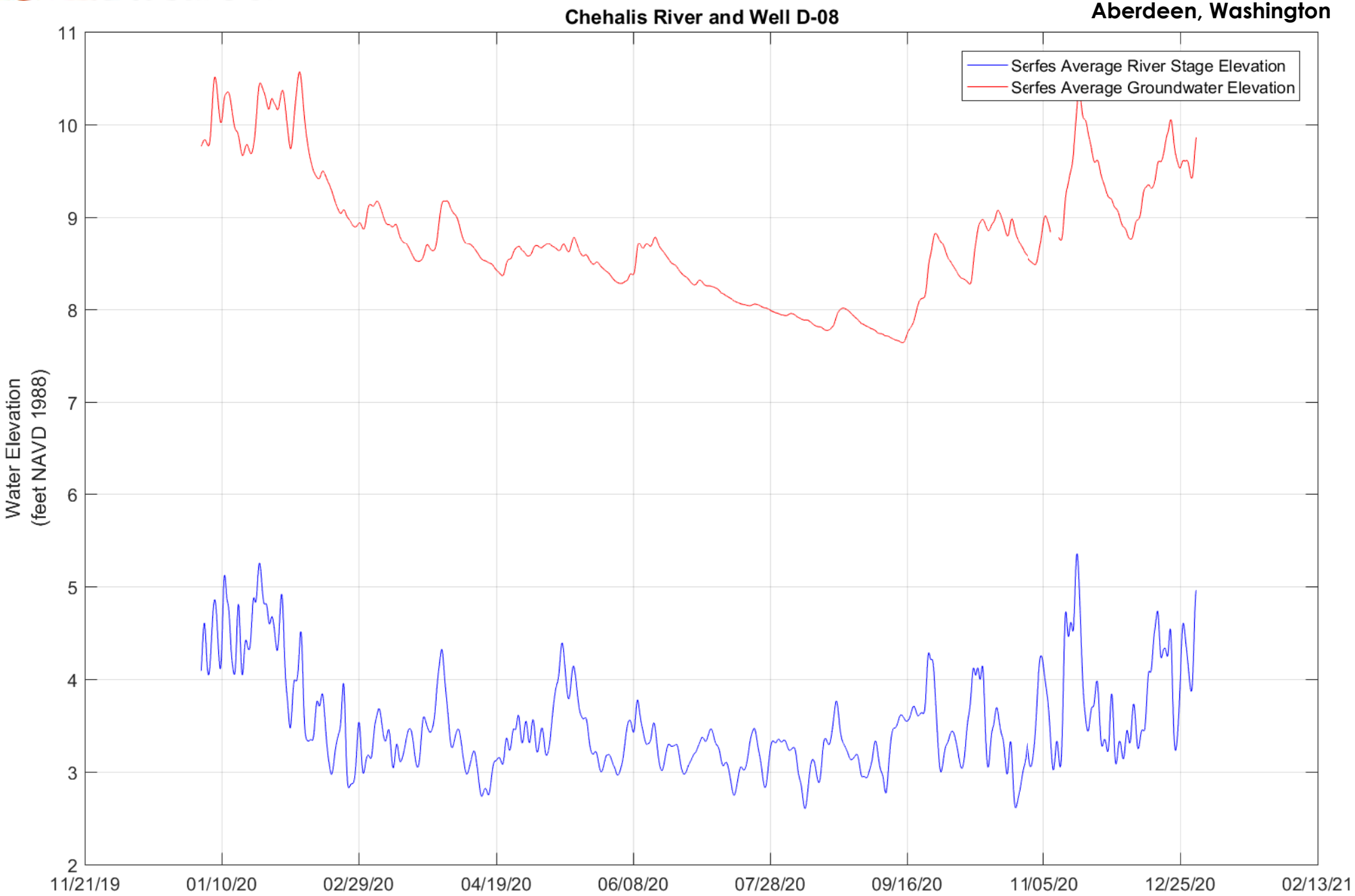
Figure 13d
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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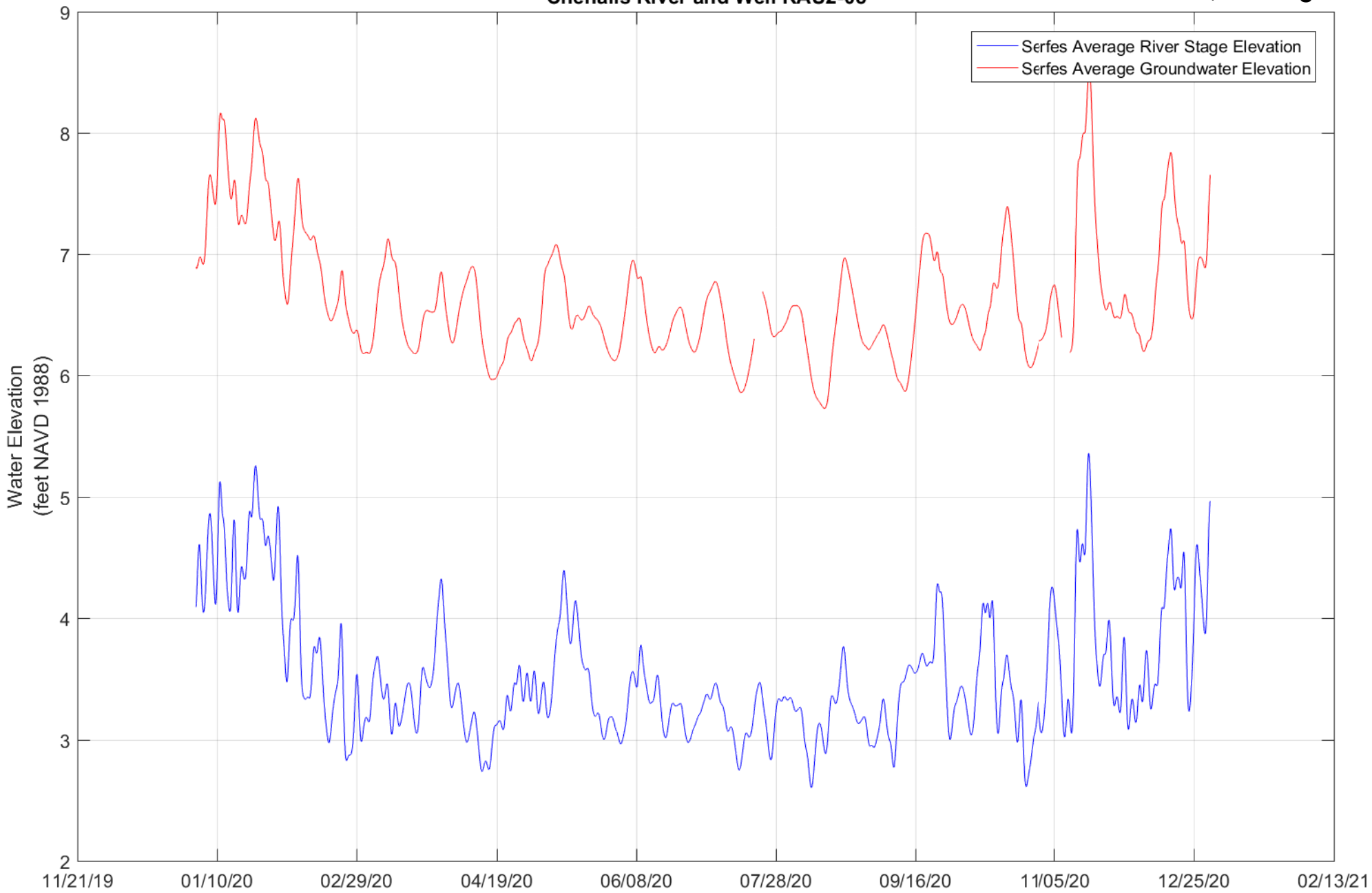
Figure 13e
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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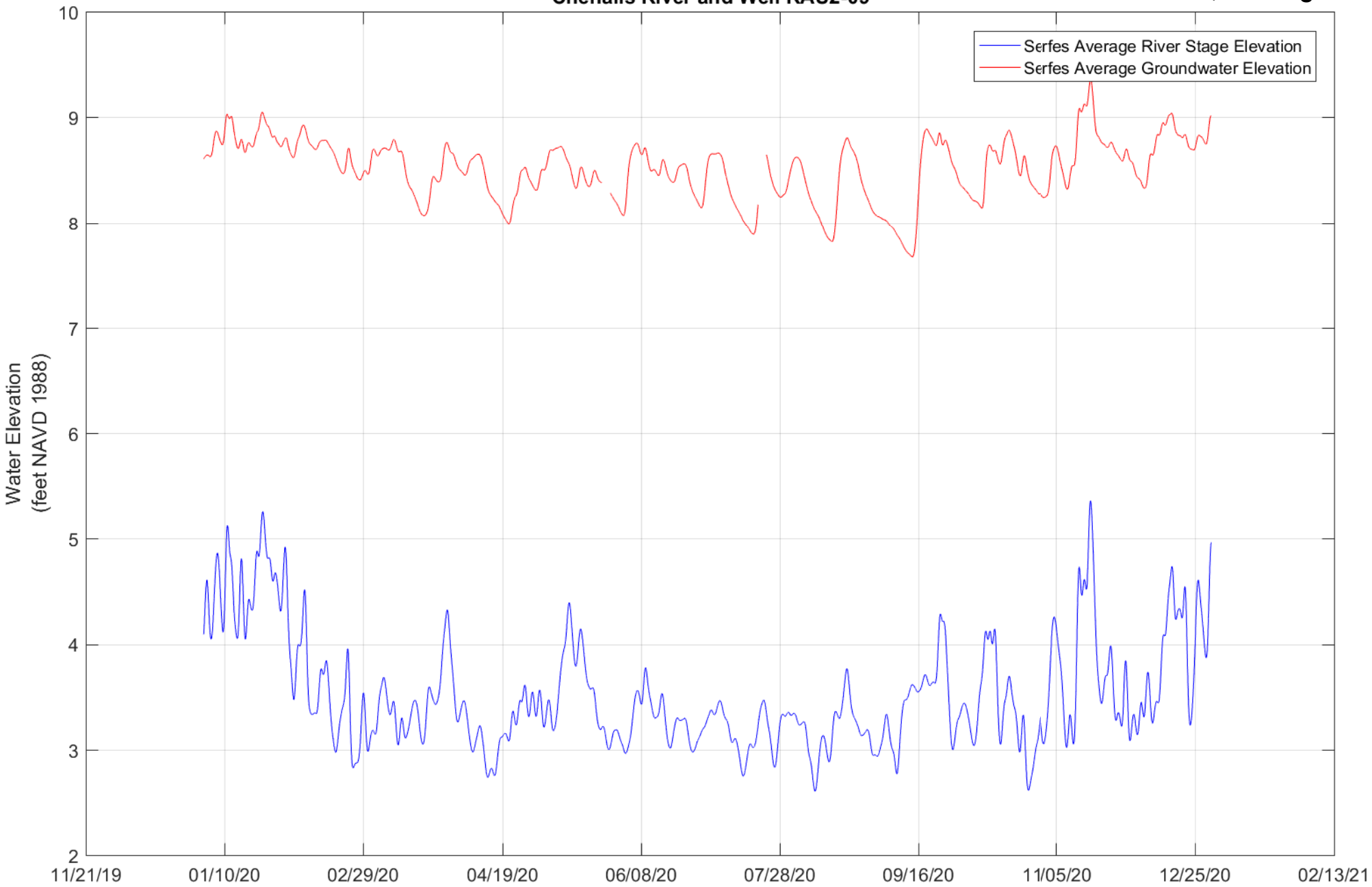
Figure 13f
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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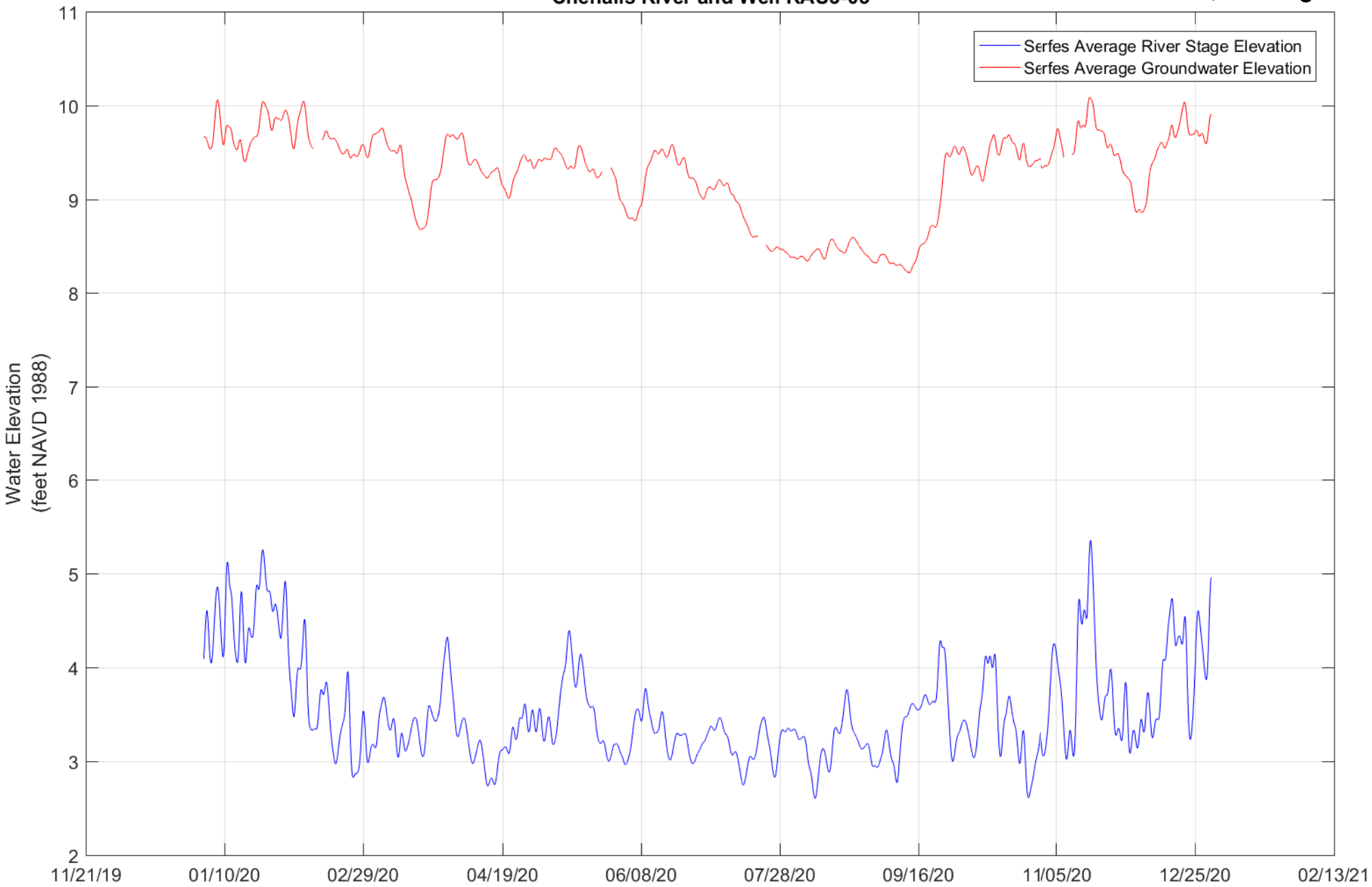
Figure 13g
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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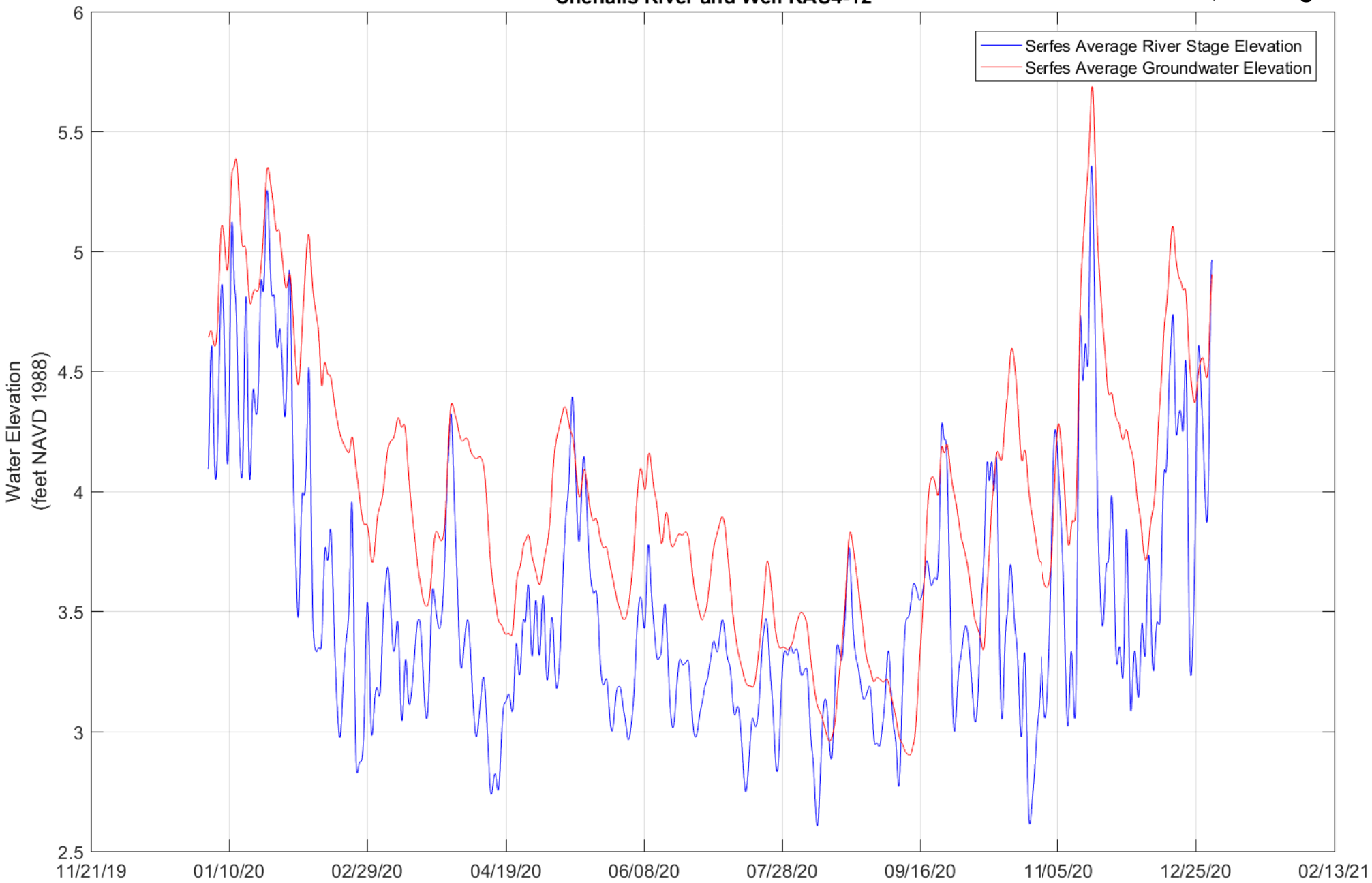
Figure 13h
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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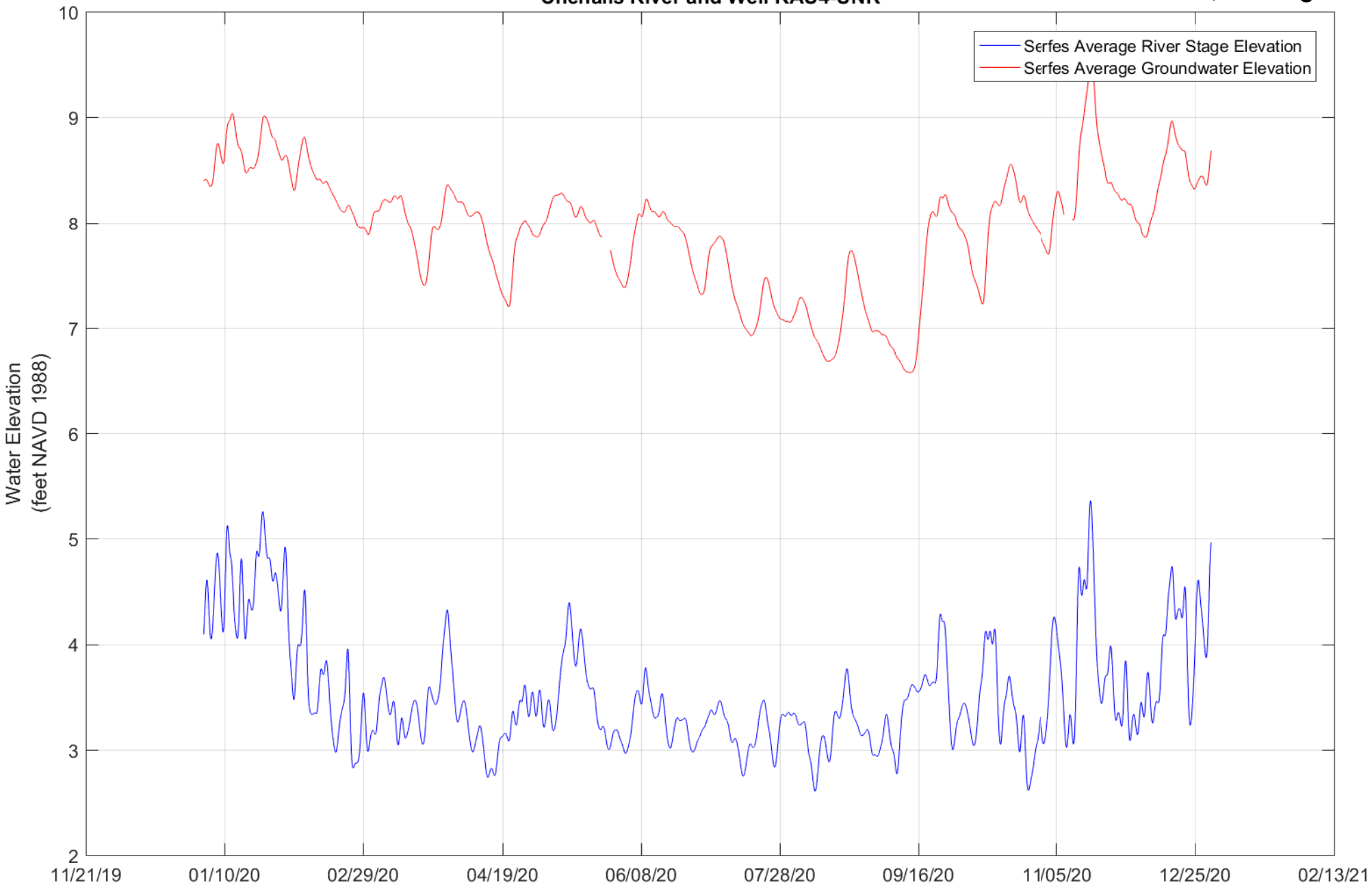
Figure 13i
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

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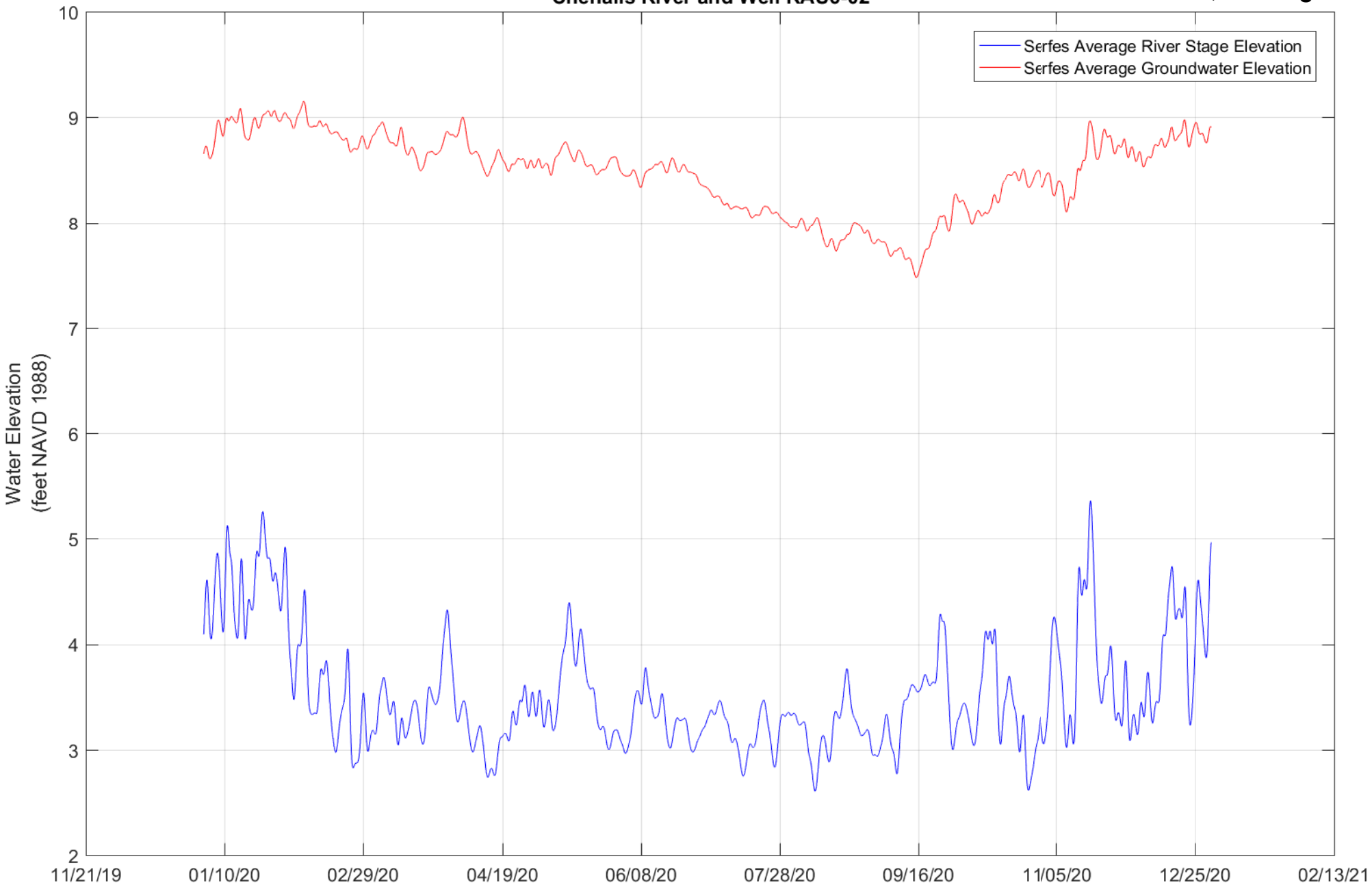
Figure 13j
Serfes Averaged Water Level Elevations
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Note:
NAVD 1998 = North American Vertical Datum of 1988

ATTACHMENT A

TRANSDUCER DATA



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PLOTS

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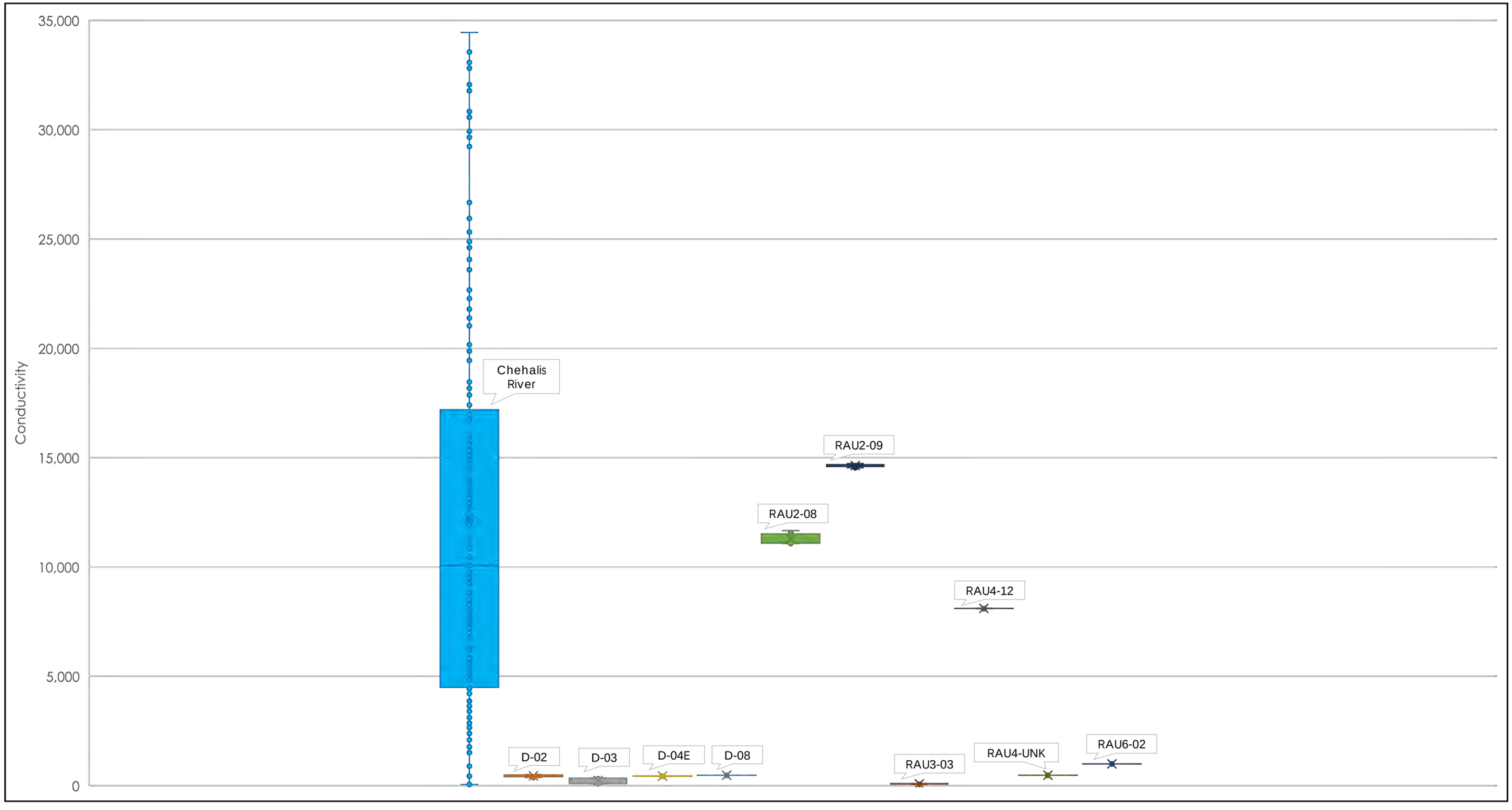
Figure A-1
December 2019 Groundwater Compared to River Conductivity
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

December 2019 Conductivity (uS/cm)



Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
uS/cm = microsiemens per centimeter.

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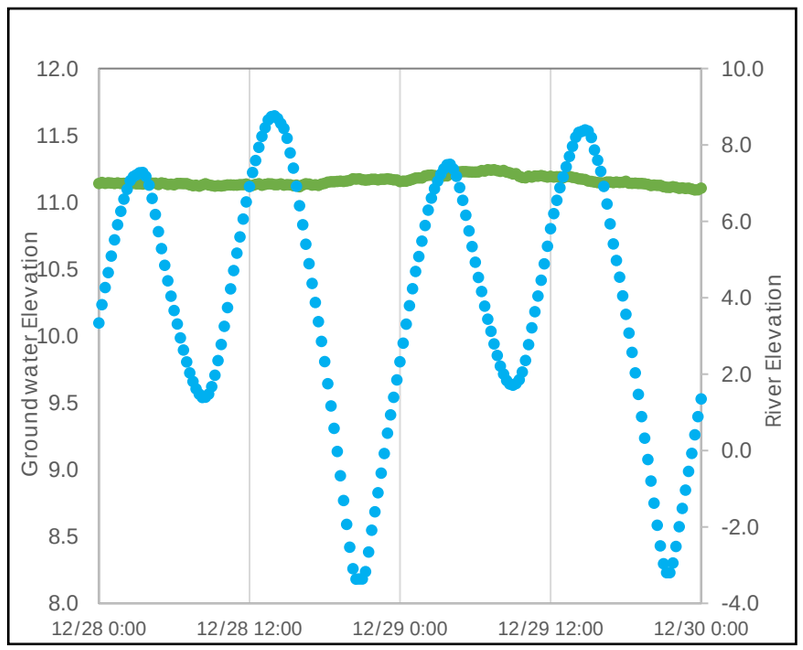
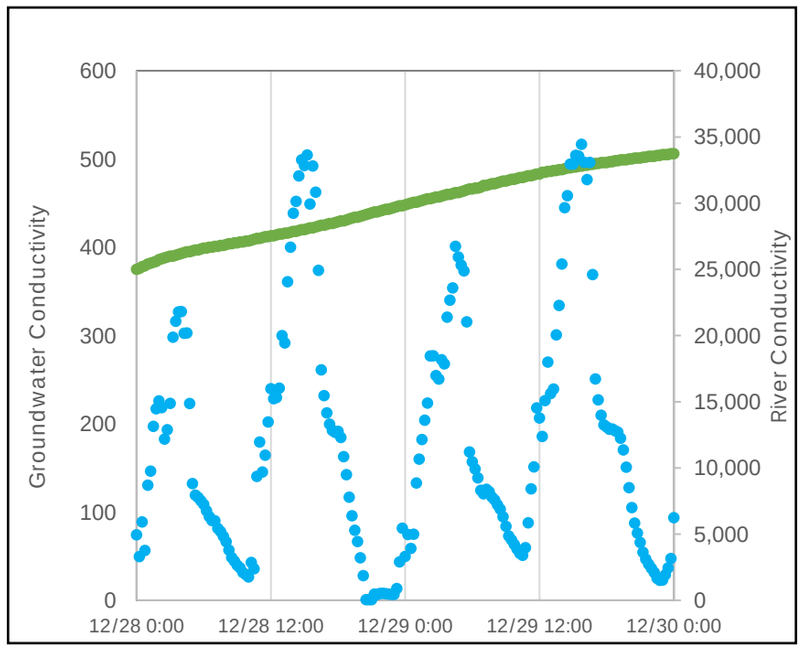
Figure A-2
D-02—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

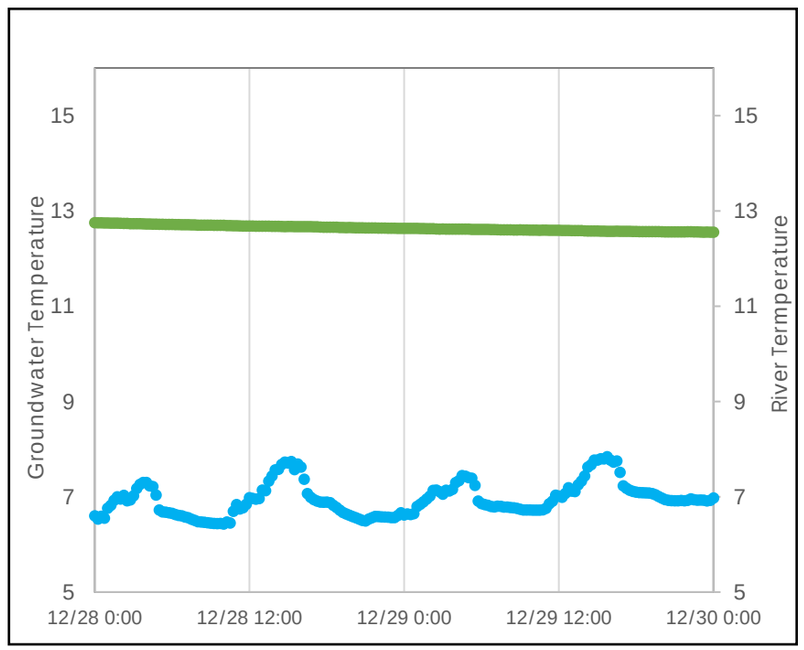
December 2019 Water Elevations (Feet NAVD 88)

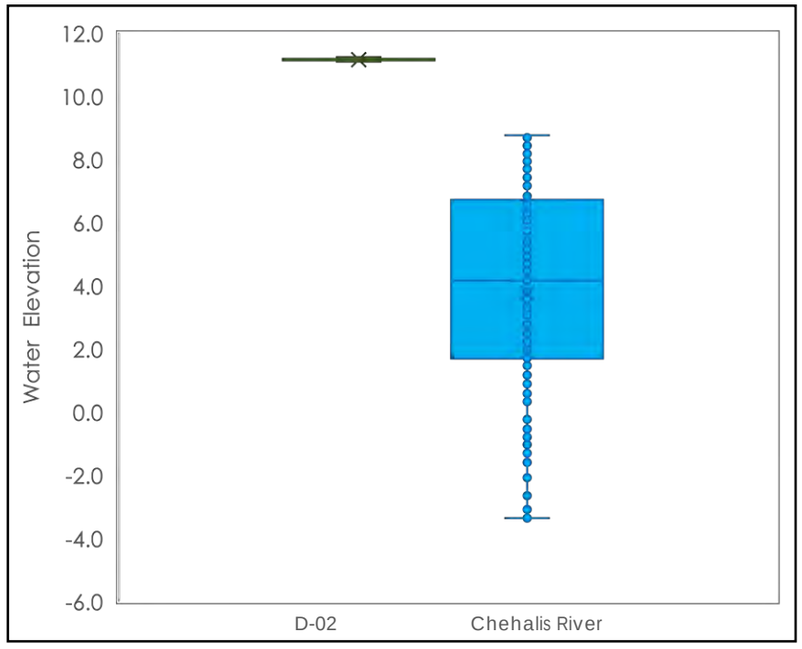


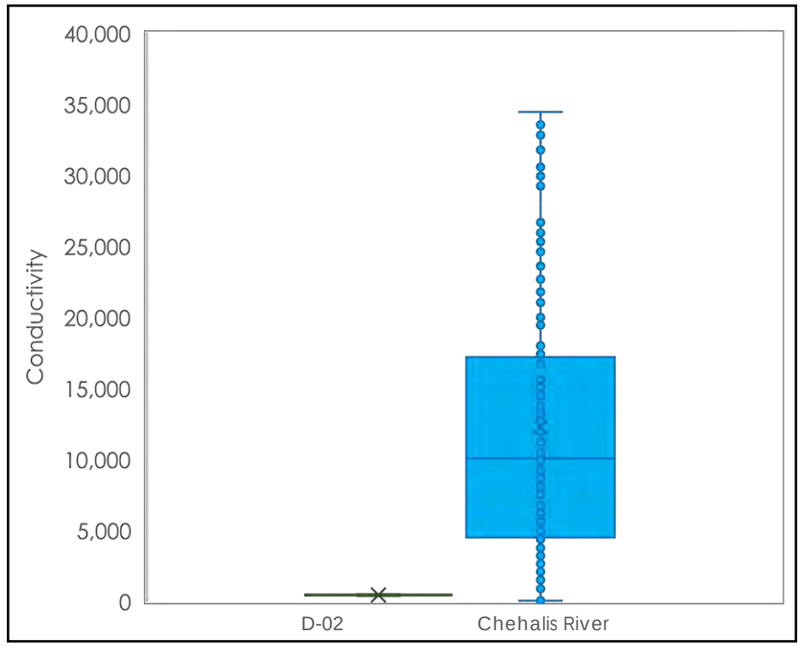
December 2019 Conductivity (uS/cm)

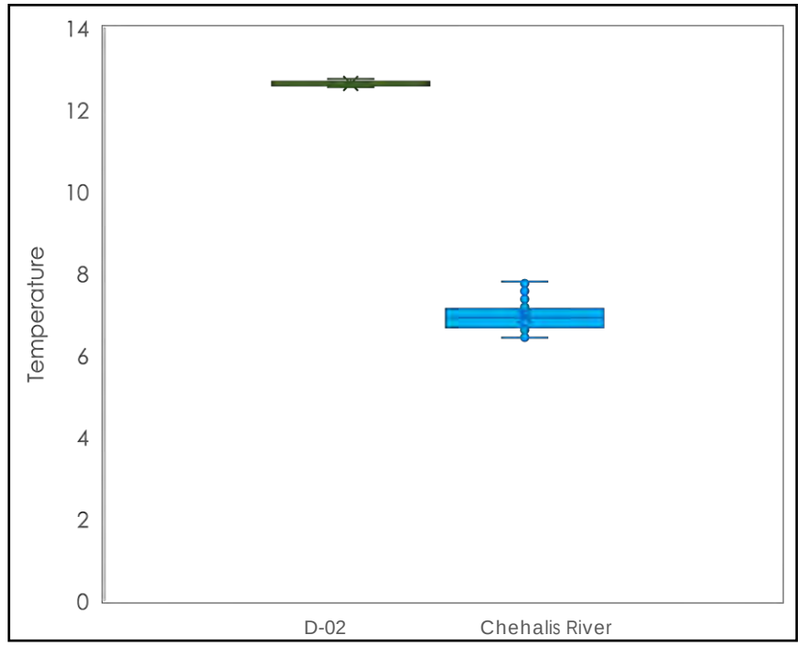


December 2019 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-02
Chehalis River

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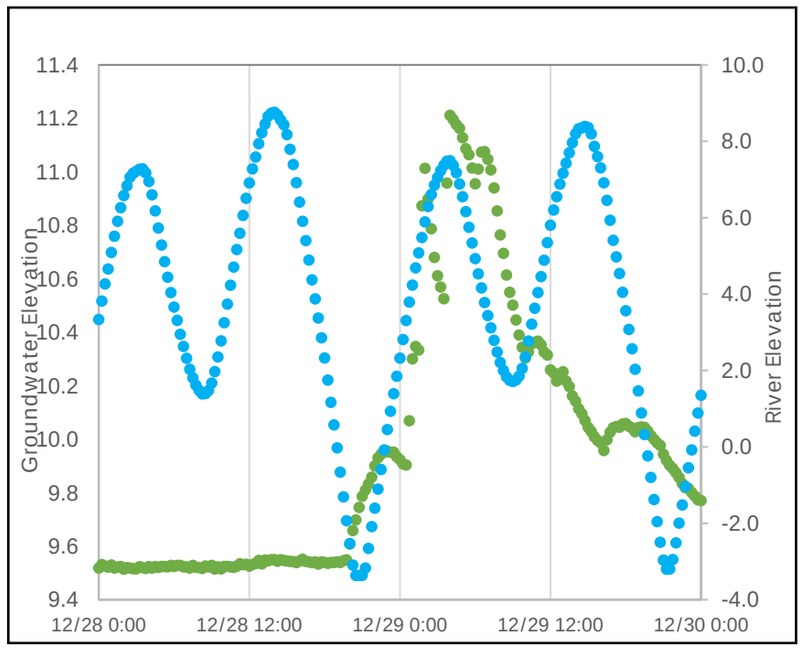
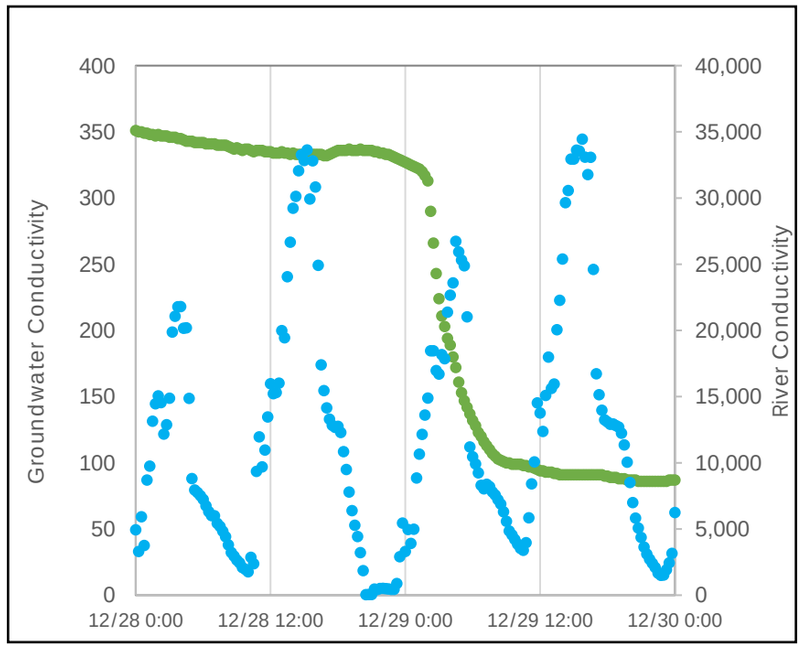
Figure A-3
D-03—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

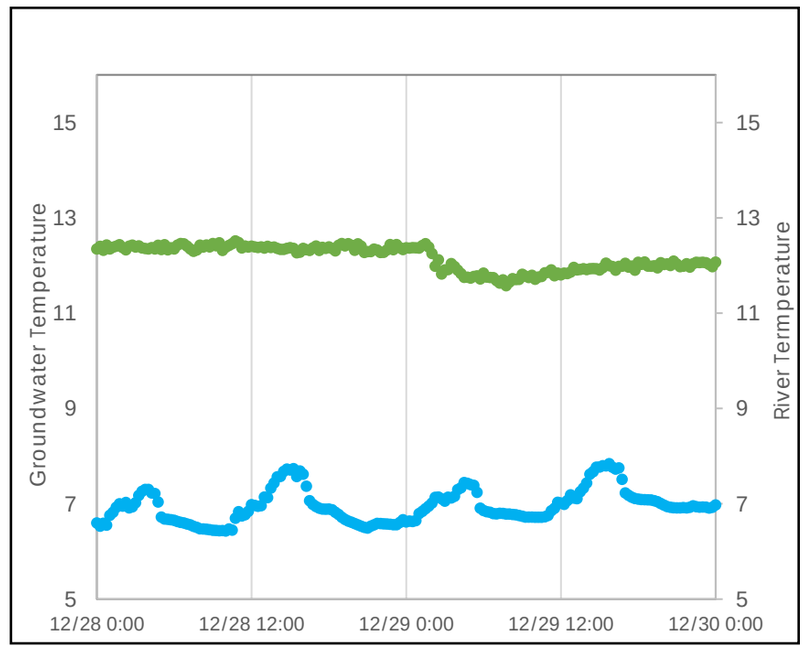
December 2019 Water Elevations (Feet NAVD 88)

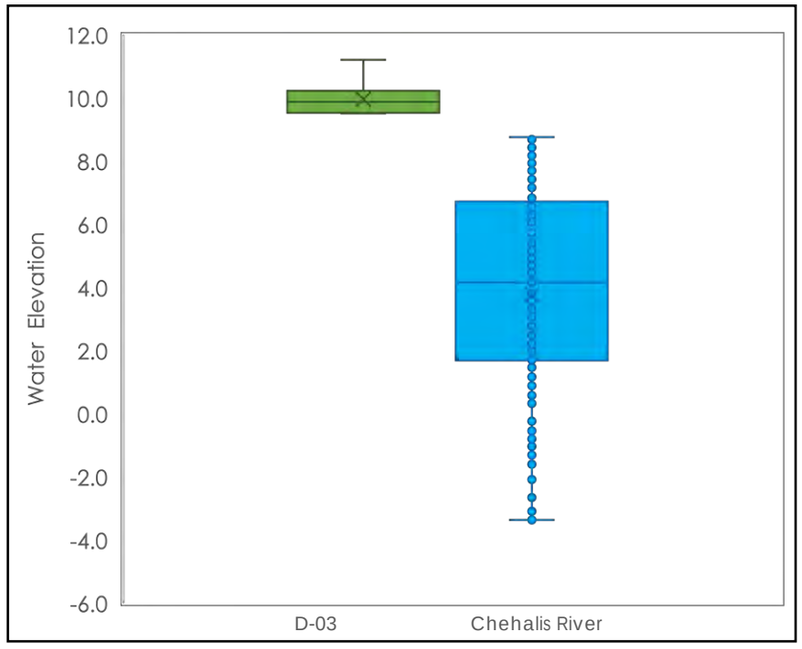


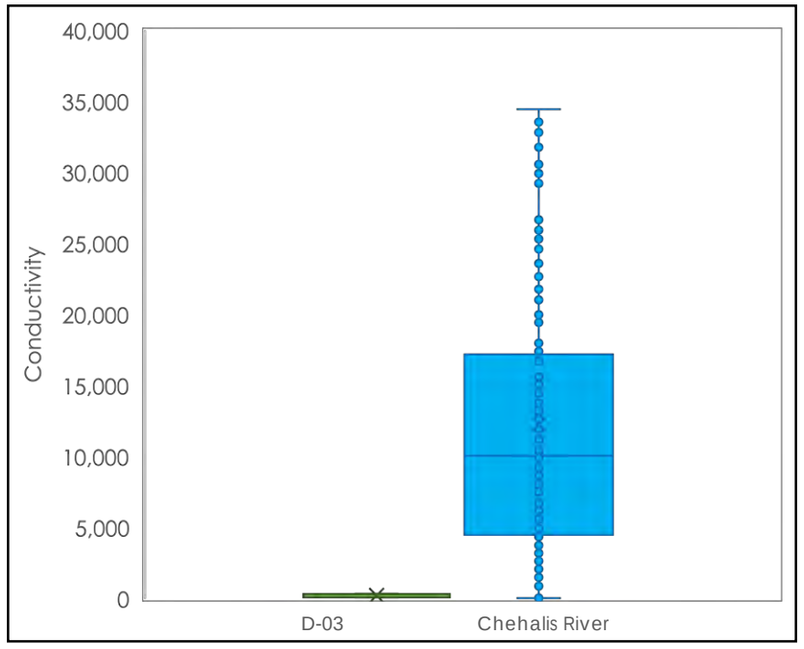
December 2019 Conductivity (uS/cm)

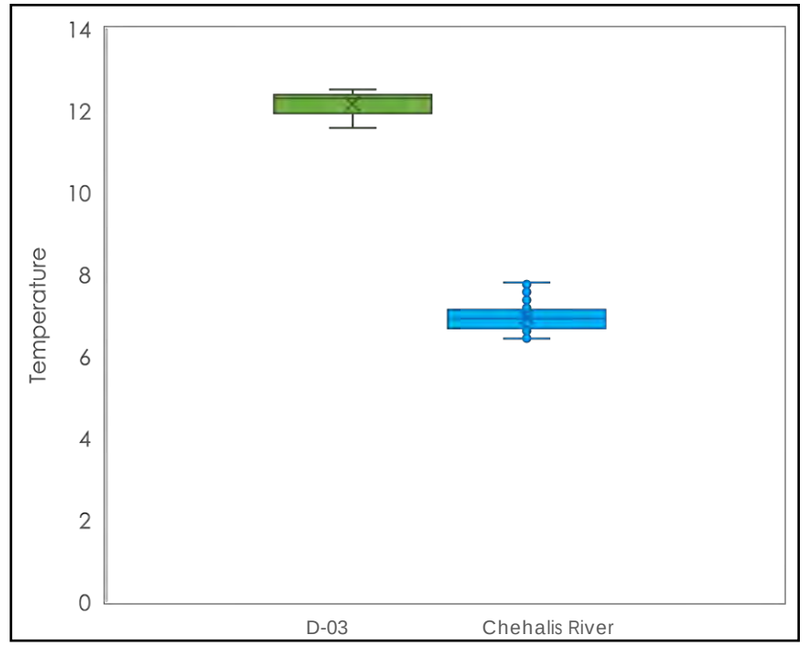


December 2019 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-03
Chehalis River

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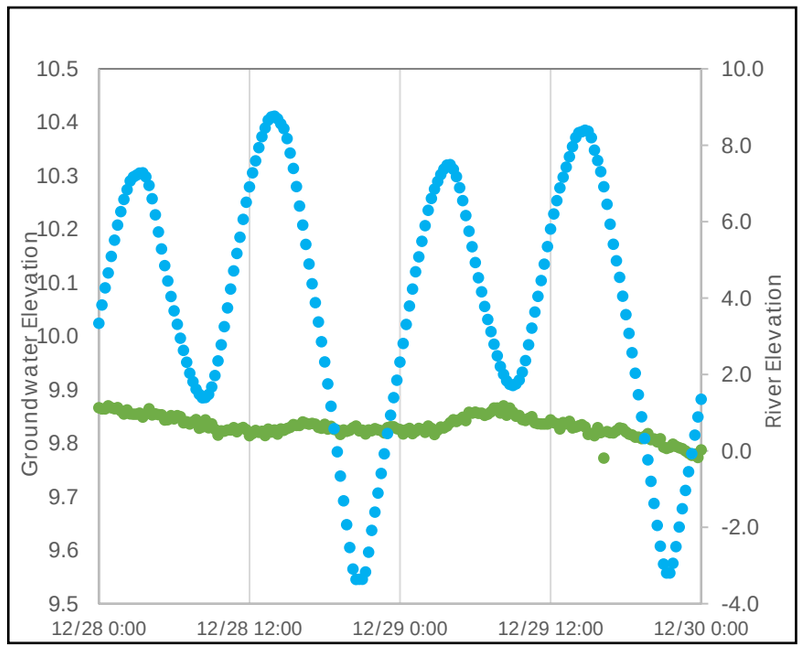
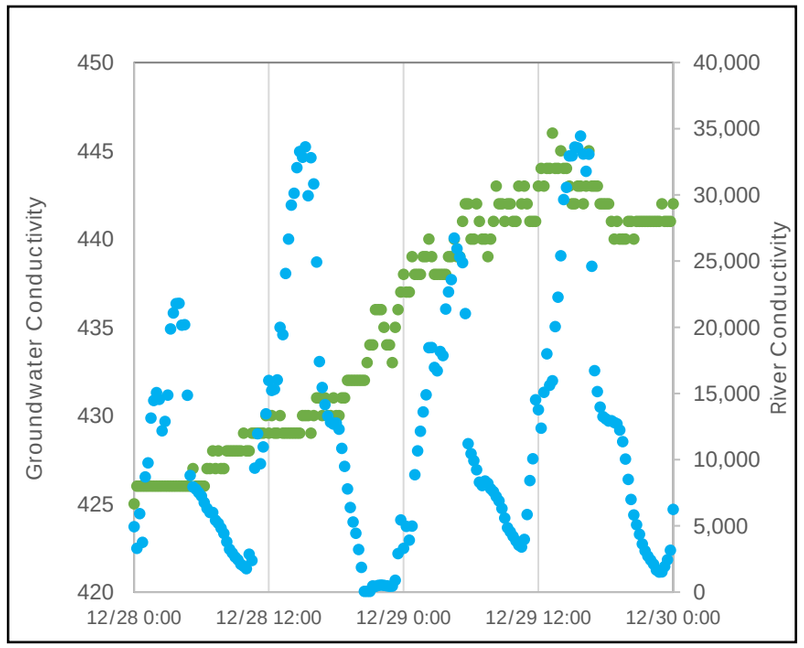
Figure A-4
D-04E—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

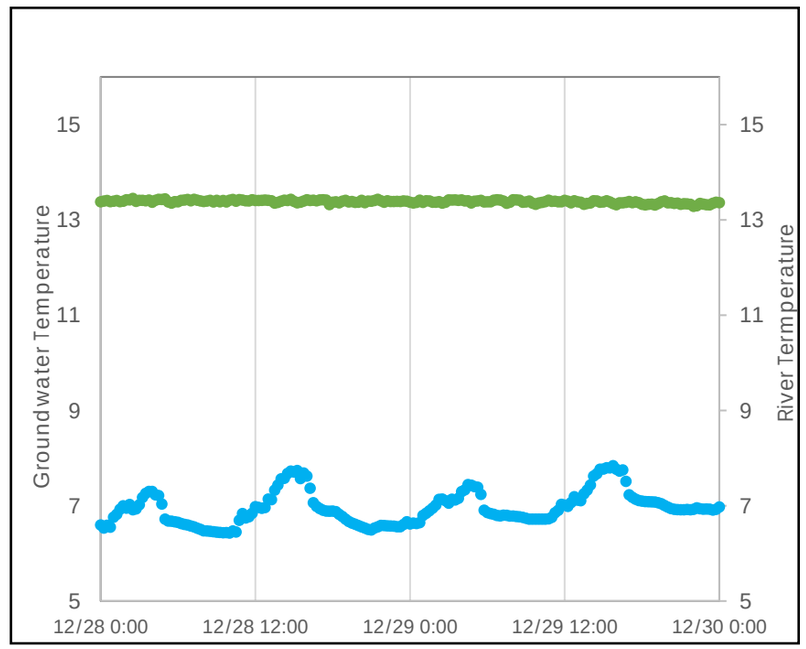
December 2019 Water Elevations (Feet NAVD 88)

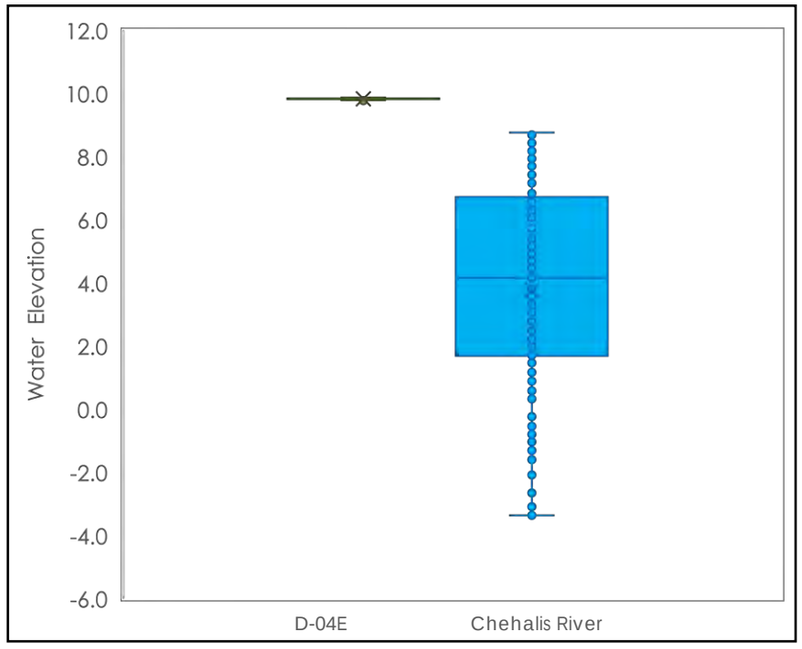


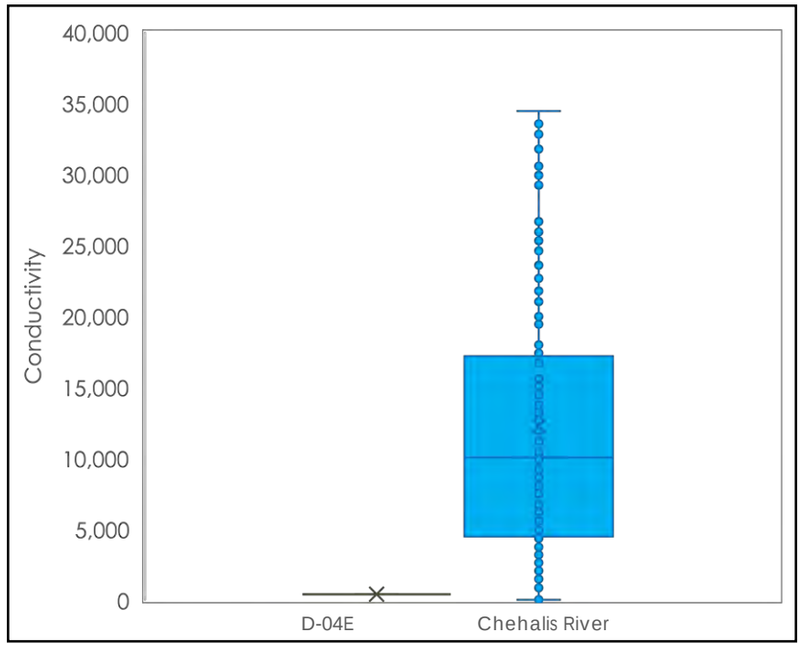
December 2019 Conductivity (uS/cm)

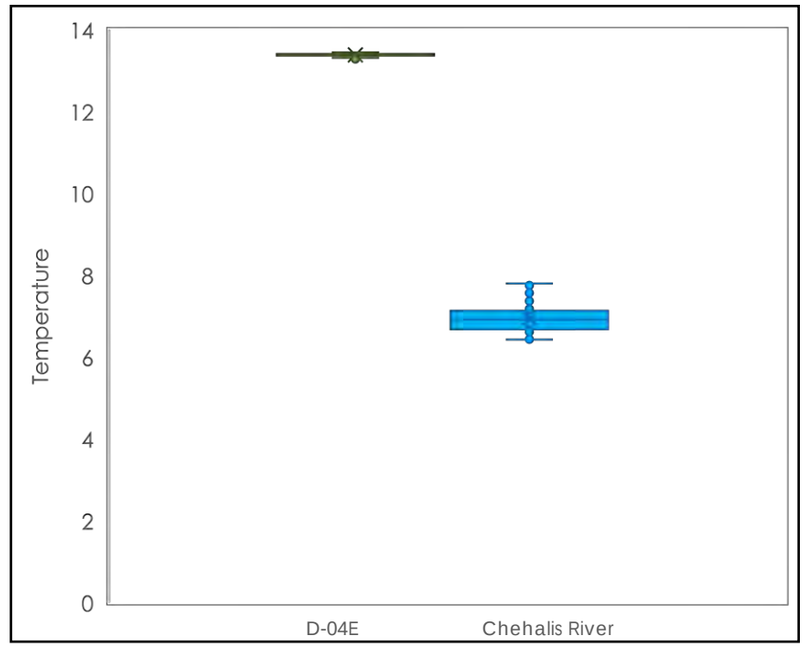


December 2019 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-04E
Chehalis River

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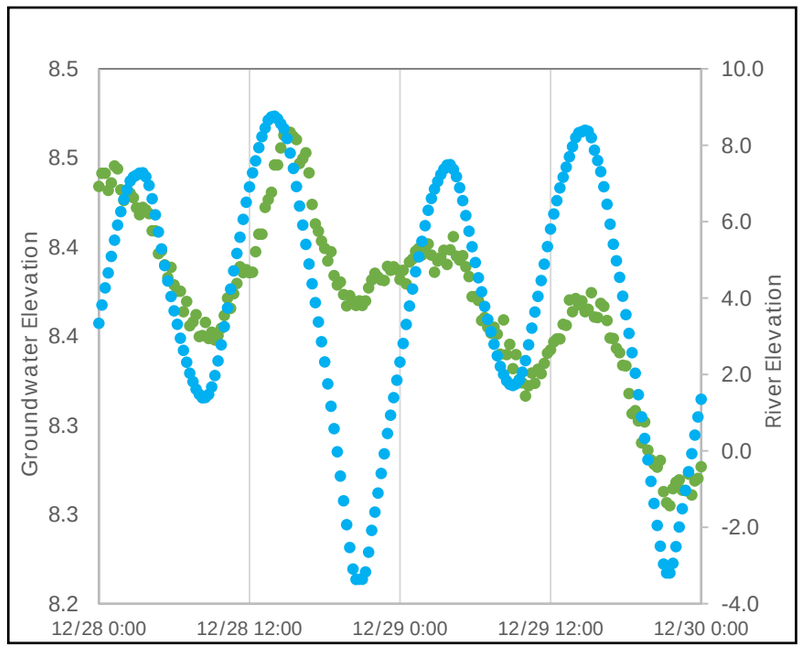
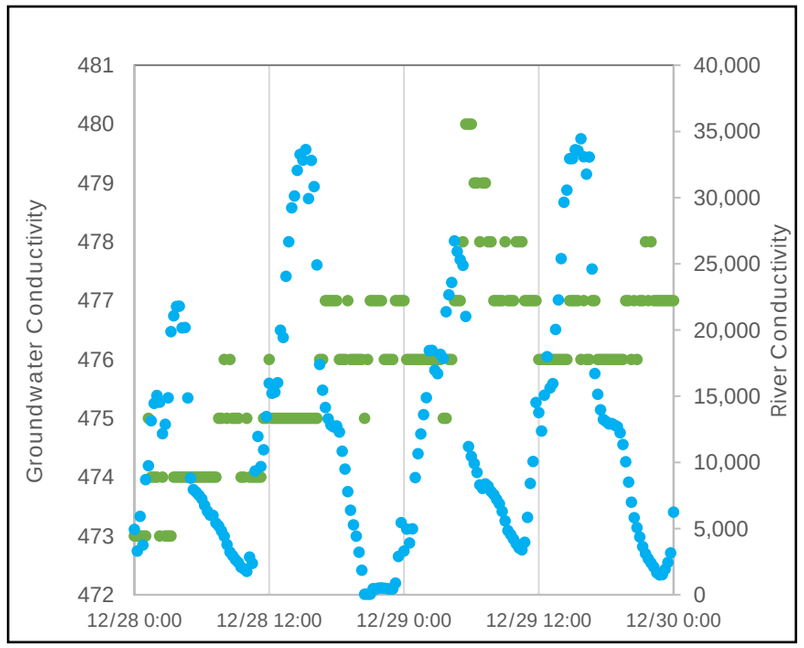
Figure A-5
D-08—December 2019 Groundwater vs. River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

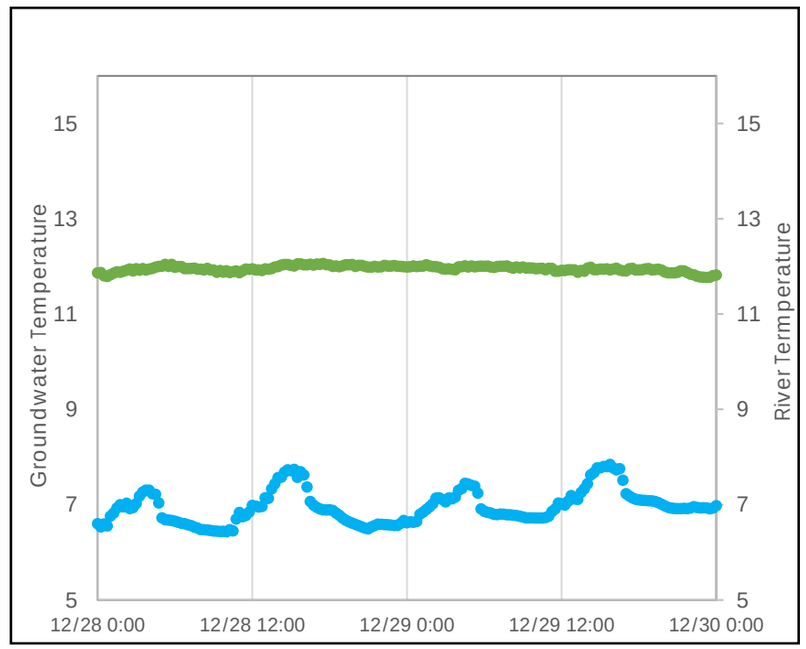
December 2019 Water Elevations (Feet NAVD 88)

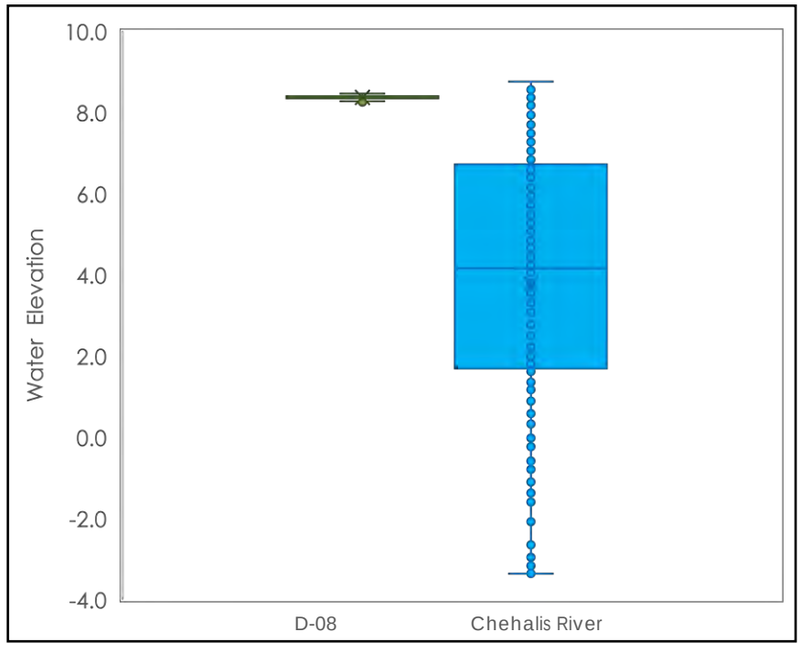


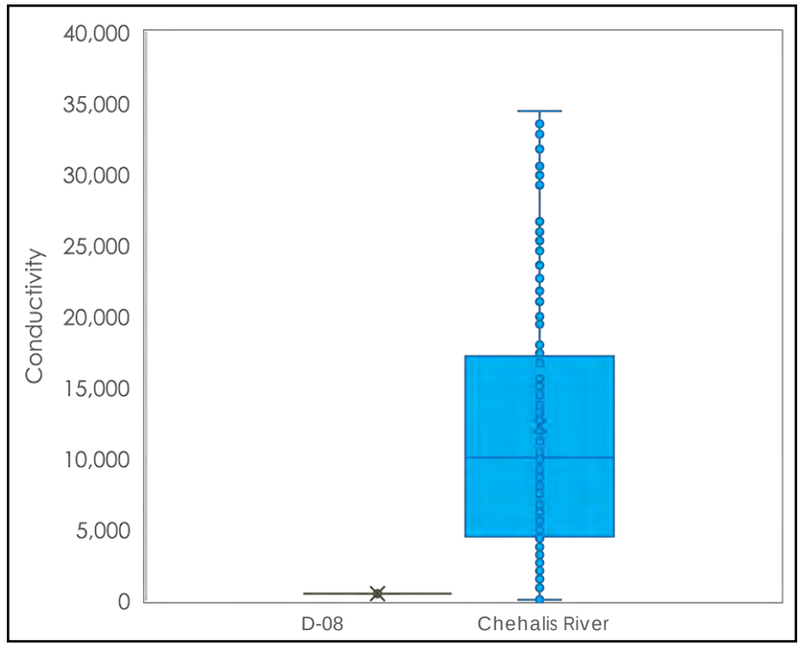
December 2019 Conductivity (uS/cm)

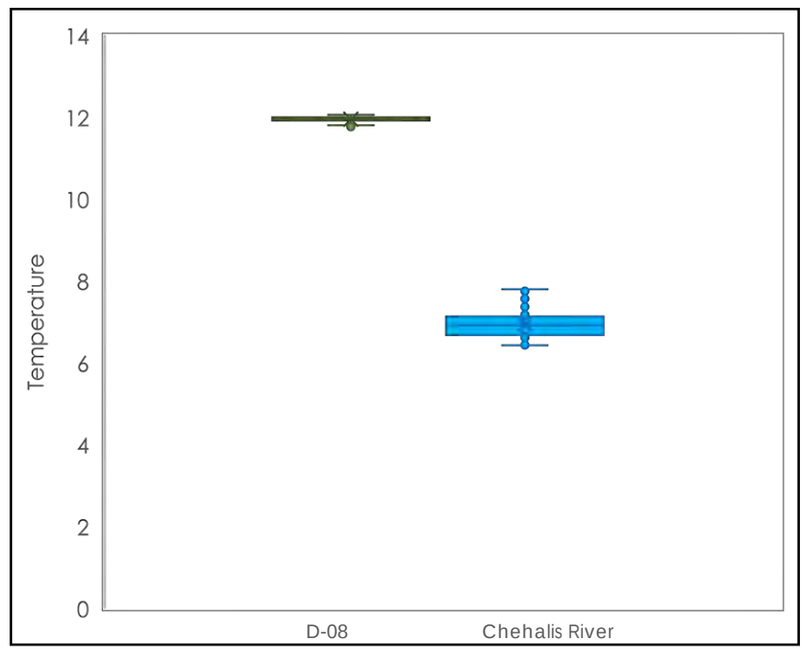


December 2019 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-08
Chehalis River

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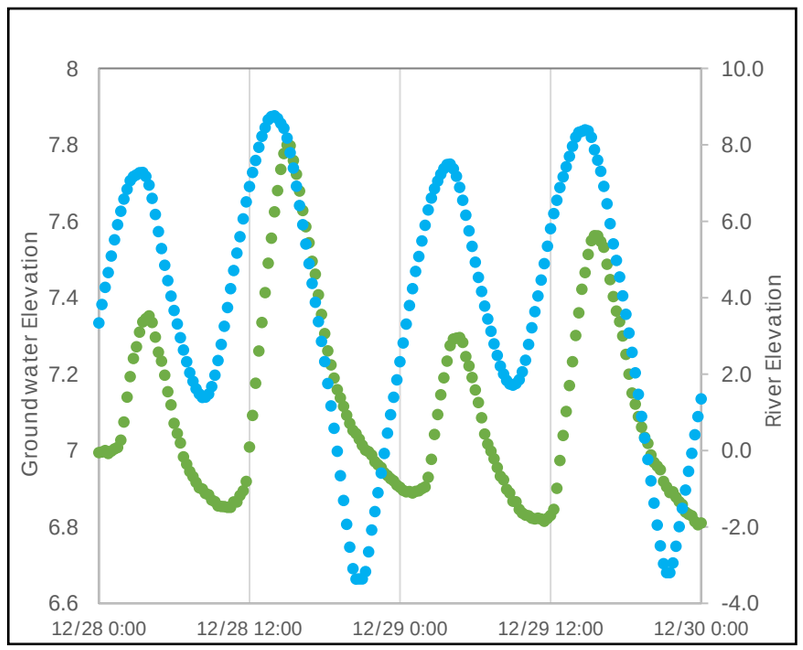
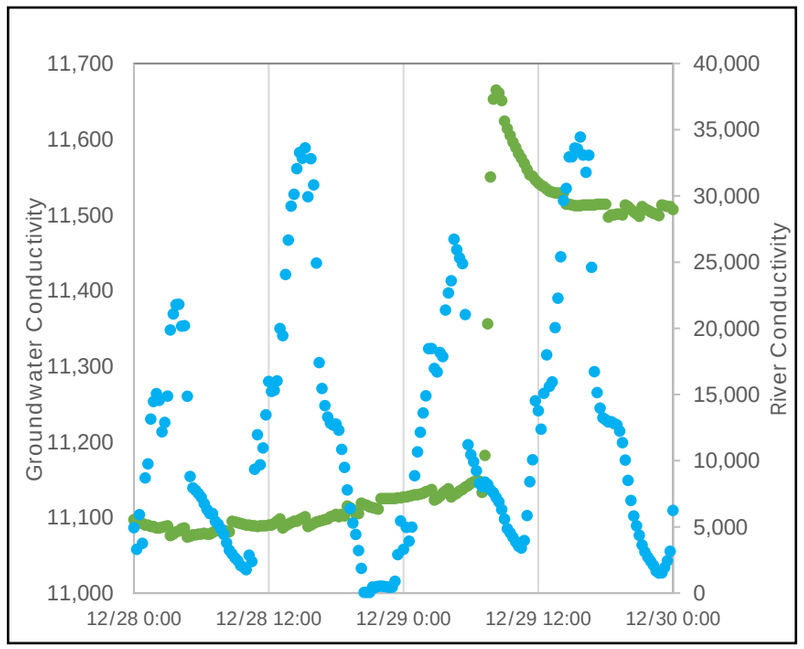
Figure A-6
RAU2-08—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

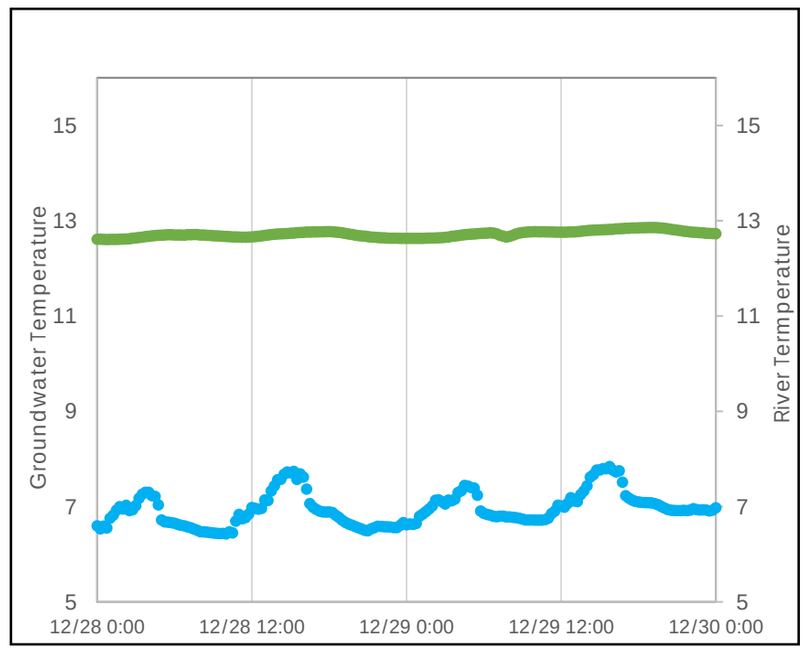
December 2019 Water Elevations (Feet NAVD 88)

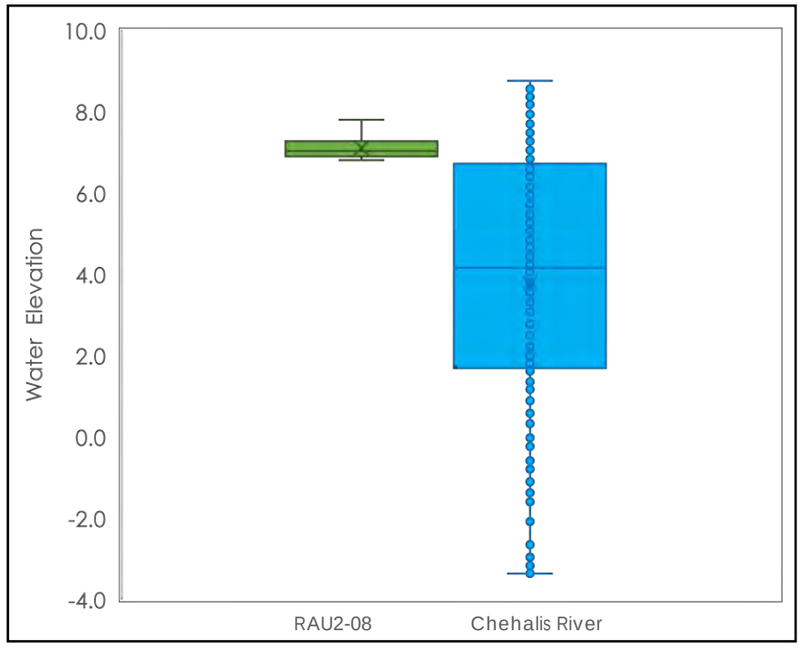


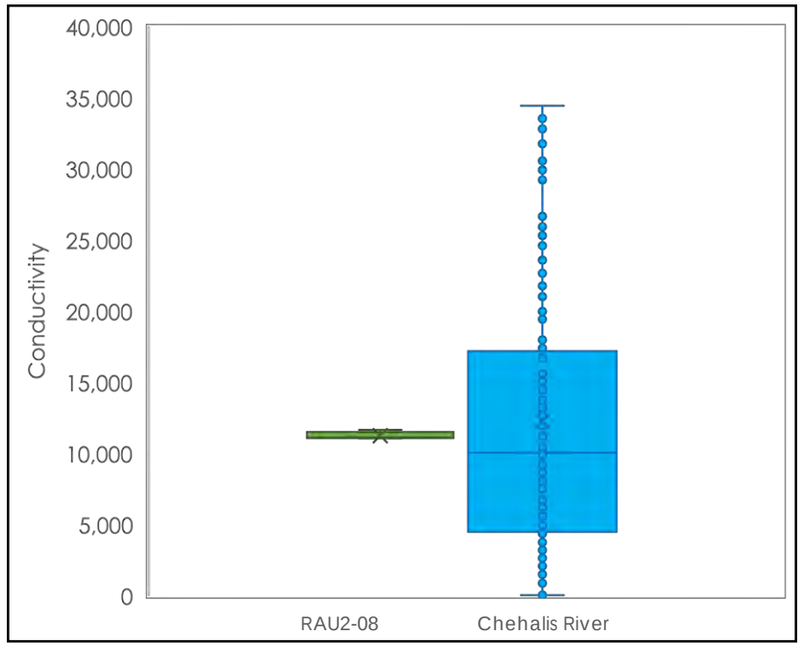
December 2019 Conductivity (uS/cm)

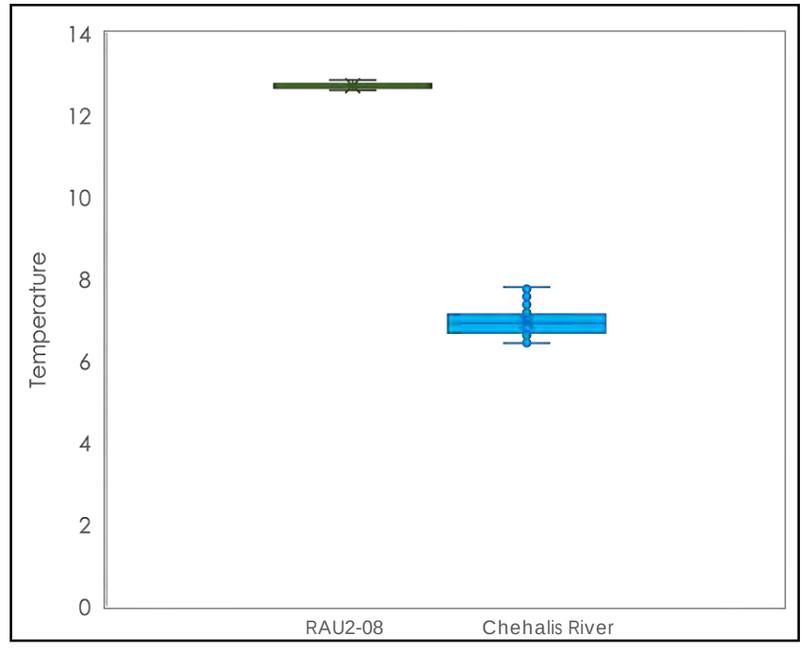


December 2019 Temperature (°C)









Notes:
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°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU2-08
Chehalis River

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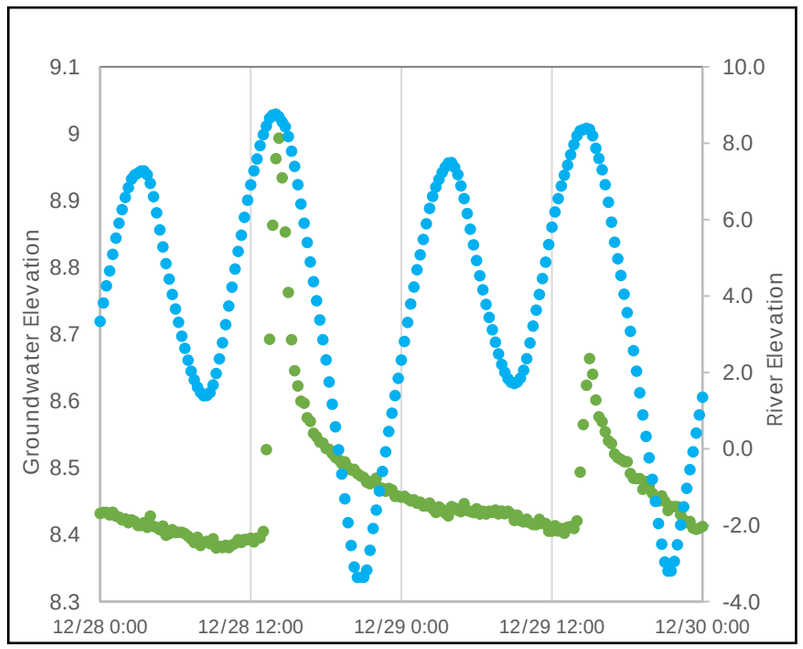
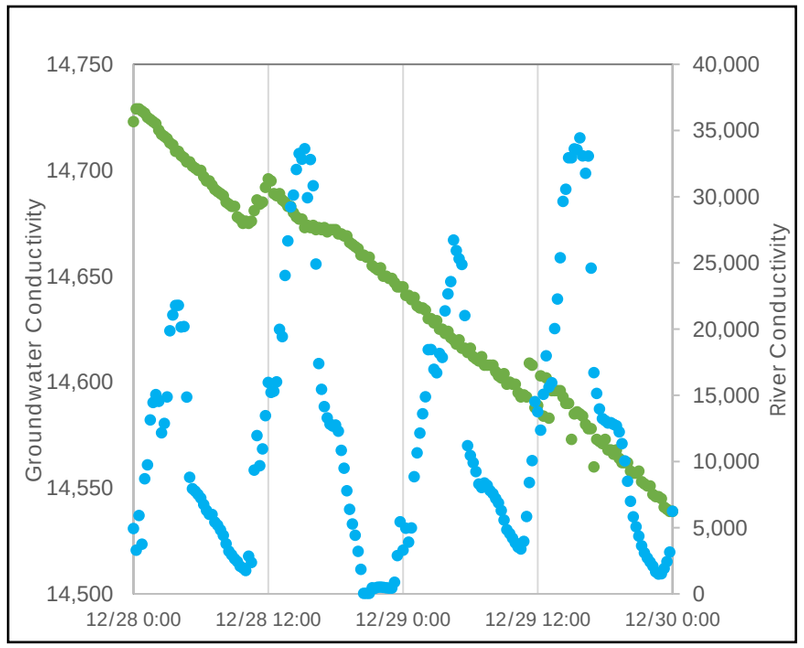
Figure A-7
RAU2-09—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

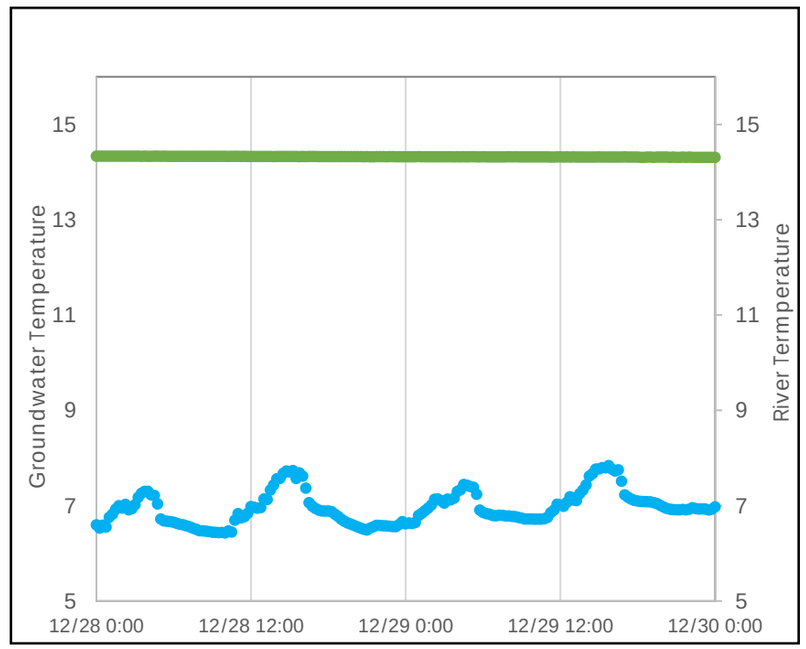
December 2019 Water Elevations (Feet NAVD 88)

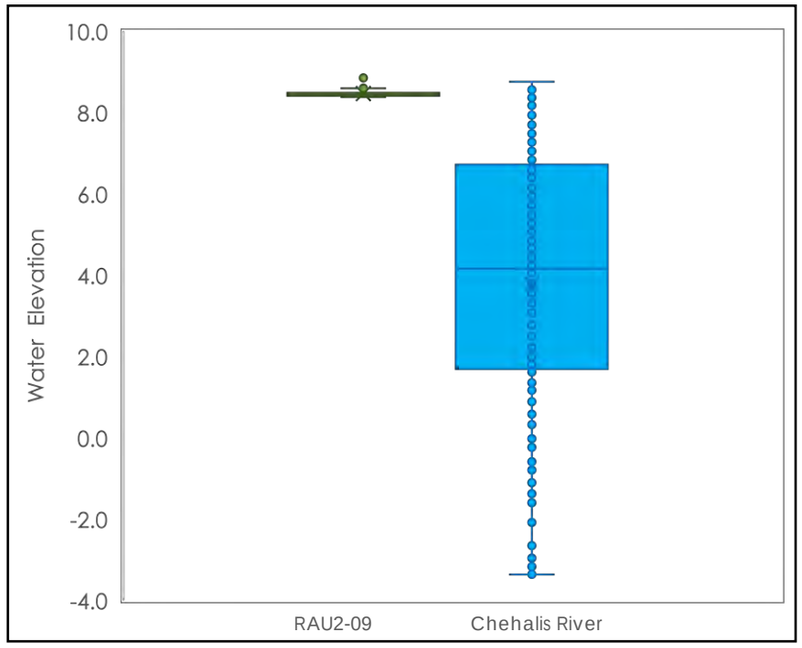


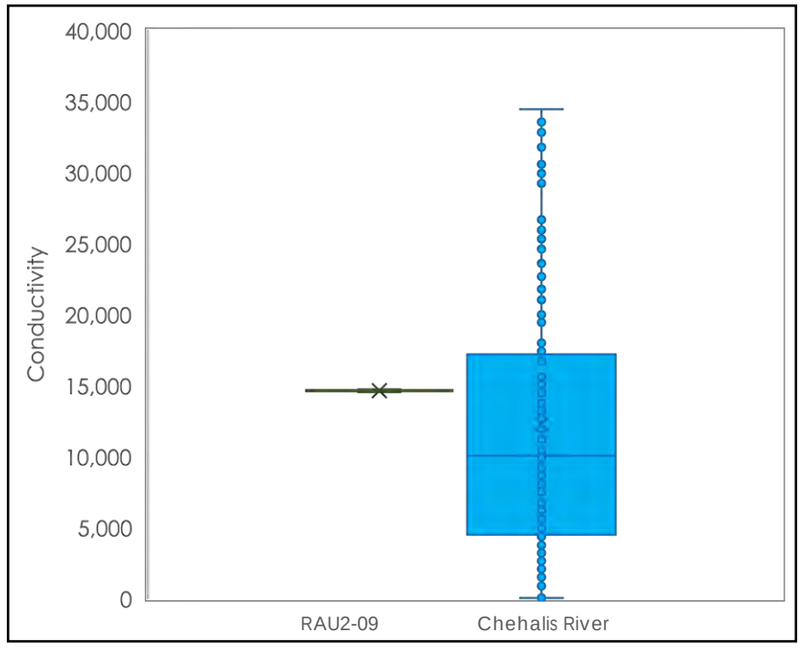
December 2019 Conductivity (uS/cm)

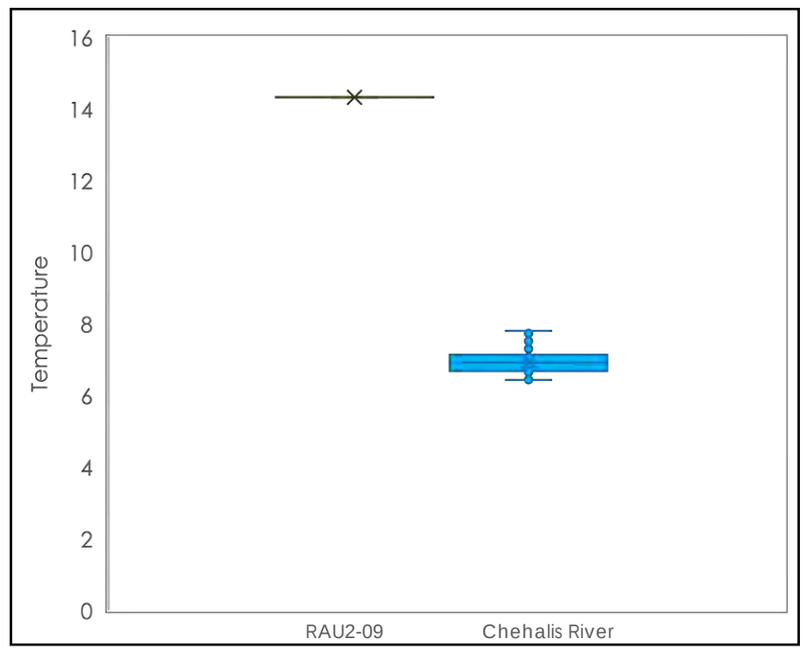


December 2019 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU2-09
Chehalis River

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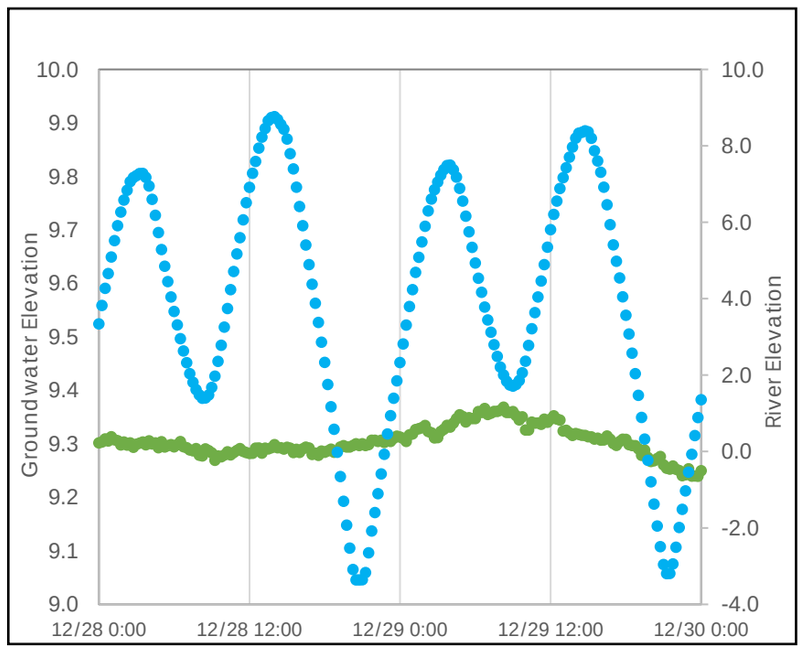
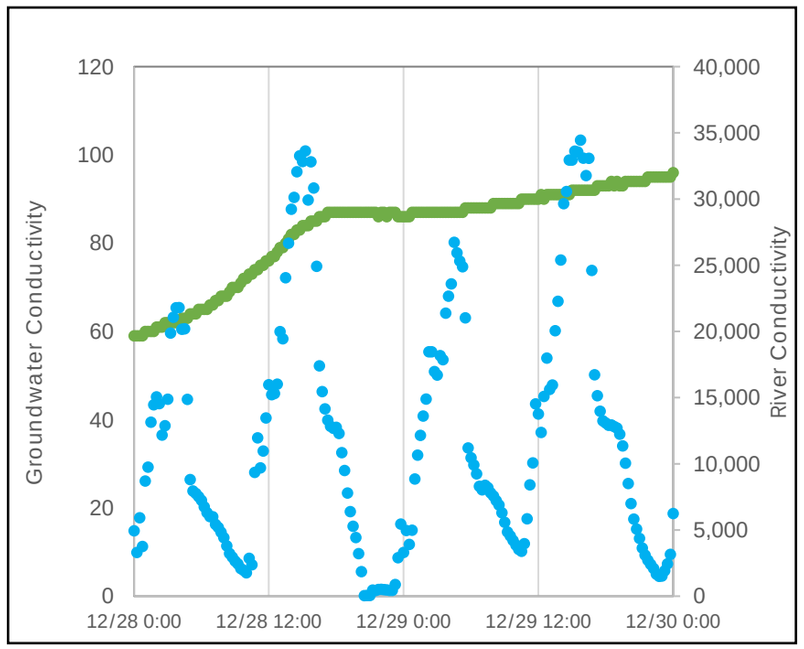
Figure A-8
RAU3-03—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

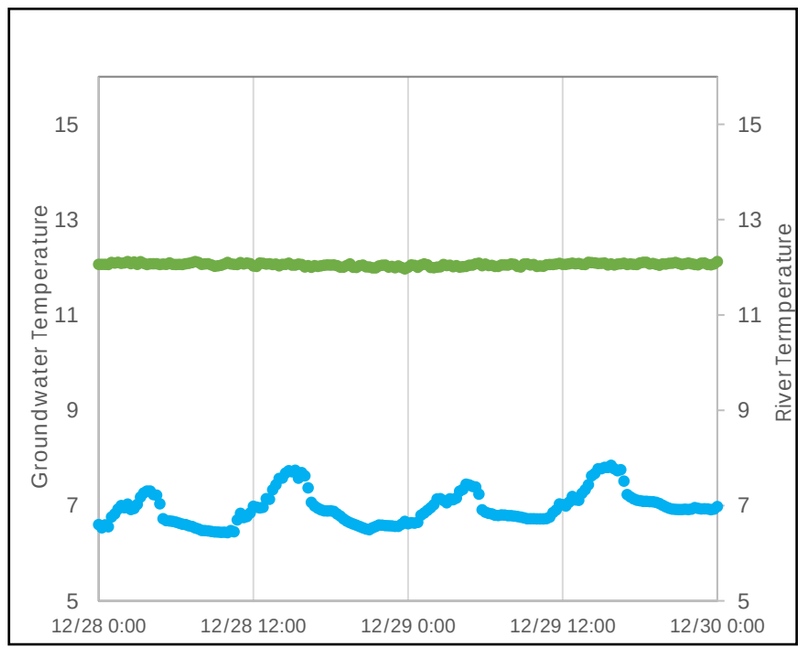
December 2019 Water Elevations (Feet NAVD 88)

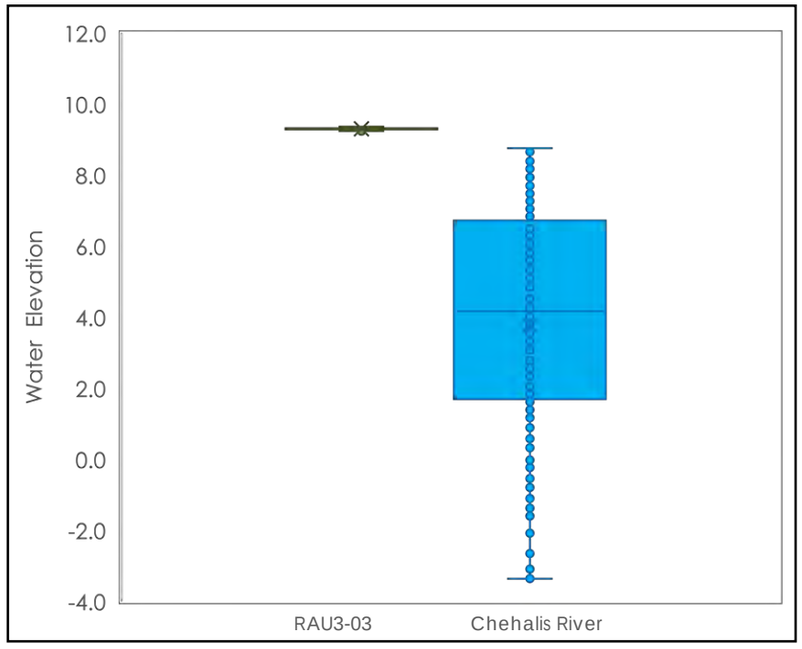


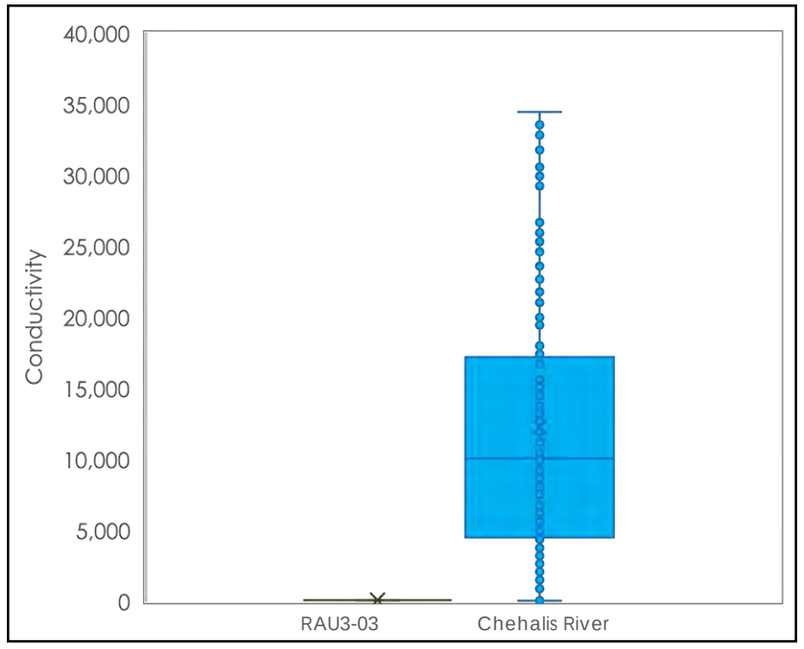
December 2019 Conductivity (uS/cm)

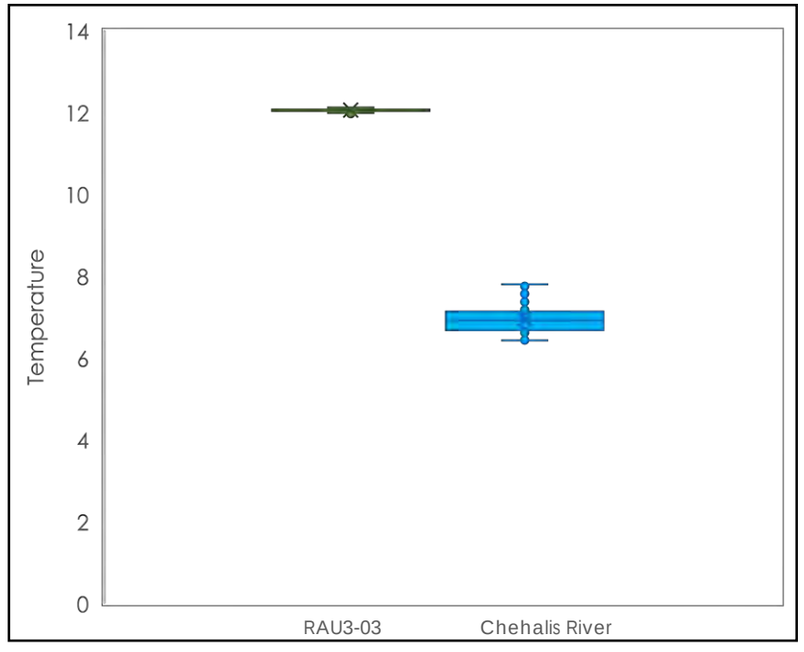


December 2019 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on December 28, 2019, to 0:00 on December 30, 2019.
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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU3-03
Chehalis River

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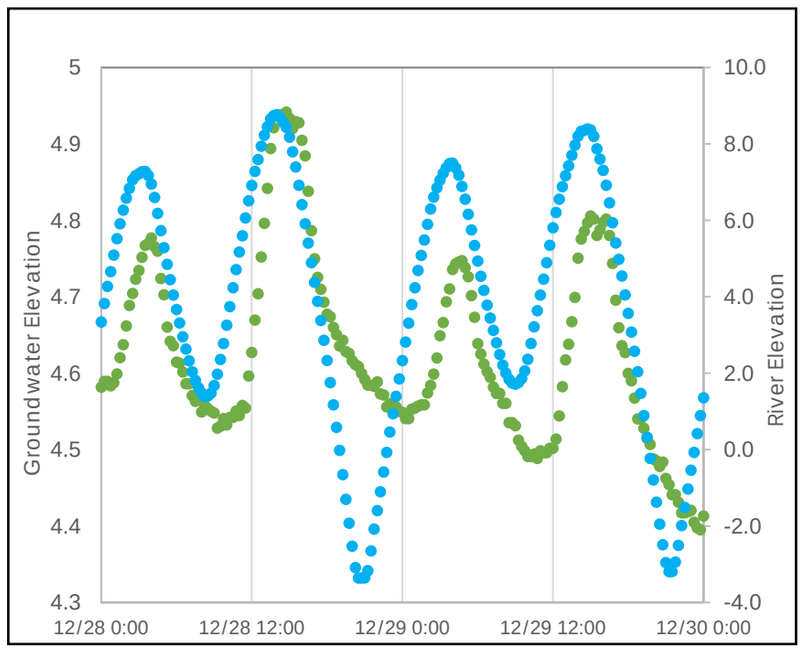
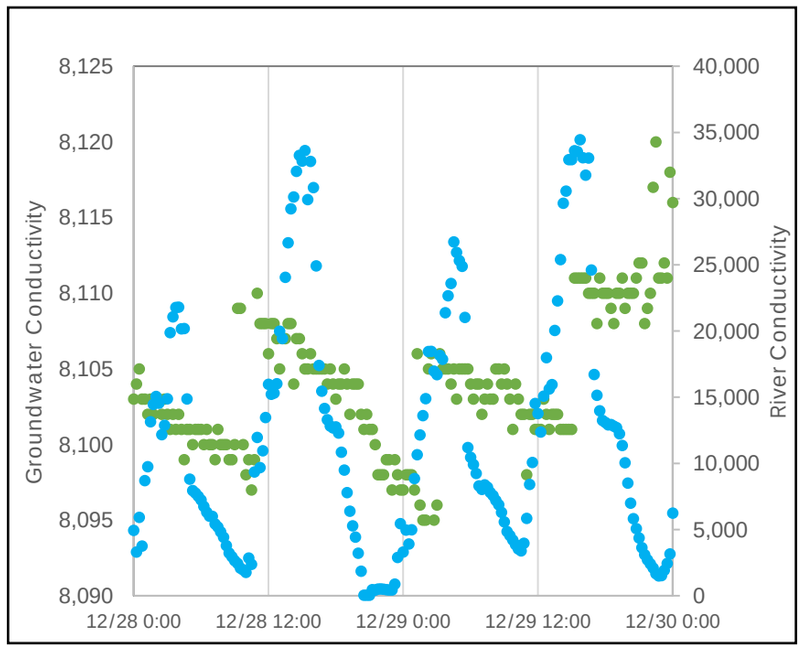
Figure A-9
RAU4-12—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

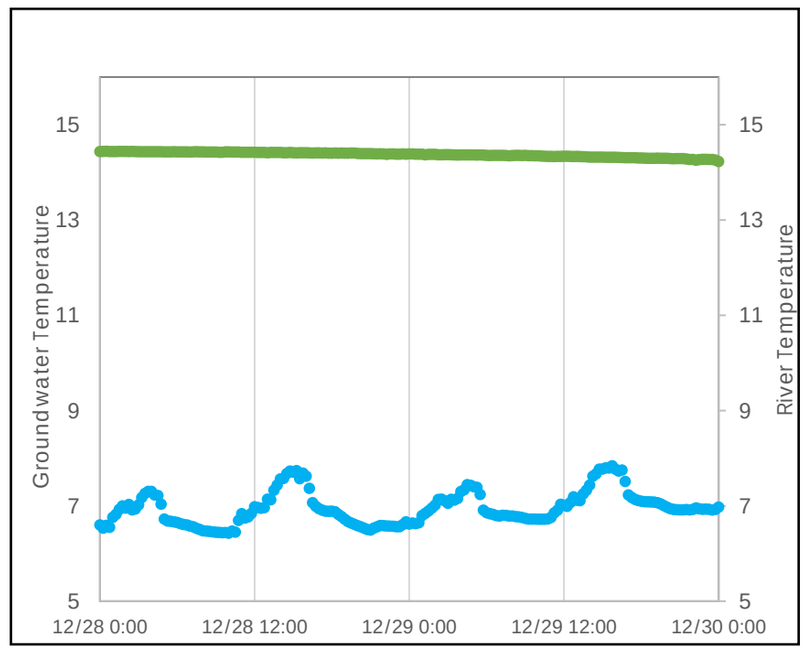
December 2019 Water Elevations (Feet NAVD 88)

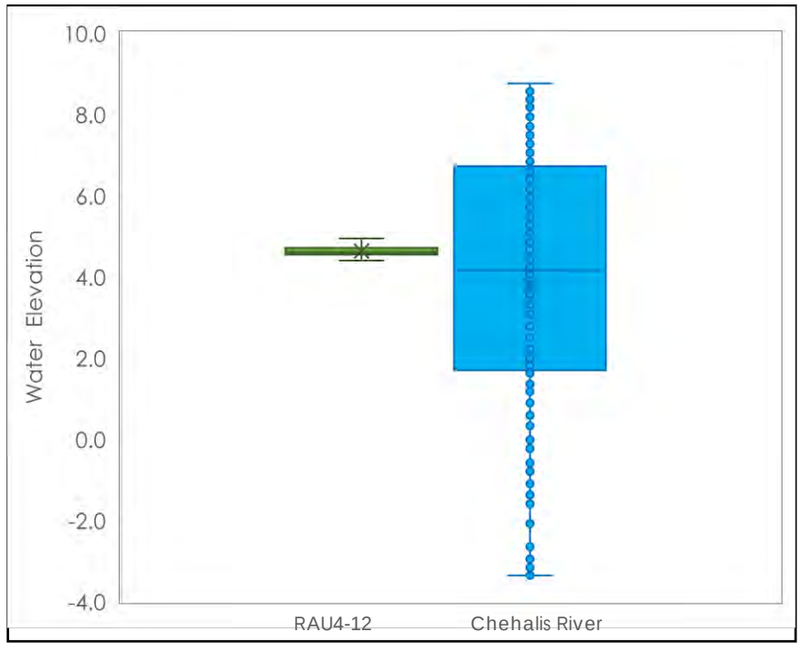


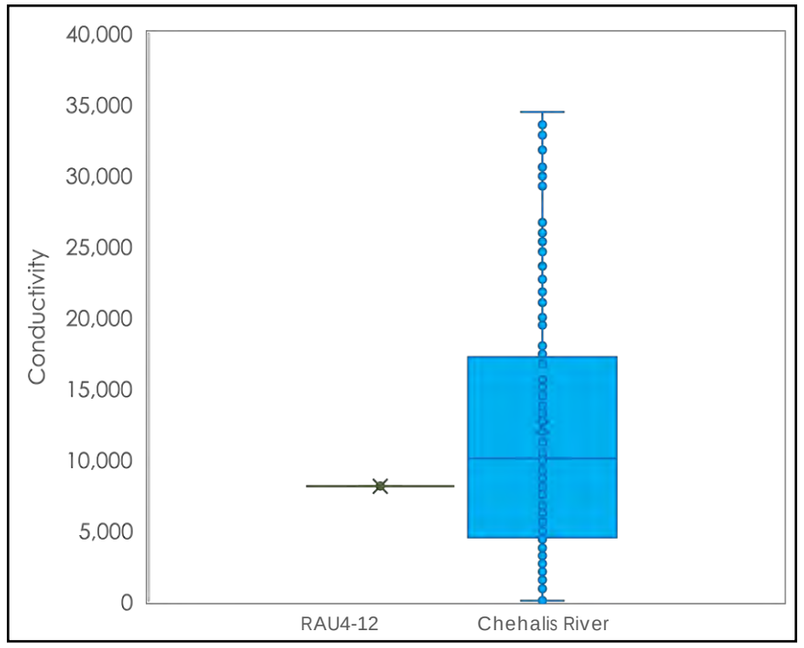
December 2019 Conductivity (uS/cm)

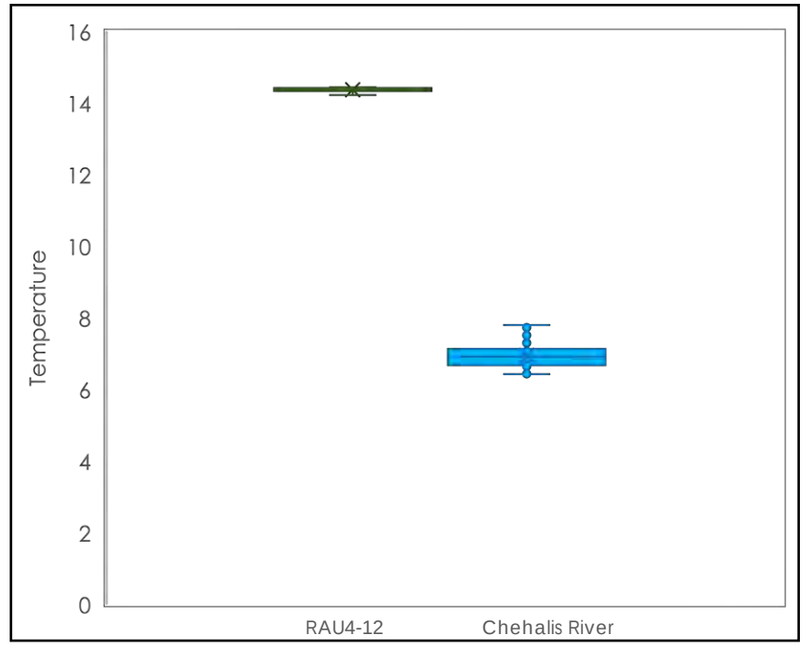


December 2019 Temperature (°C)









Notes:
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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU4-12
Chehalis River

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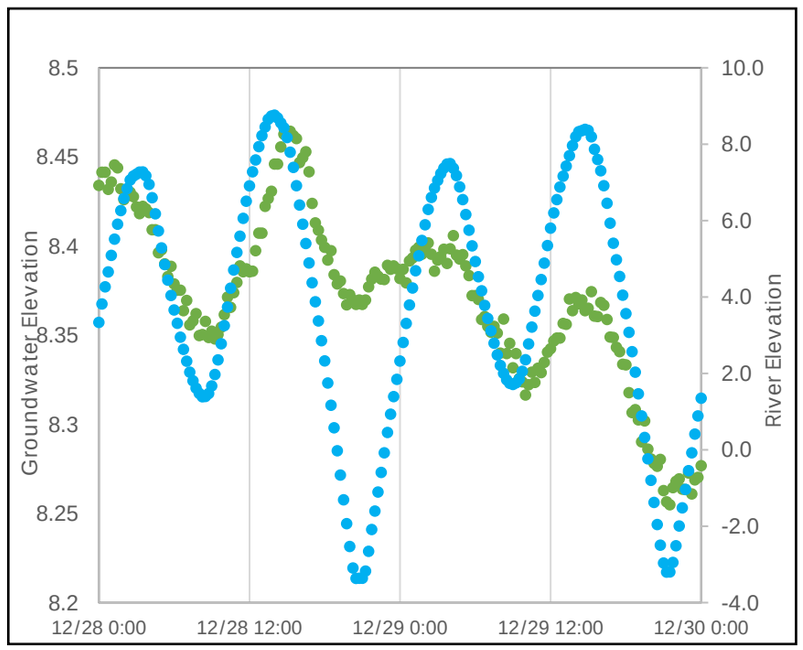
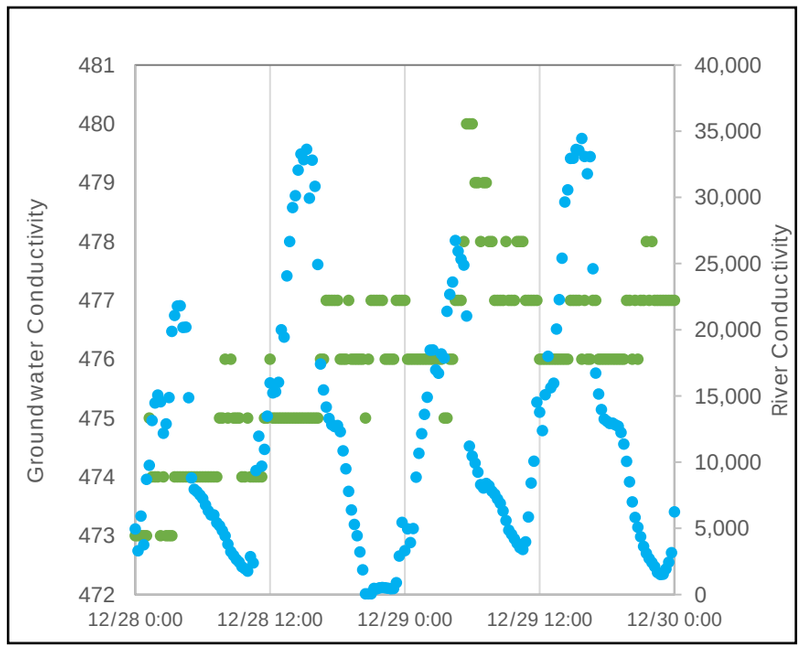
Figure A-10
RAU4-UNK—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

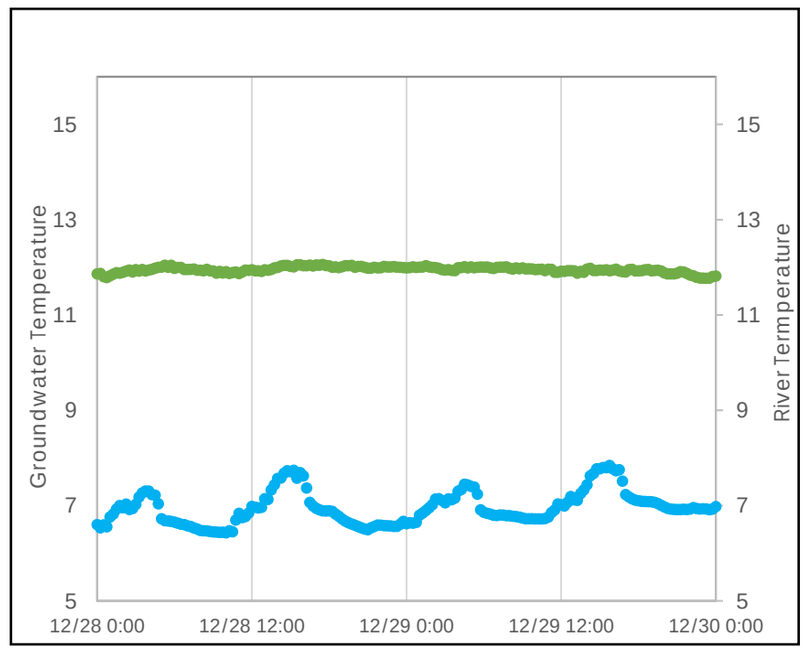
December 2019 Water Elevations (Feet NAVD 88)

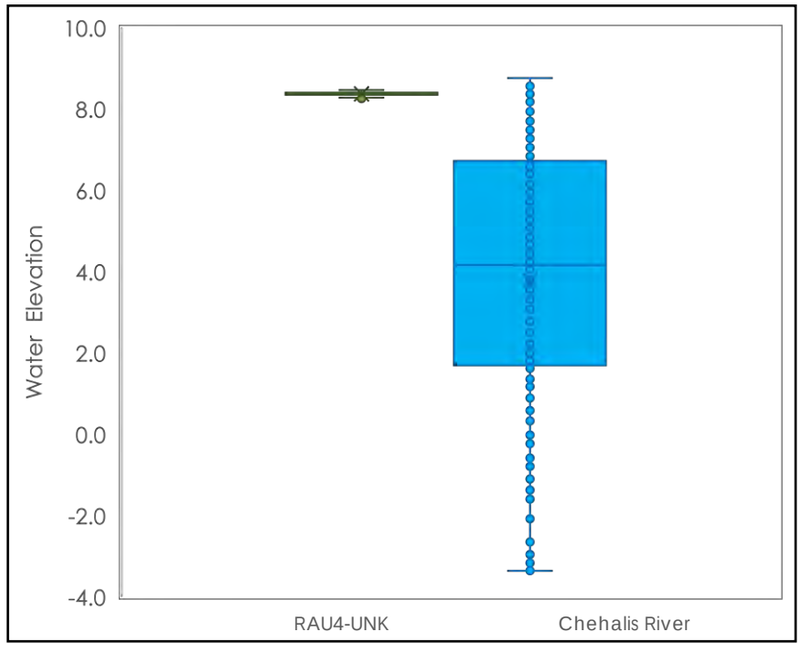


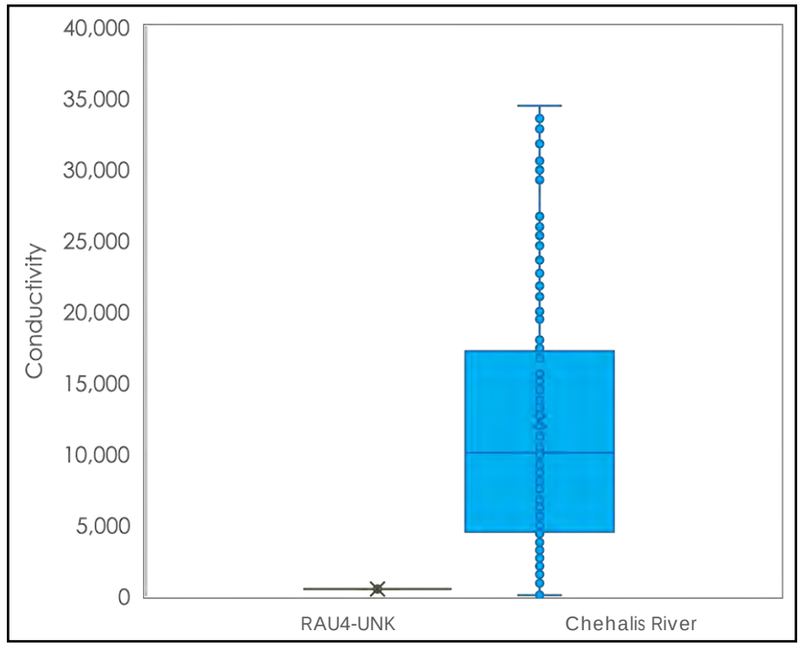
December 2019 Conductivity (uS/cm)

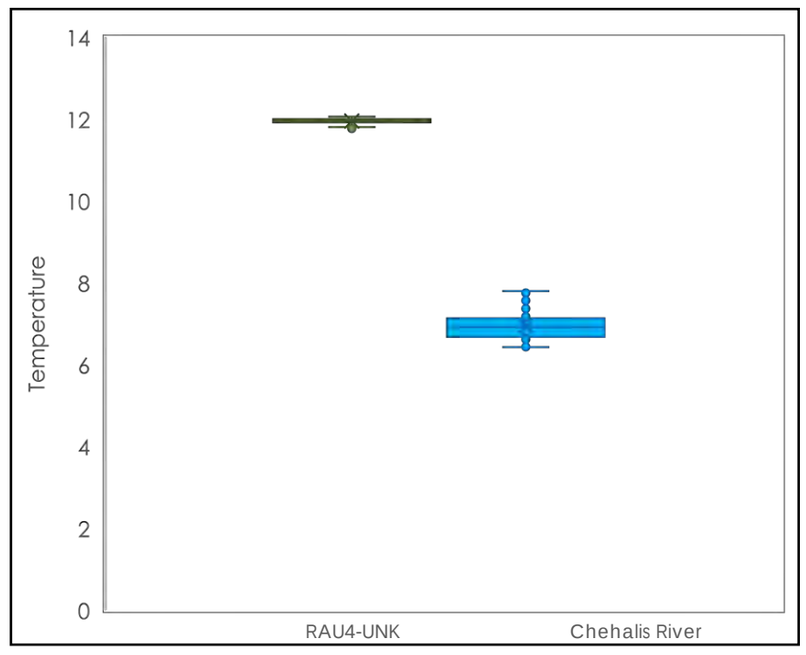


December 2019 Temperature (°C)









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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU4-03
Chehalis River

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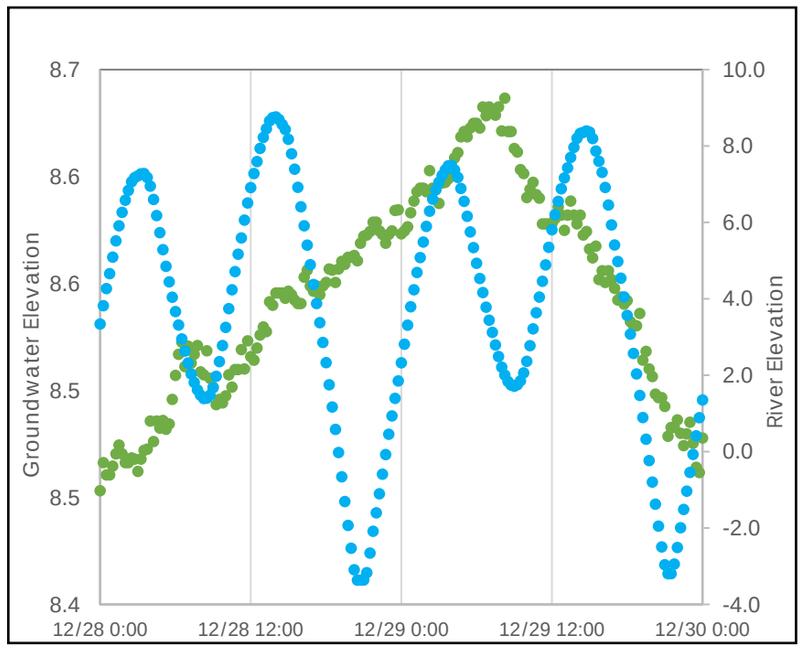
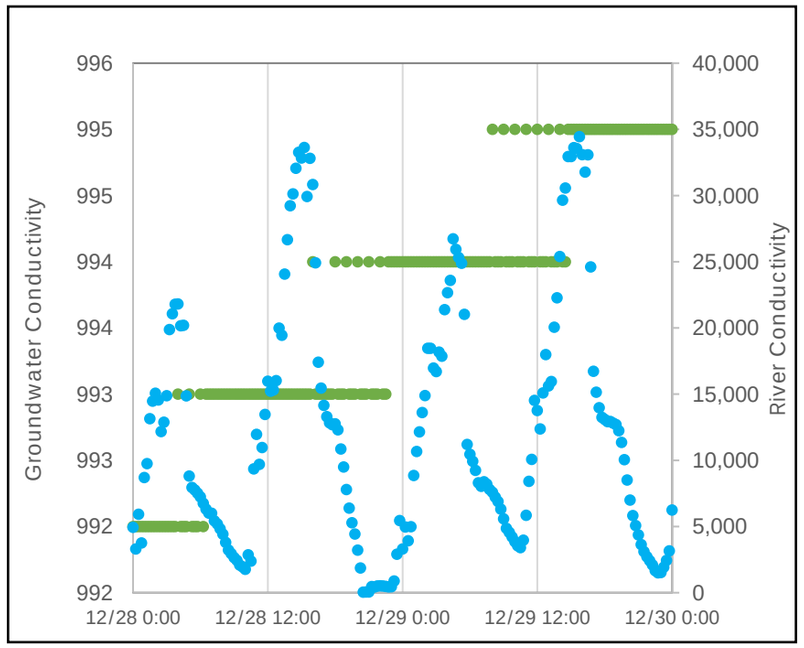
Figure A-11
RAU6-02—December 2019 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

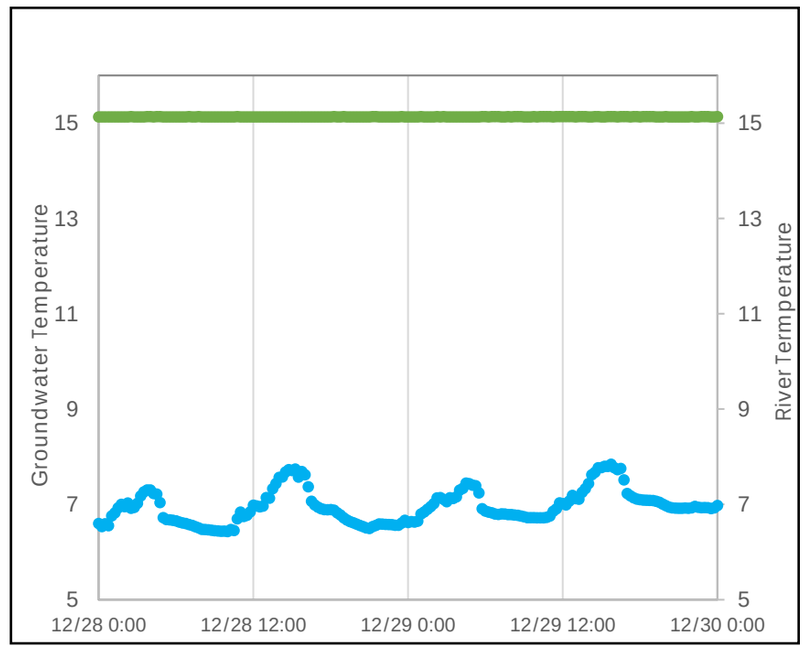
December 2019 Water Elevations (Feet NAVD 88)

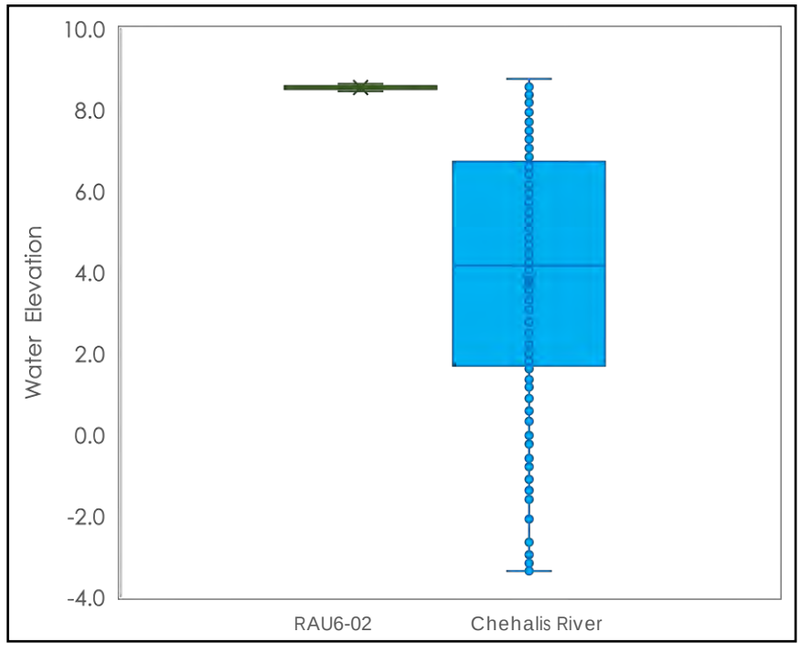


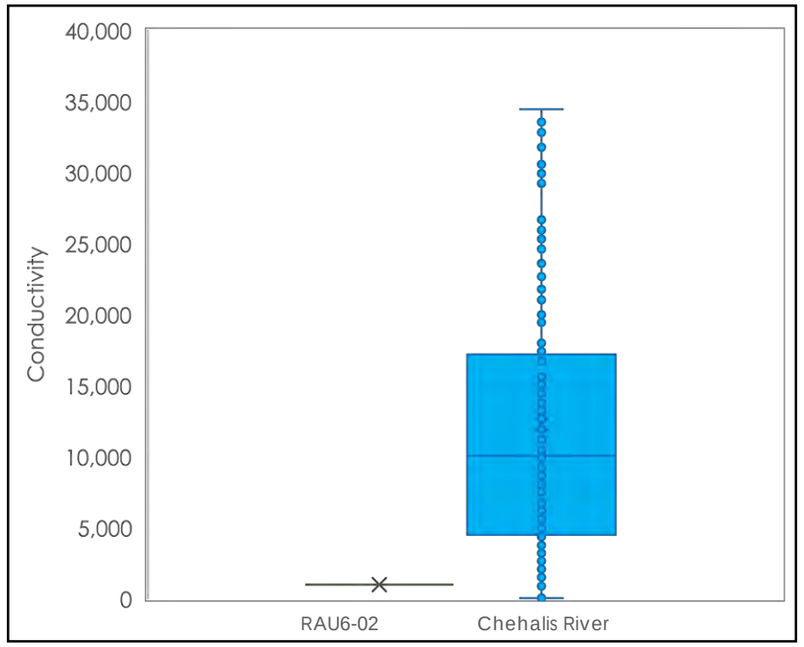
December 2019 Conductivity (uS/cm)

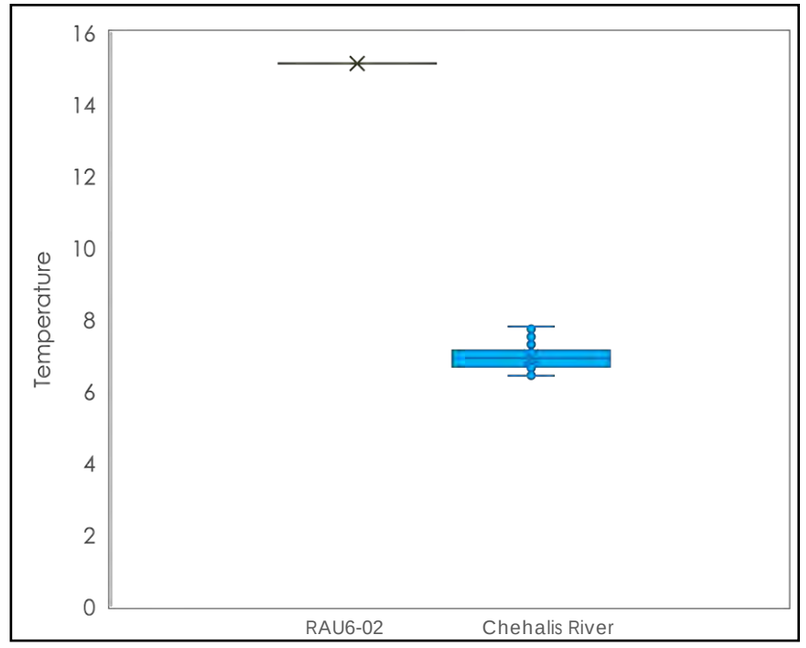


December 2019 Temperature (°C)









Notes:
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°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU6-02
Chehalis River

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PLOTS

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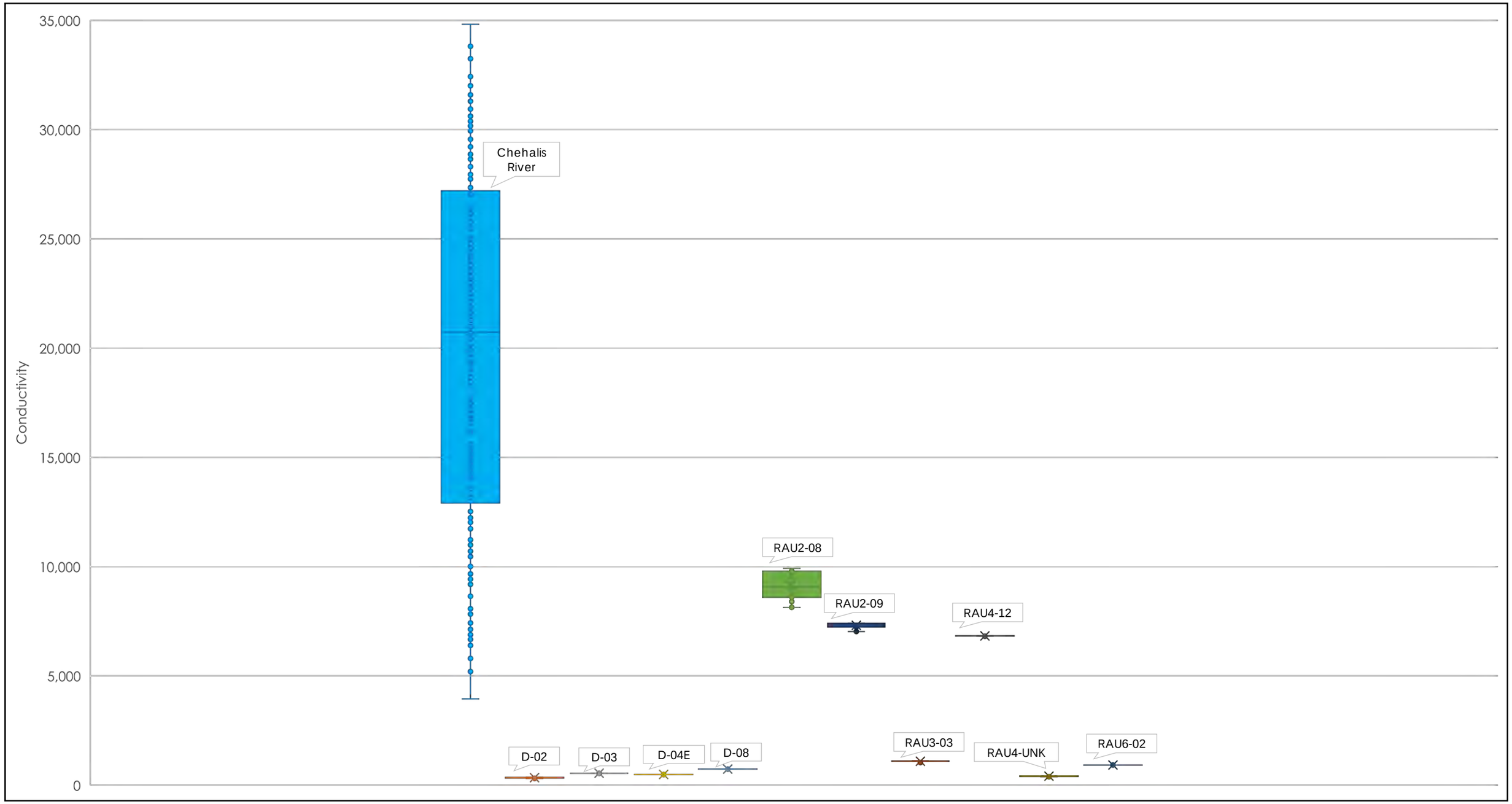
Figure A-12
April 2020 Groundwater Compared to River Conductivity
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

April 2020 Conductivity (uS/cm)



Notes:
Data shown above were collected from 0:00 on April 22, 2020, to 0:00 on April 24, 2020.
uS/cm = microsiemens per centimeter.

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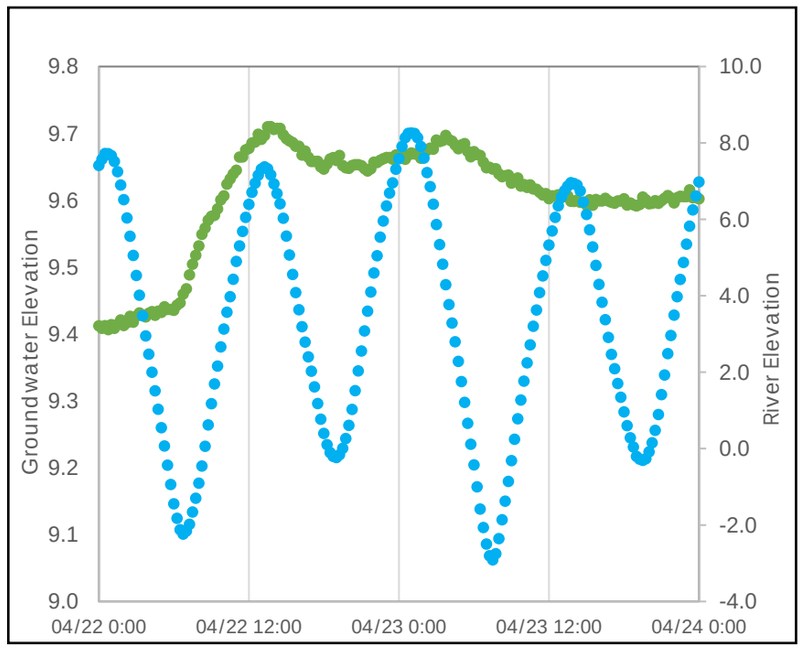
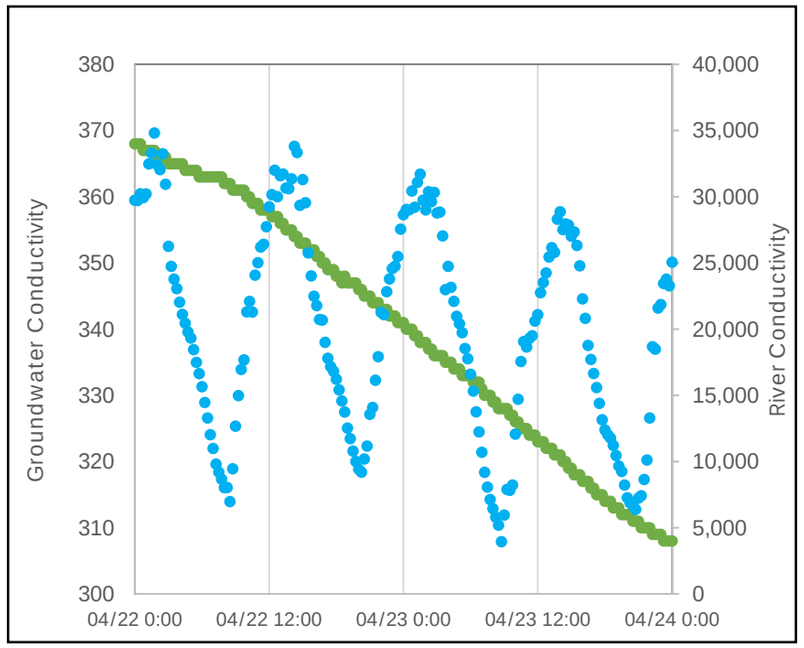
Figure A-13
D-02—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

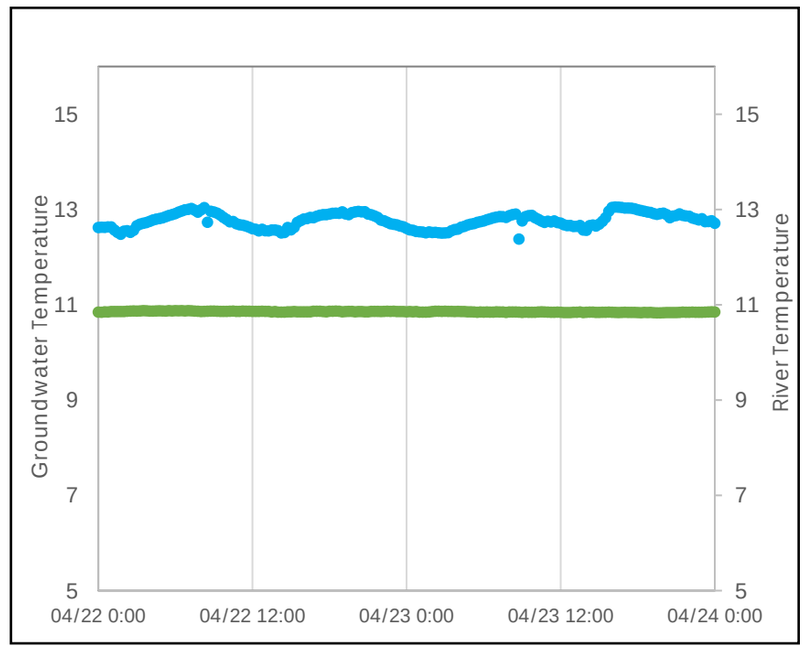
April 2020 Water Elevations (Feet NAVD 88)

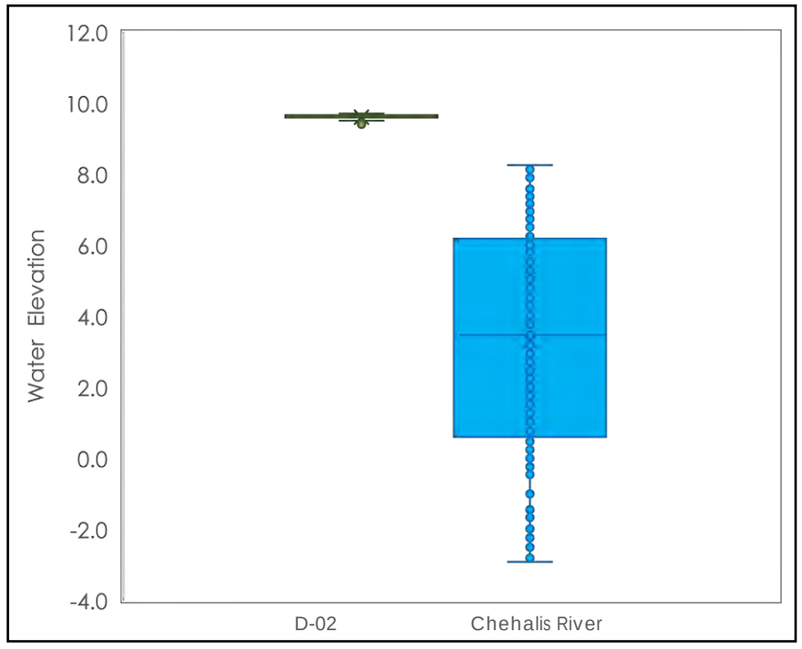


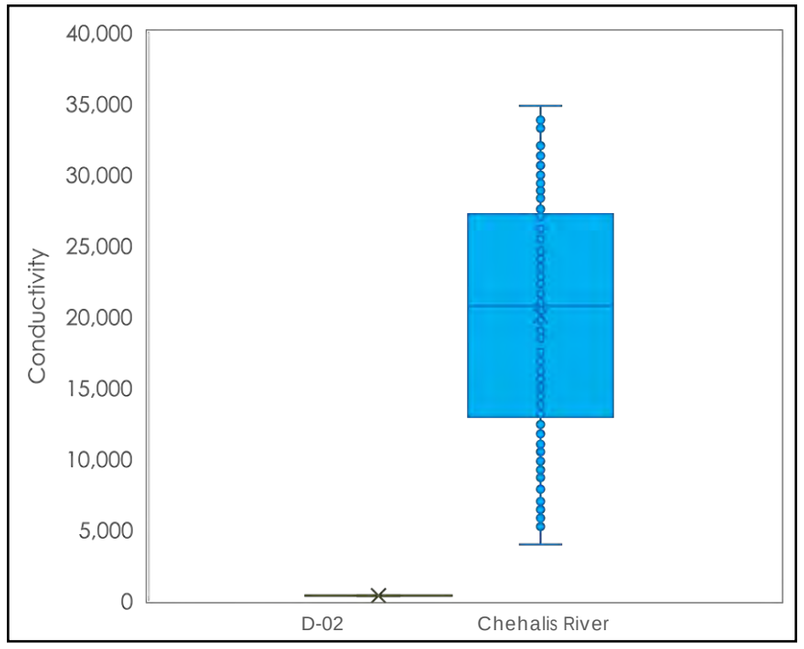
April 2020 Conductivity (uS/cm)

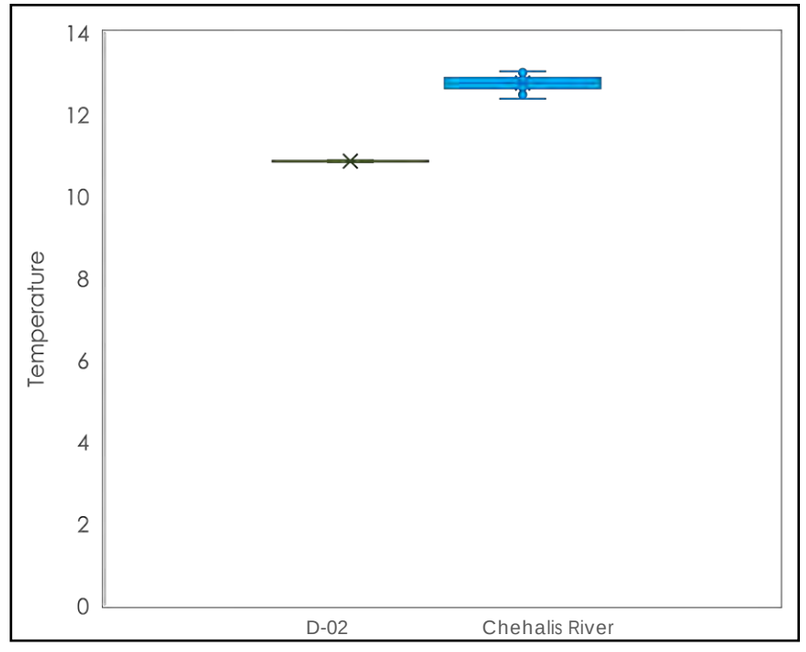


April 2020 Temperature (°C)









Notes:
Data shown above was collected from 0:00 on April 22, 2020, to 0:00 on April 24, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-02
Chehalis River

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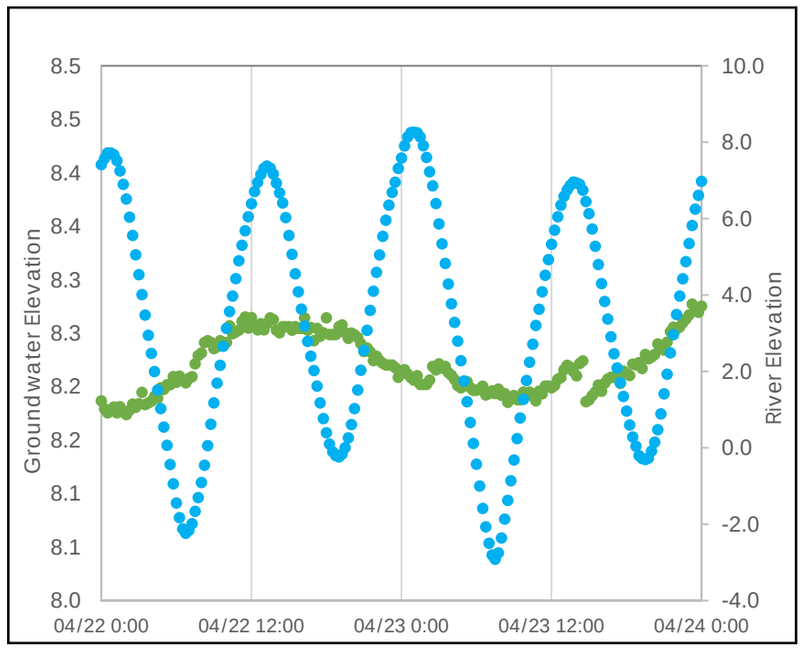
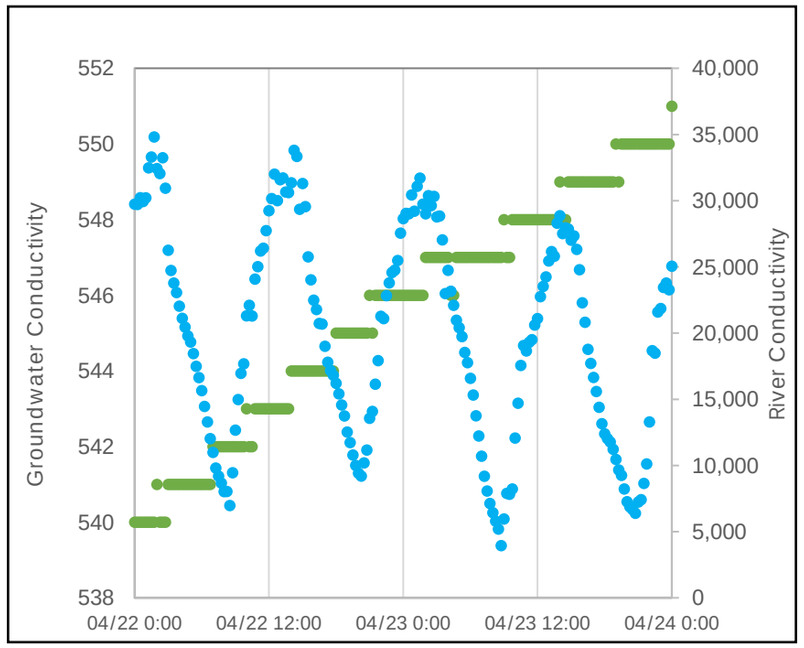
Figure A-14
D-03—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

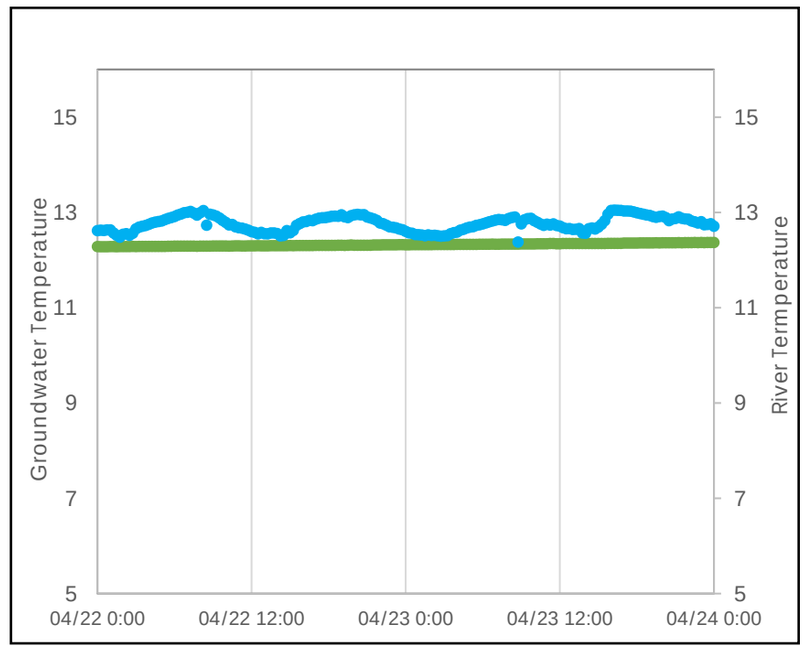
April 2020 Water Elevations (Feet NAVD 88)

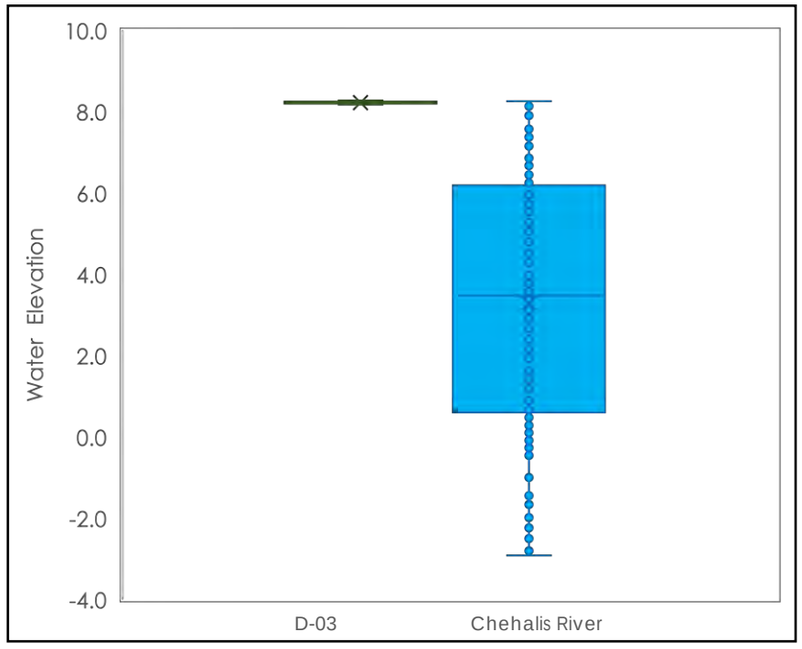


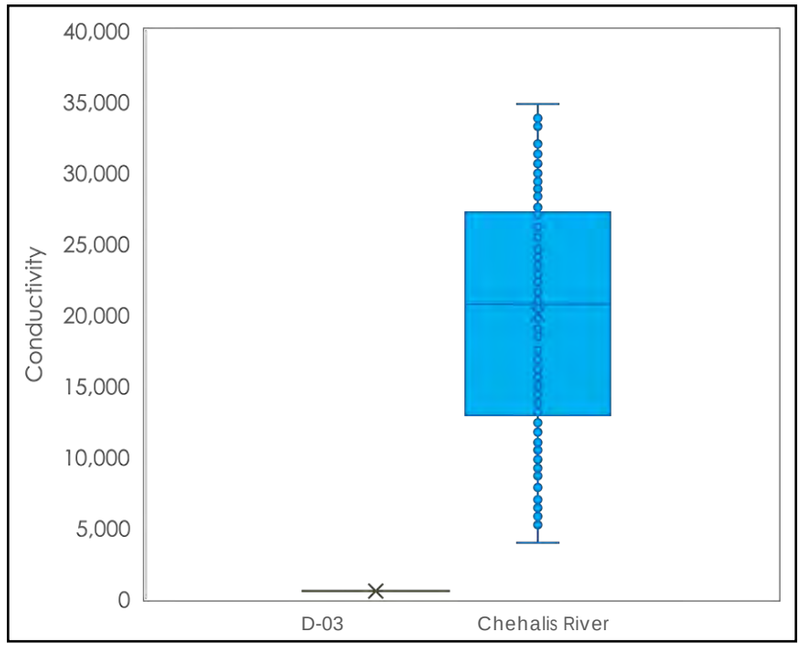
April 2020 Conductivity (uS/cm)

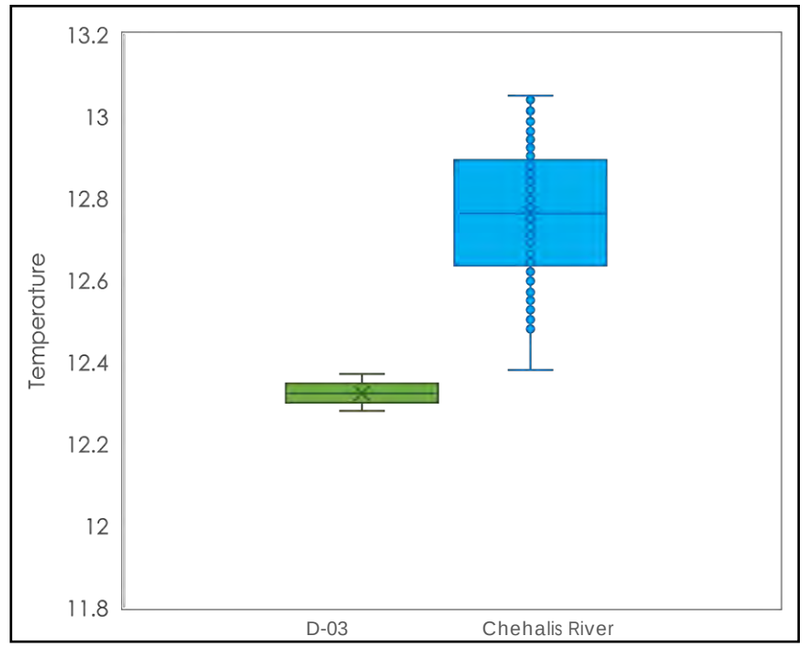


April 2020 Temperature (°C)









Notes:
Data shown above was collected from 0:00 on April 22, 2020, to 0:00 on April 24, 2020.
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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-03
Chehalis River

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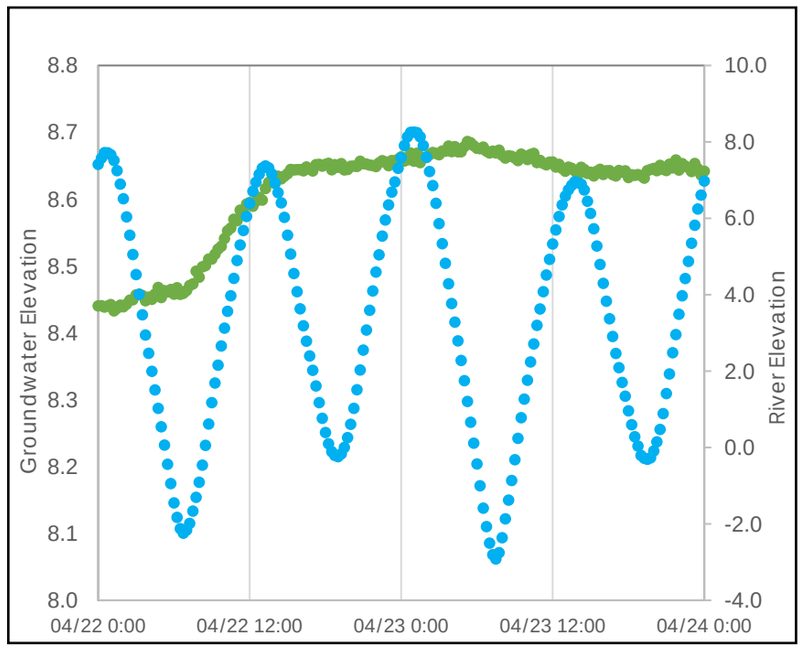
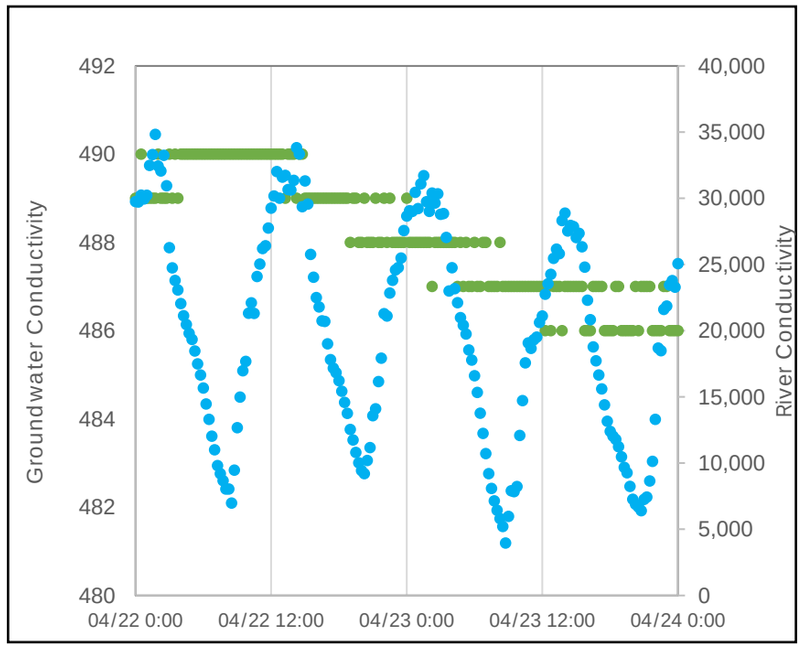
Figure A-15
D-04E—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

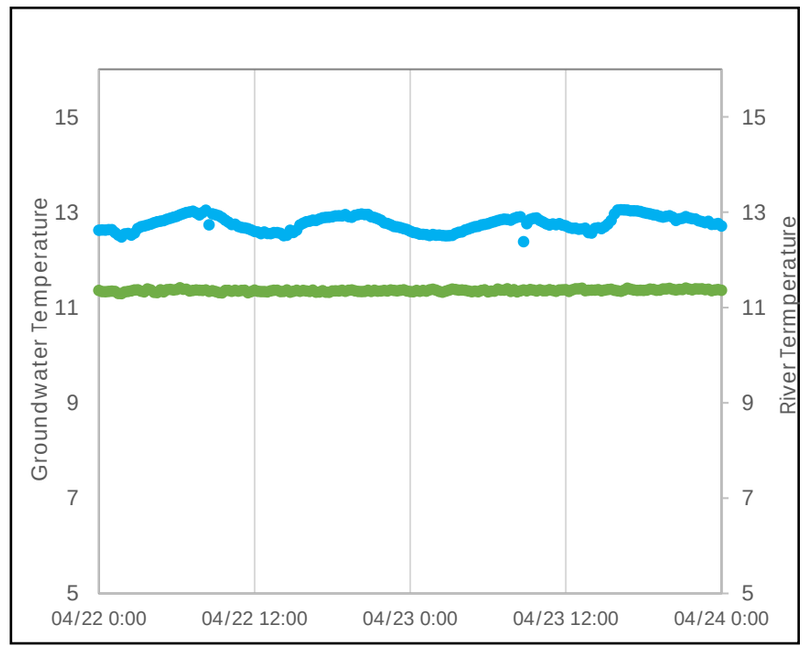
April 2020 Water Elevations (Feet NAVD 88)

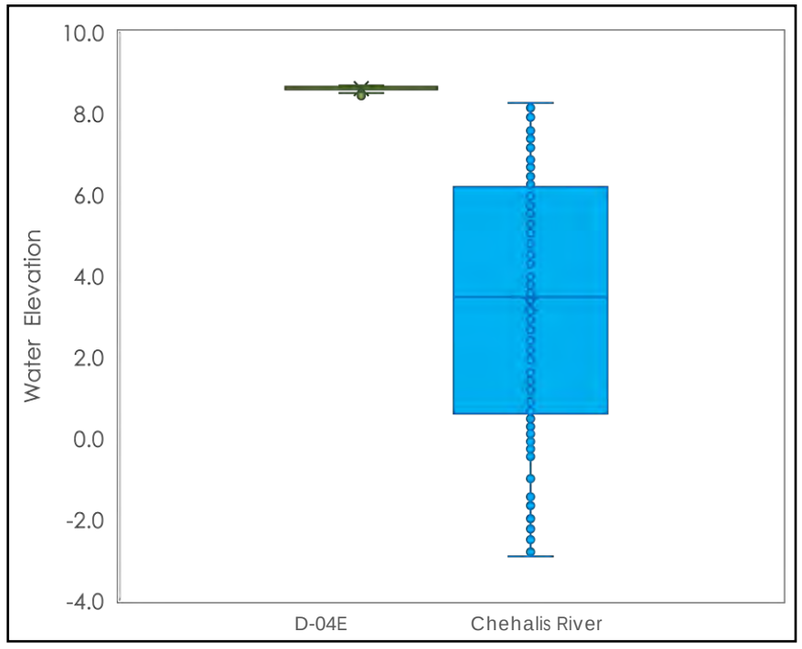


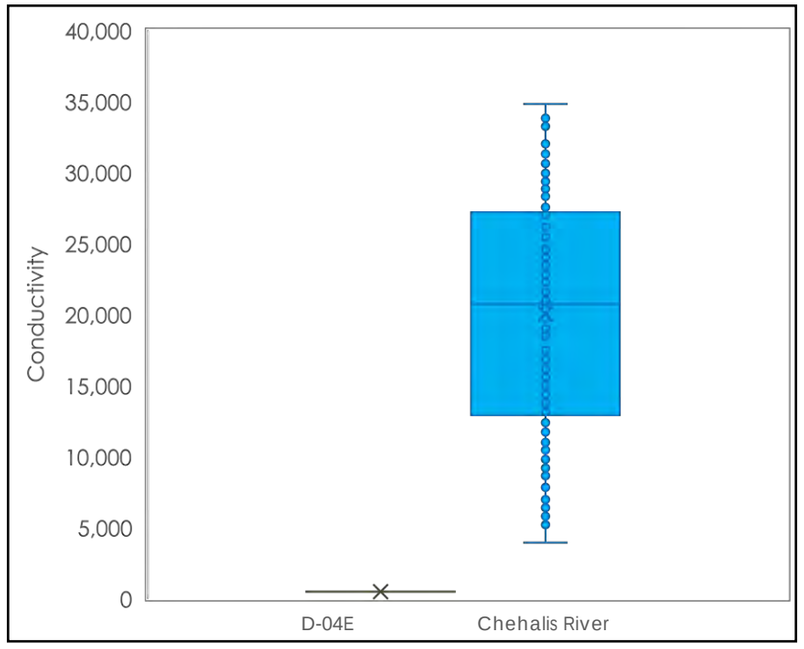
April 2020 Conductivity (uS/cm)

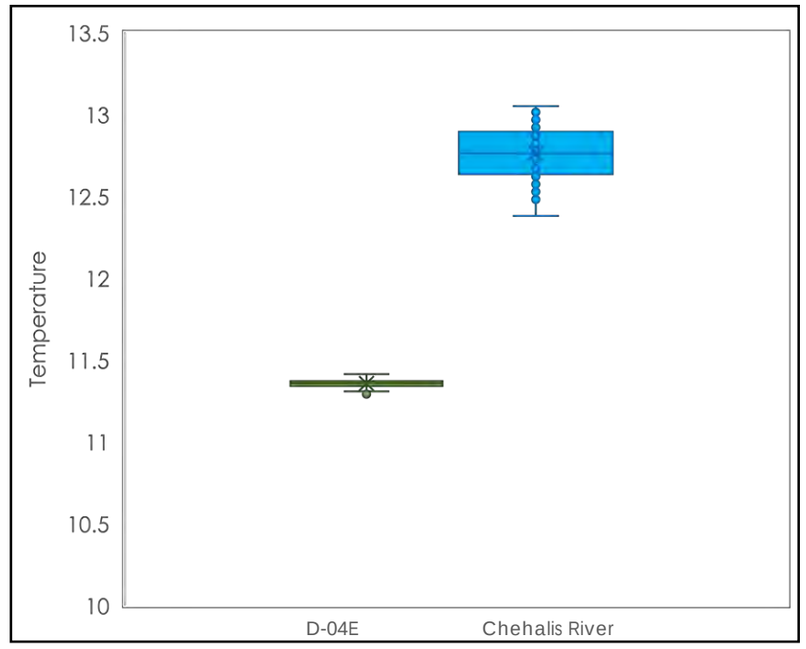


April 2020 Temperature (°C)









Notes:
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°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-04E
Chehalis River

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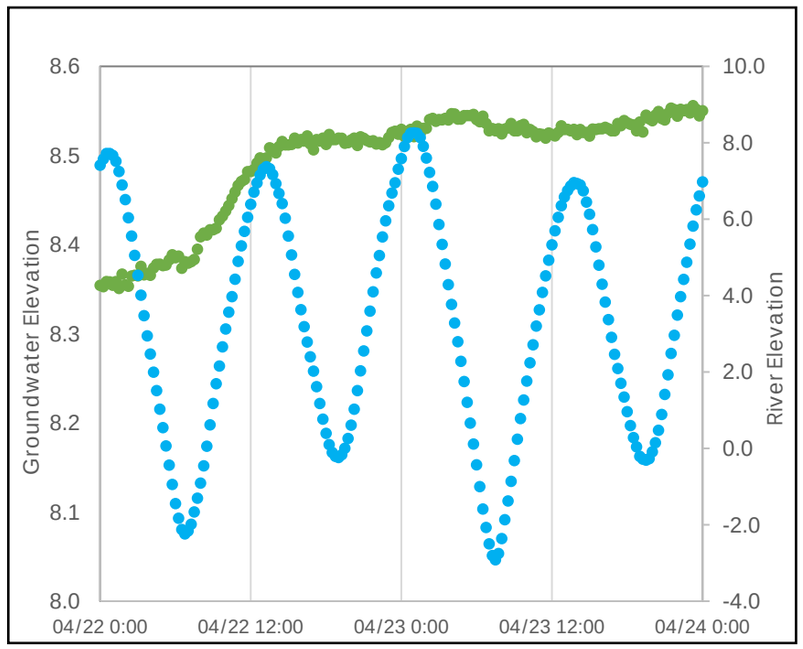
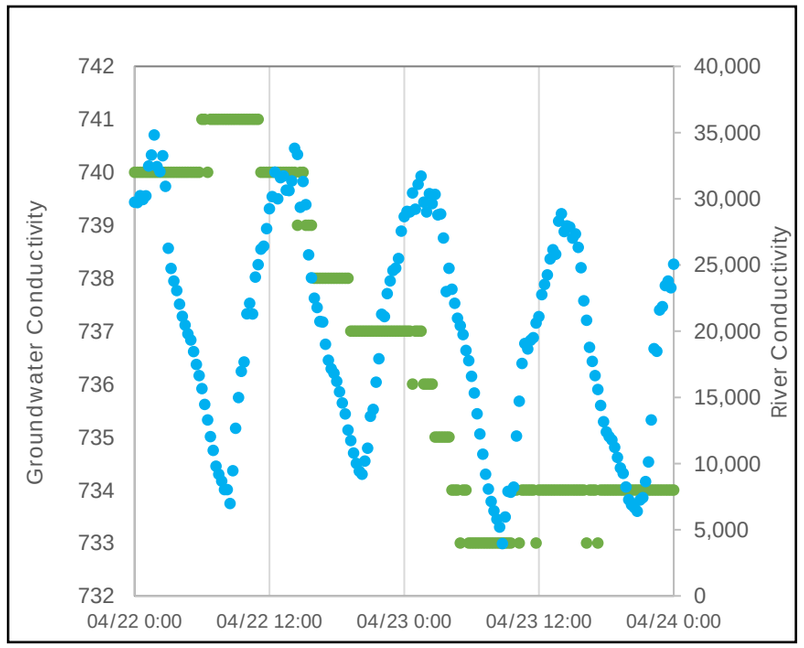
Figure A-16
D-08—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

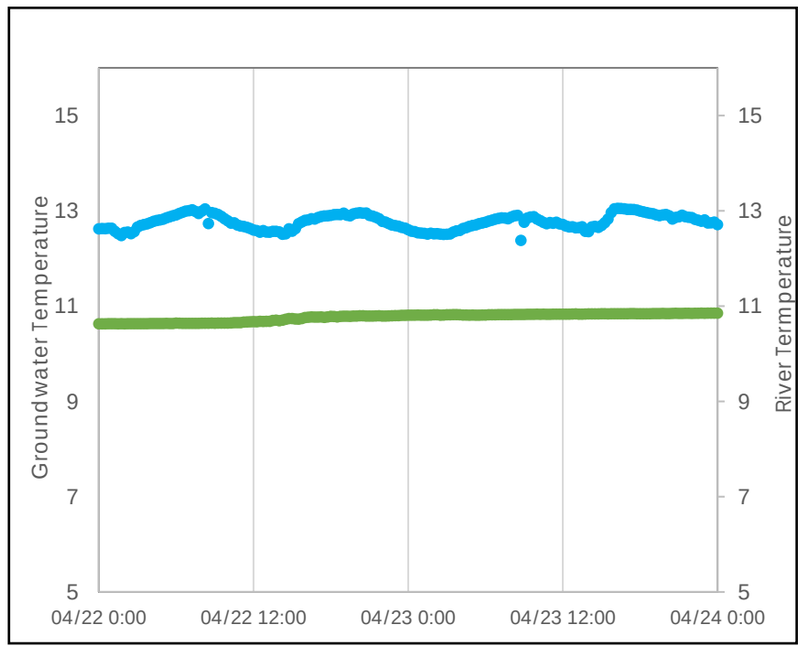
April 2020 Water Elevations (Feet NAVD 88)

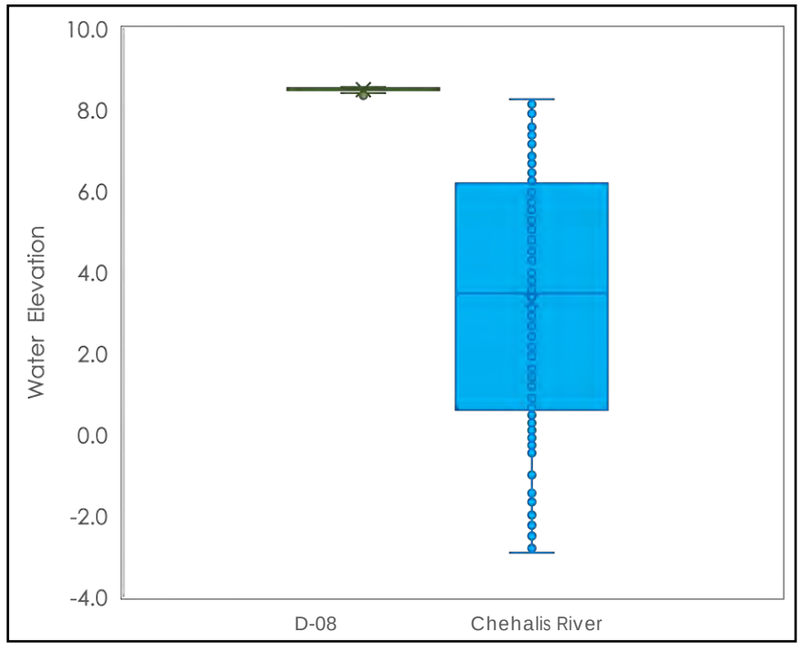


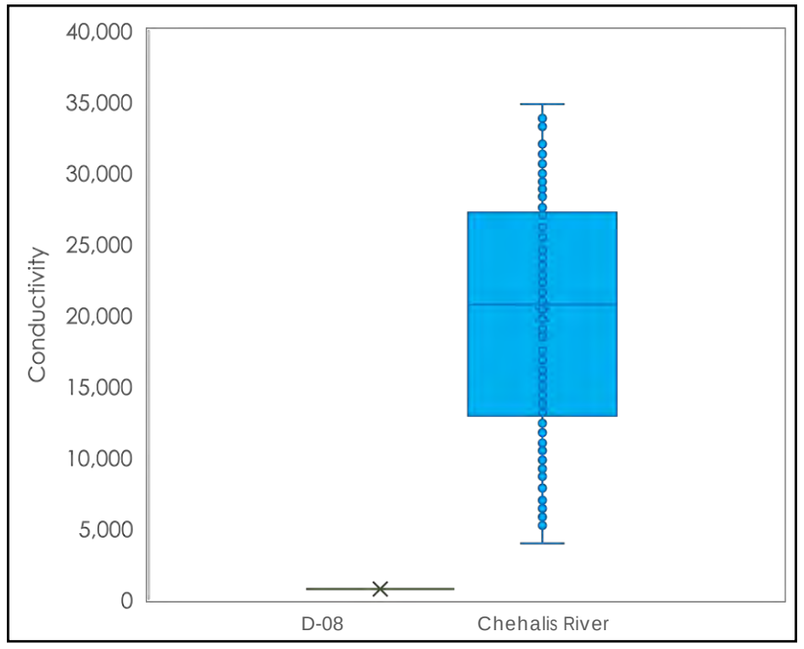
April 2020 Conductivity (uS/cm)

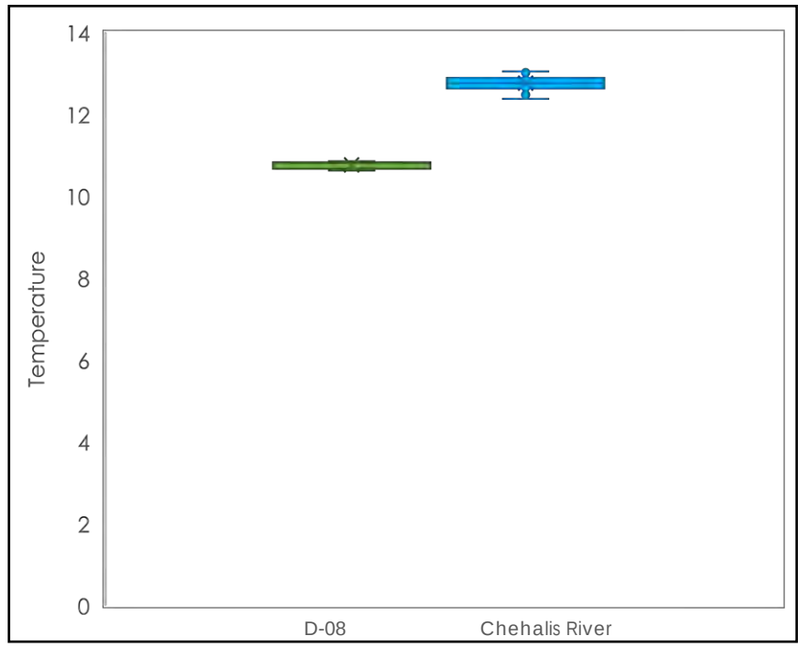


April 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on April 22, 2020, to 0:00 on April 24, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-08
Chehalis River

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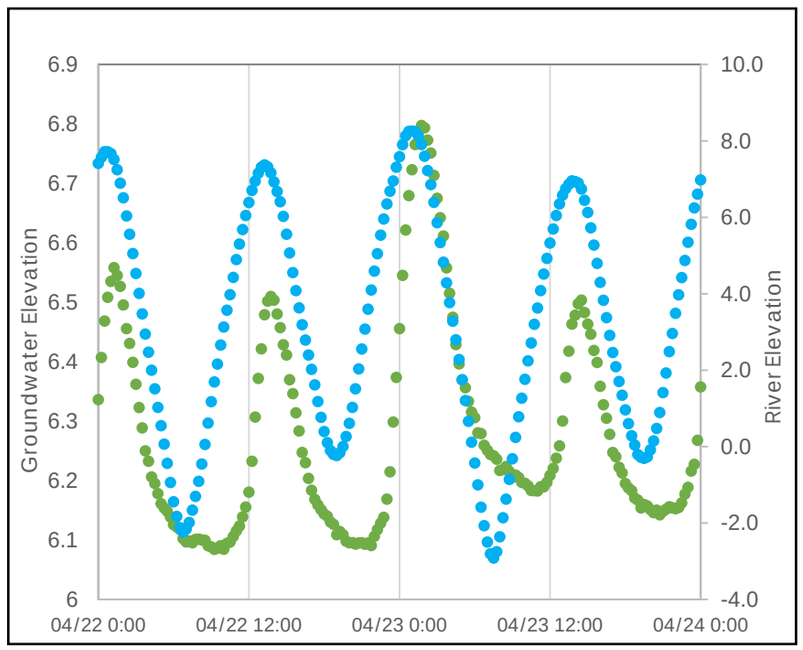
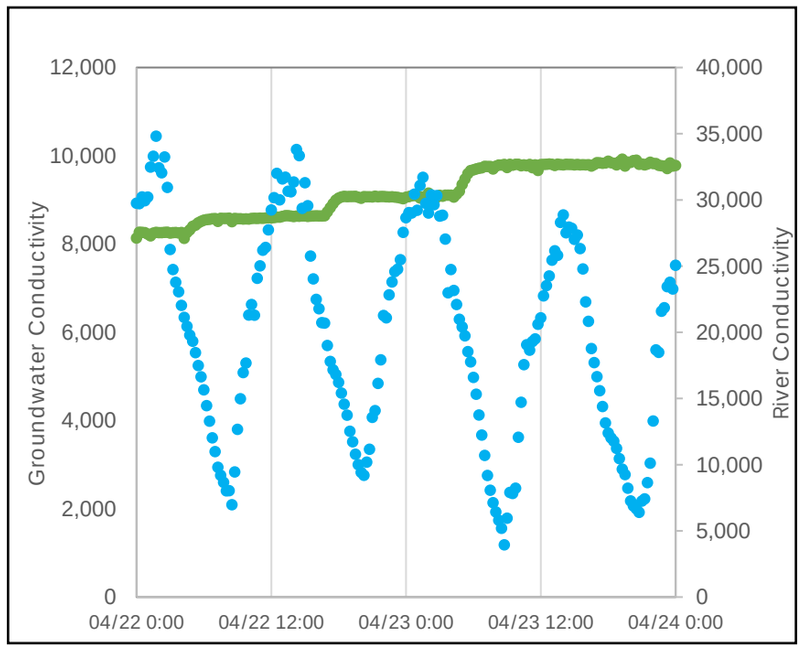
Figure A-17
RAU2-08—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

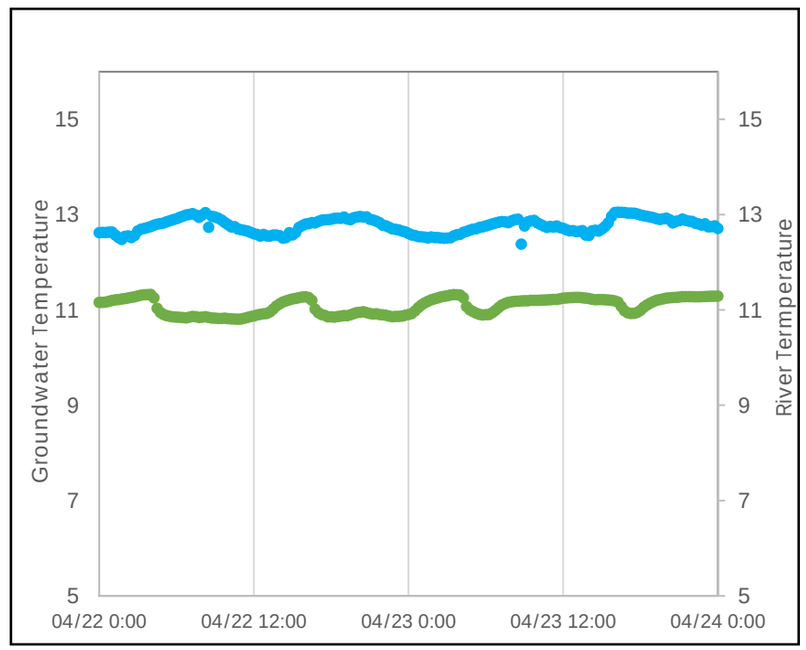
April 2020 Water Elevations (Feet NAVD 88)

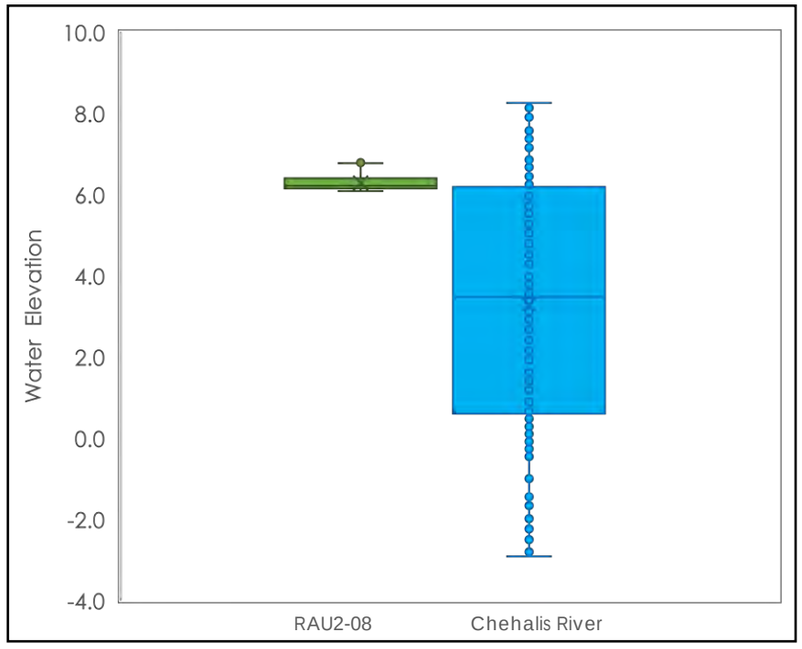


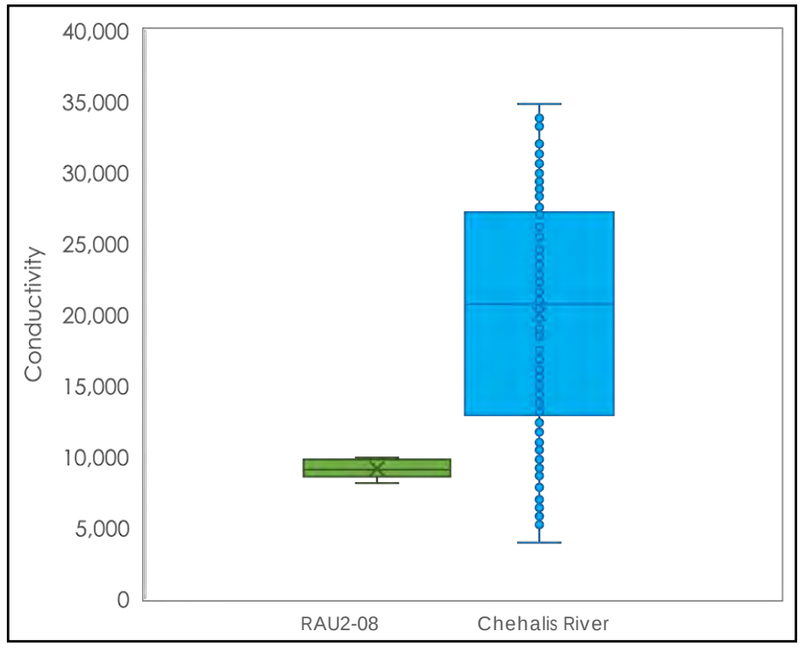
April 2020 Conductivity (uS/cm)

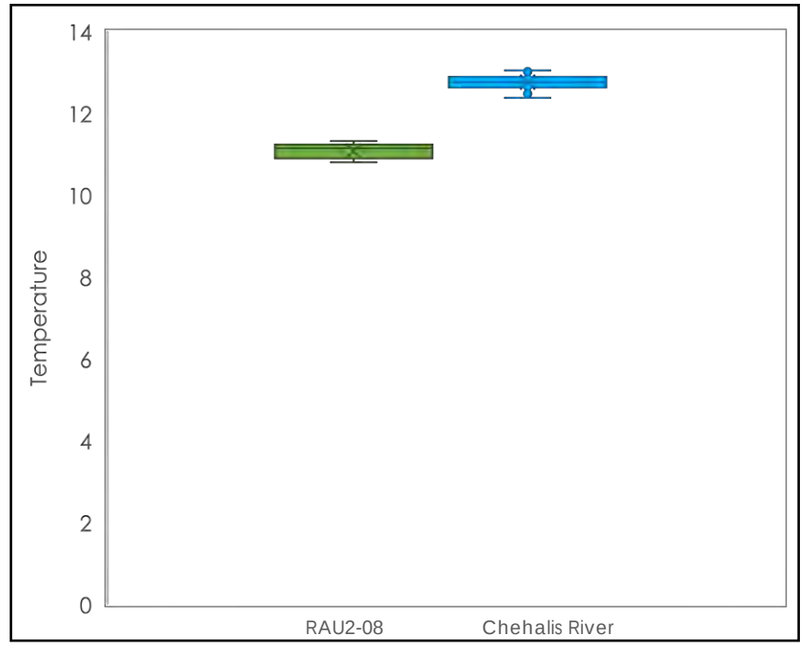


April 2020 Temperature (°C)









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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU2-08
Chehalis River

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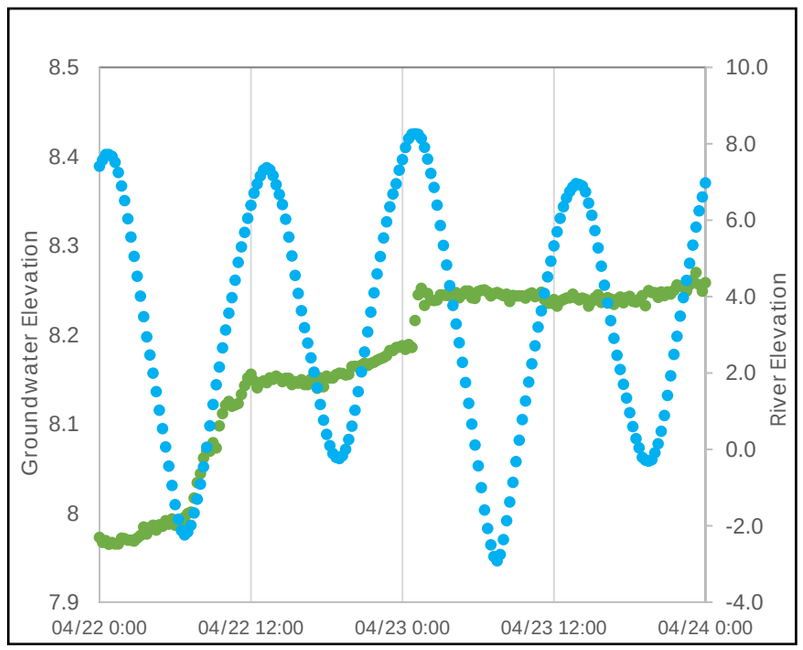
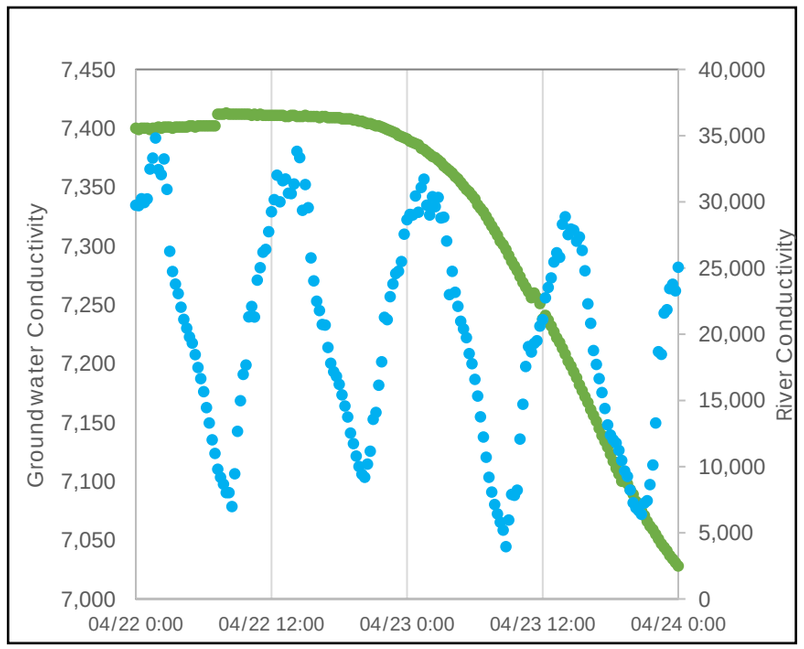
Figure A-18
RAU2-09—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

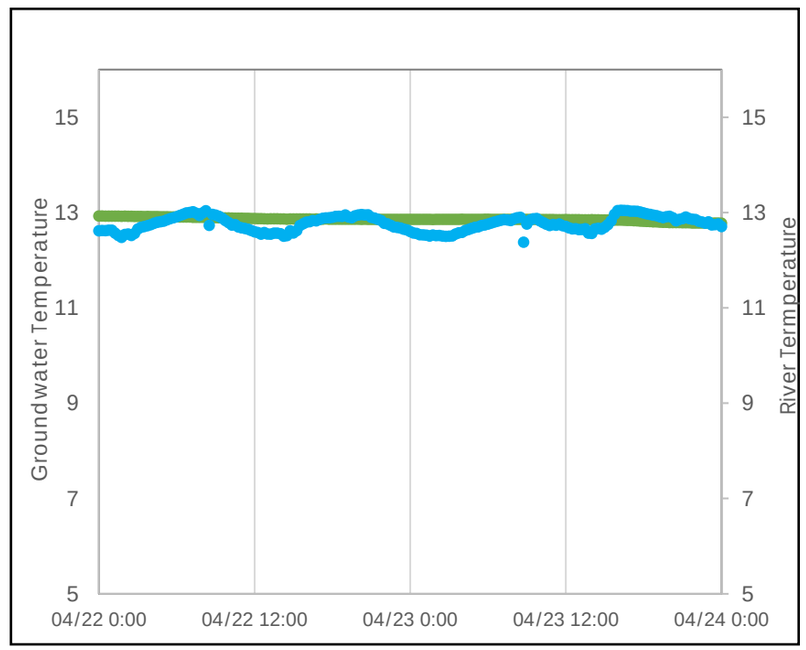
April 2020 Water Elevations (Feet NAVD 88)

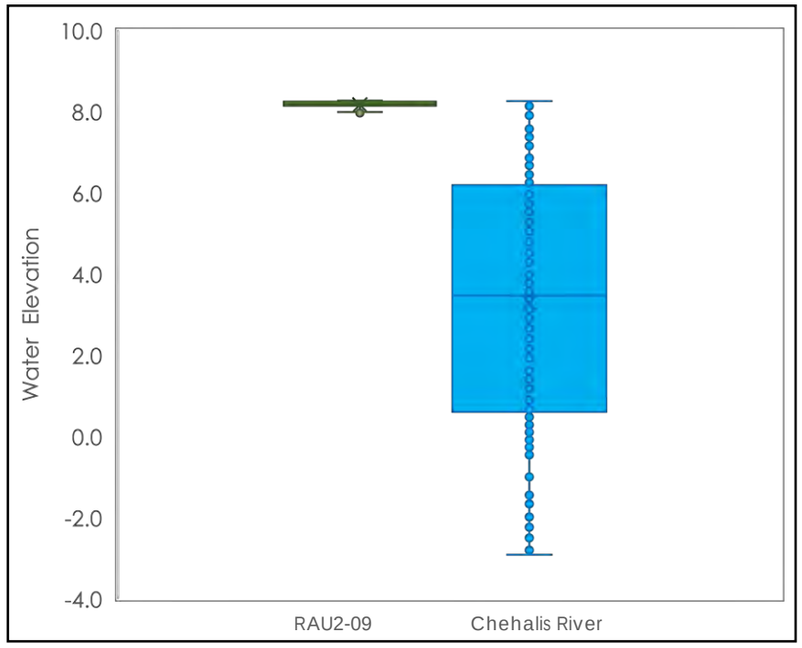


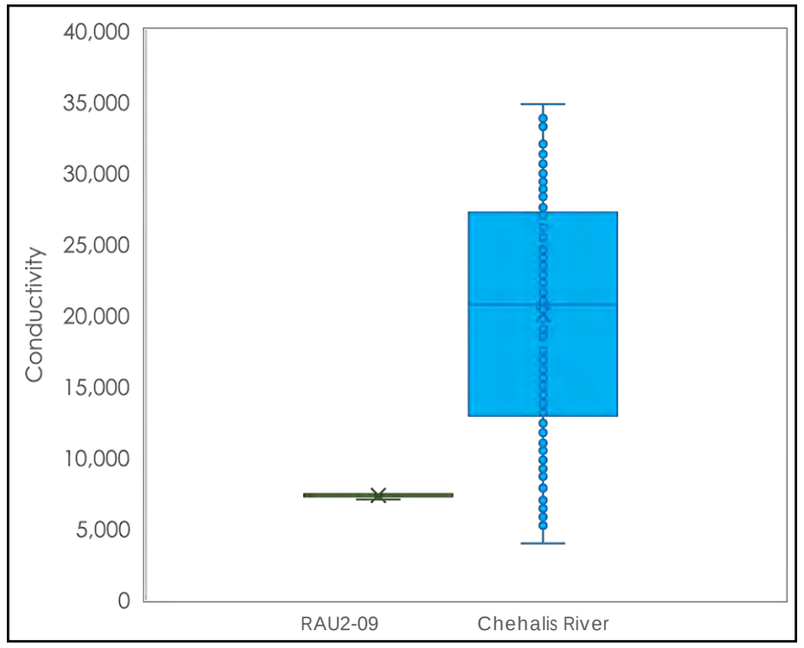
April 2020 Conductivity (uS/cm)

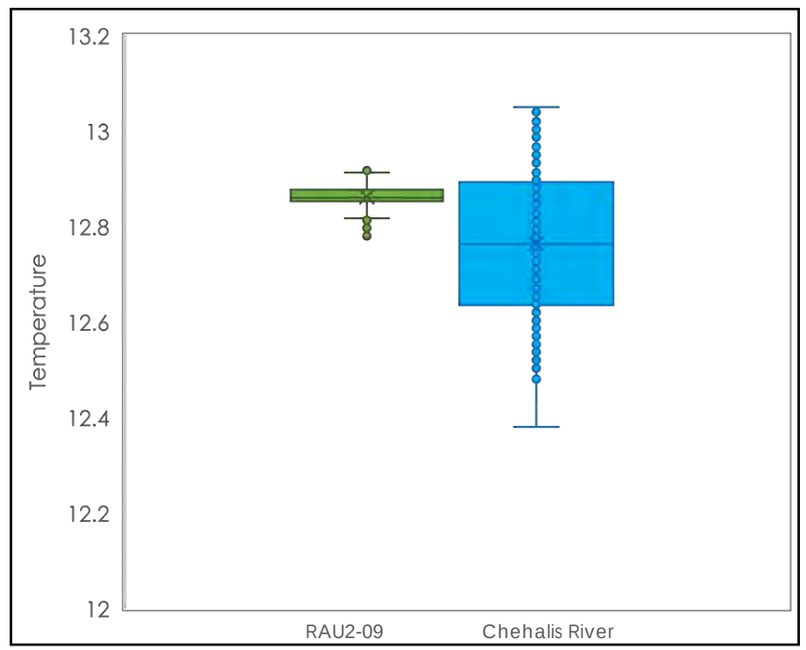


April 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU2-09
Chehalis River

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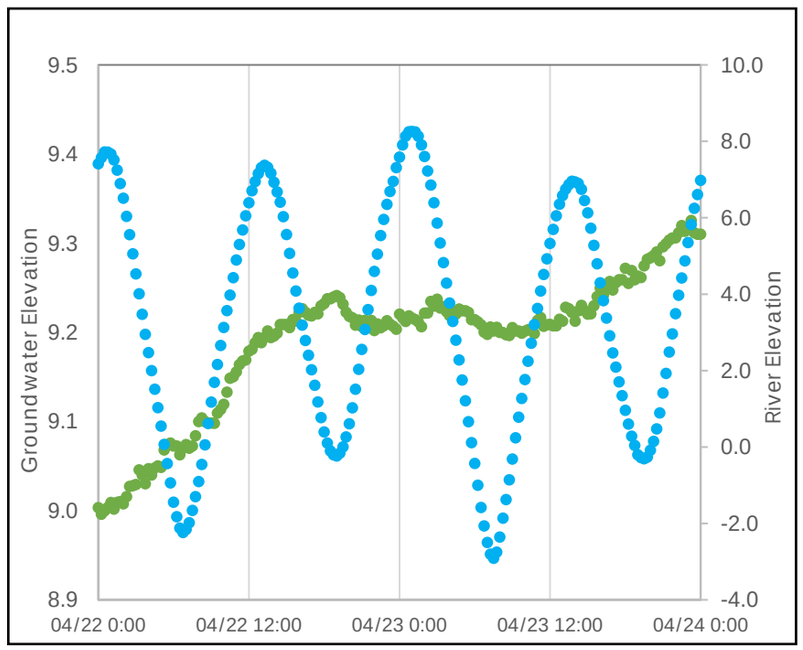
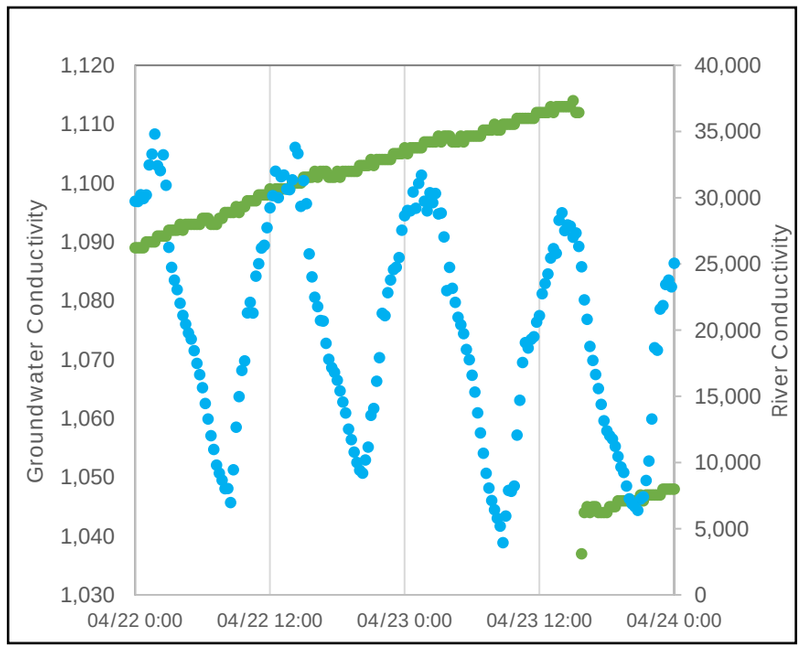
Figure A-19
RAU3-03—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

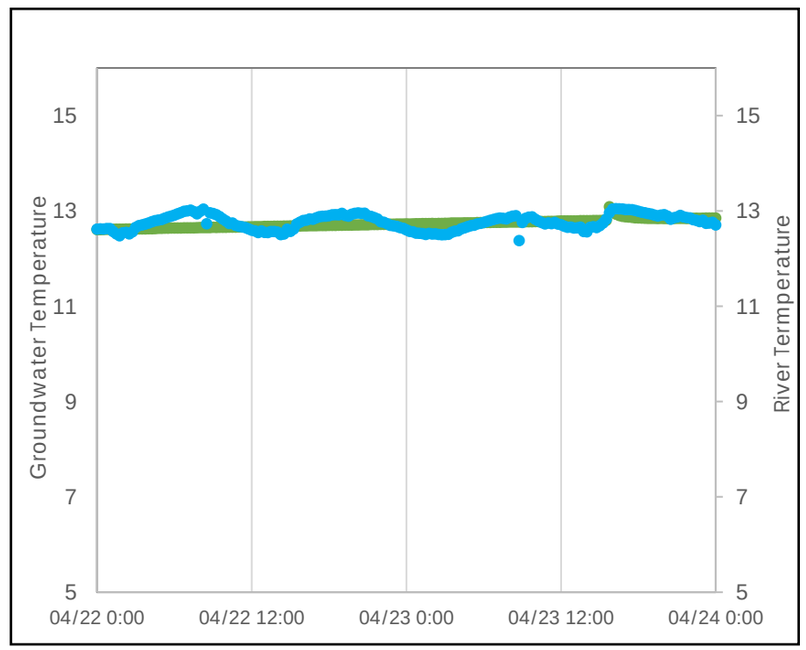
April 2020 Water Elevations (Feet NAVD 88)

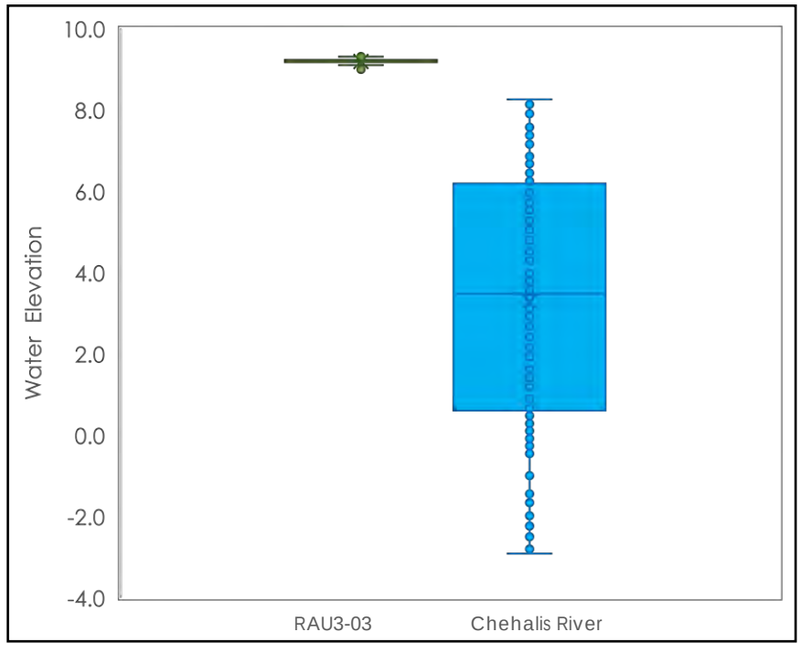


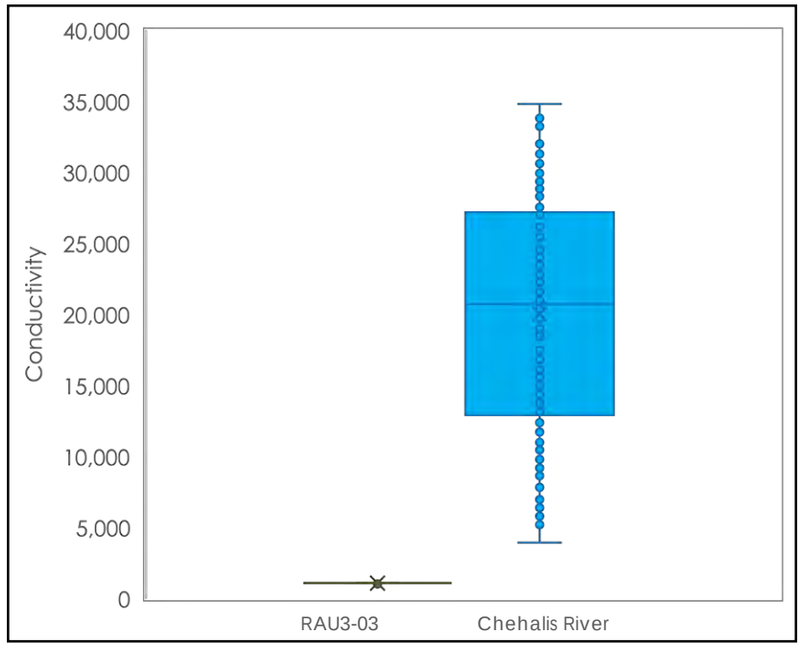
April 2020 Conductivity (uS/cm)

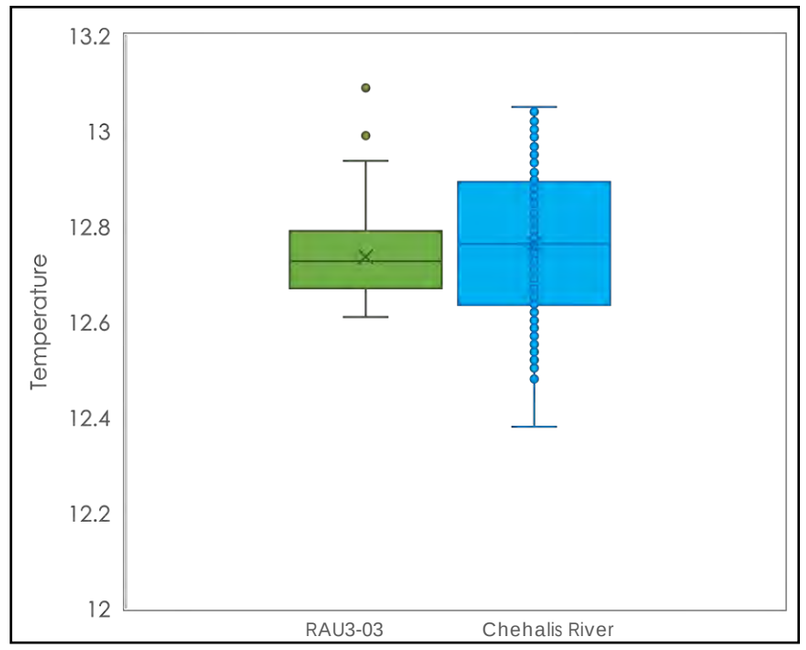


April 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU3-03
Chehalis River

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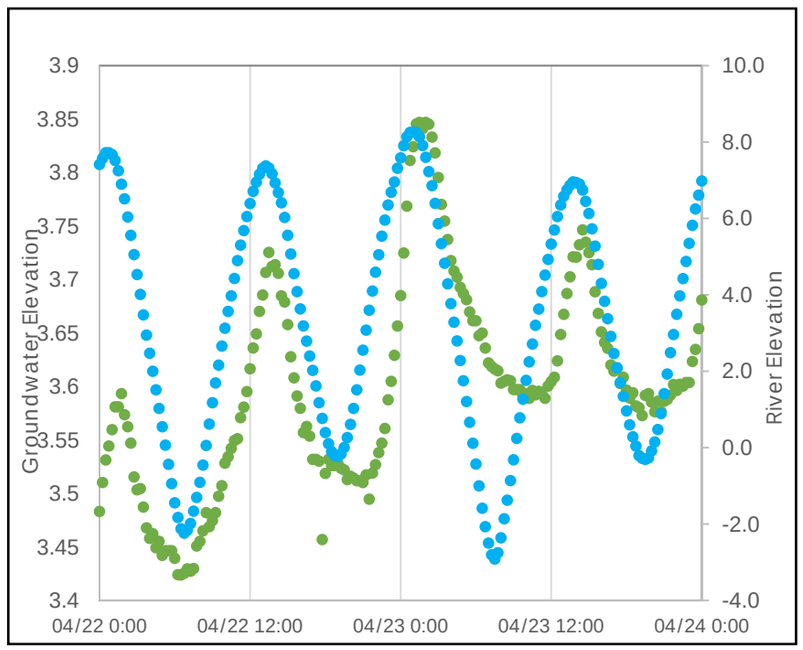
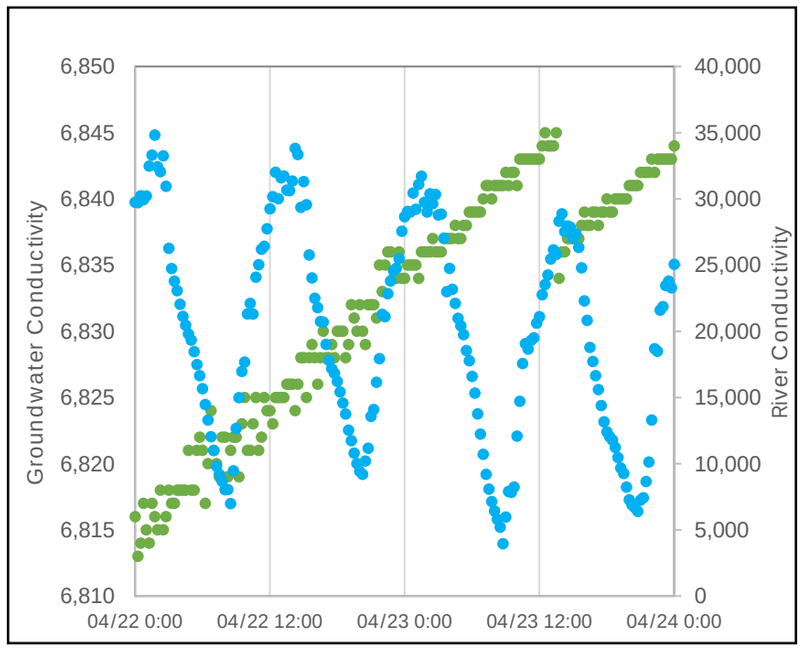
Figure A-20
RAU4-12—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

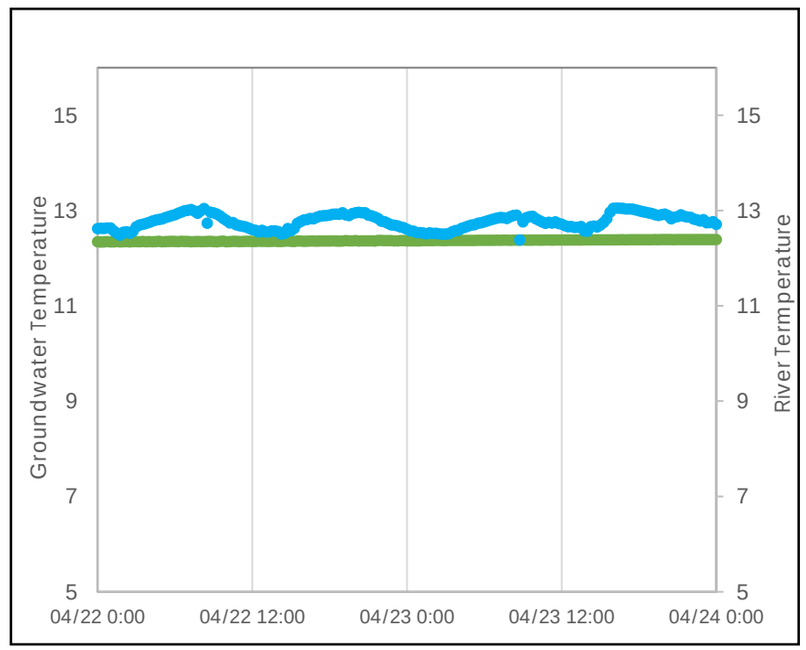
April 2020 Water Elevations (Feet NAVD 88)

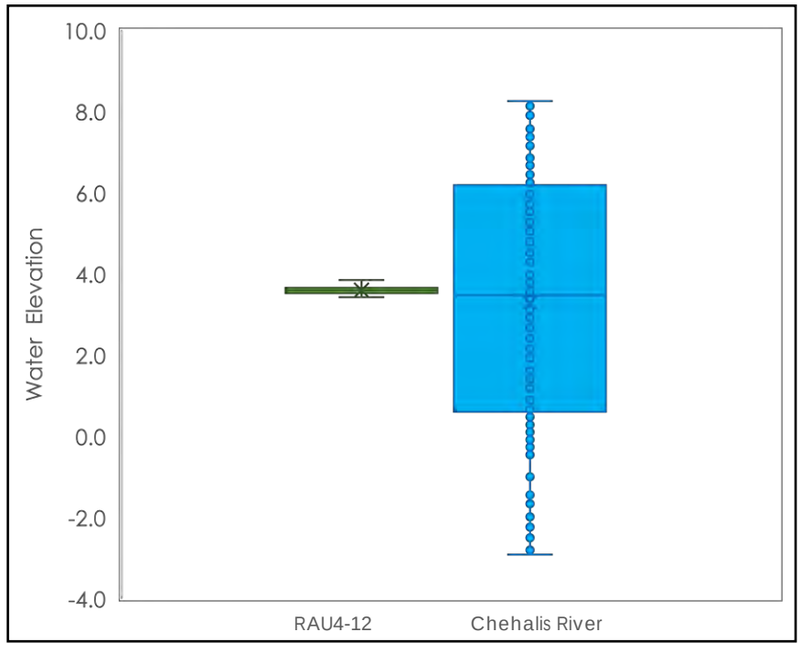


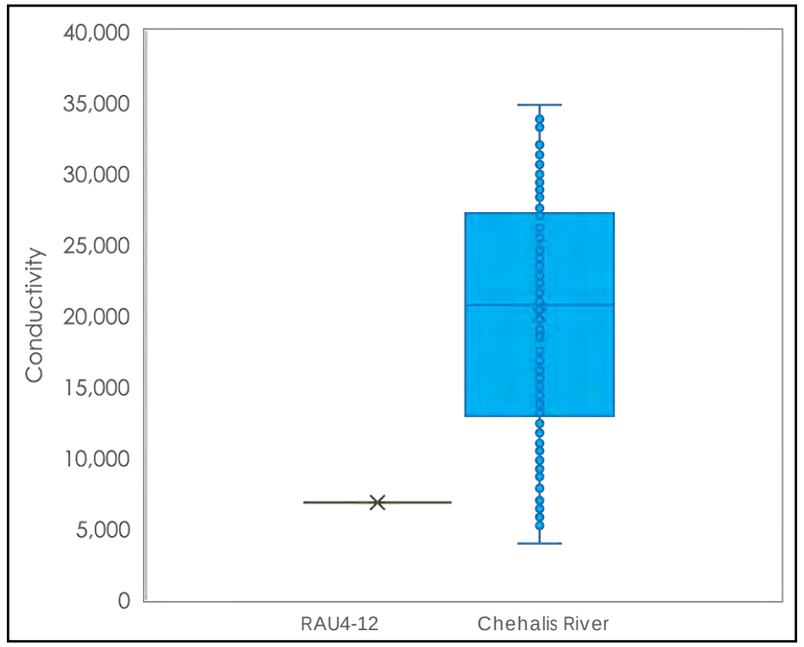
April 2020 Conductivity (uS/cm)

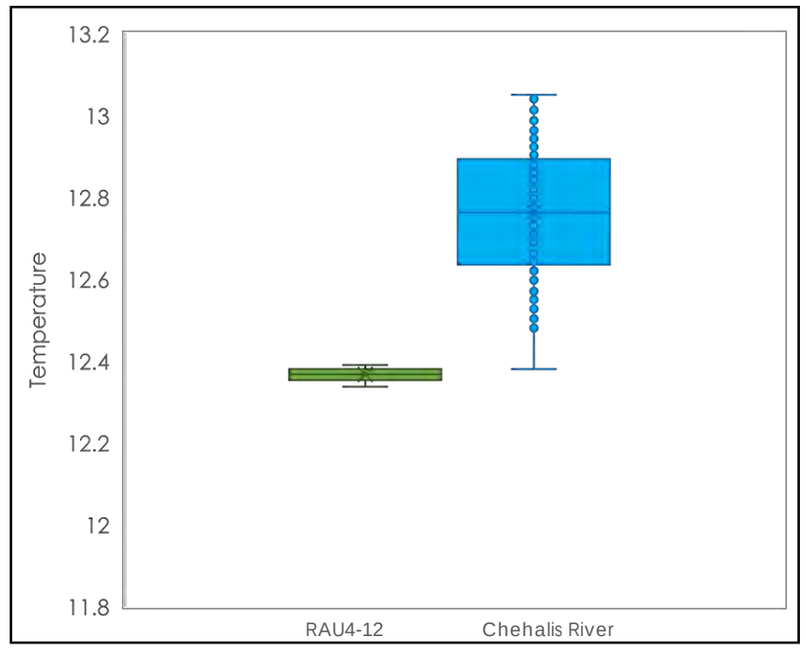


April 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU4-12
Chehalis River

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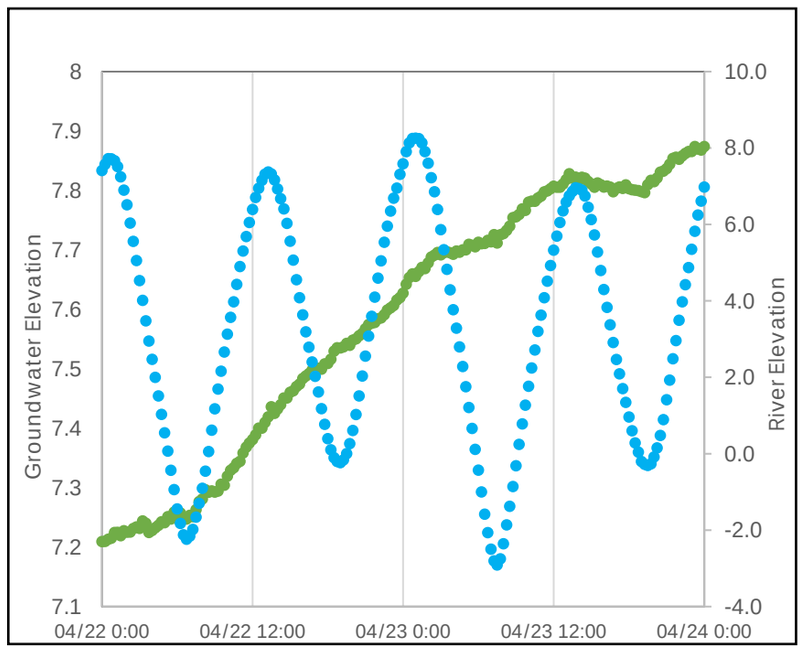
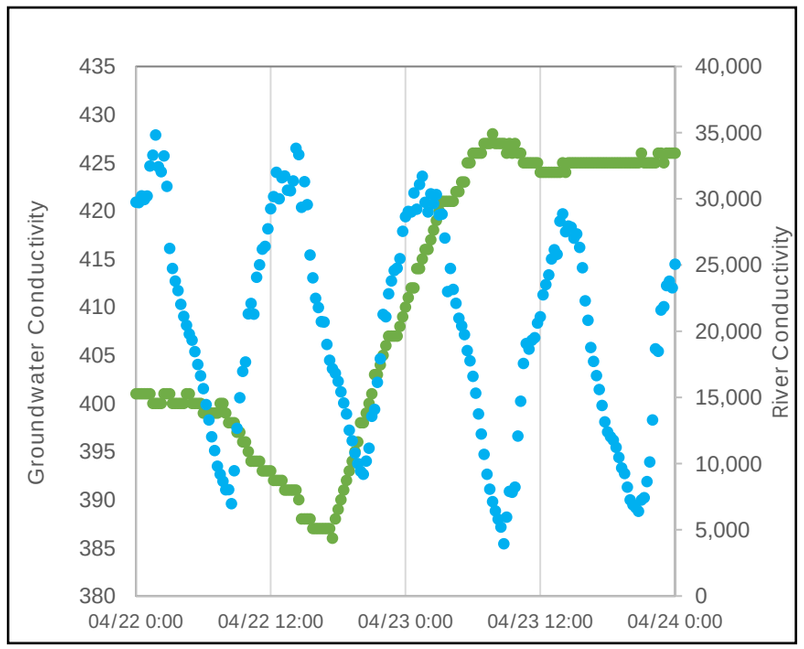
Figure A-21
RAU4-UNK—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

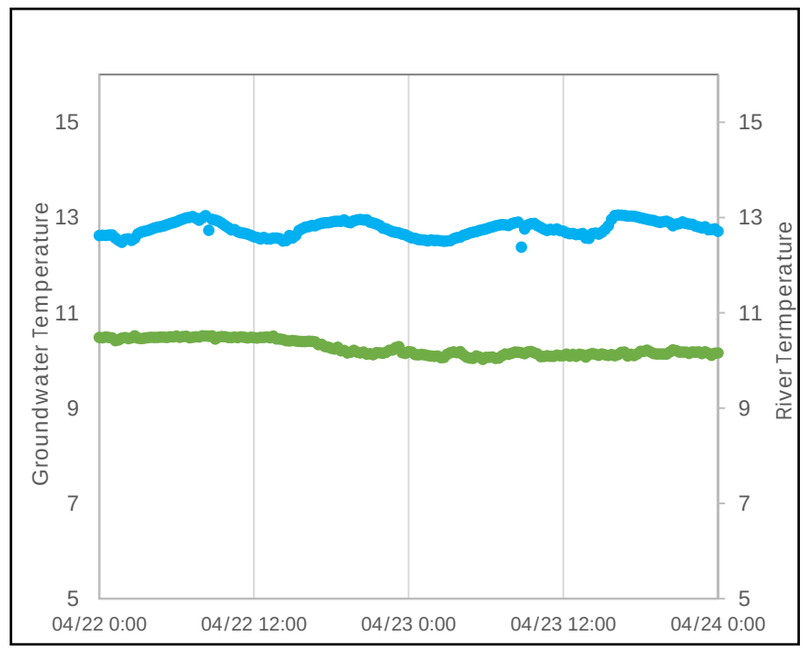
April 2020 Water Elevations (Feet NAVD 88)

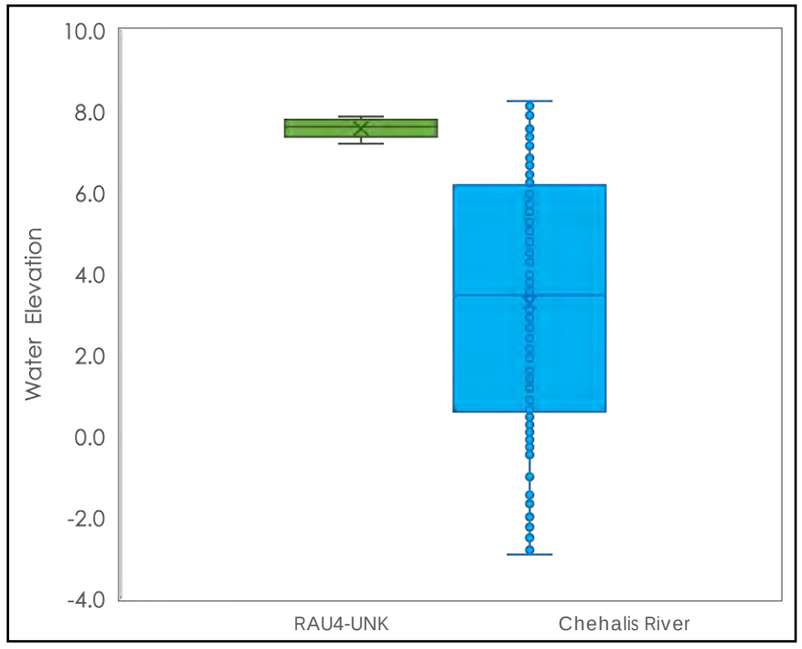


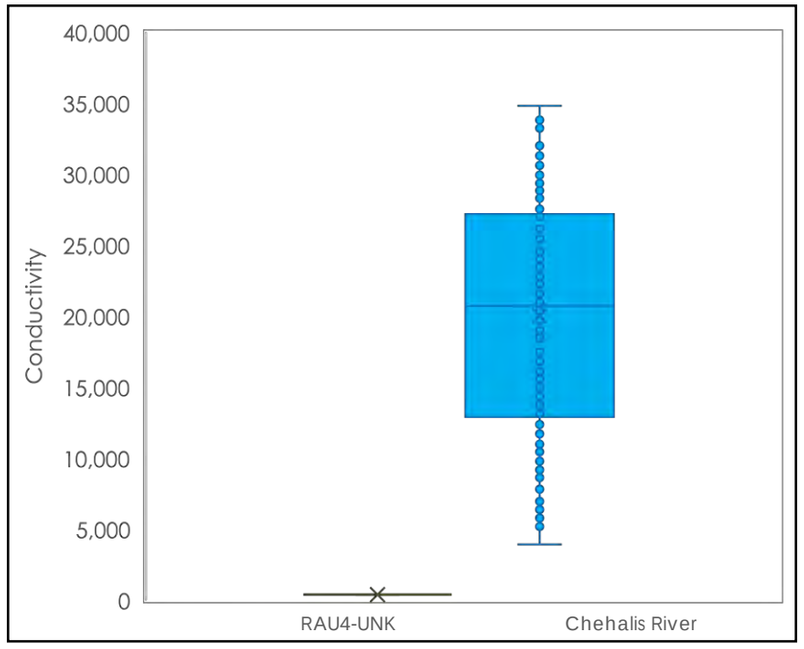
April 2020 Conductivity (uS/cm)

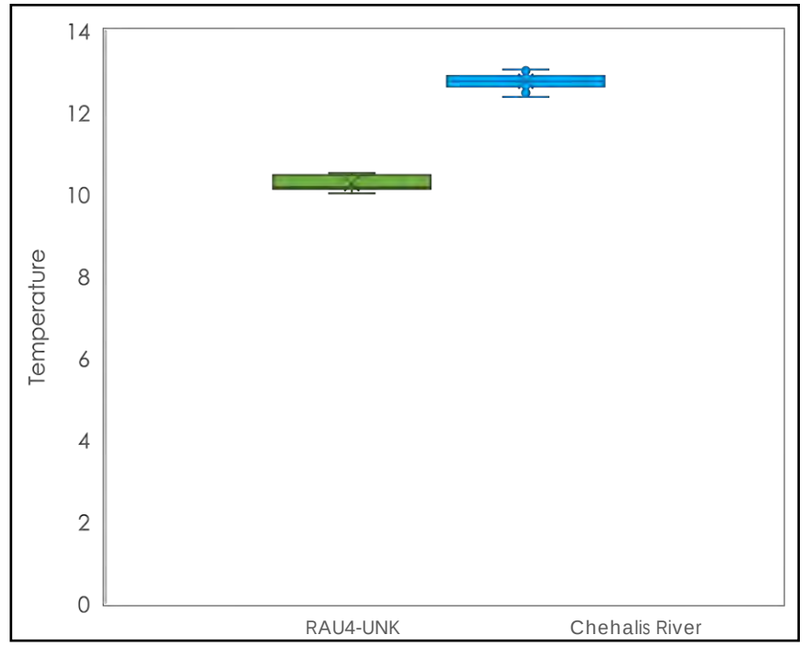


April 2020 Temperature (°C)









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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU4-UNK
Chehalis River

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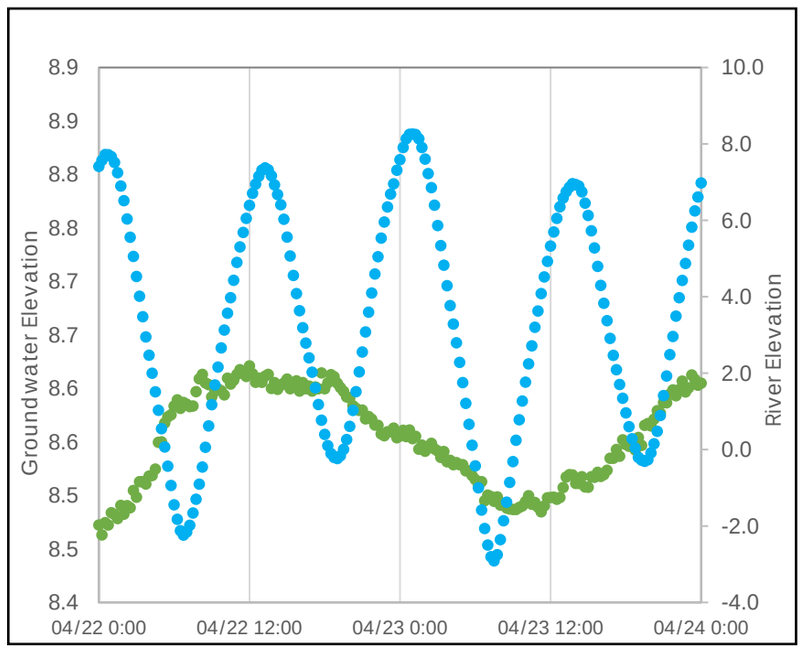
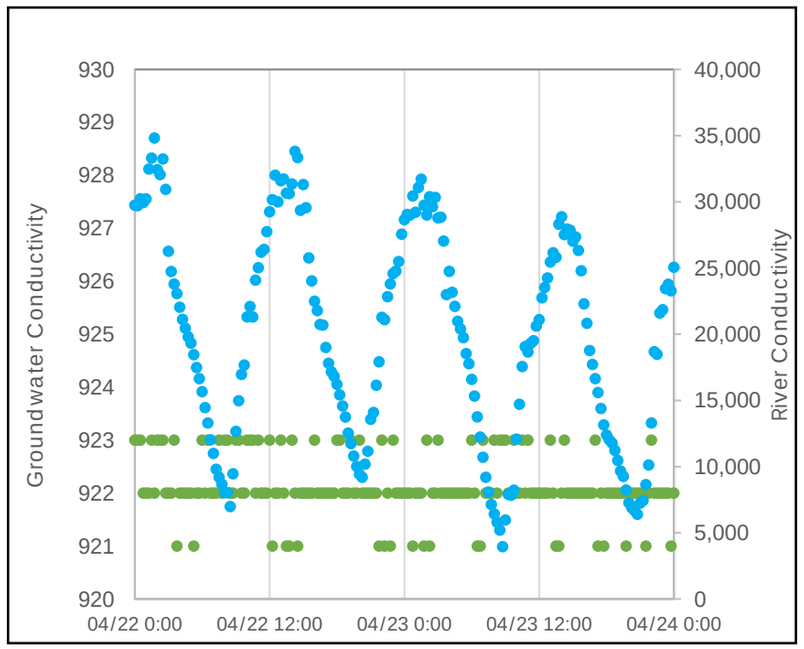
Figure A-22
RAU6-02—April 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

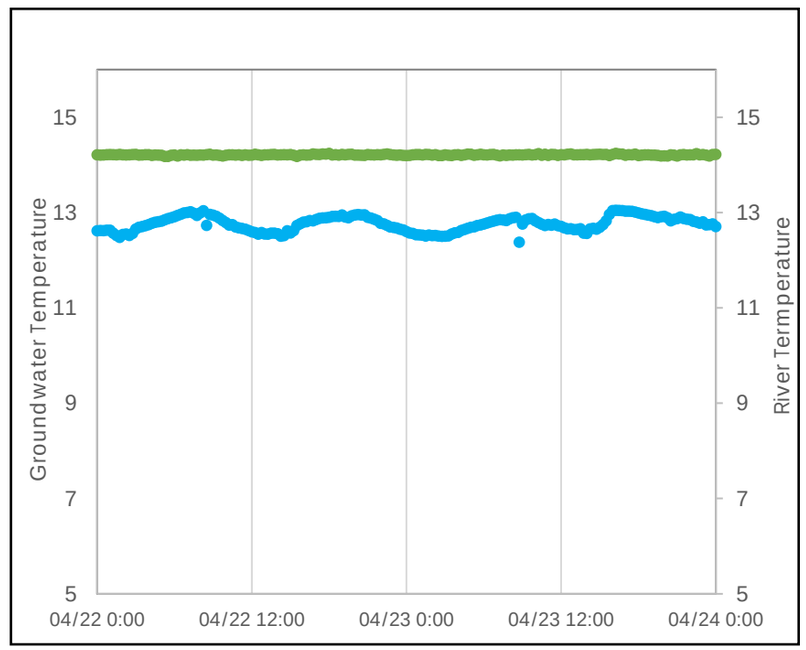
April 2020 Water Elevations (Feet NAVD 88)

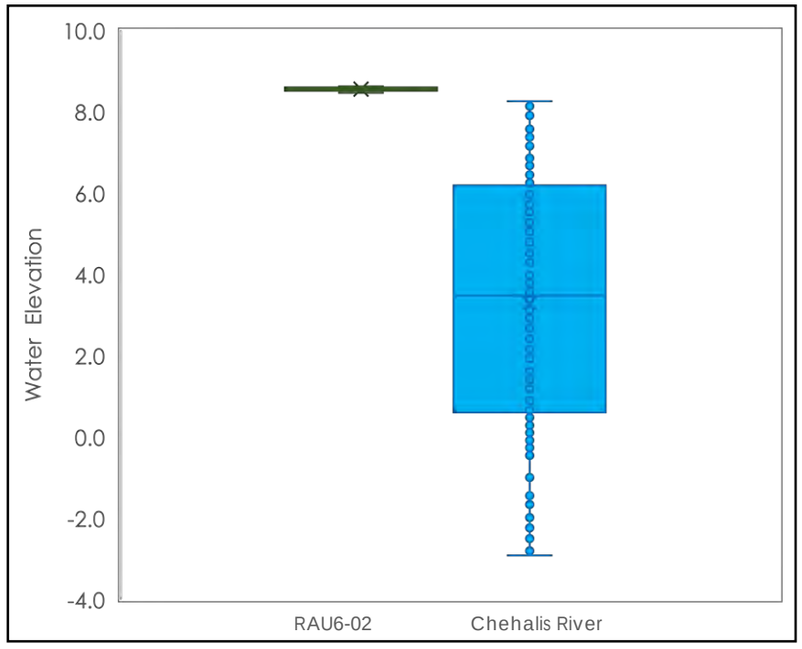


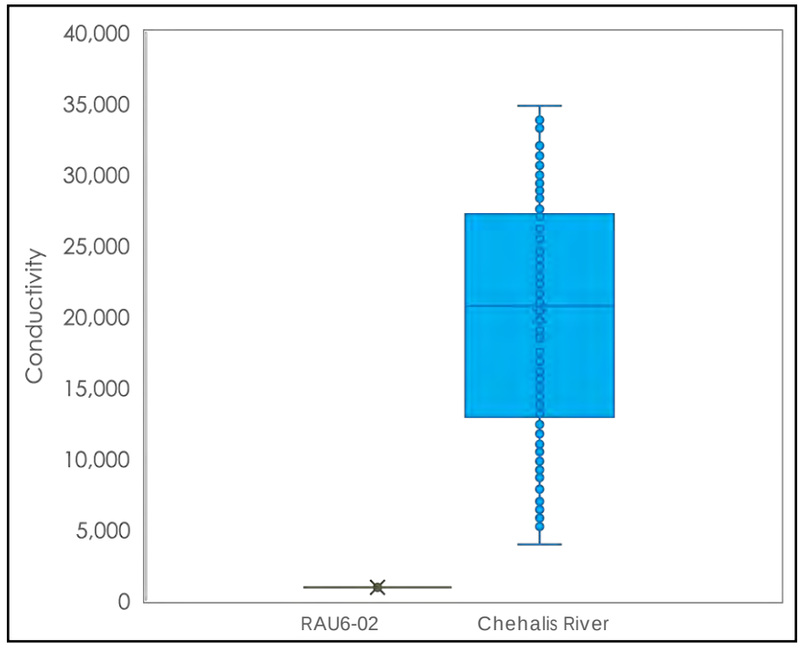
April 2020 Conductivity (uS/cm)

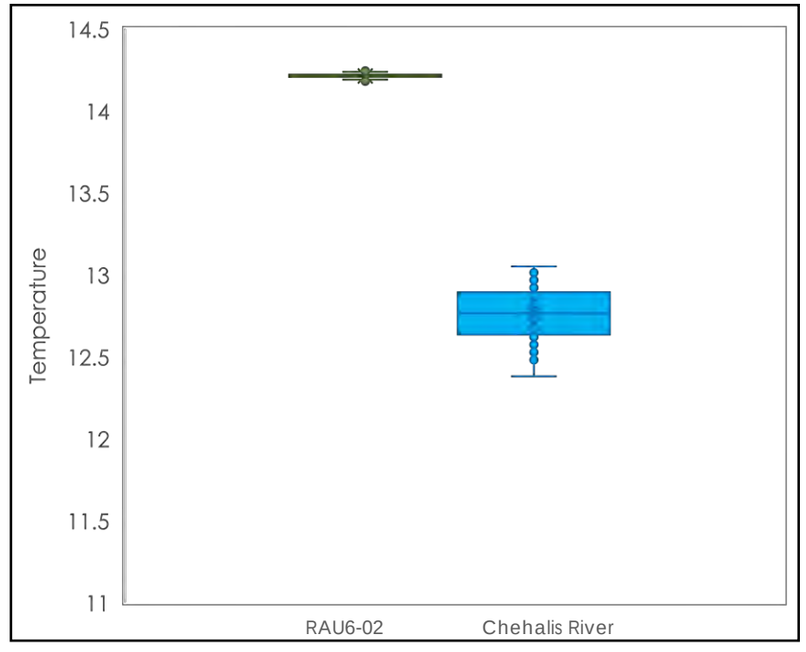


April 2020 Temperature (°C)









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°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU6-02
Chehalis River

M1044.02.013; 12/12/2022; Fig_ 2020.04 WL, Conductivity, and Temperature Plots

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PLOTS

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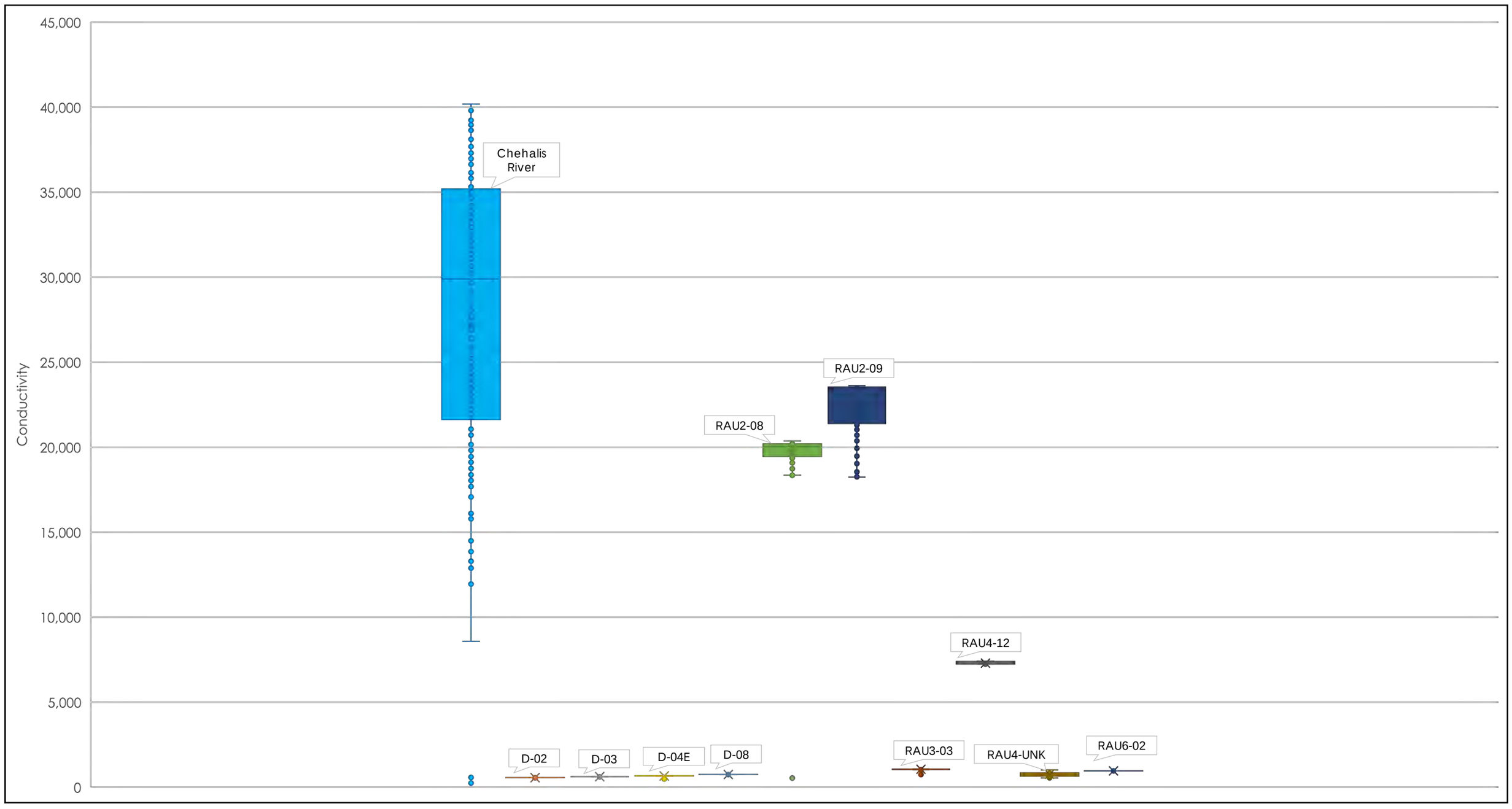
Figure A-23
July 2020 Groundwater Compared to River Conductivity
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington



Notes:
Data shown above were collected from 0:00 on July 21, 2020, to 0:00 on July 23, 2020.
uS/cm = microsiemens per centimeter.

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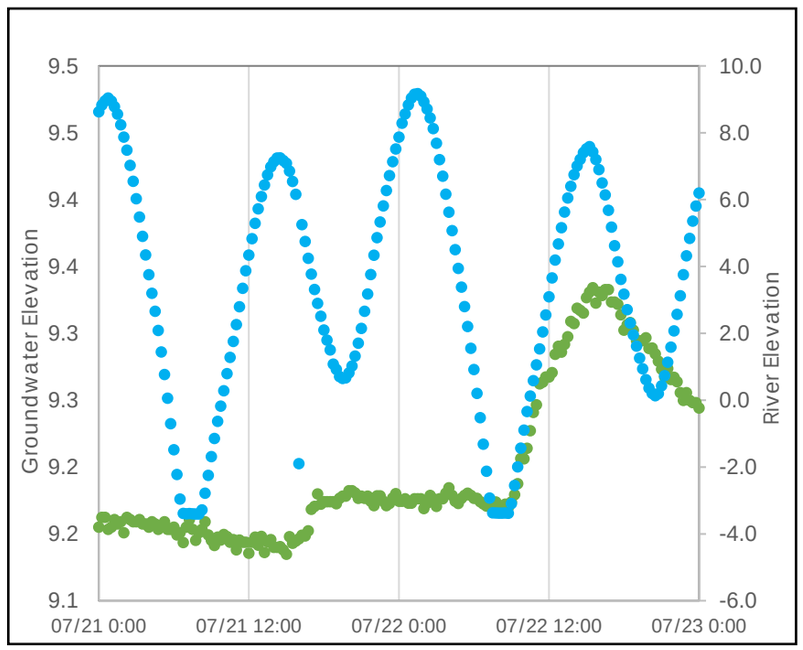
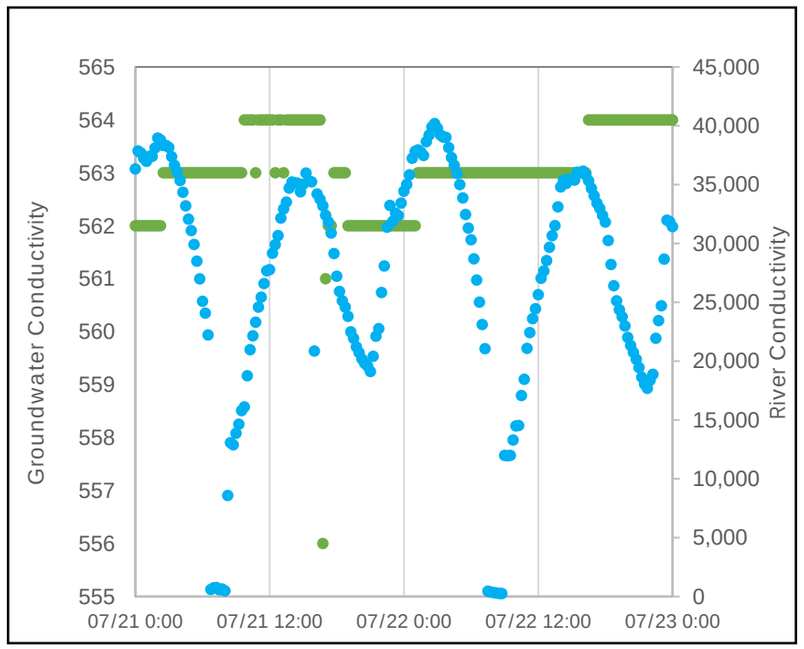
Figure A-24
D-02—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

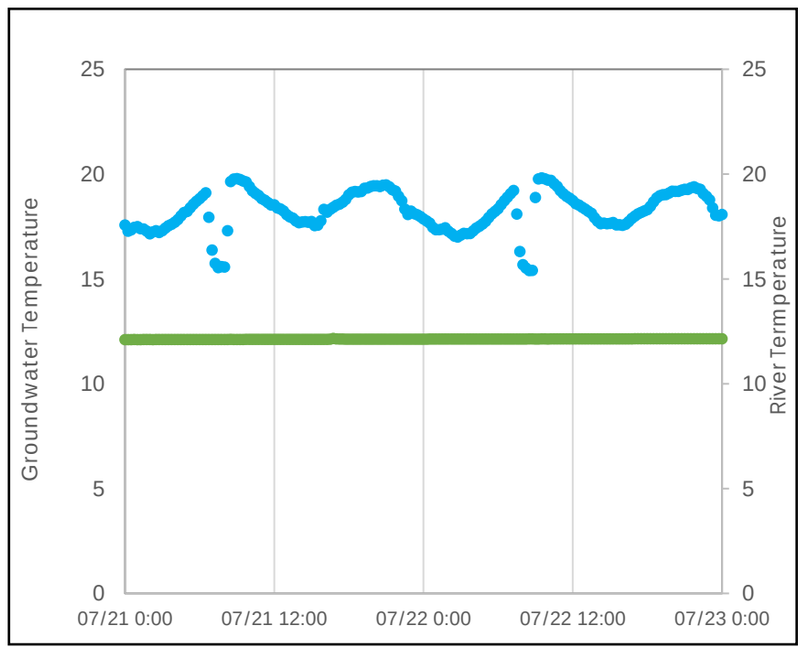
July 2020 Water Elevations (Feet NAVD 88)

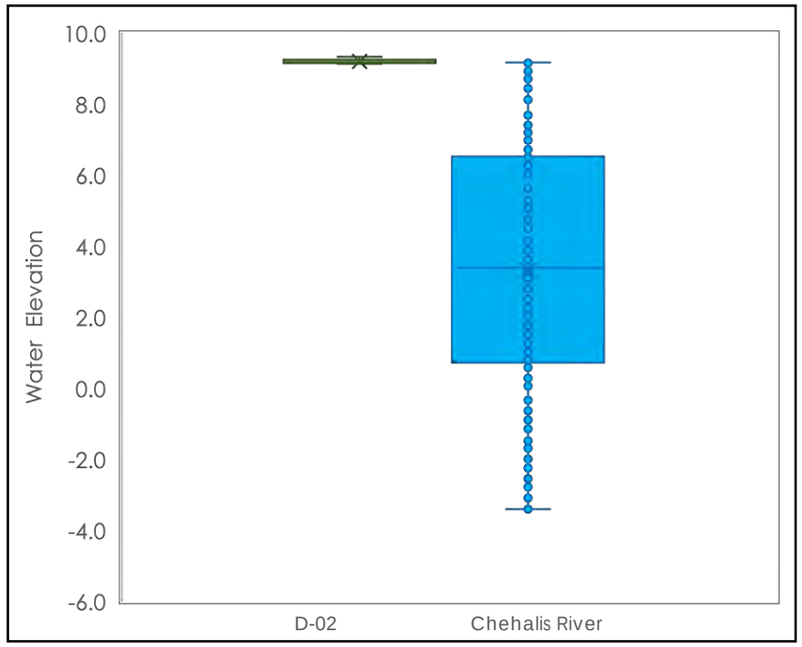


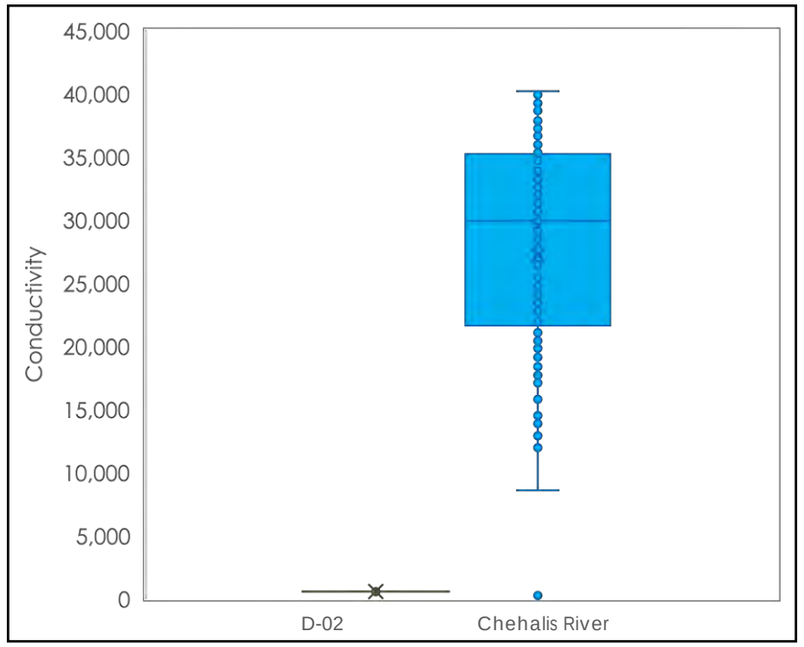
July 2020 Conductivity (uS/cm)

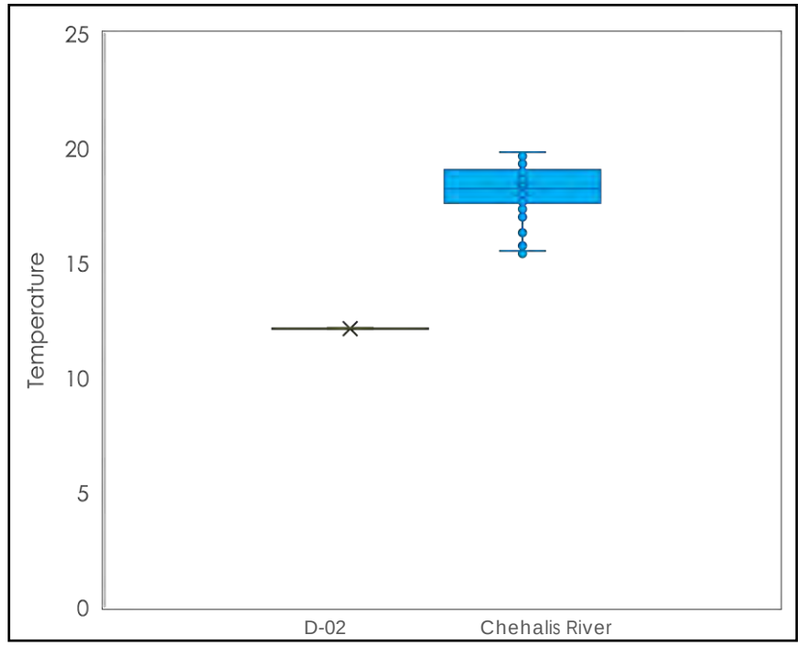


July 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on July 21, 2020, to 0:00 on July 23, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-02
Chehalis River

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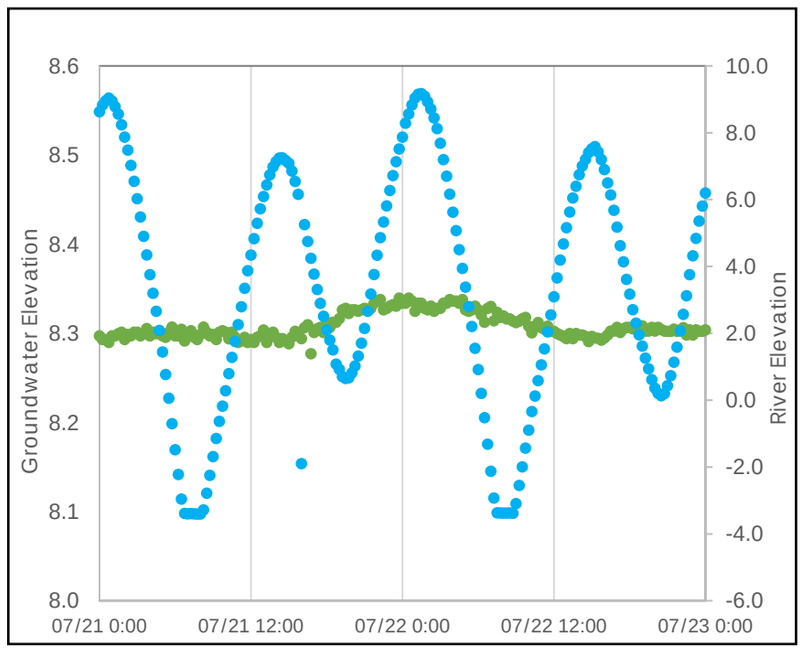
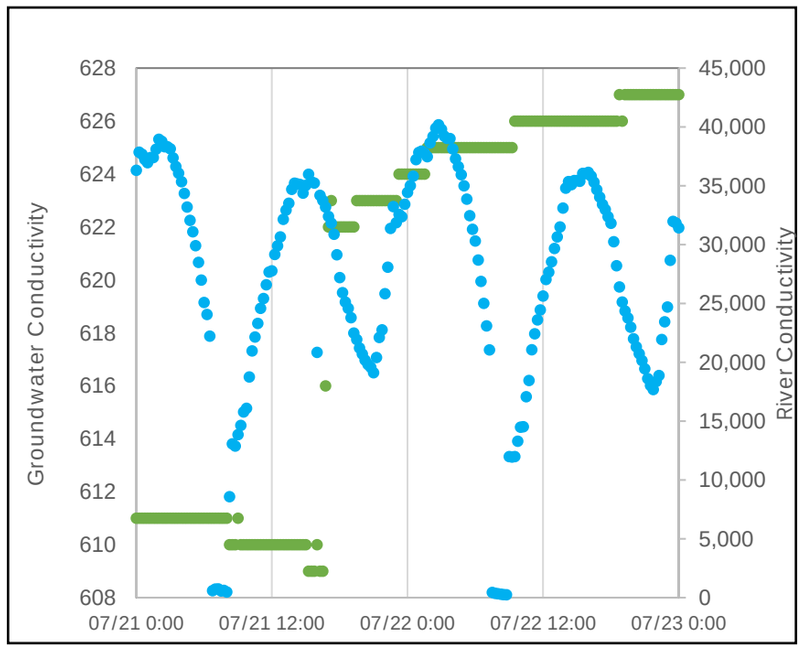
Figure A-25
D-03—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

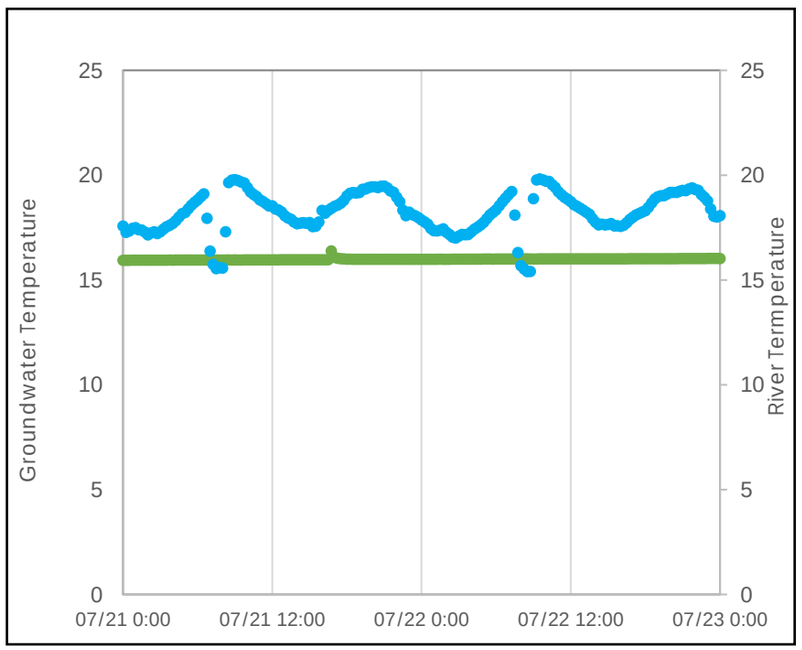
July 2020 Water Elevations (Feet NAVD 88)

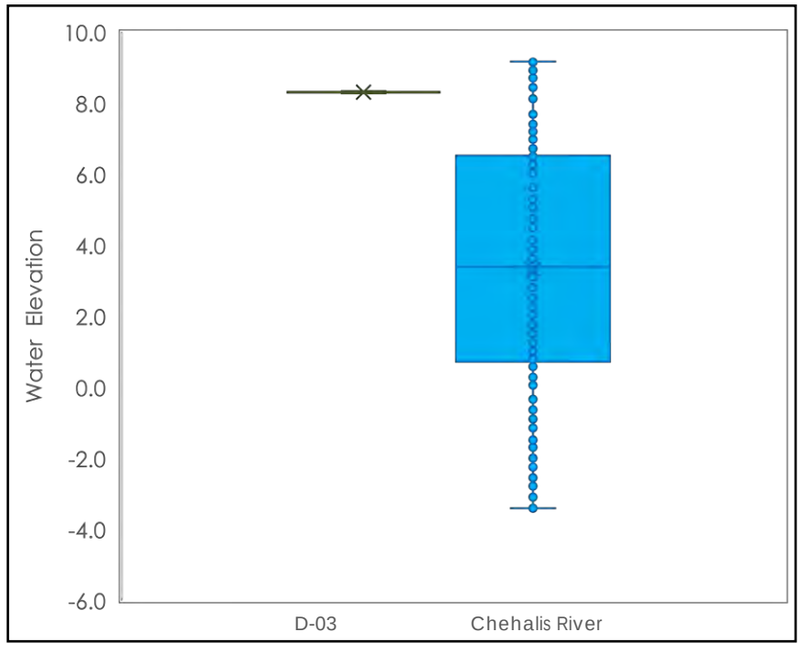


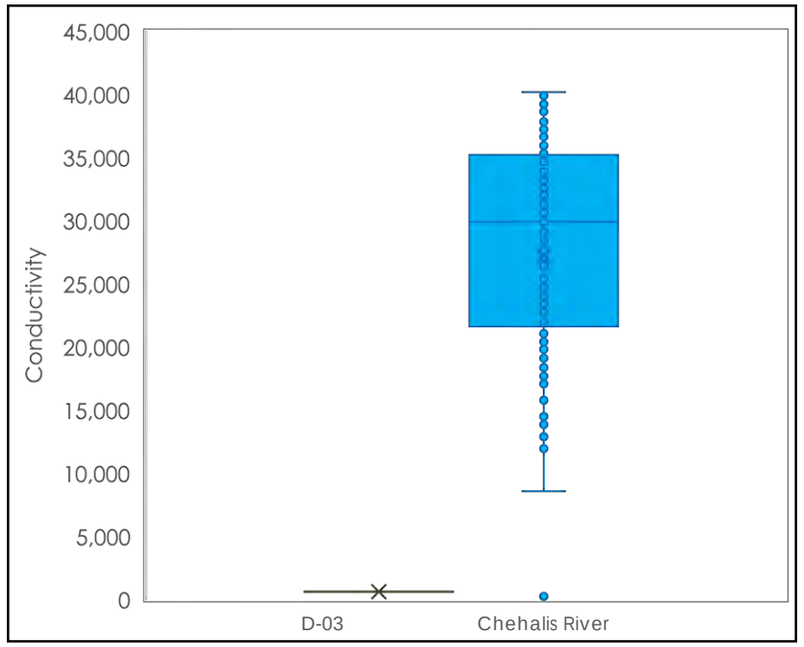
July 2020 Conductivity (uS/cm)

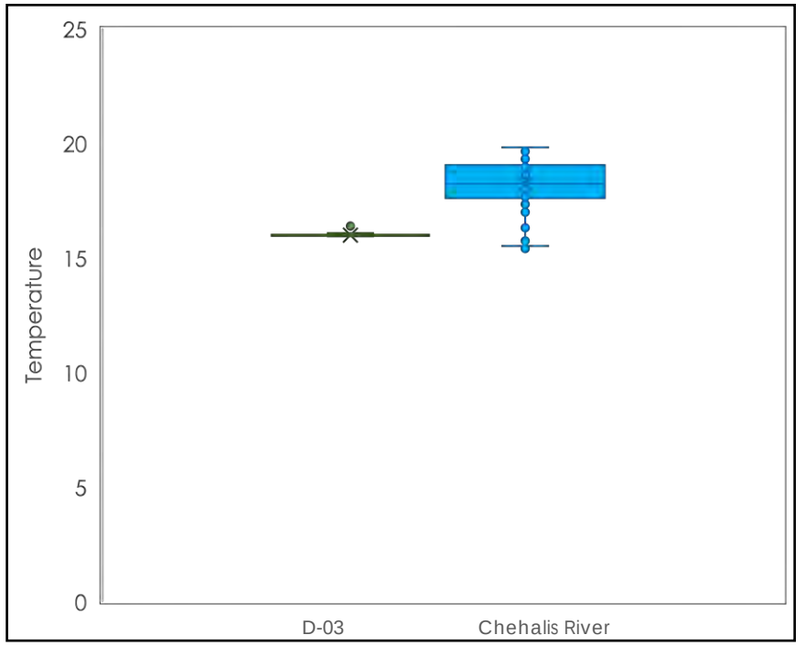


July 2020 Temperature (°C)









Notes:
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°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-03
Chehalis River

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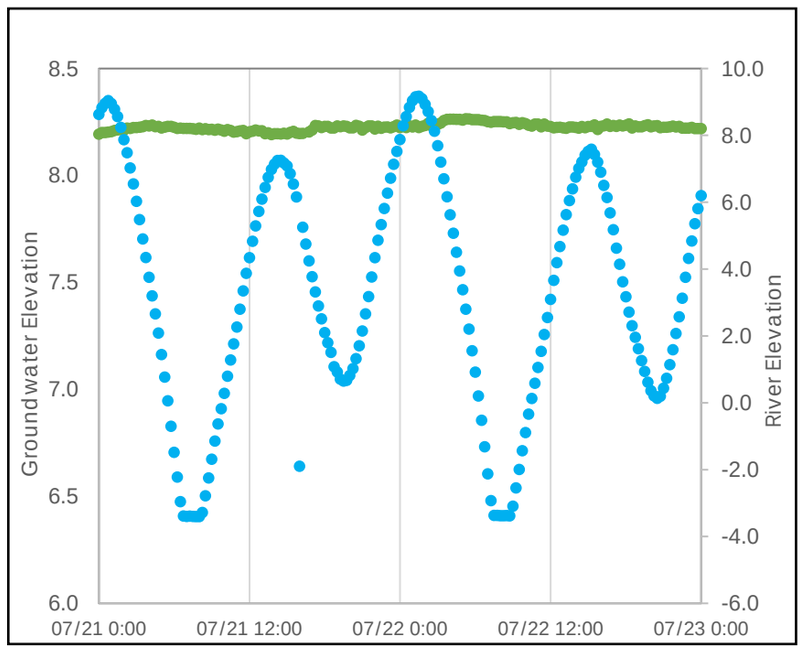
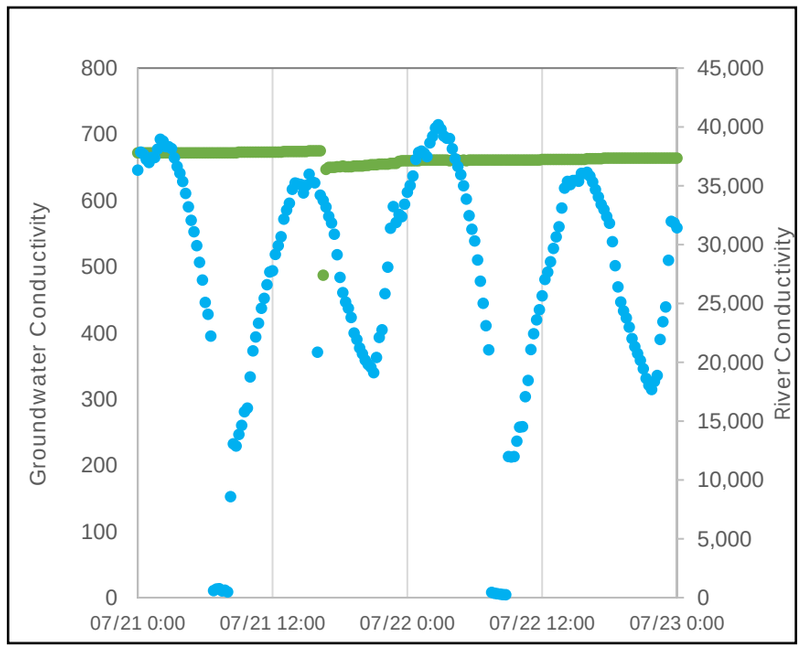
Figure A-26
D-04E—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

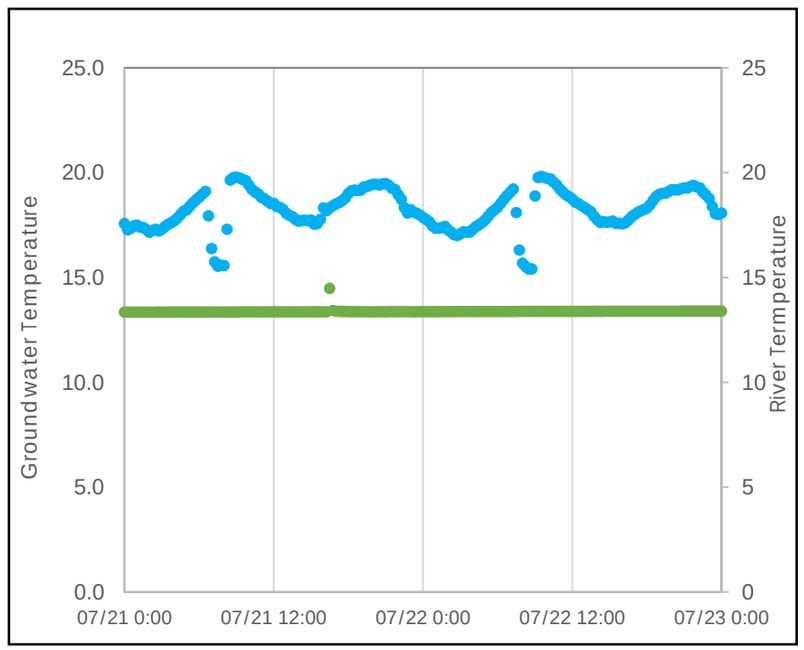
July 2020 Water Elevations (Feet NAVD 88)

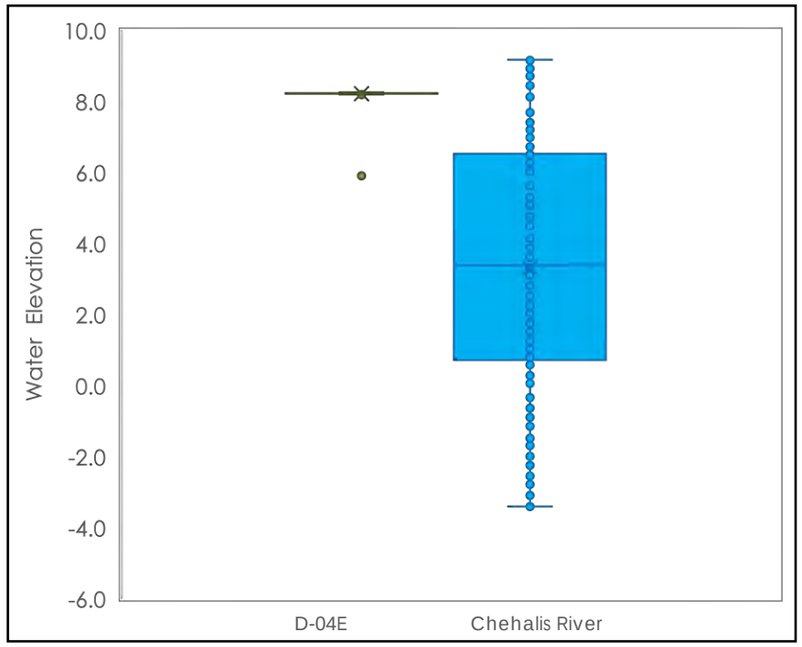


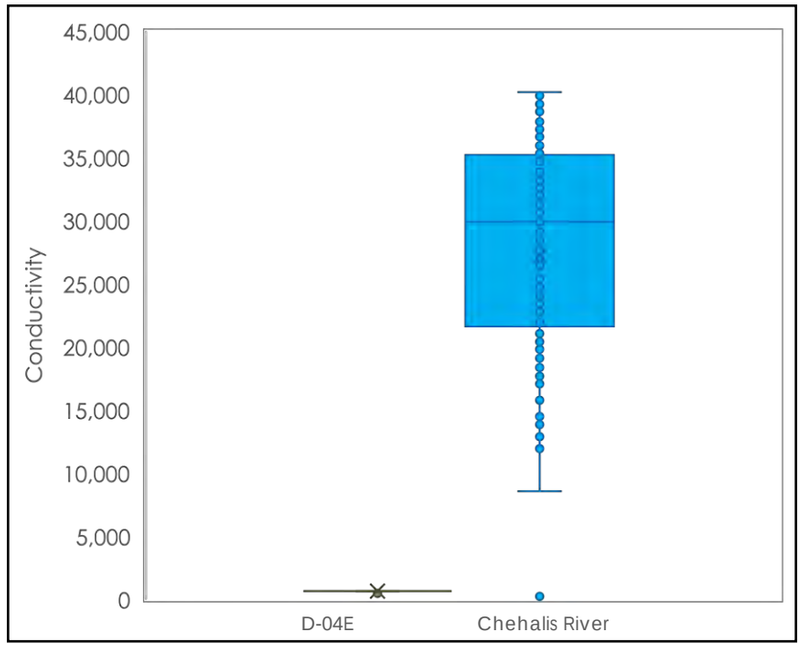
July 2020 Conductivity (uS/cm)

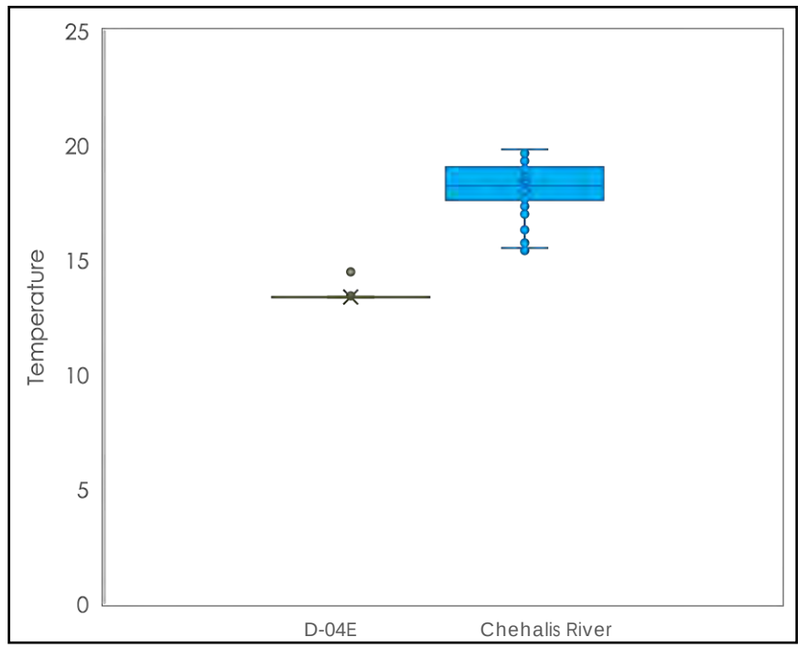


July 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
D-04E
Chehalis River

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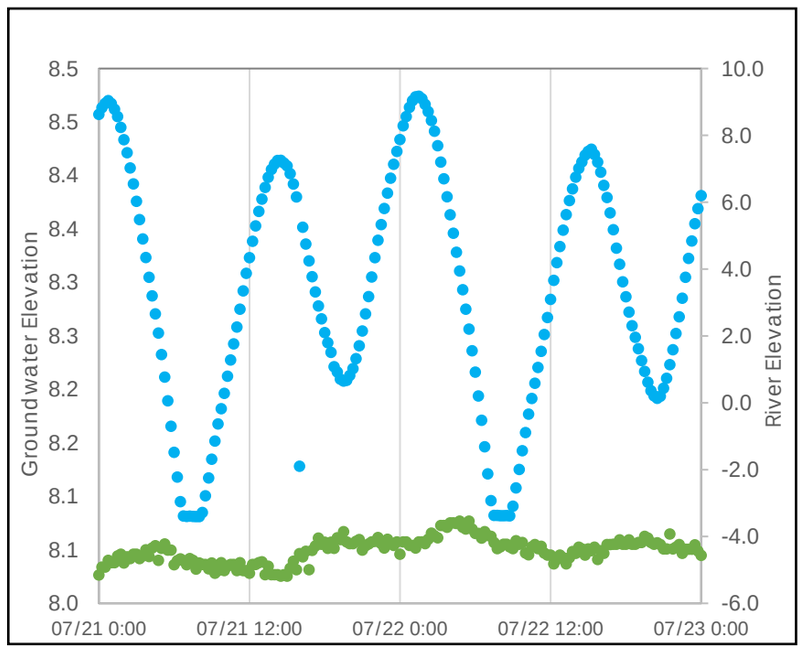
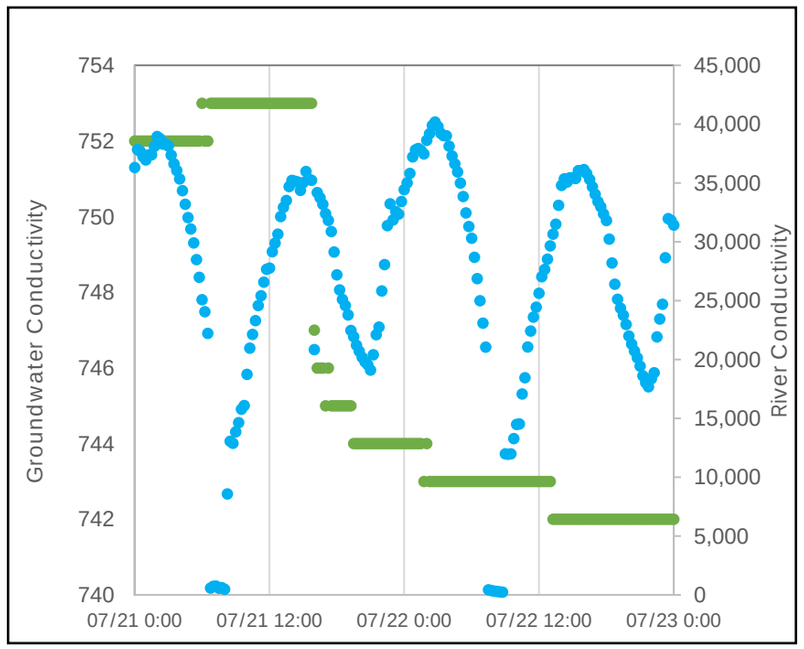
Figure A-27
D-08—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

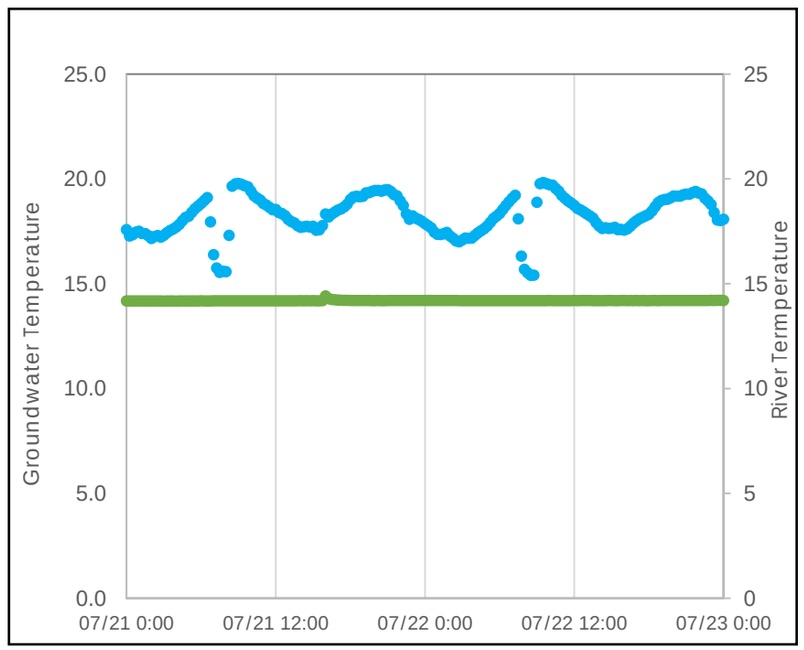
July 2020 Water Elevations (Feet NAVD 88)

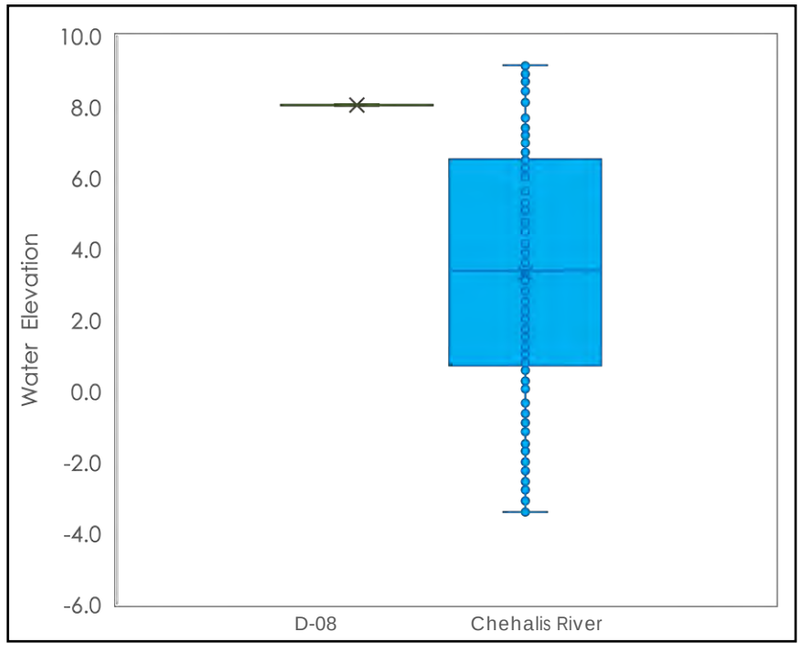


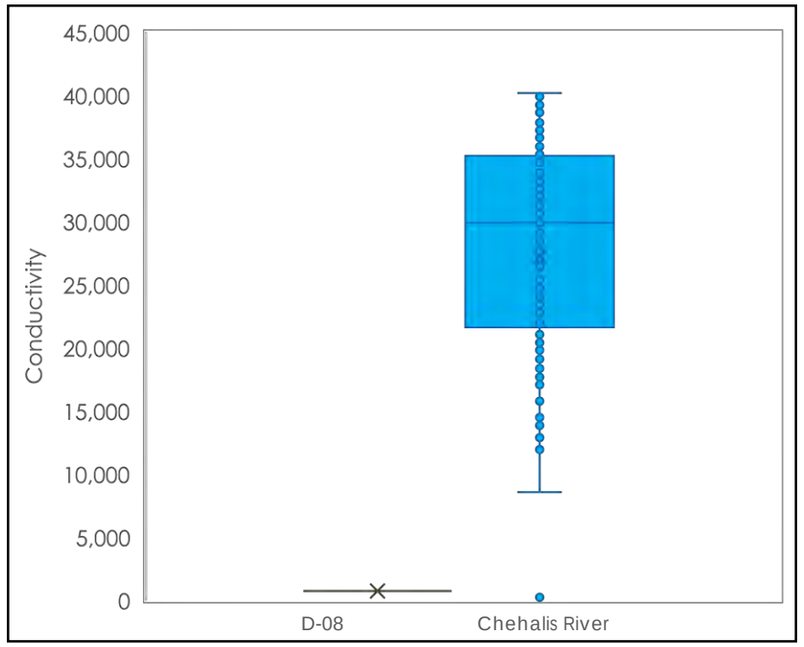
July 2020 Conductivity (uS/cm)

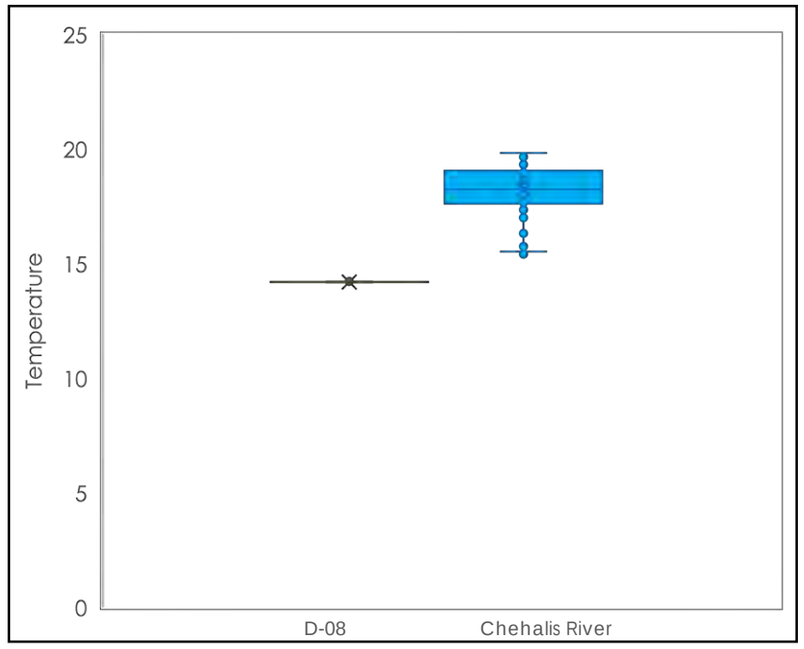


July 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
D-08
Chehalis River

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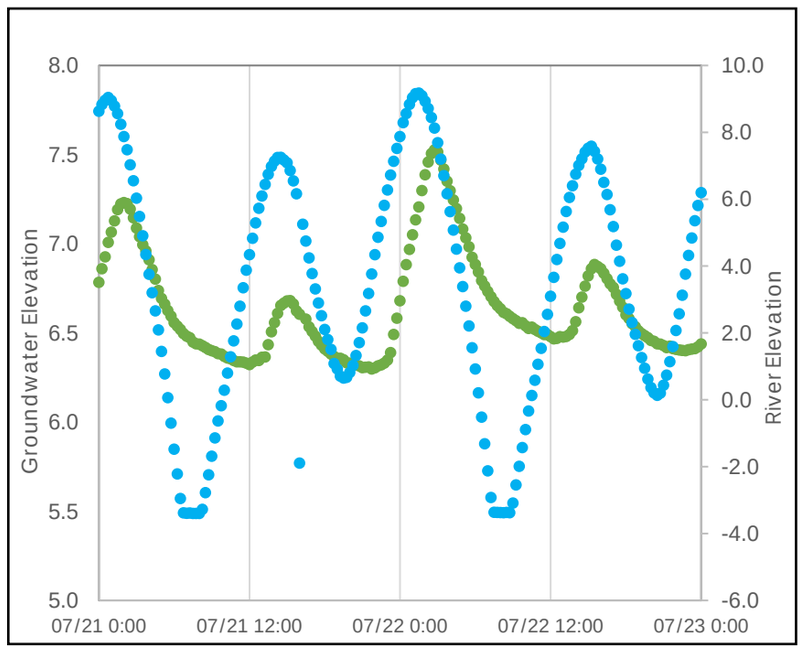
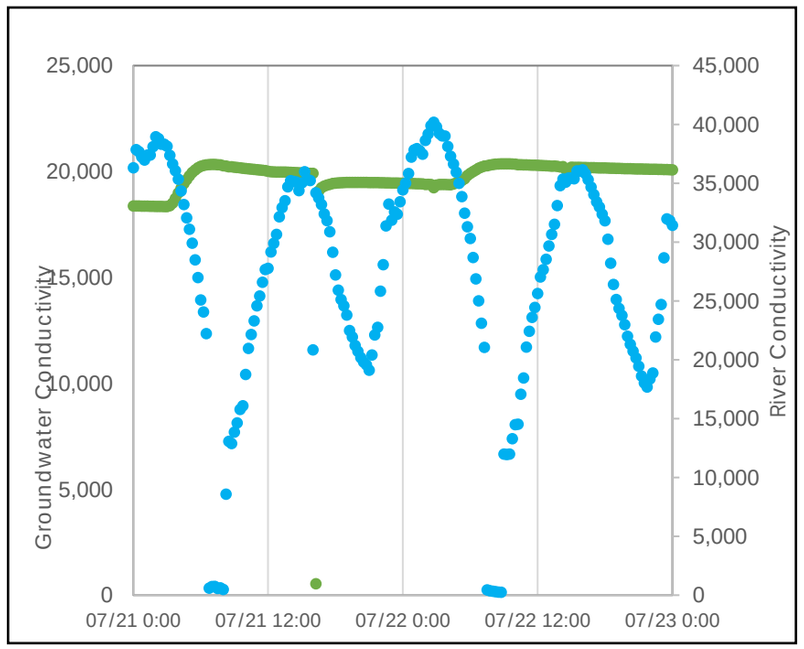
Figure A-28
RAU2-08—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

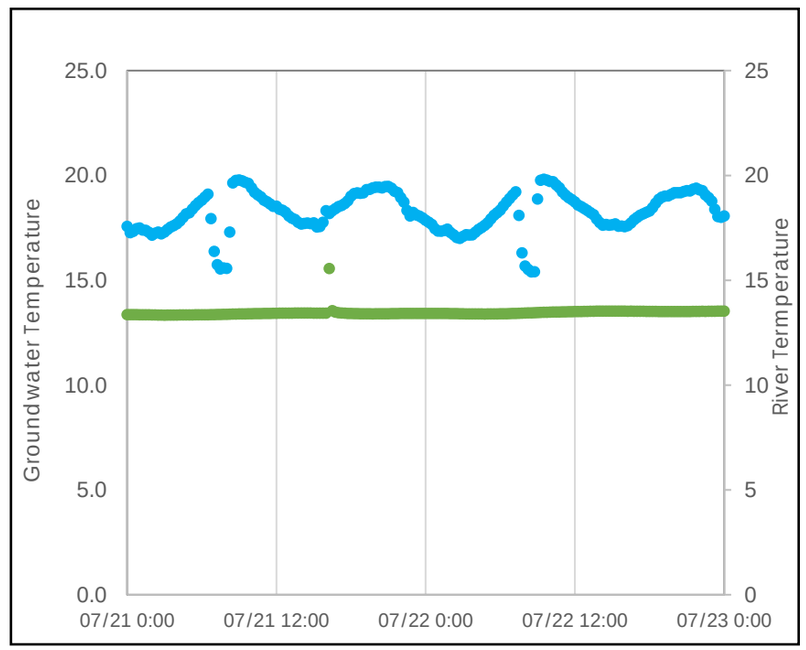
July 2020 Water Elevations (Feet NAVD 88)

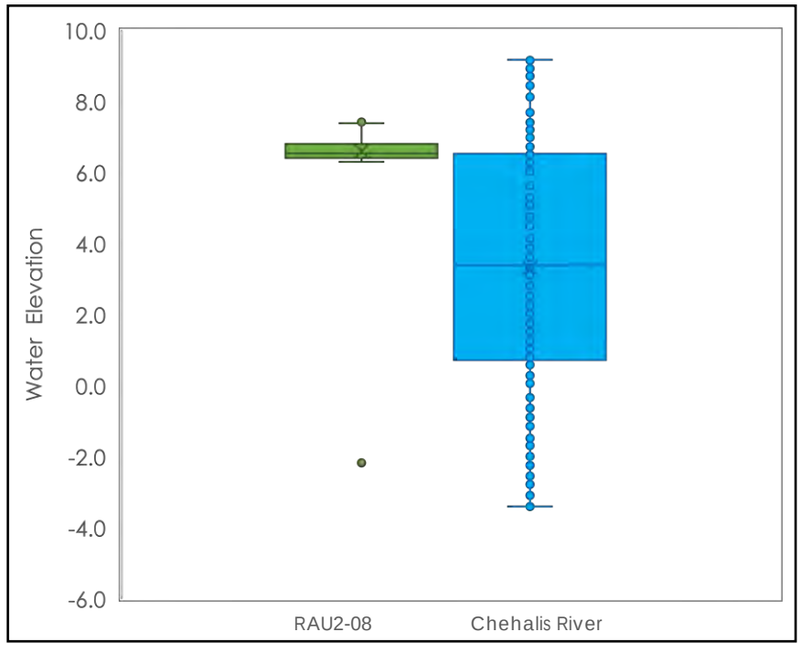


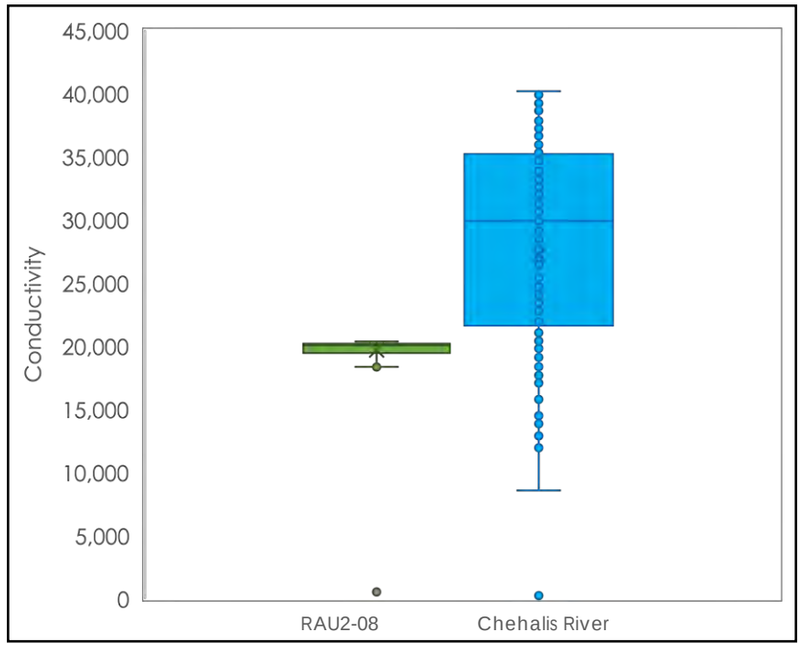
July 2020 Conductivity (uS/cm)

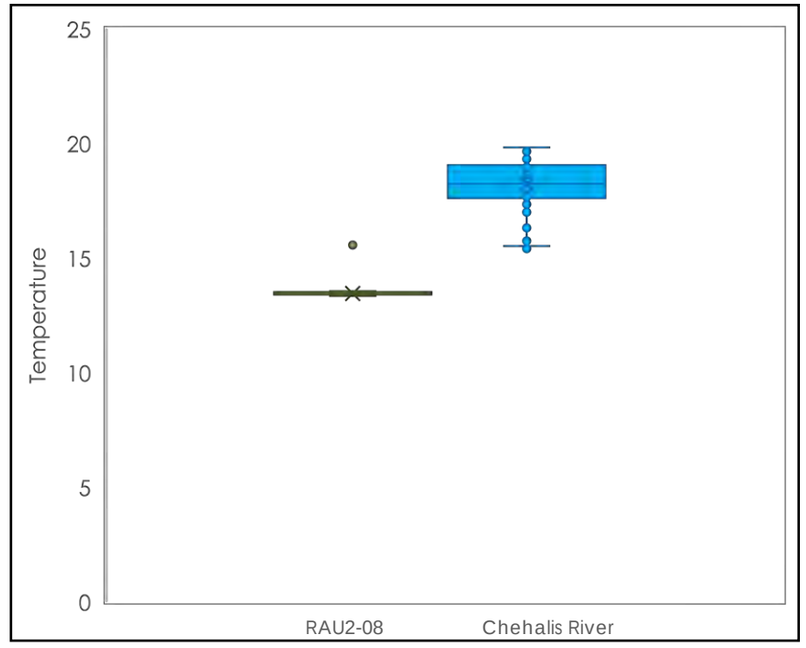


July 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU2-08
Chehalis River

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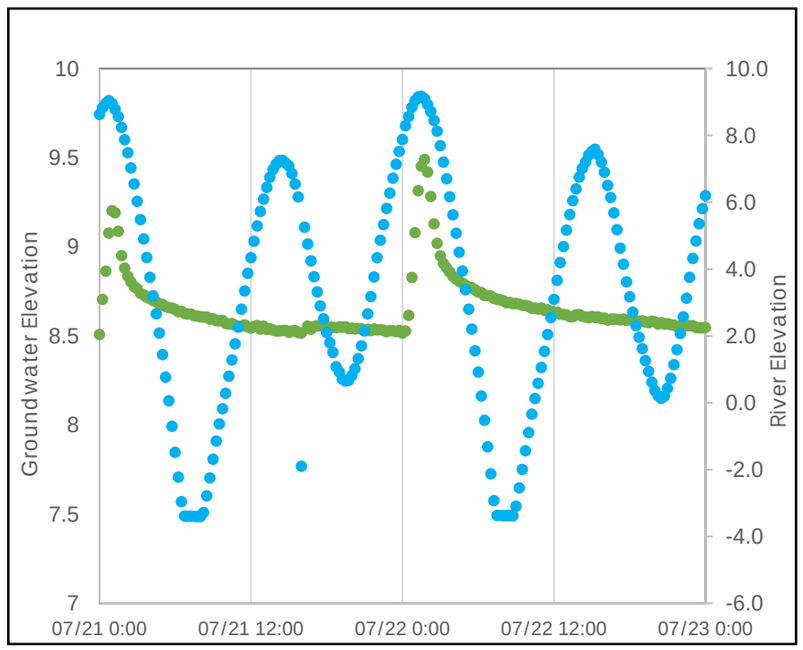
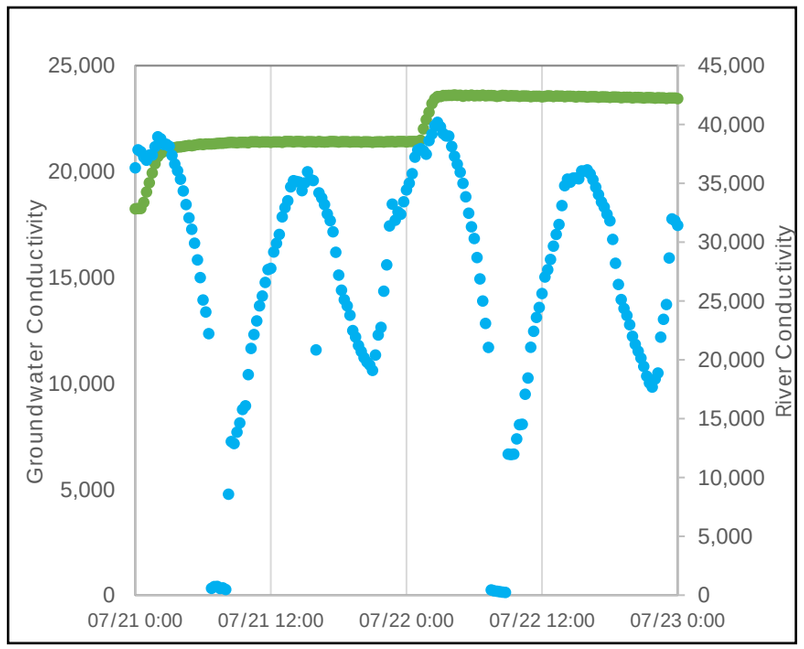
Figure A-29
RAU2-09—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

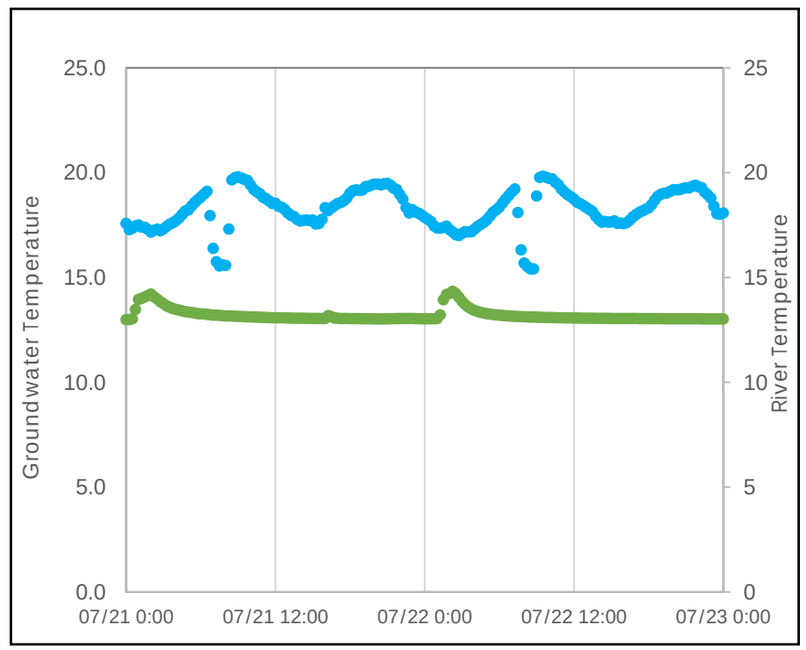
July 2020 Water Elevations (Feet NAVD 88)

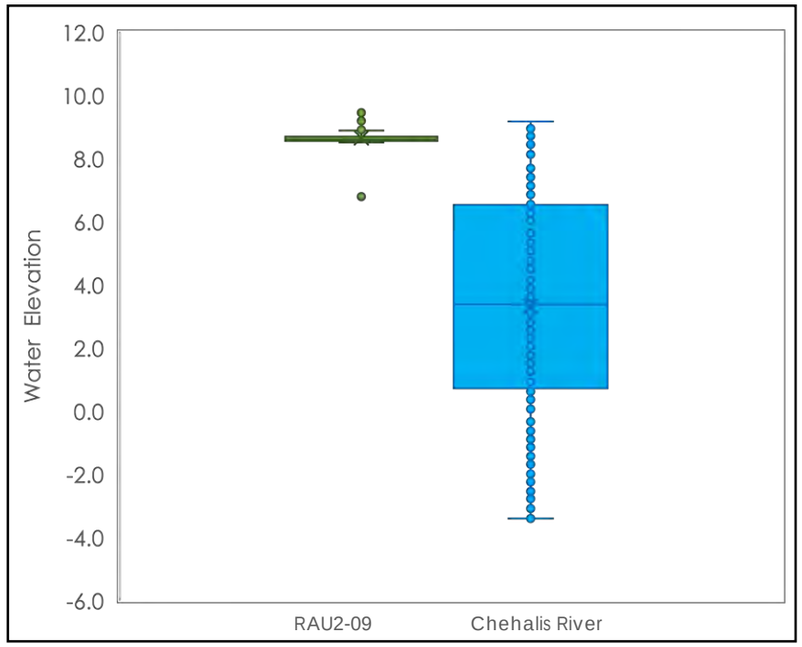


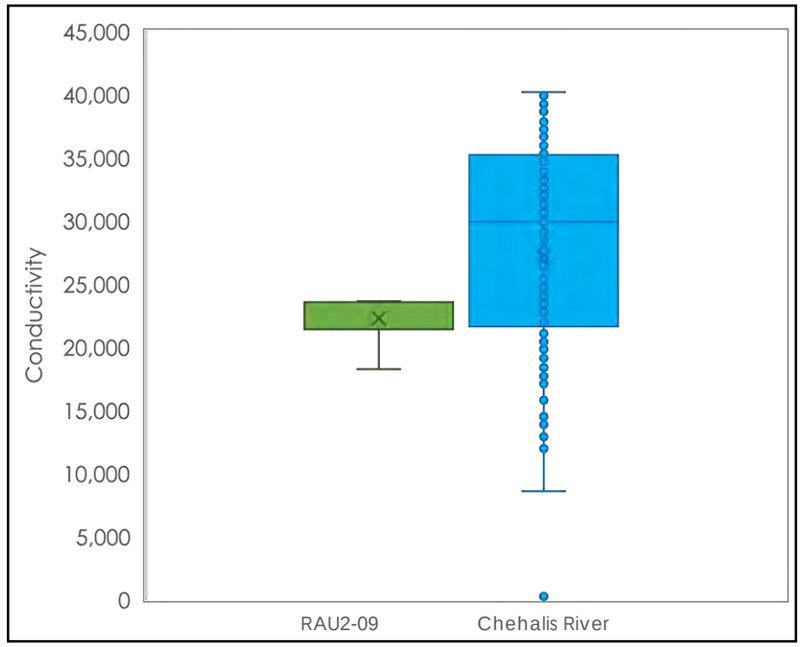
July 2020 Conductivity (uS/cm)

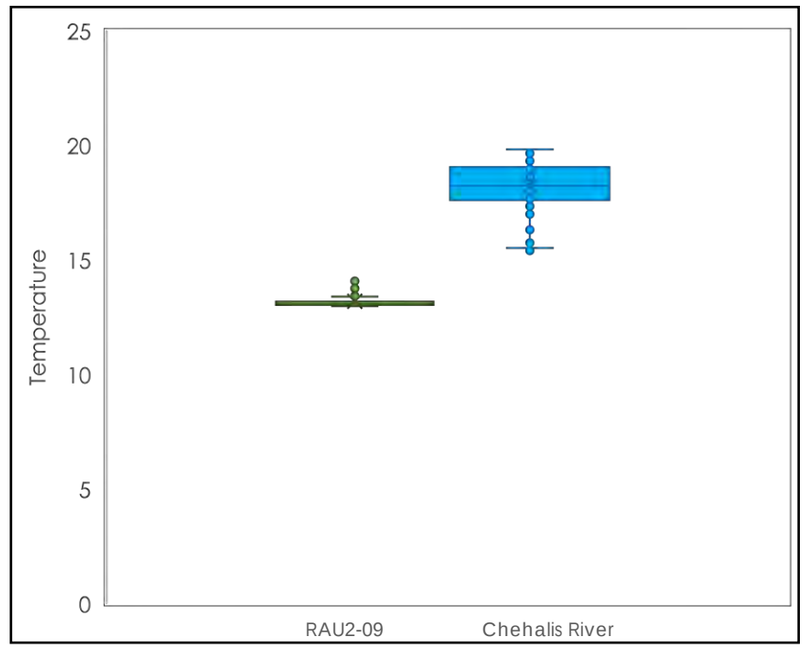


July 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU2-09
Chehalis River

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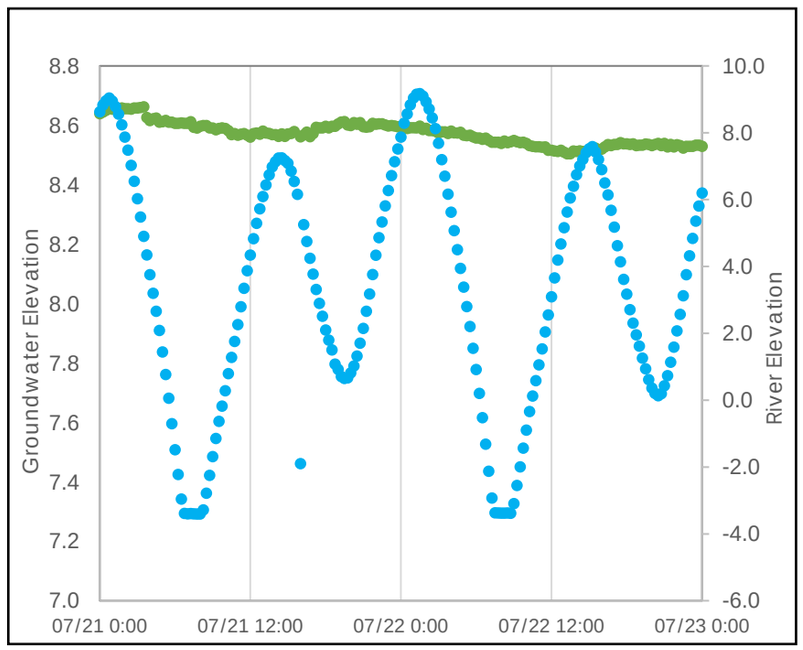
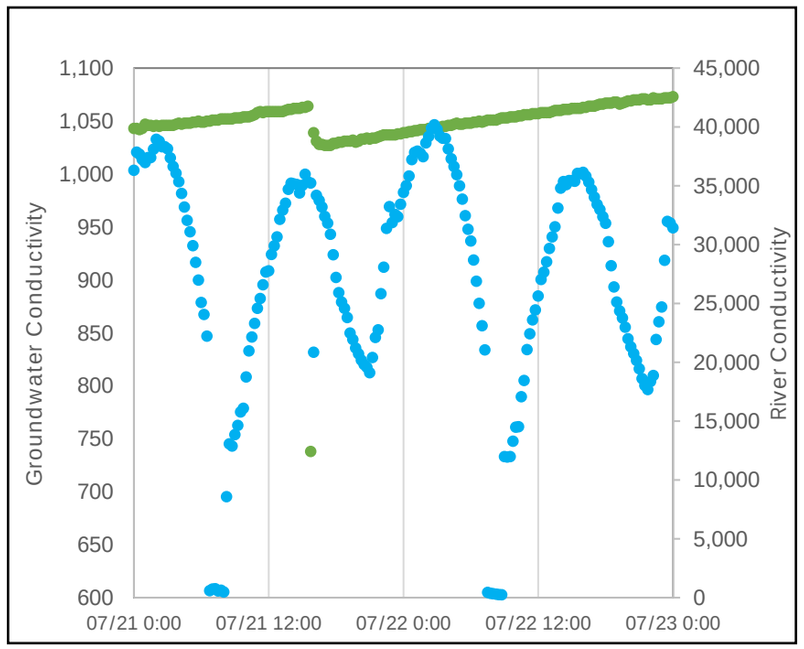
Figure A-30
RAU3-03—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

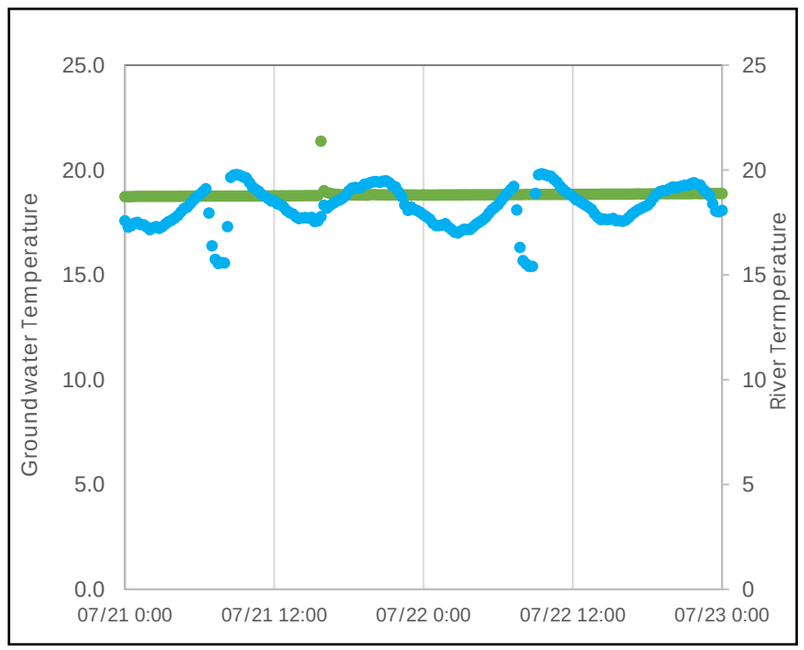
July 2020 Water Elevations (Feet NAVD 88)

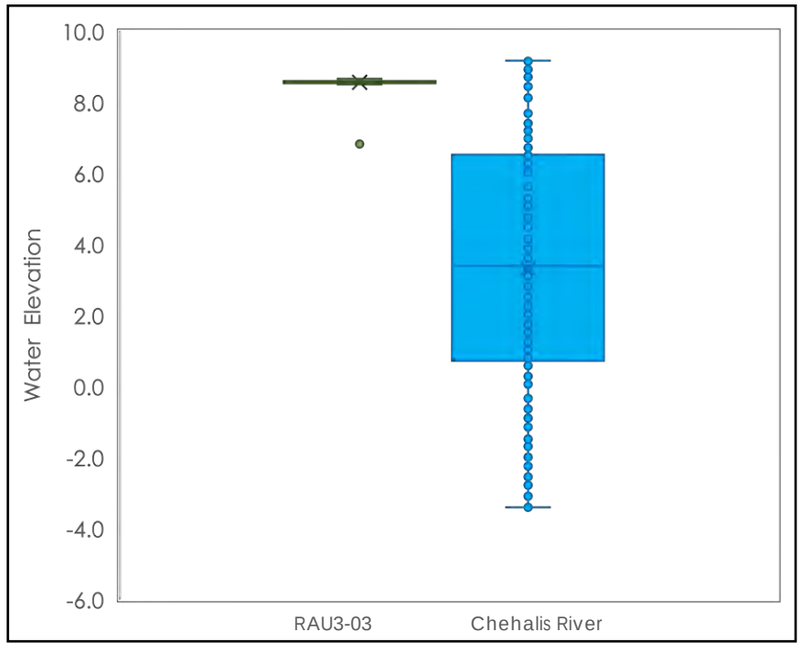


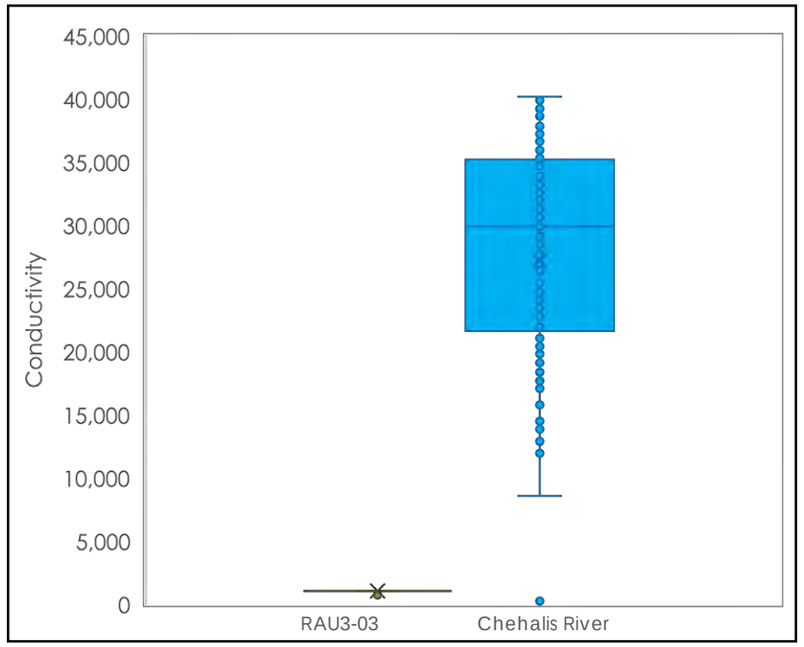
July 2020 Conductivity (uS/cm)

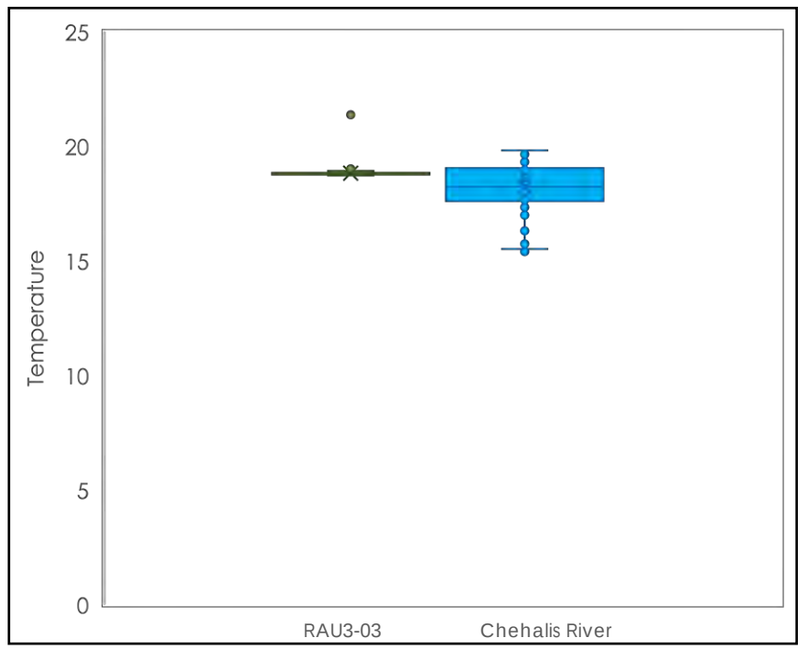


July 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU3-03
Chehalis River

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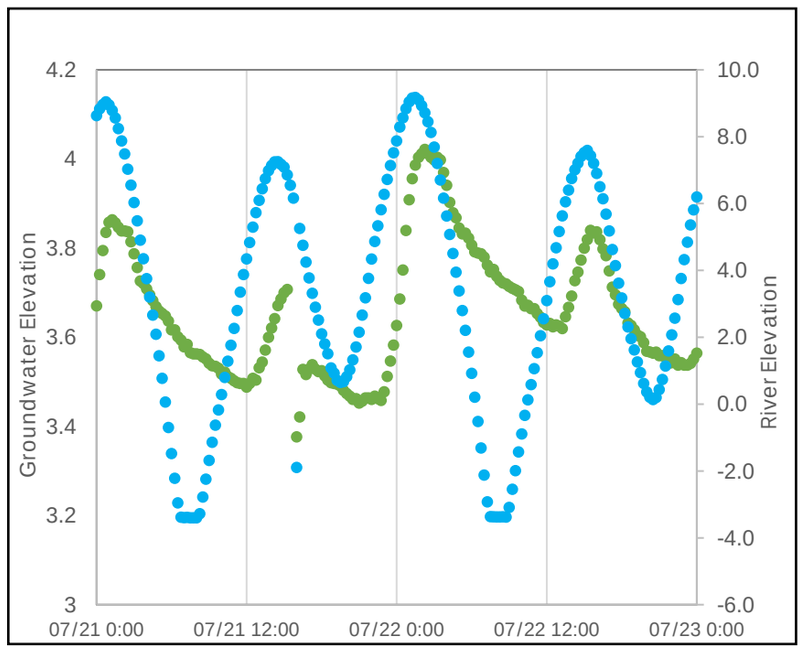
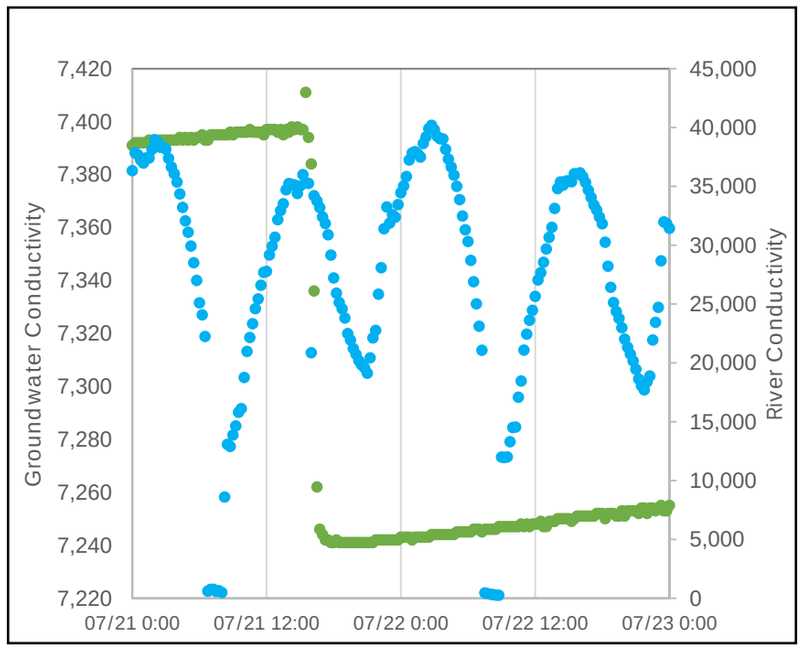
Figure A-31
RAU4-12—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

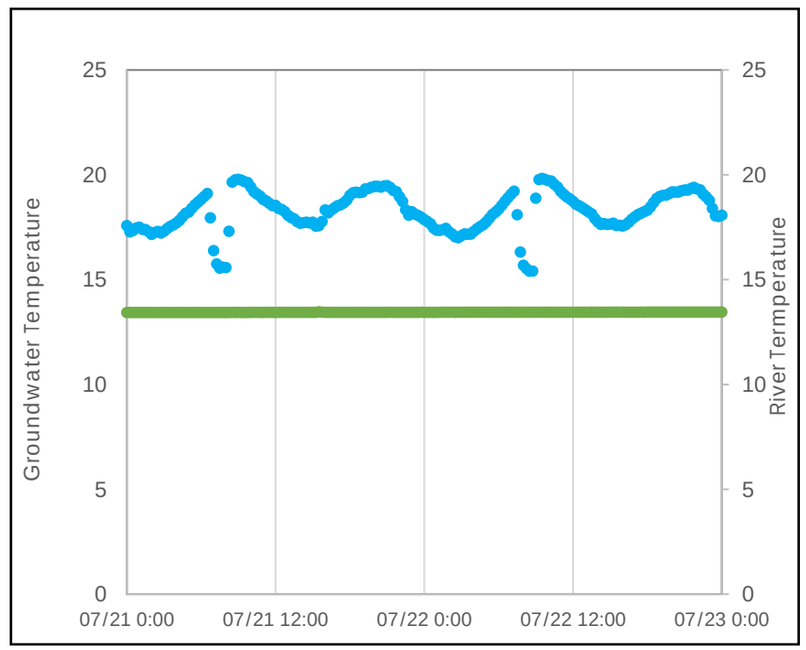
July 2020 Water Elevations (Feet NAVD 88)

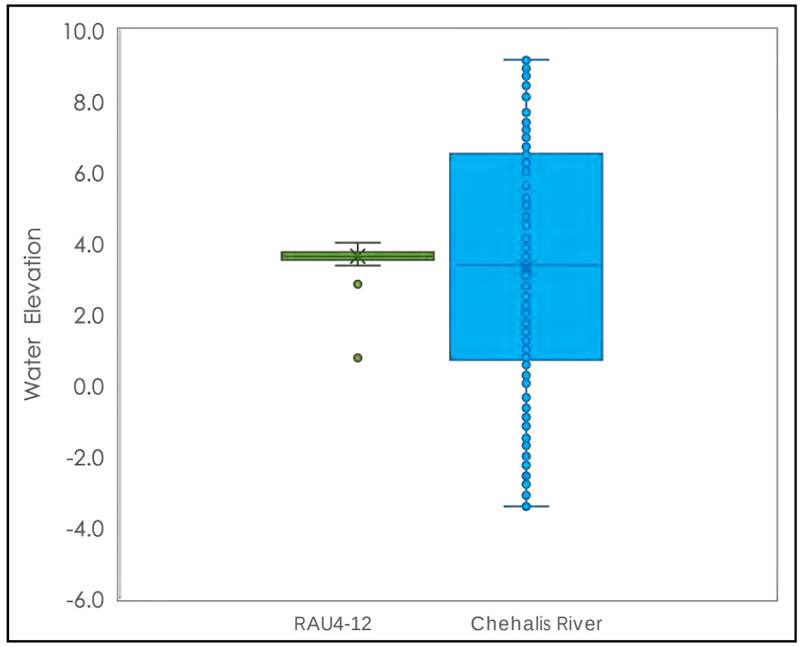


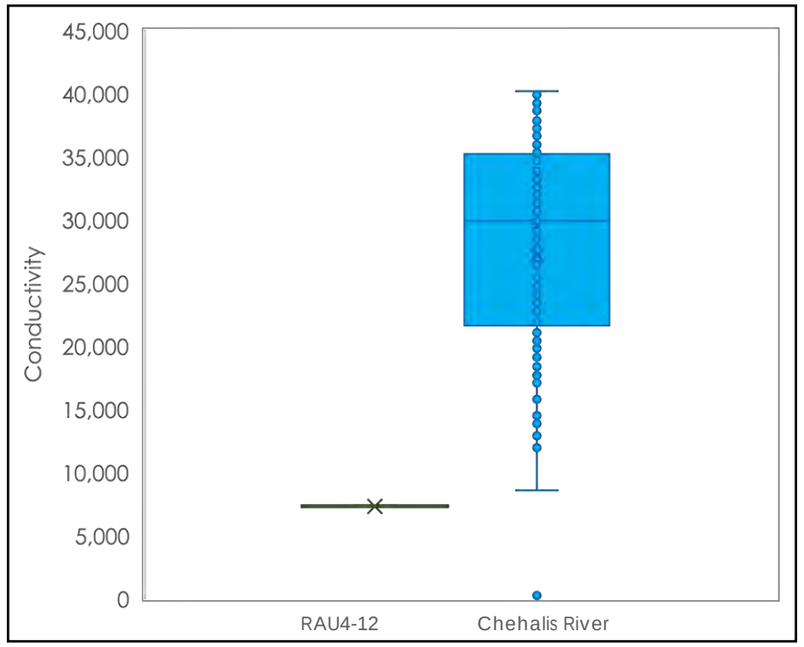
July 2020 Conductivity (uS/cm)

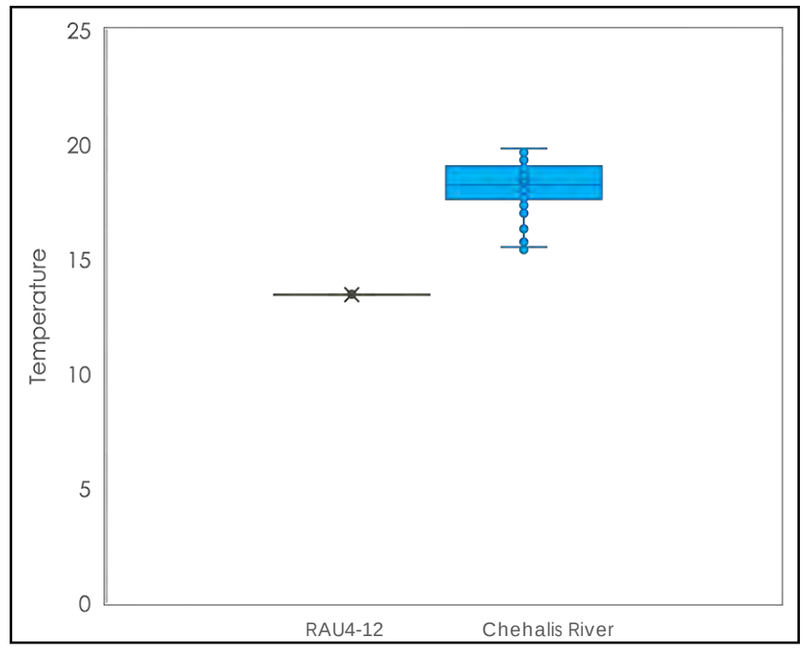


July 2020 Temperature (°C)









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uS/cm = microsiemens per centimeter.

Legend
RAU4-12
Chehalis River

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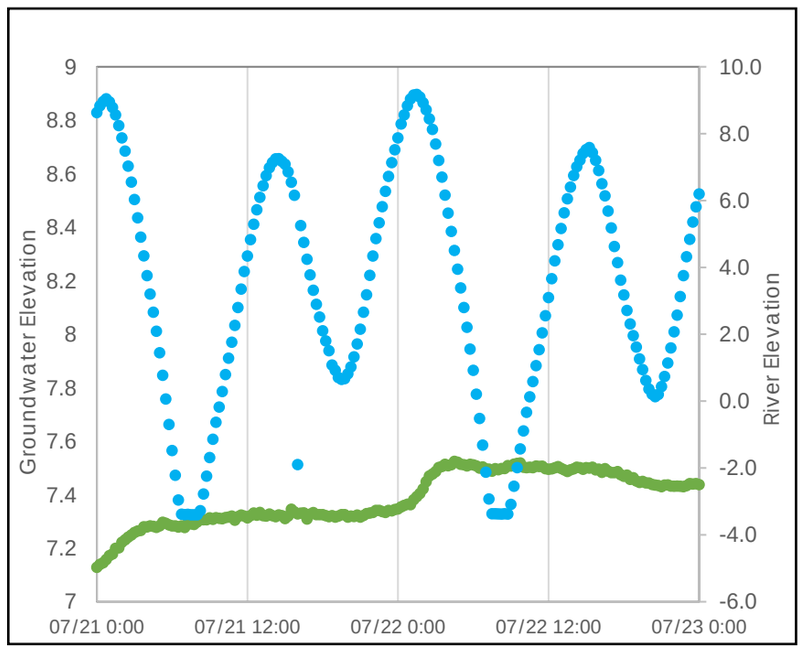
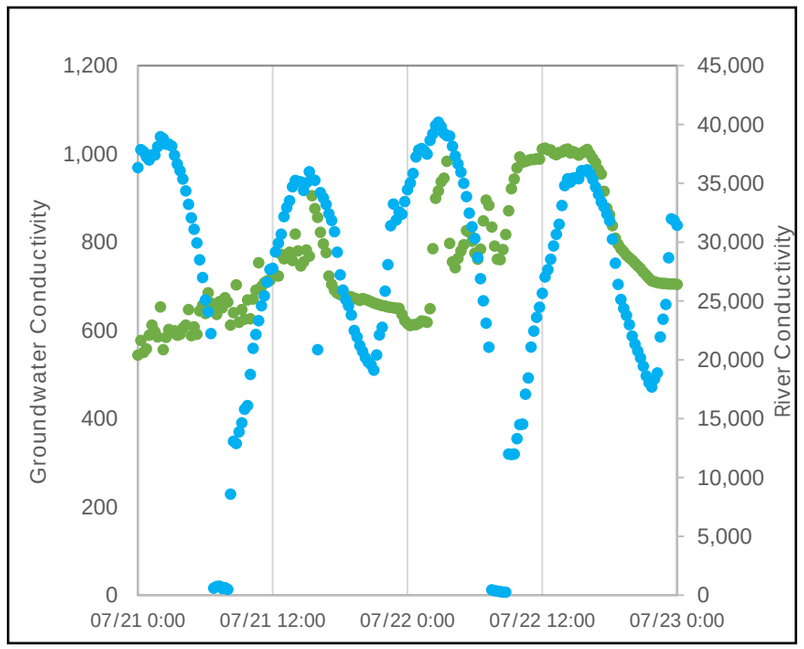
Figure A-32
RAU4-UNK—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

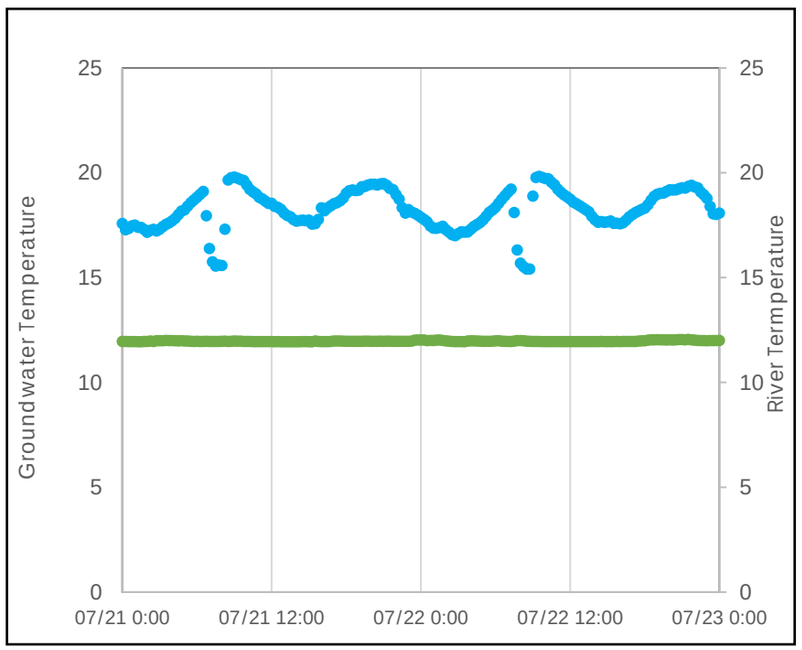
July 2020 Water Elevations (Feet NAVD 88)

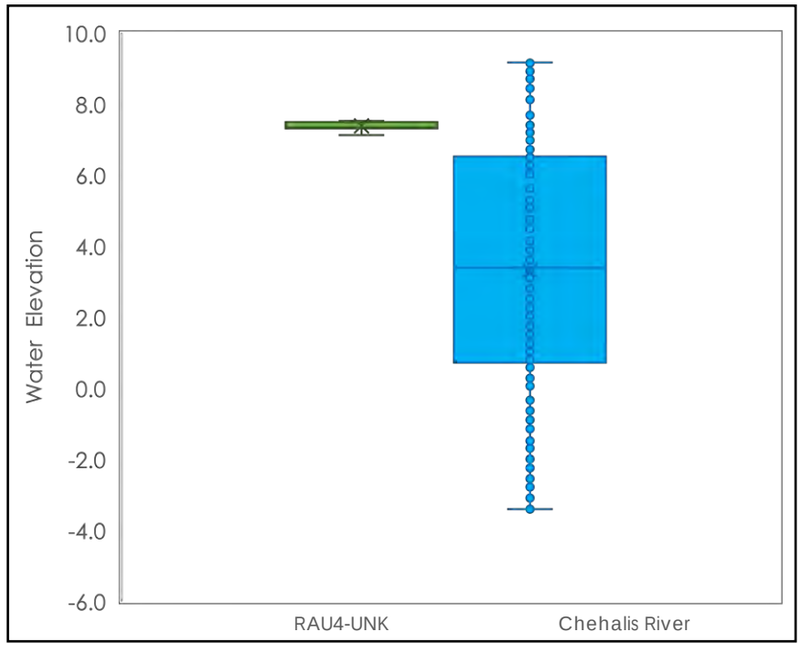


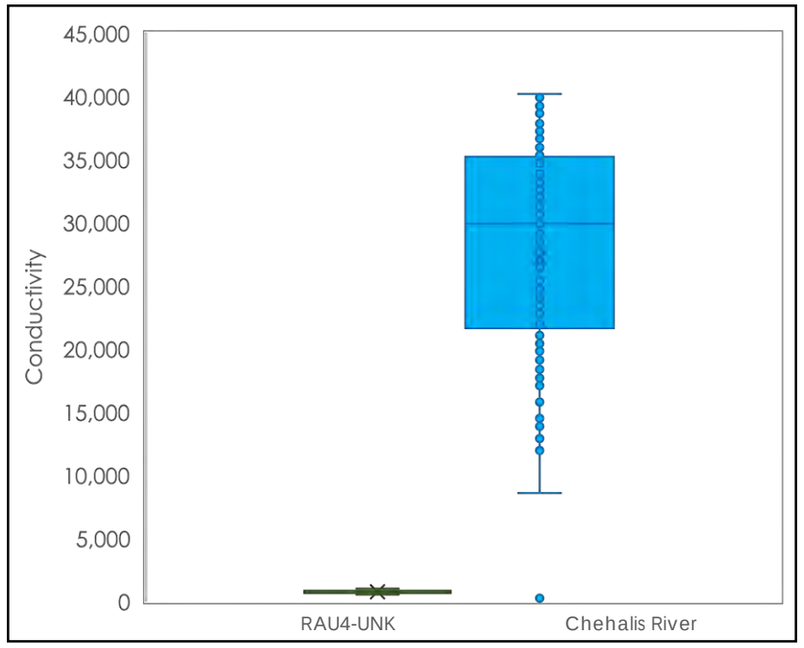
July 2020 Conductivity (uS/cm)

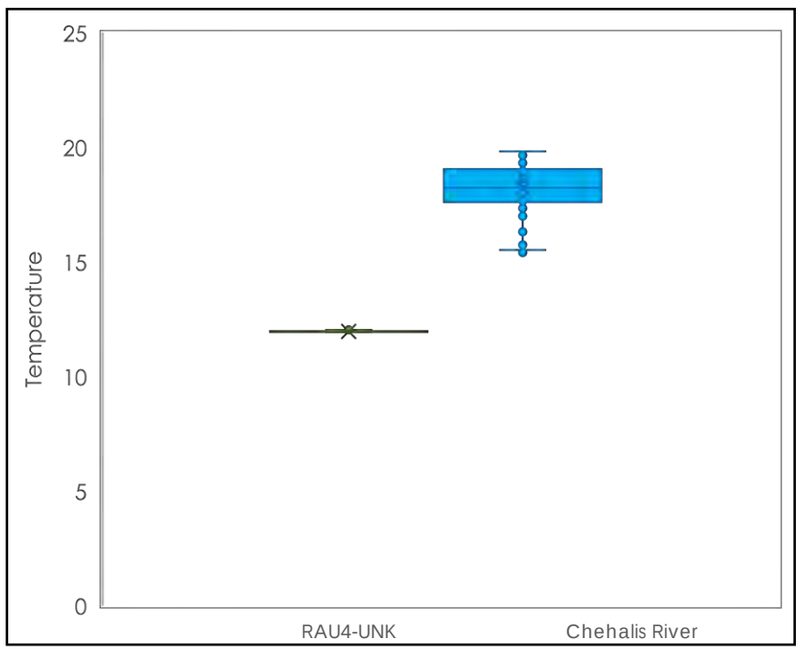


July 2020 Temperature (°C)









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NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU4-UNK
Chehalis River

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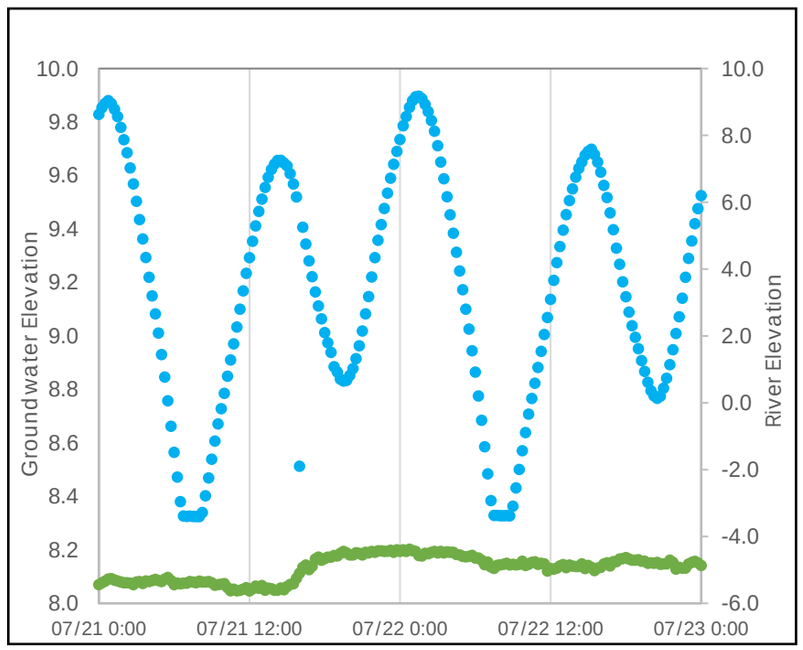
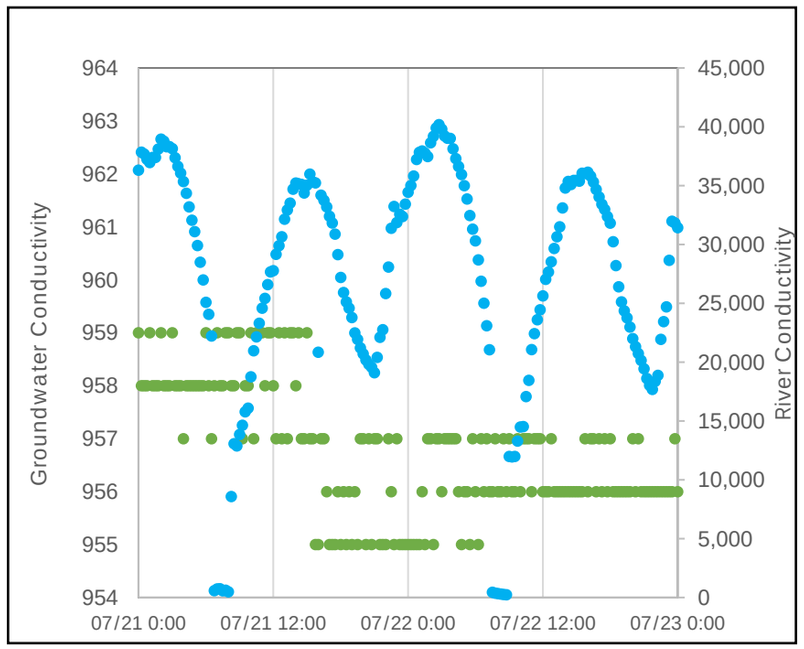
Figure A-33
RAU6-02—July 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

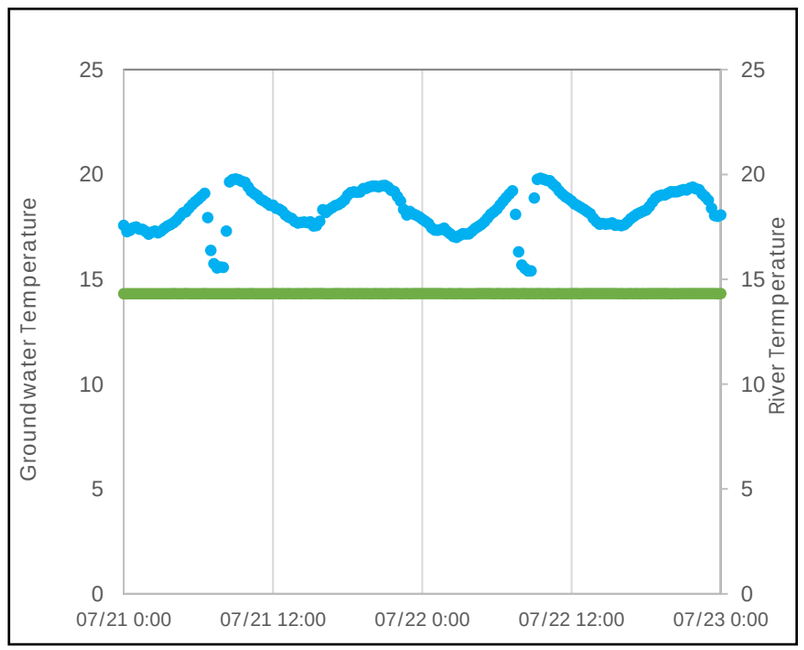
July 2020 Water Elevations (Feet NAVD 88)

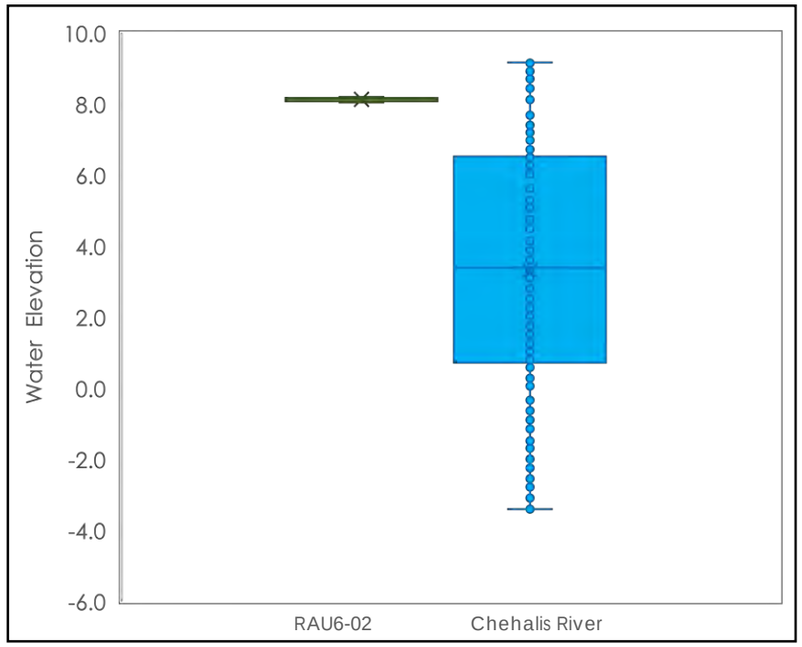


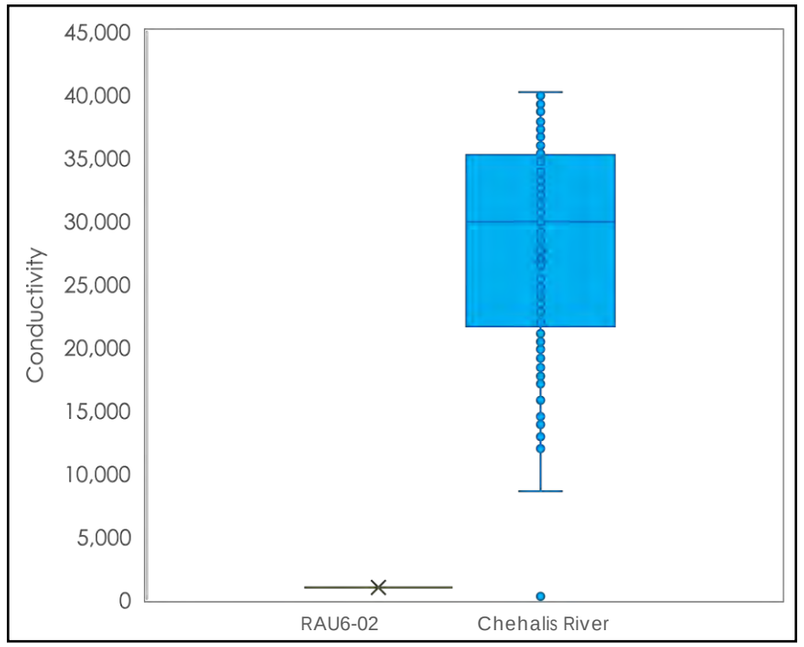
July 2020 Conductivity (uS/cm)

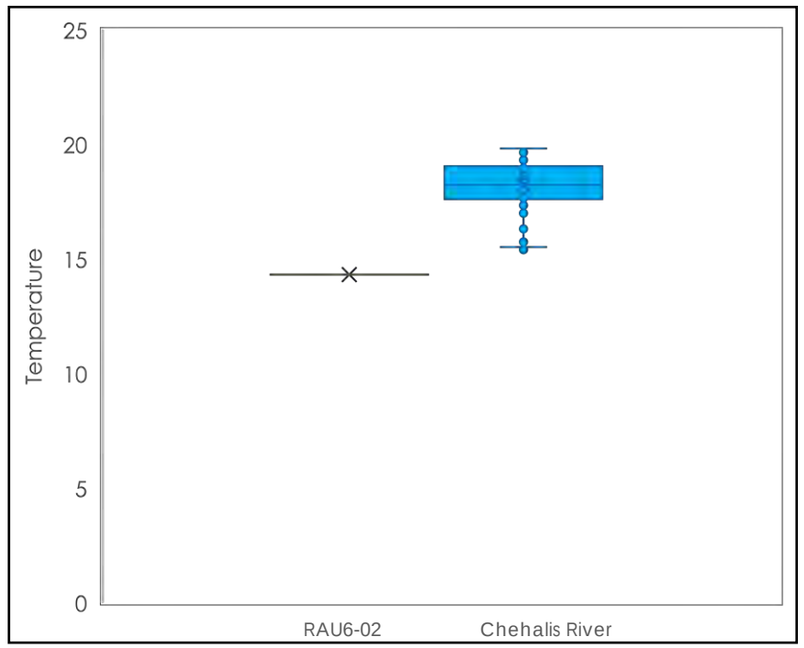


July 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on July 21, 2020, to 0:00 on July 23, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU6-02
Chehalis River

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PLOTS

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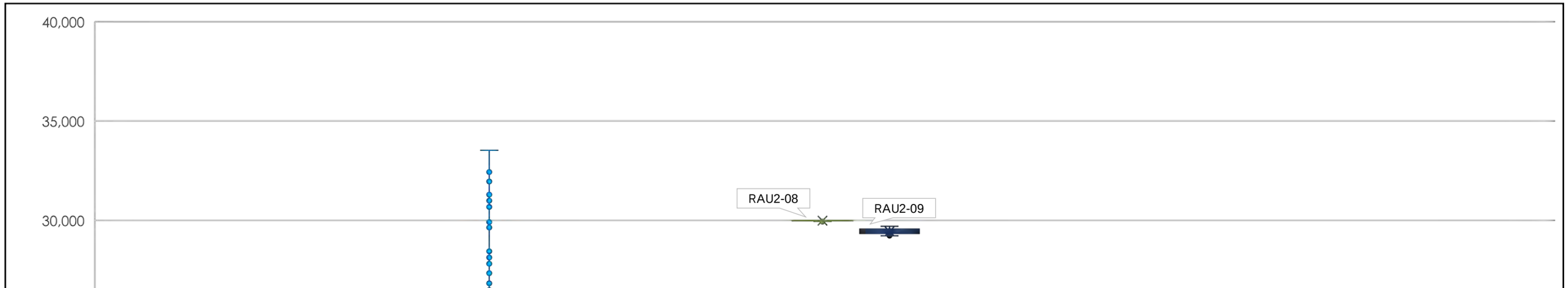
Figure A-34
October 2020 Groundwater Compared to River Conductivity
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

October 2020 Conductivity (uS/cm)



Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
uS/cm = microsiemens per centimeter.

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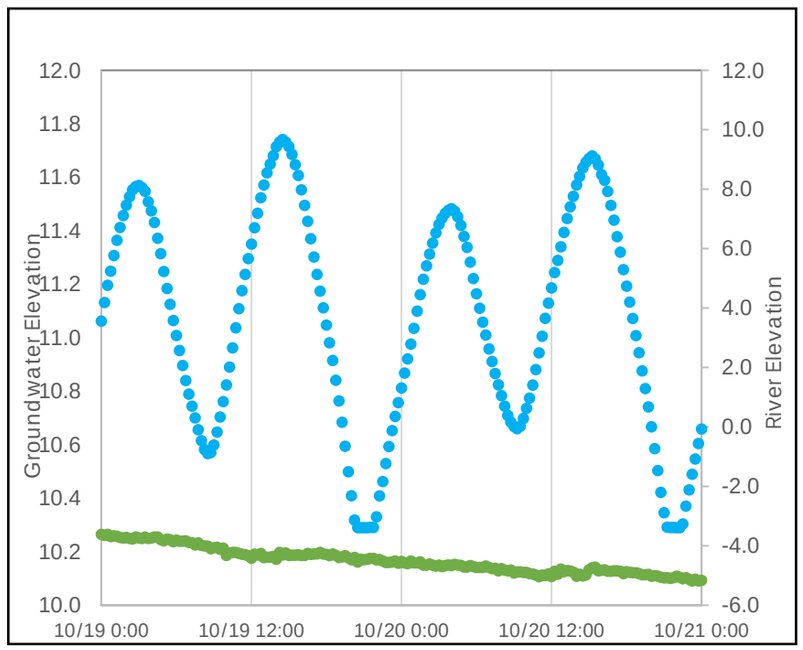
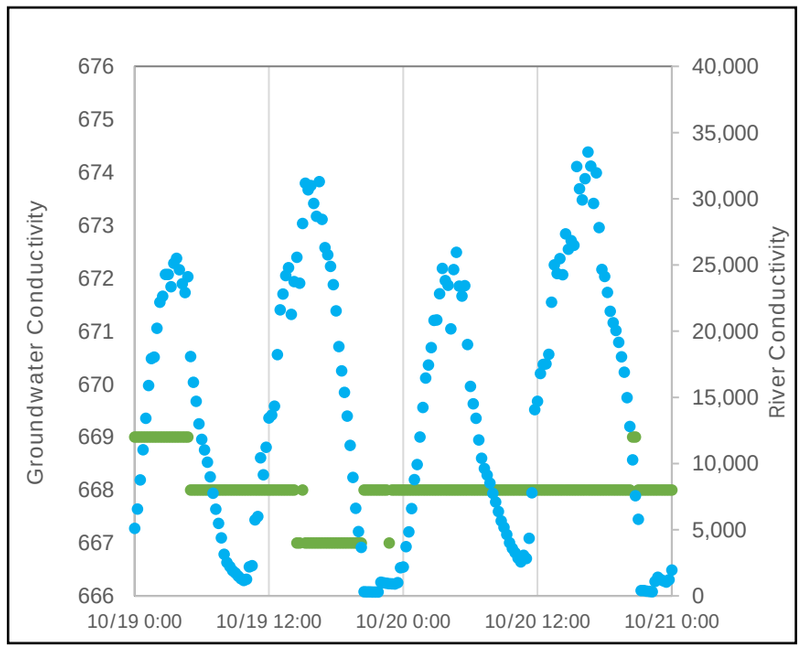
Figure A-35
D-02—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

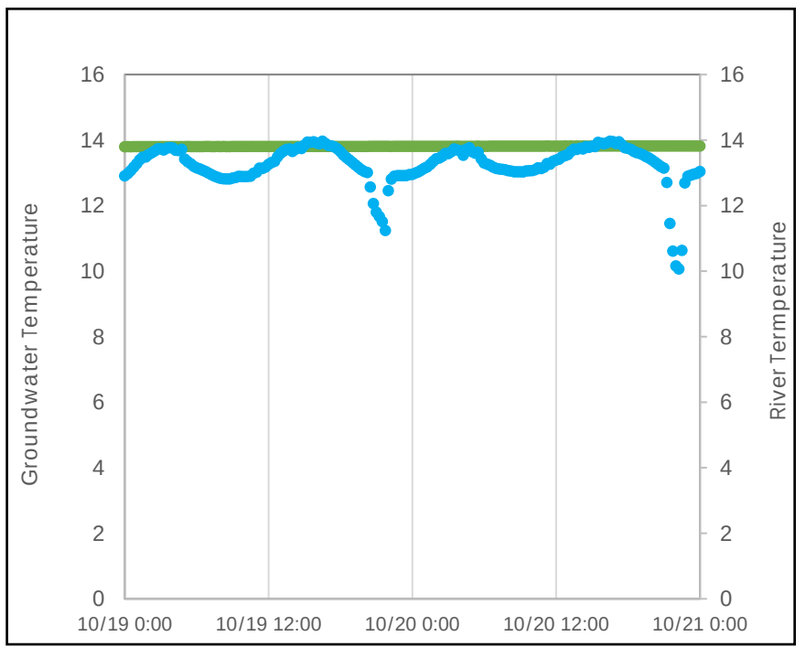
October 2020 Water Elevations (Feet NAVD 88)

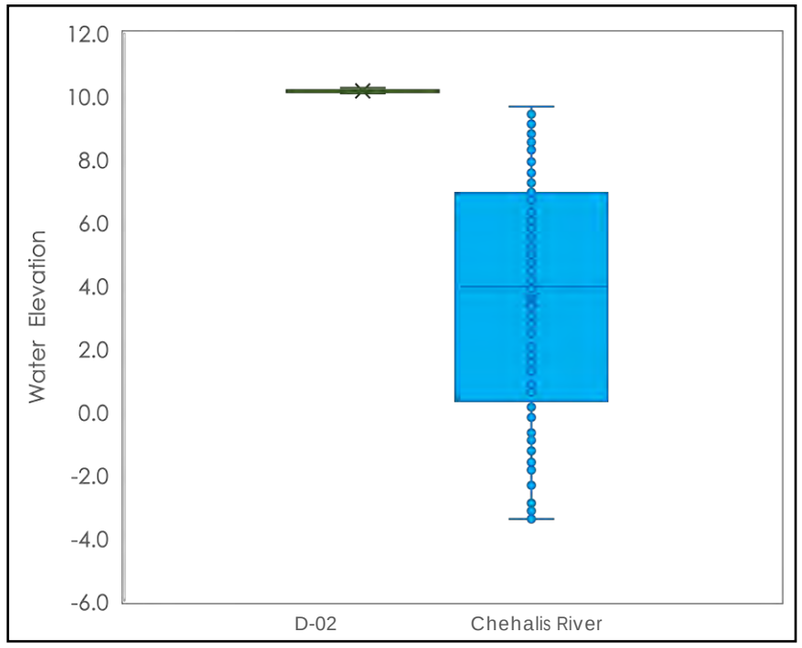


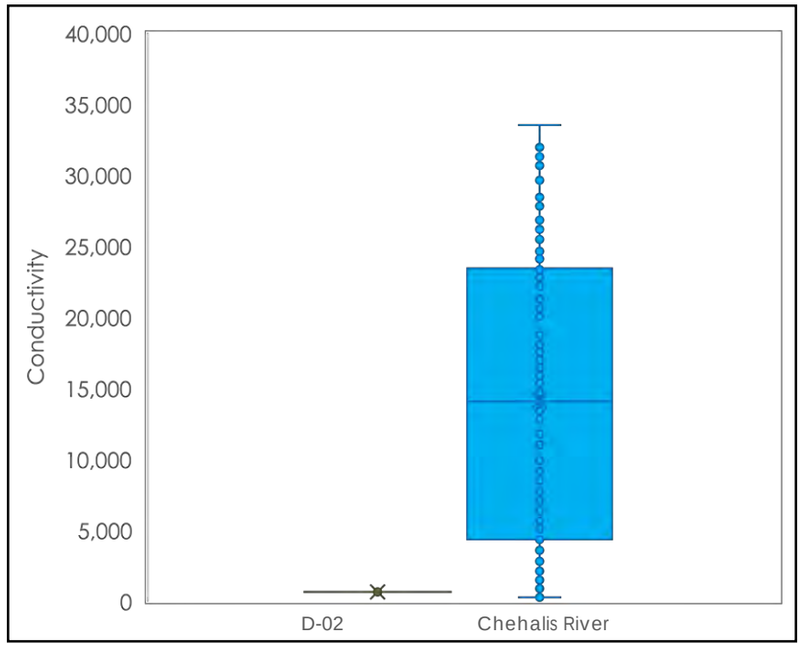
October 2020 Conductivity (uS/cm)

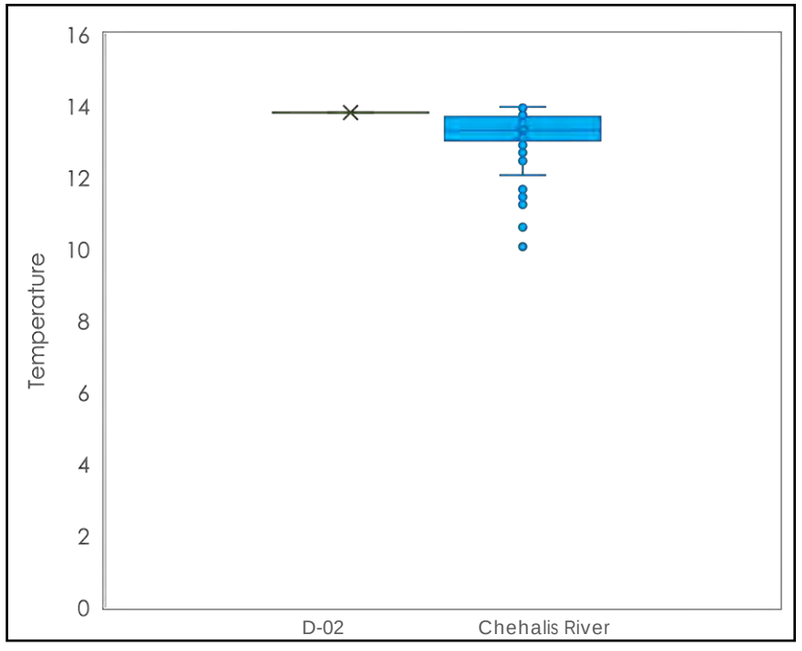


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-02
Chehalis River

M1044.02.013; 12/12/2022; Fig_2020.10 WL, Conductivity, and Temperature Plots

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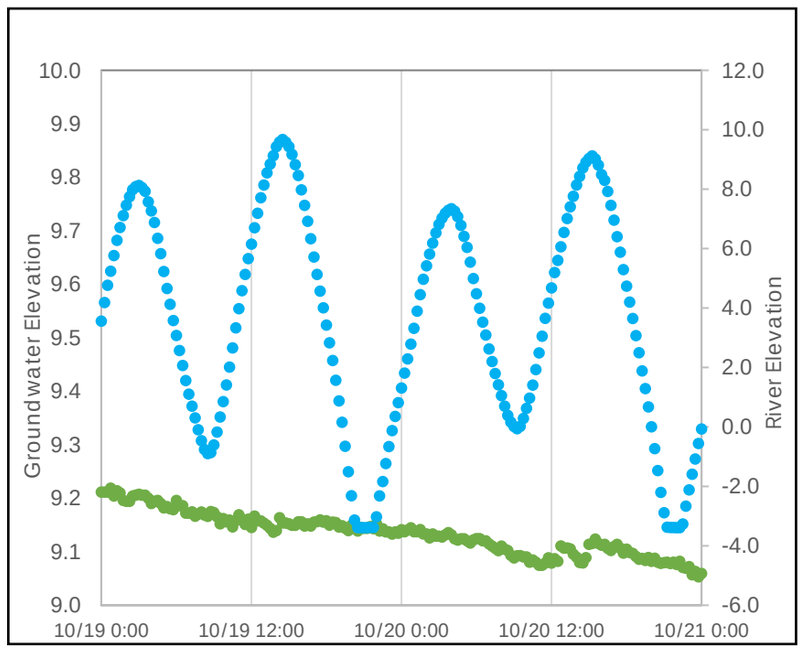
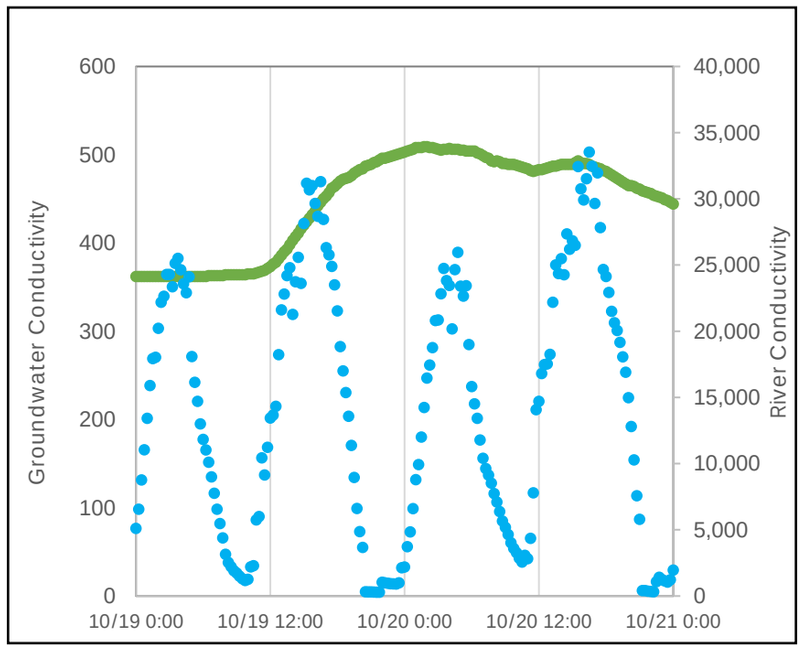
Figure A-36
D-03—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

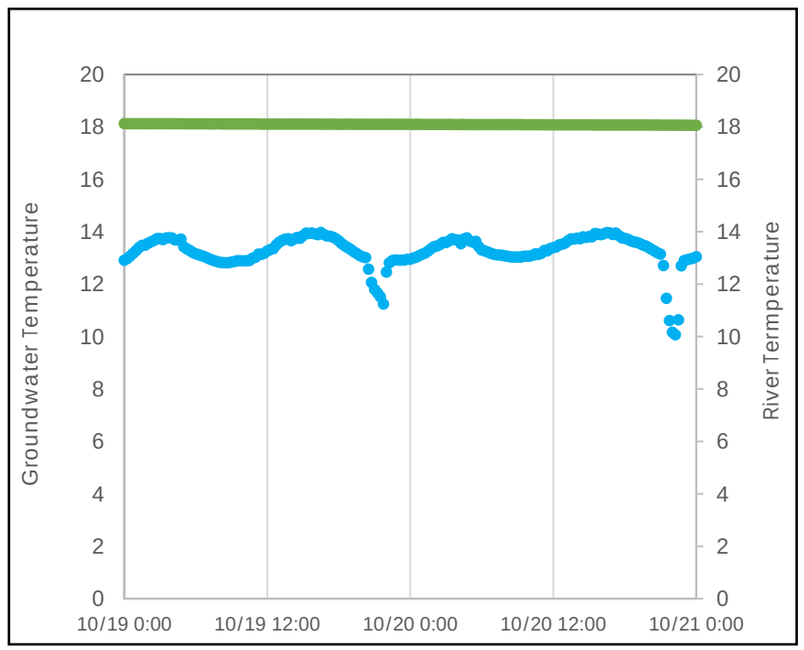
October 2020 Water Elevations (Feet NAVD 88)

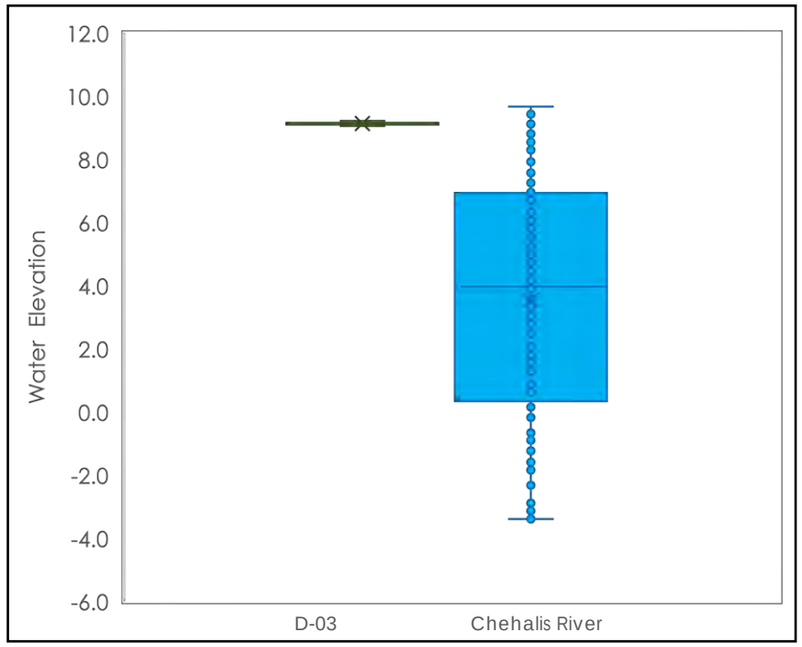


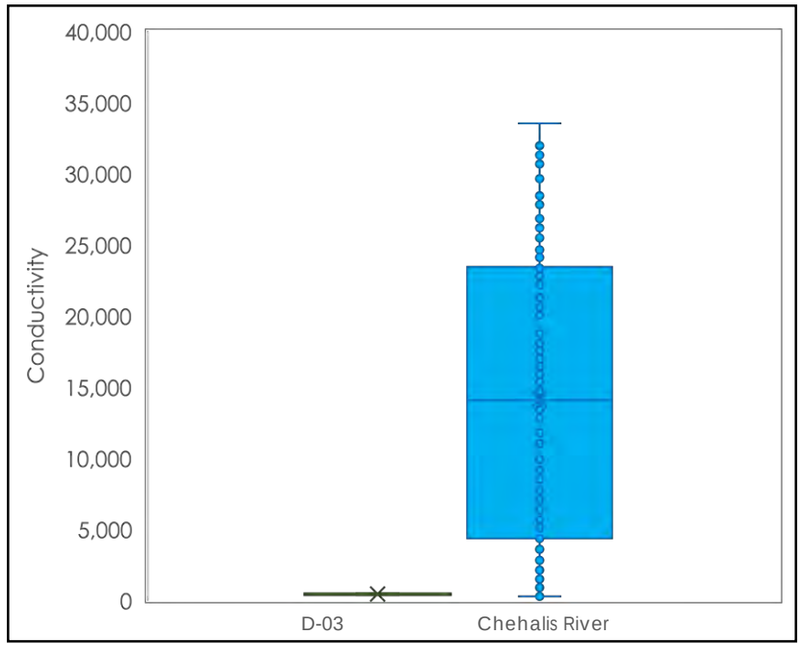
October 2020 Conductivity (uS/cm)

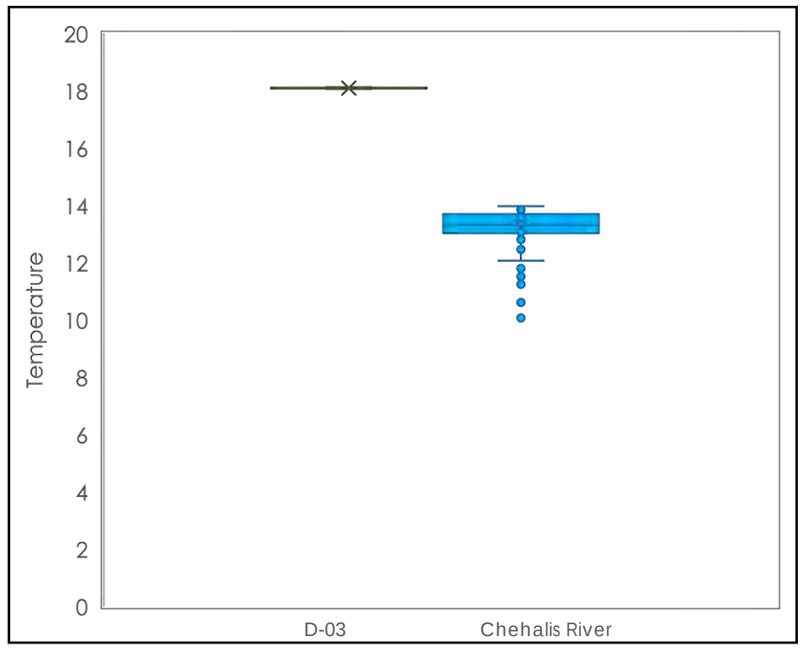


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-03
Chehalis River

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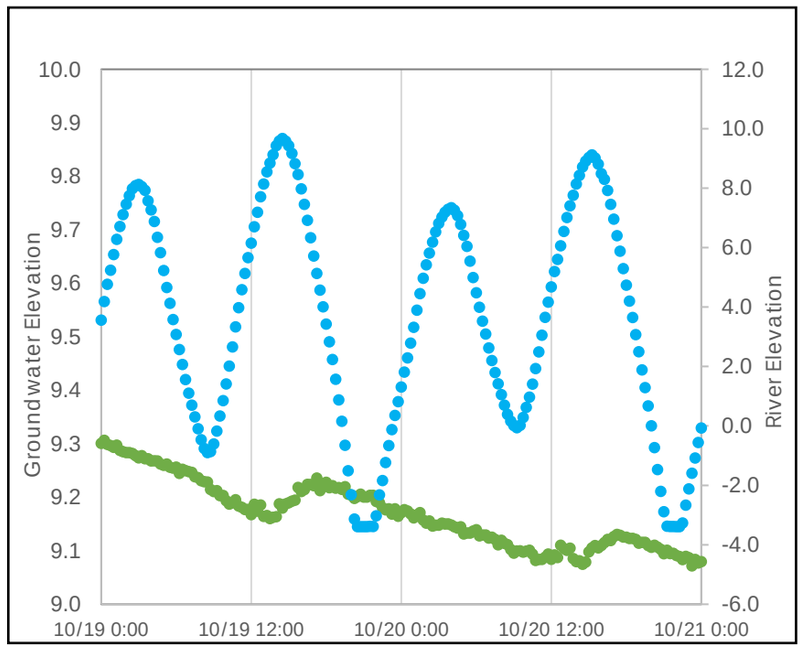
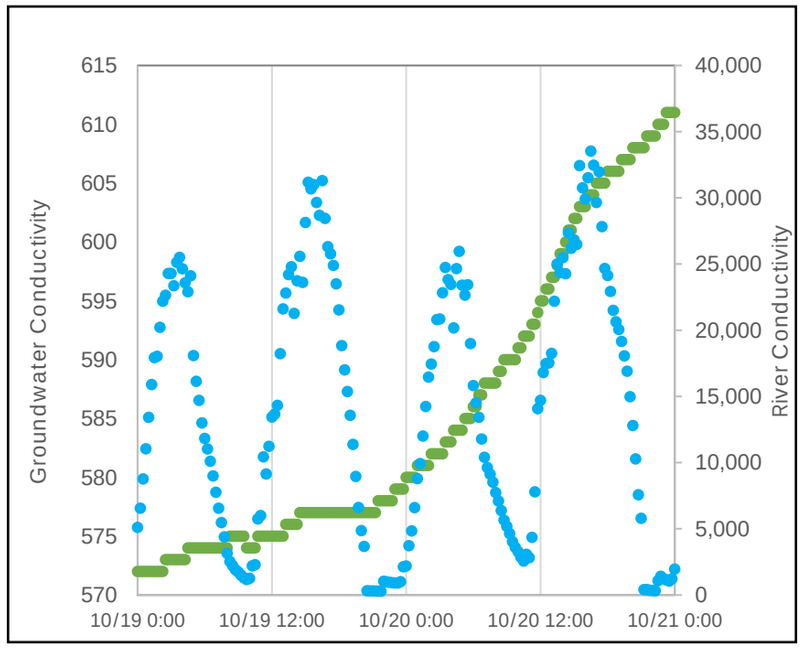
Figure A-37
D-04E—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

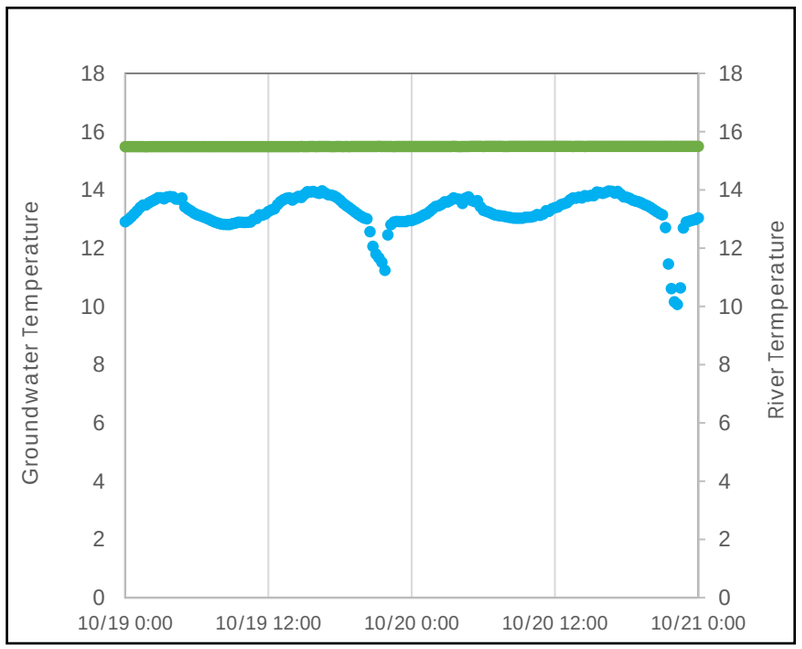
October 2020 Water Elevations (Feet NAVD 88)

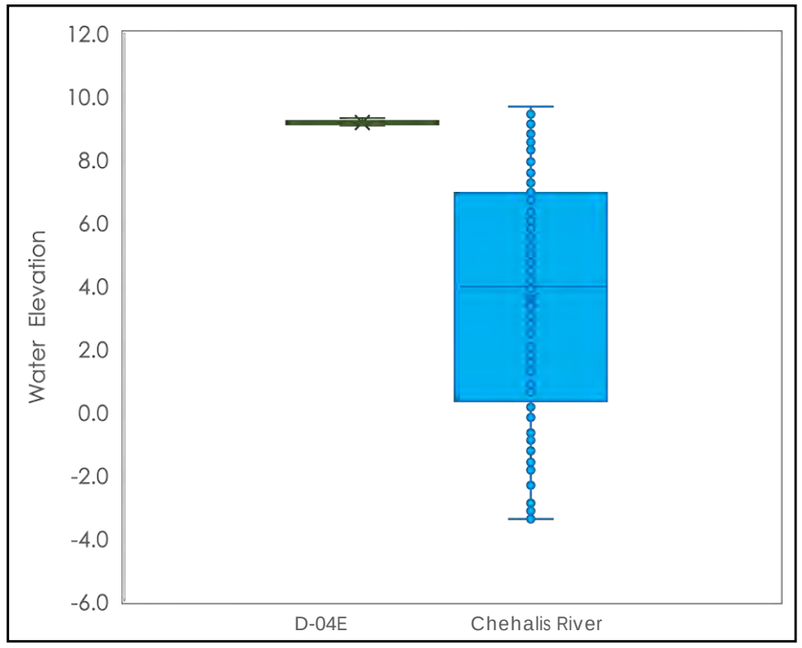


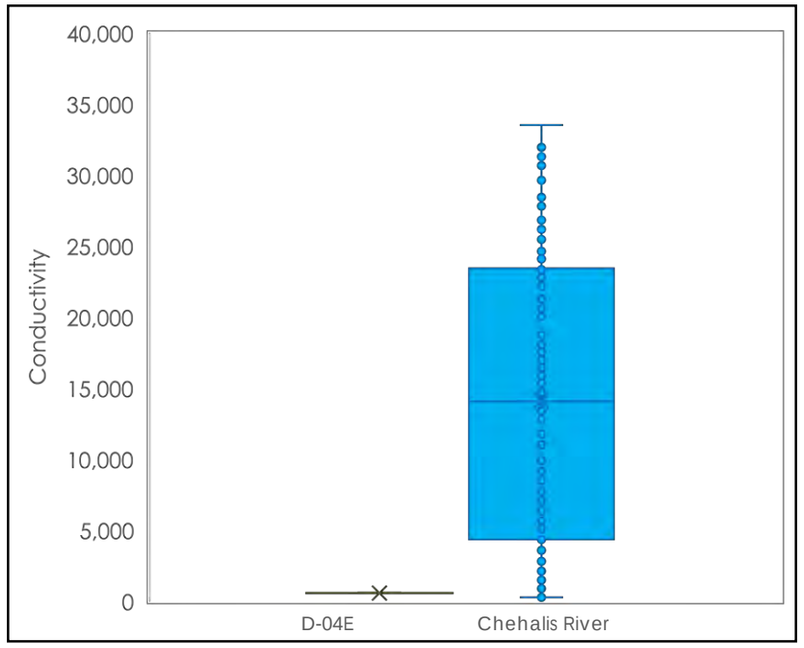
October 2020 Conductivity (uS/cm)

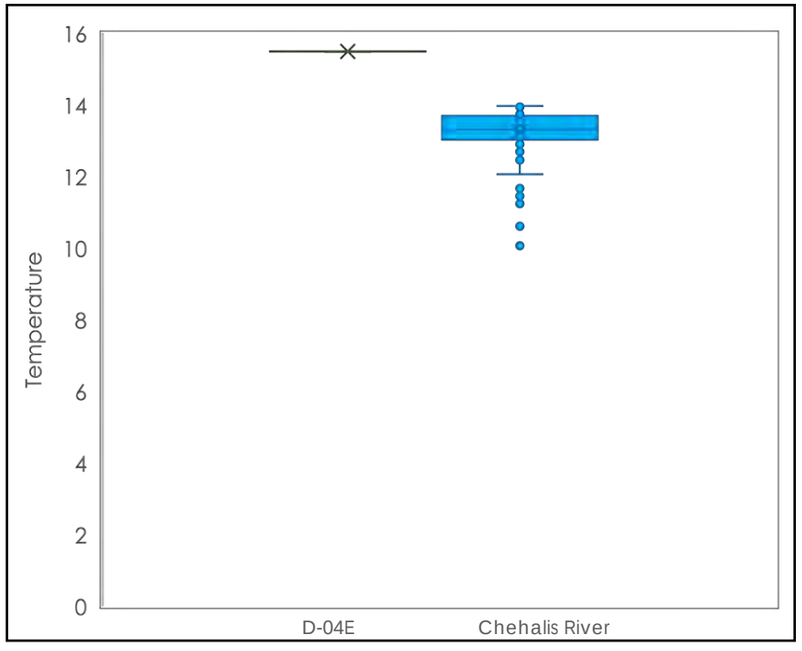


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-04E
Chehalis River

M1044.02.013; 12/12/2022; Fig_2020.10 WL, Conductivity, and Temperature Plots

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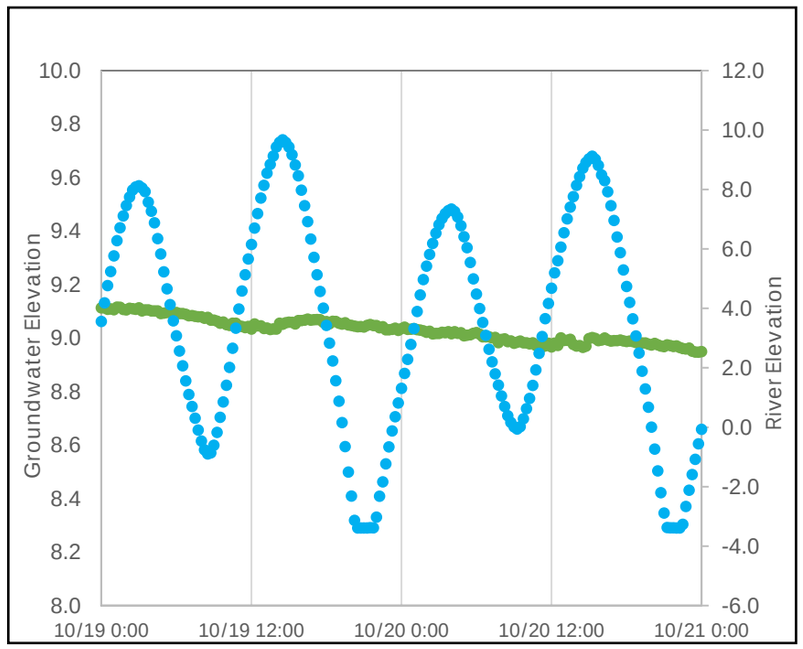
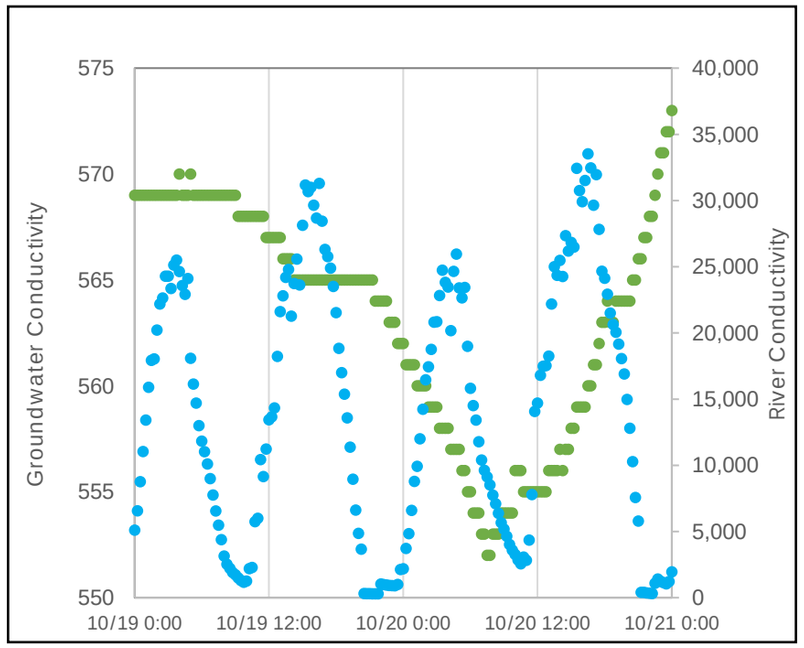
Figure A-38
D-08—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

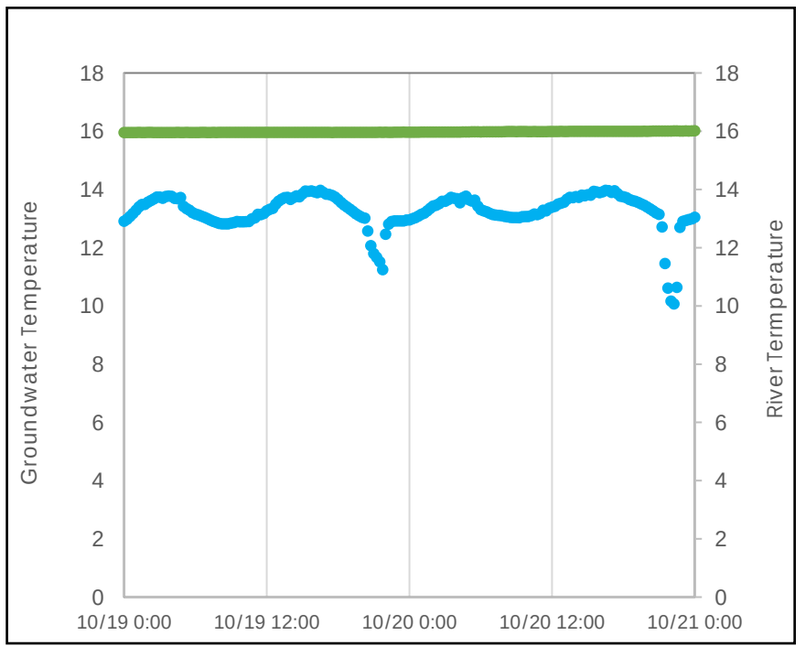
October 2020 Water Elevations (Feet NAVD 88)

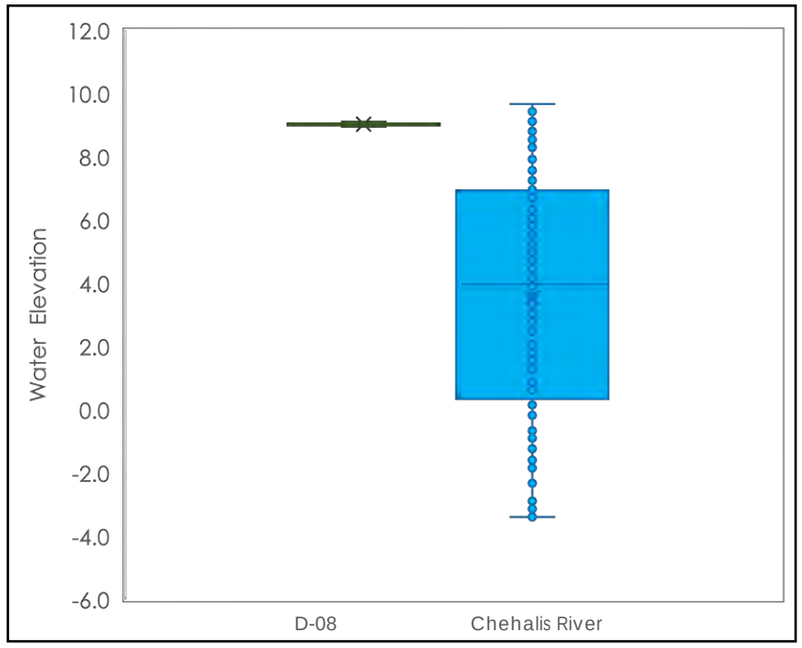


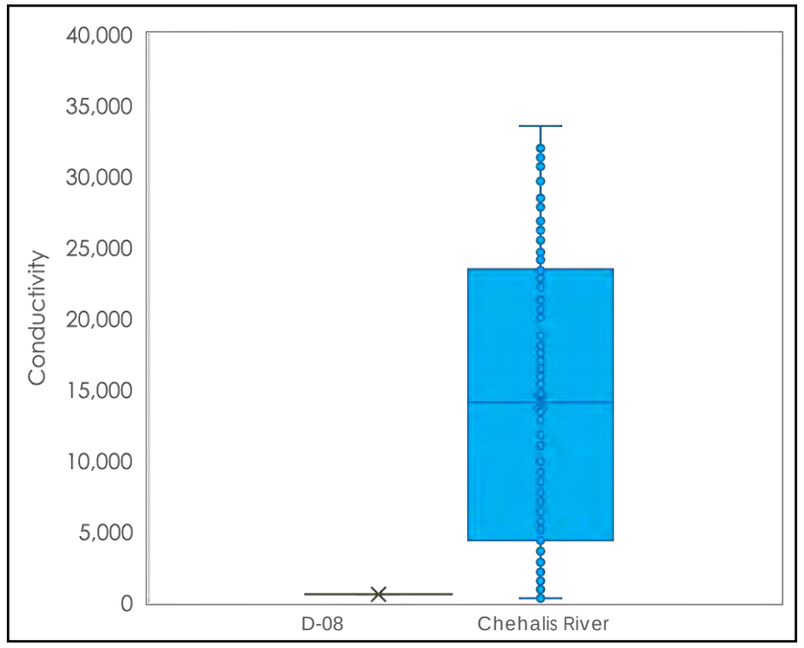
October 2020 Conductivity (uS/cm)

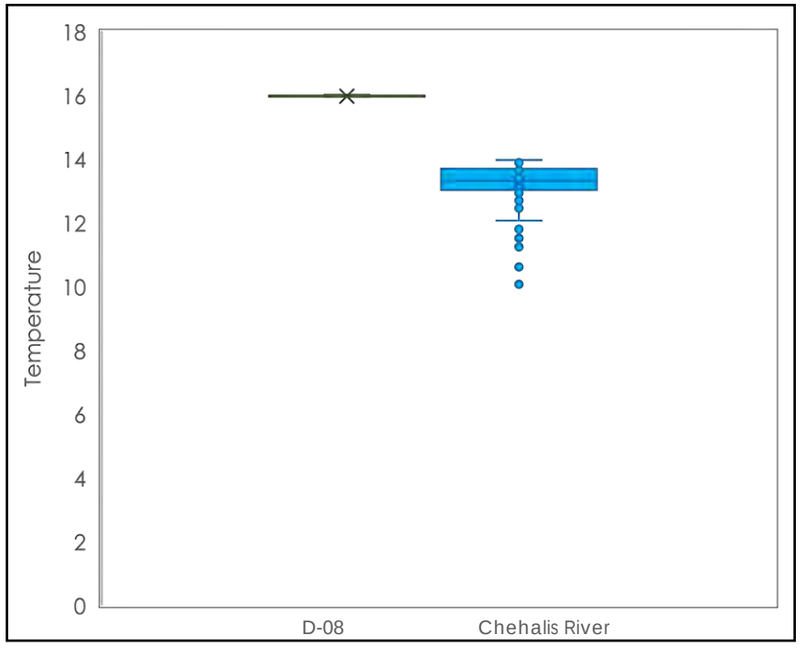


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
D-08
Chehalis River

M1044.02.013; 12/12/2022; Fig_2020.10 WL, Conductivity, and Temperature Plots

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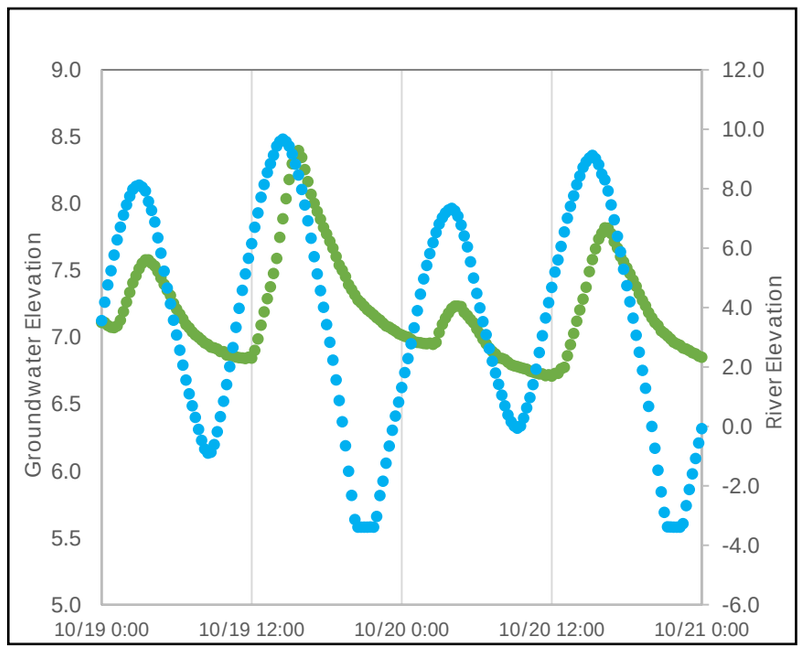
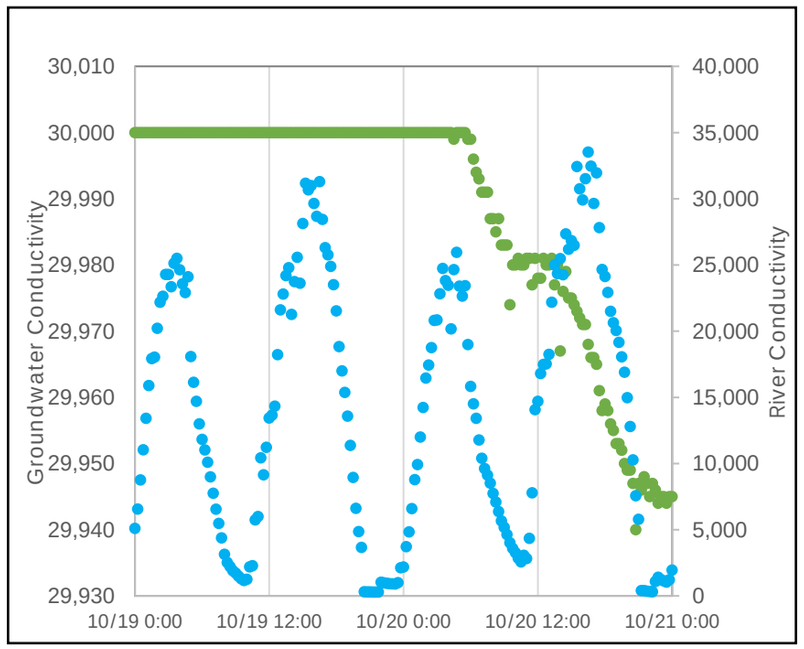
Figure A-39
RAU2-08—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

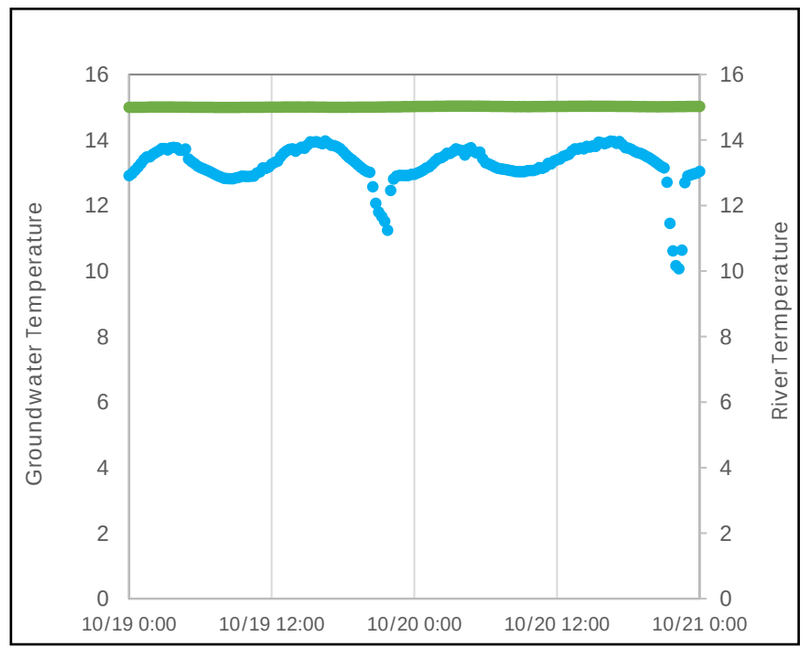
October 2020 Water Elevations (Feet NAVD 88)

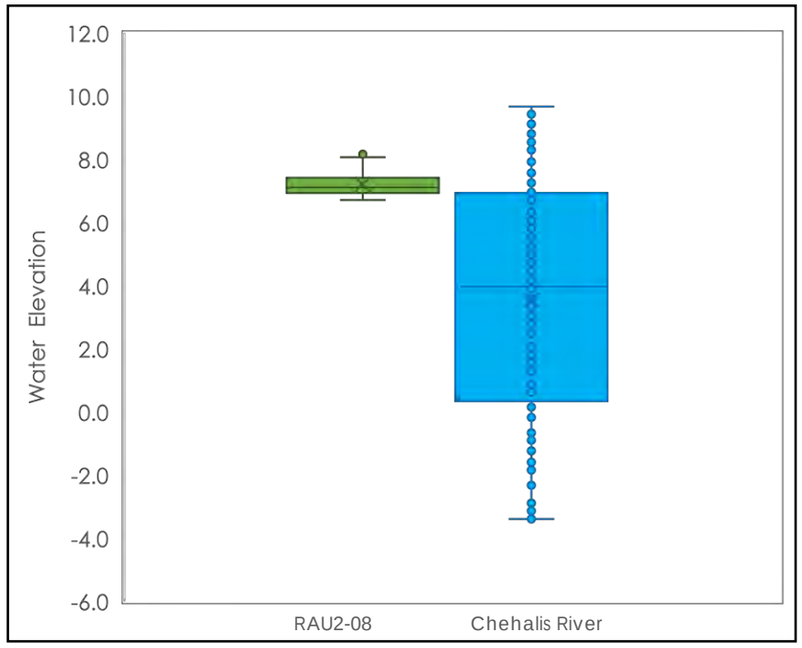


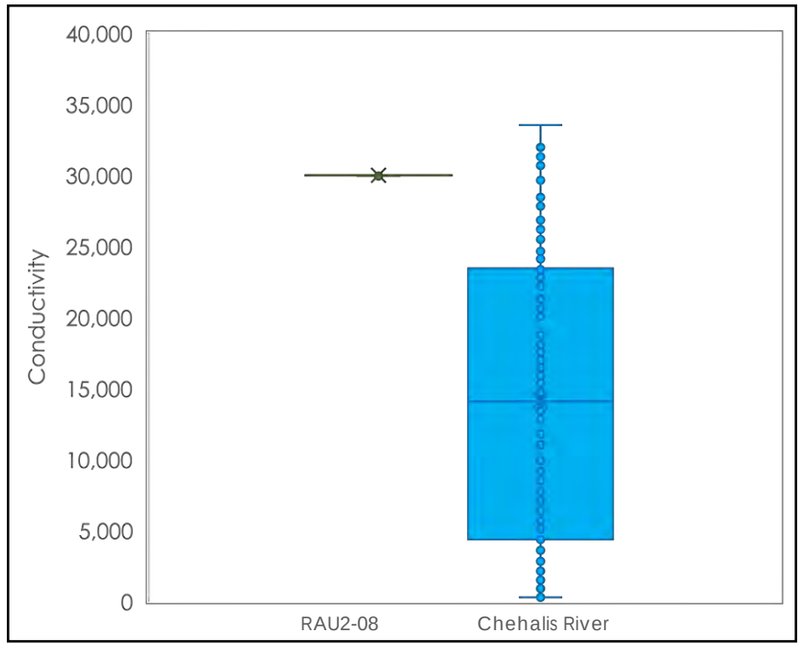
October 2020 Conductivity (uS/cm)

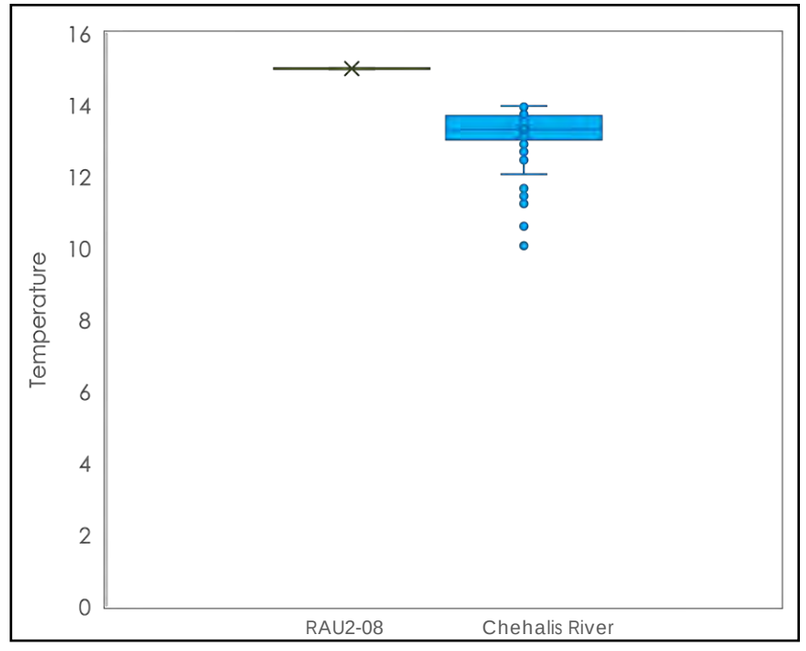


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU2-08
Chehalis River

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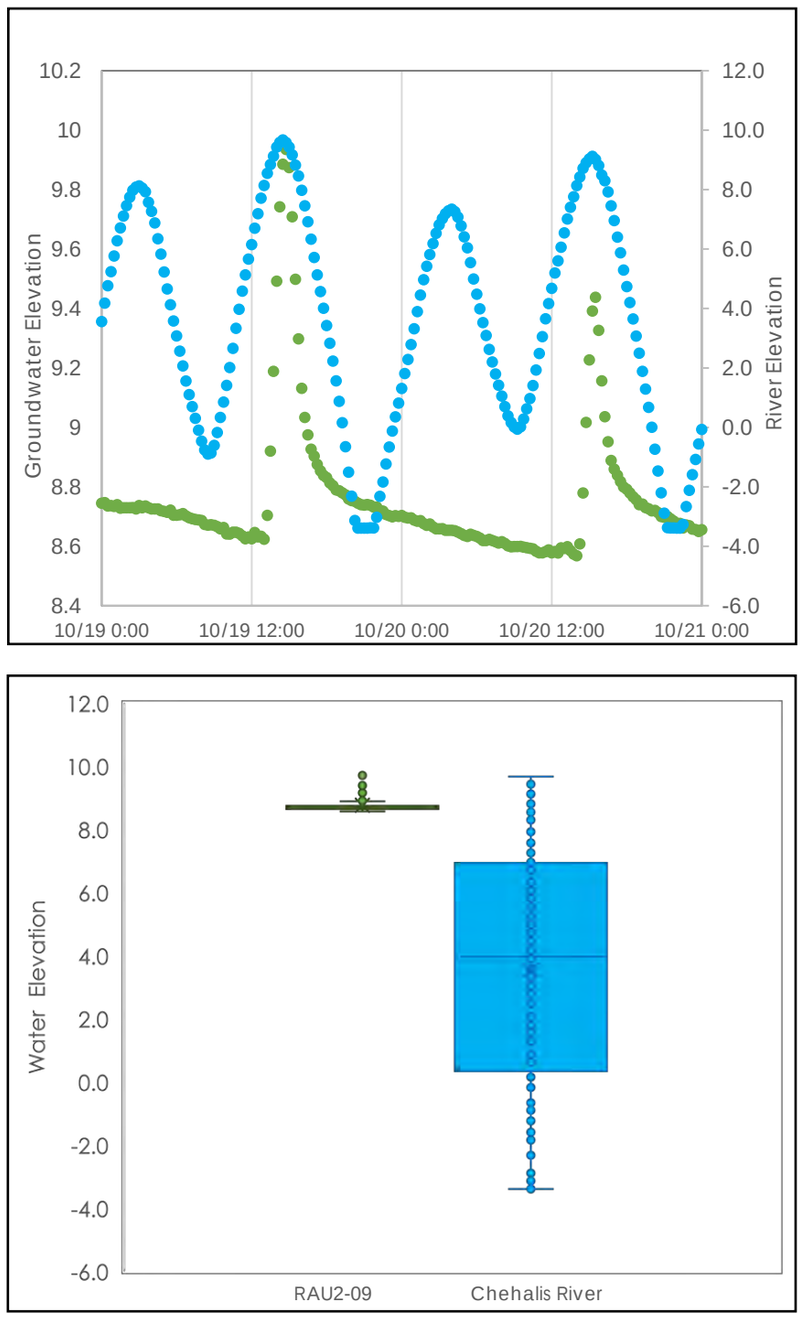
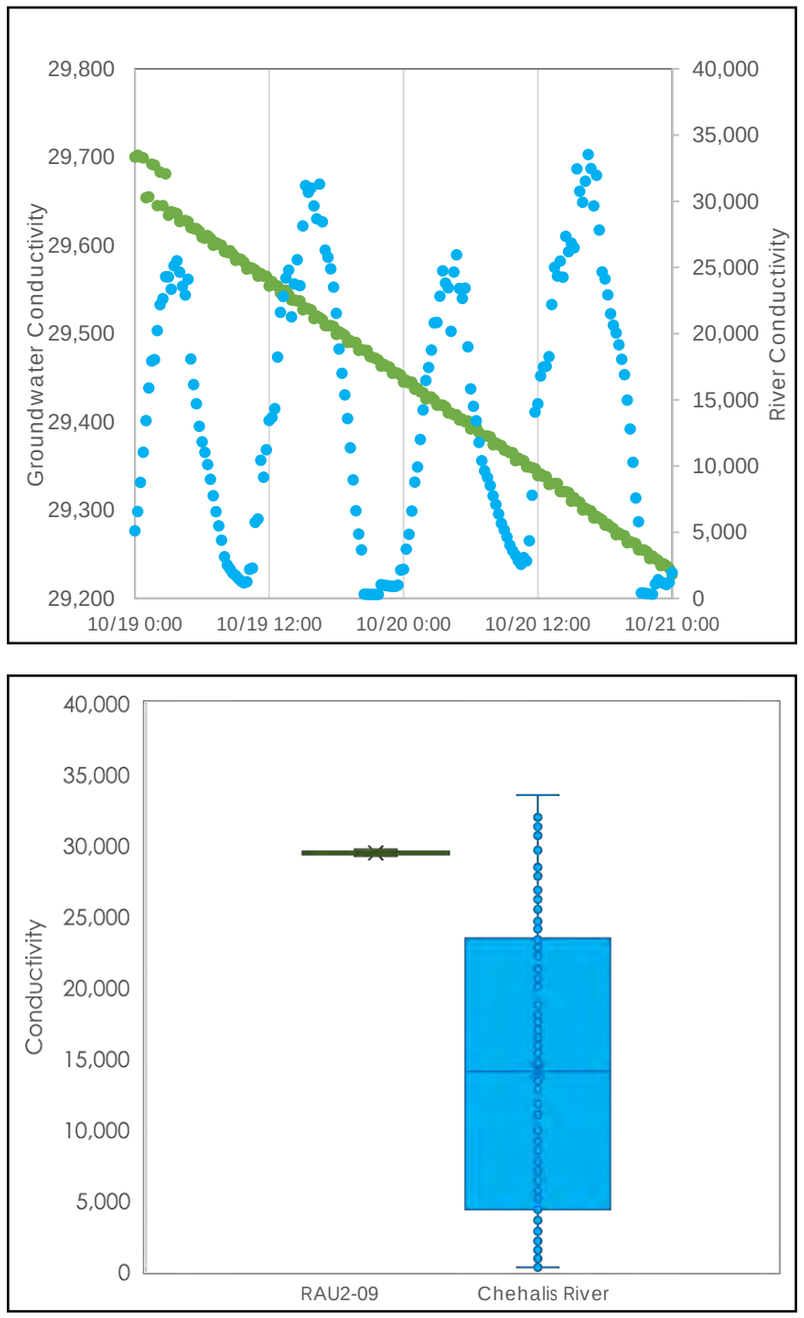
Figure A-40
RAU2-09—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

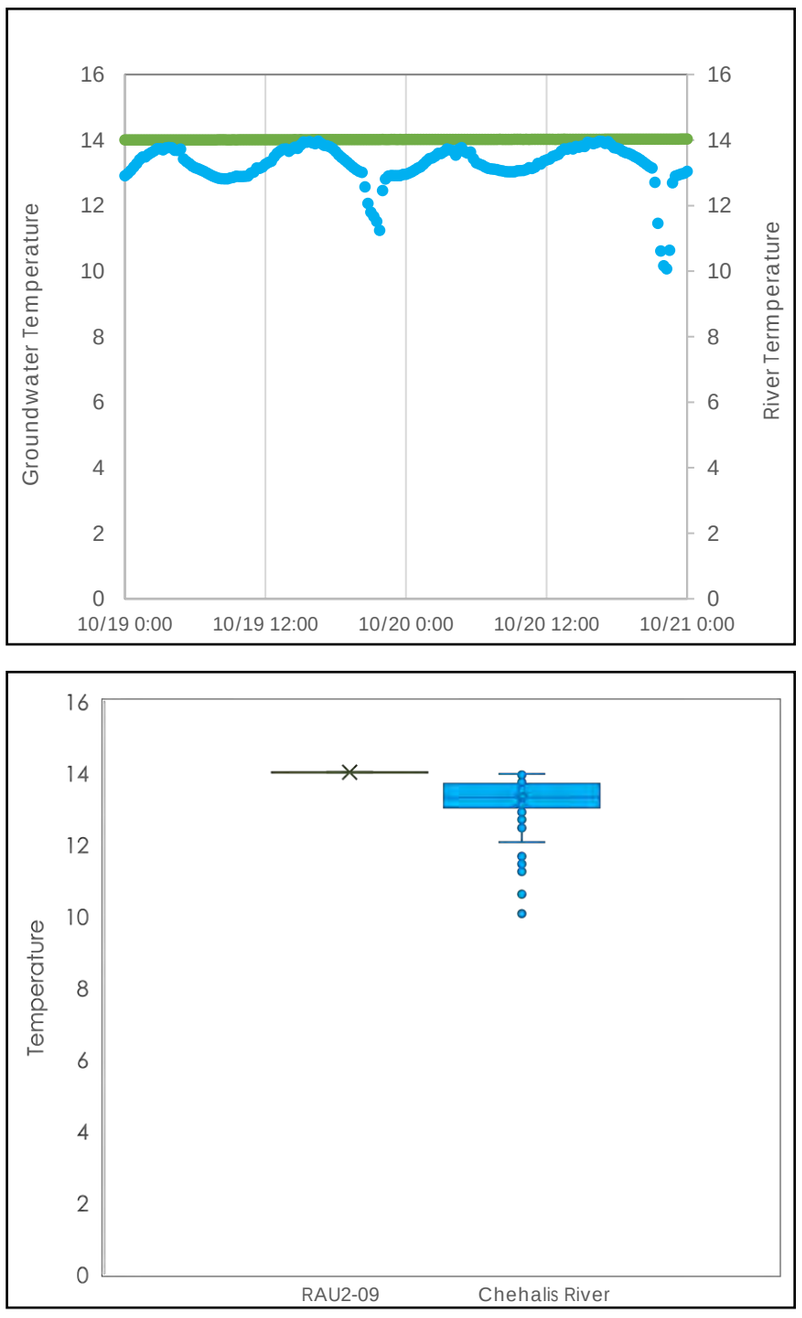
October 2020 Water Elevations (Feet NAVD 88)



October 2020 Conductivity (uS/cm)



October 2020 Temperature (°C)



Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU2-09
Chehalis River

M1044.02.013; 12/12/2022; Fig_2020.10 WL, Conductivity, and Temperature Plots

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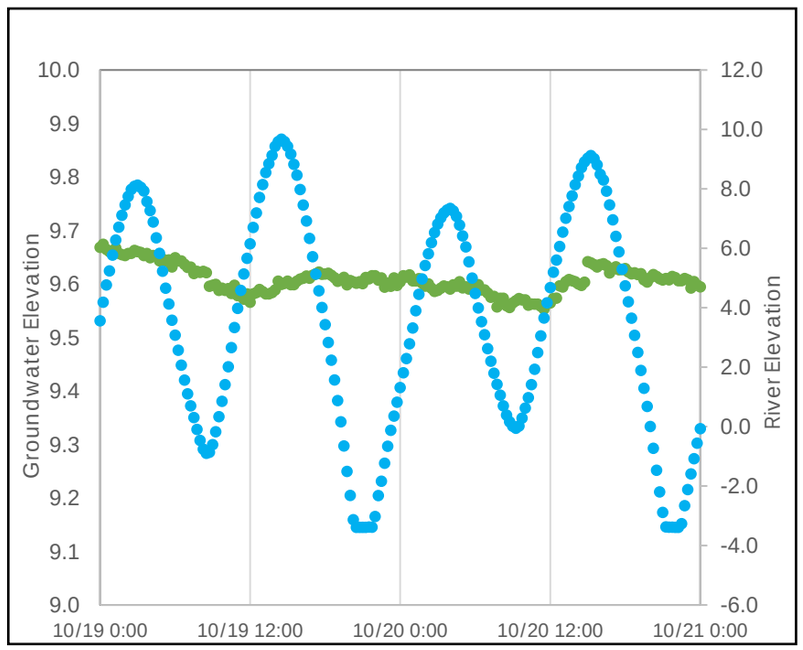
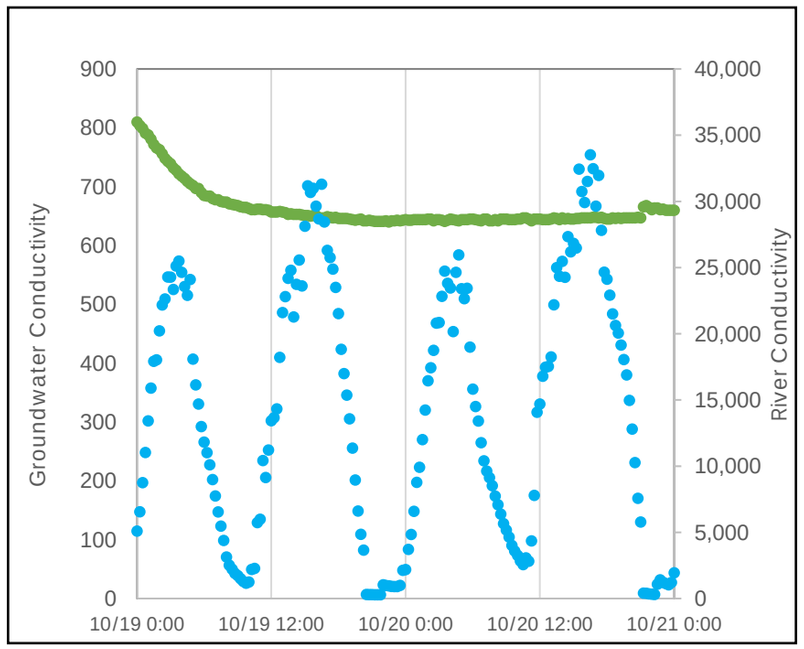
Figure A-41
RAU3-03—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

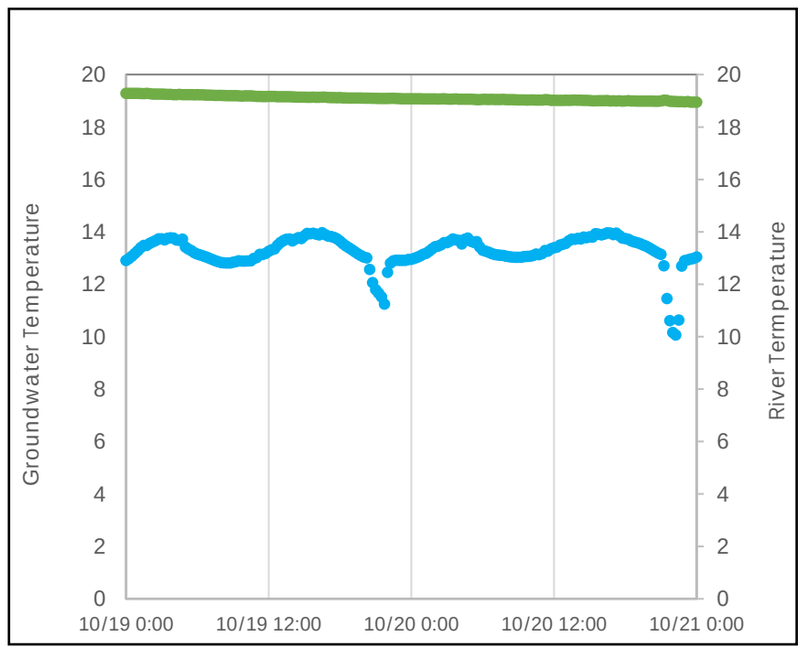
October 2020 Water Elevations (Feet NAVD 88)

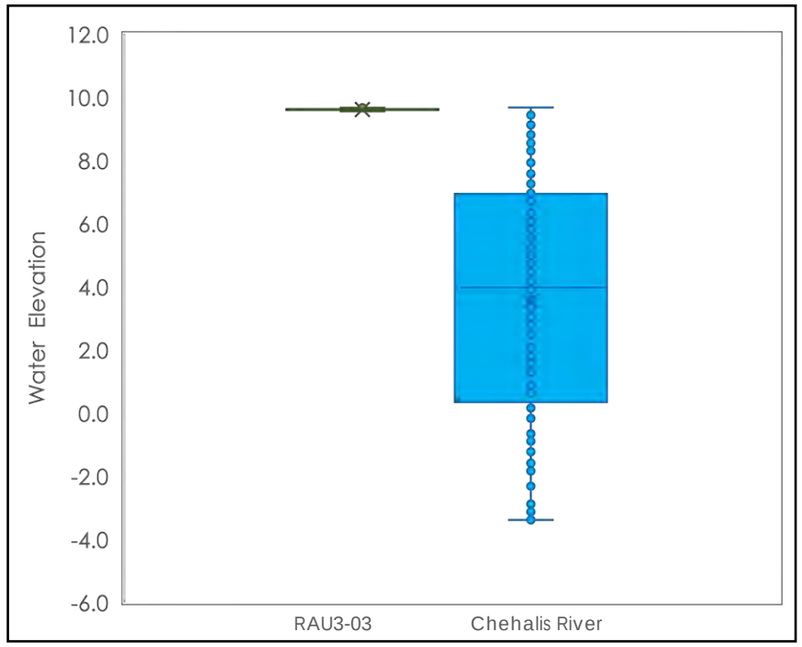


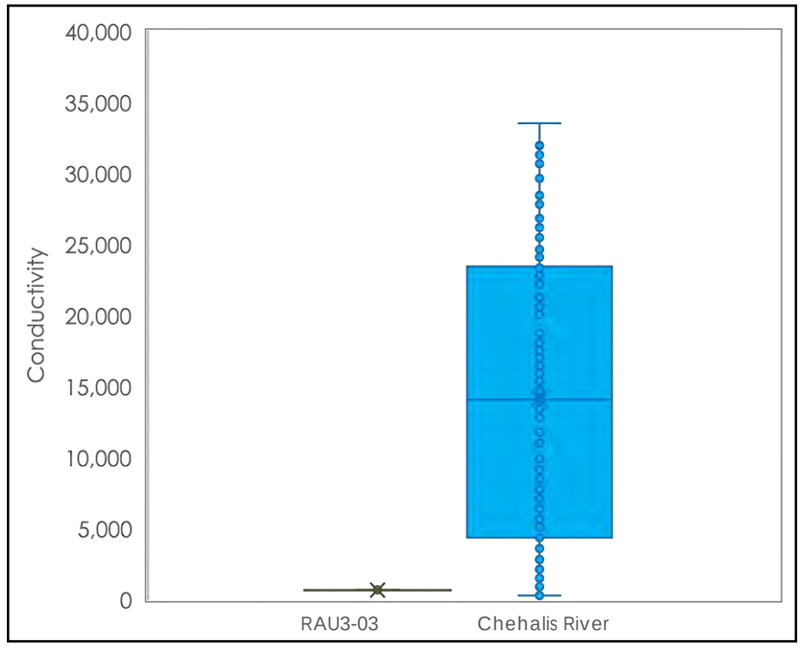
October 2020 Conductivity (uS/cm)

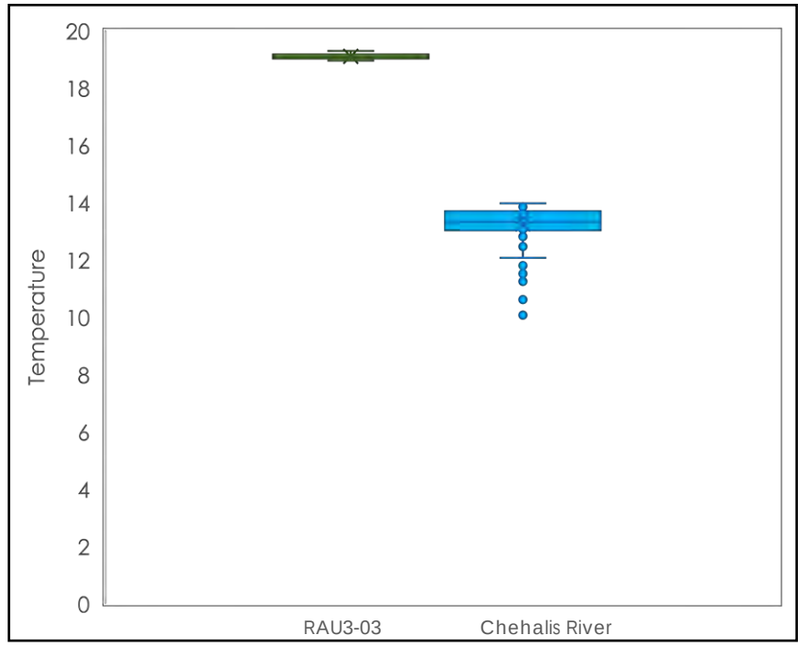


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU3-03
Chehalis River

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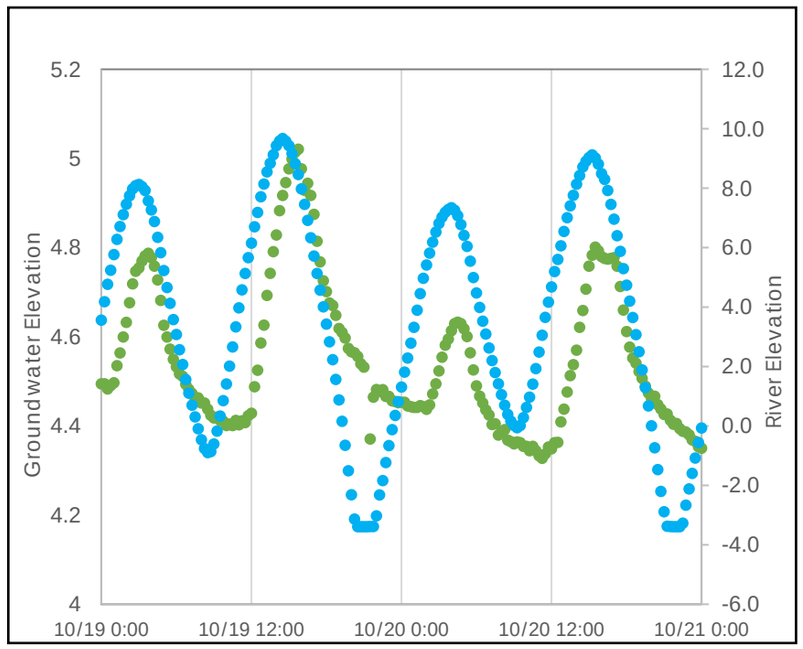
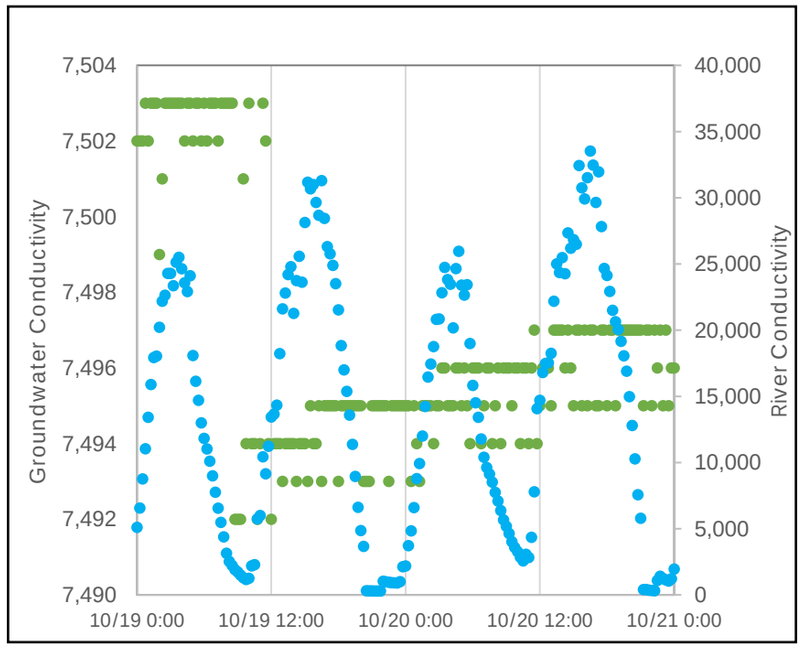
Figure A-42
RAU4-12—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

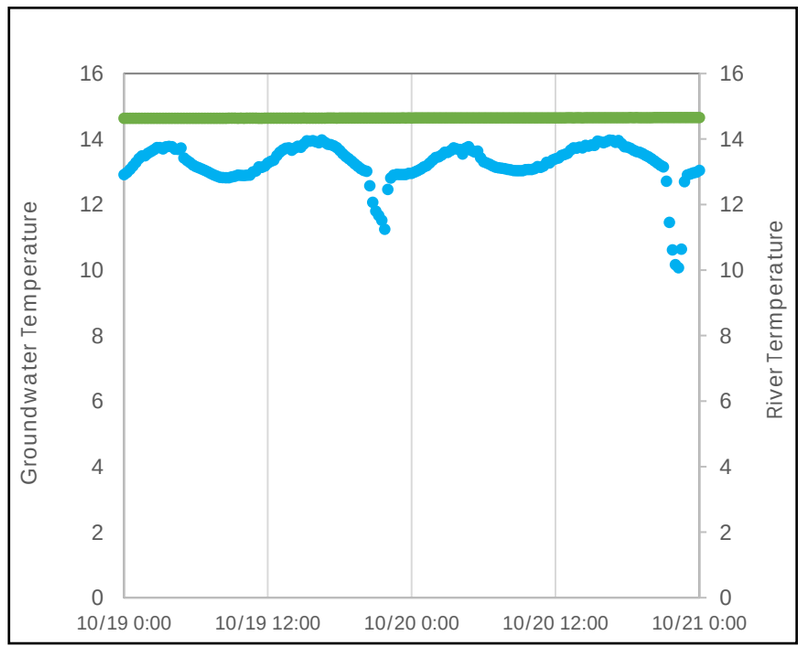
October 2020 Water Elevations (Feet NAVD 88)

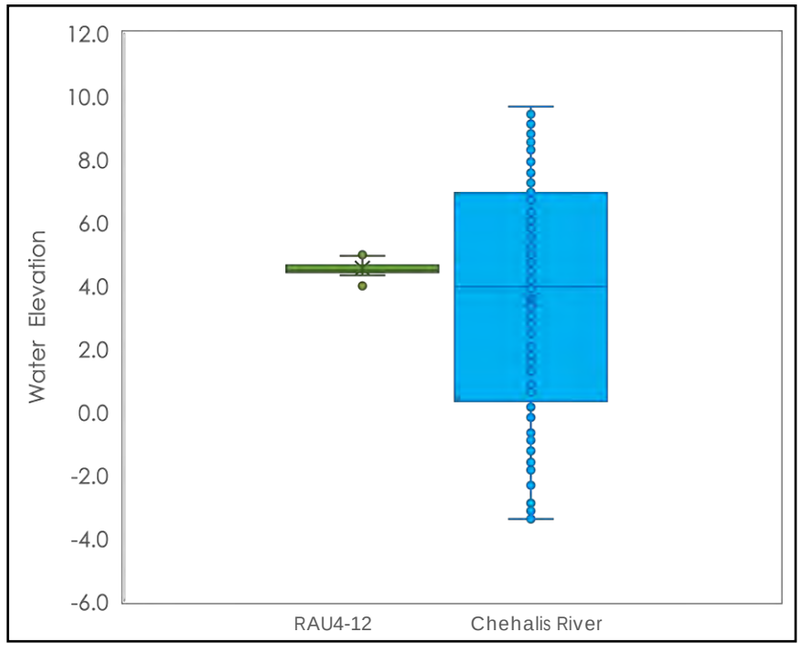


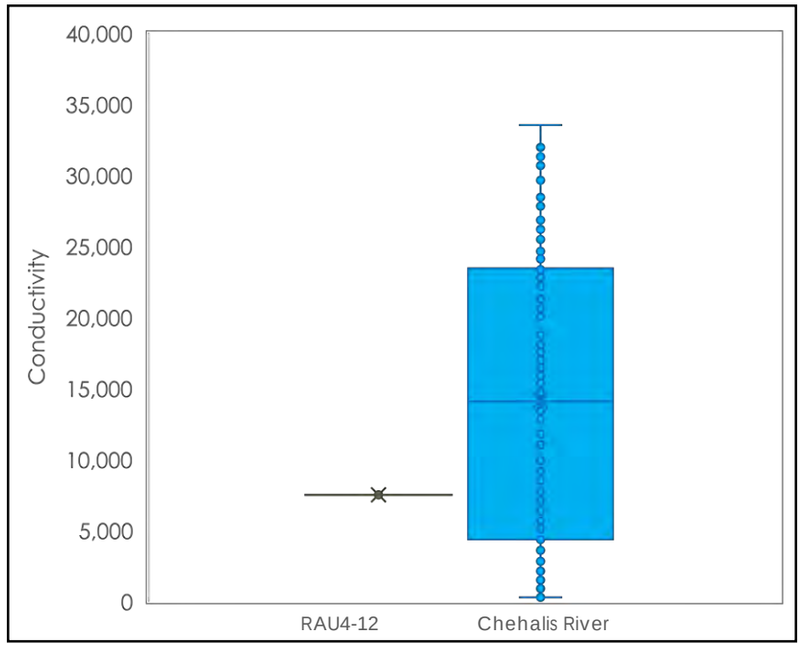
October 2020 Conductivity (uS/cm)

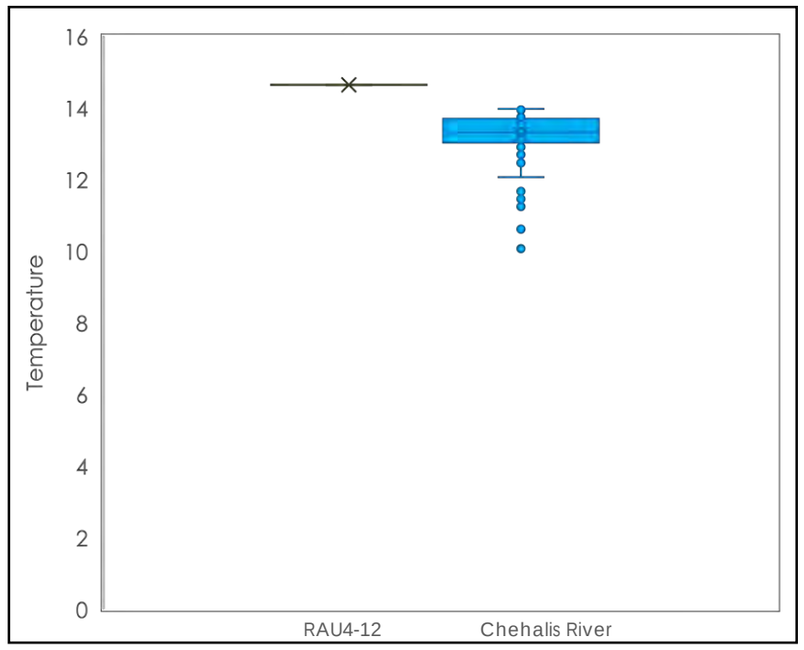


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

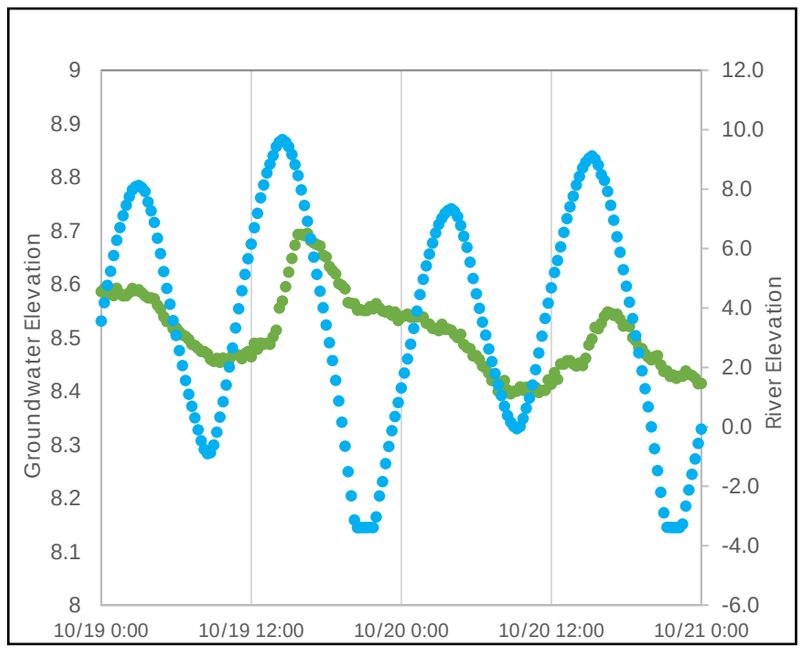
Legend
RAU4-12
Chehalis River

MAUL FOSTER ALONGI

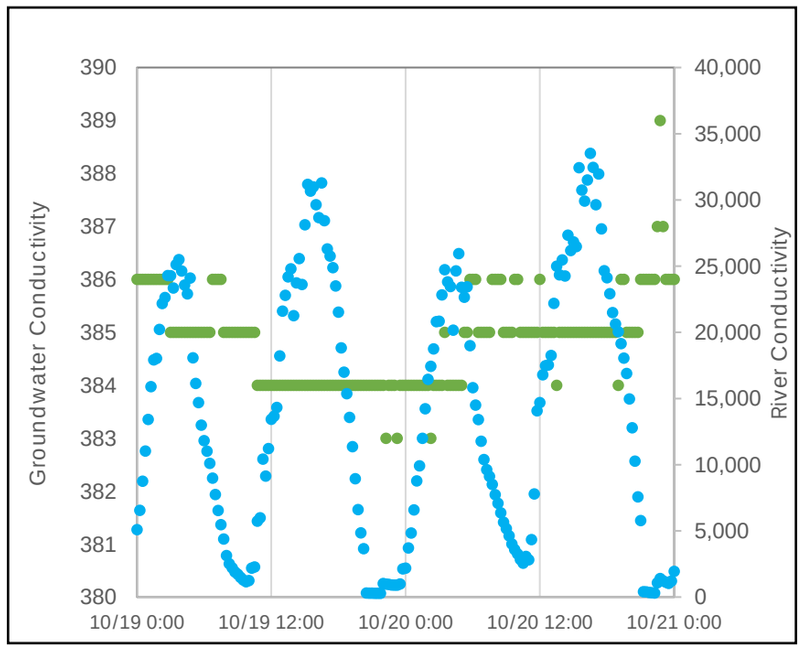
DRAFT

Figure A-43
RAU4-UNK—October 020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

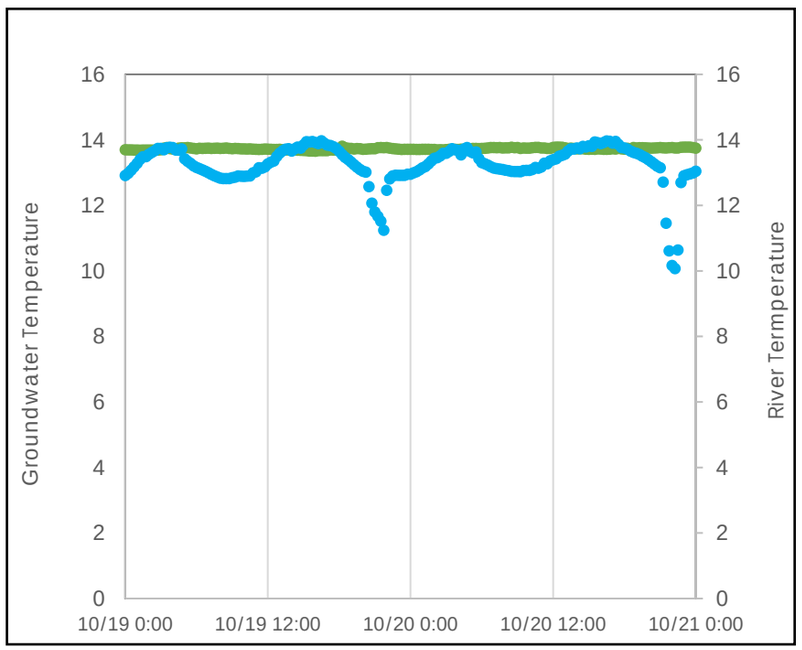
October 2020 Water Elevations (Feet NAVD 88)

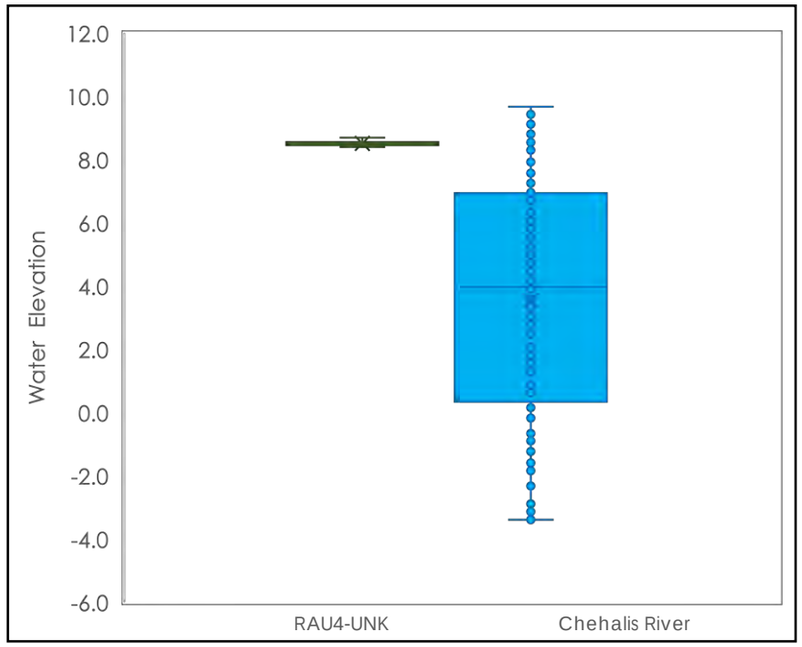


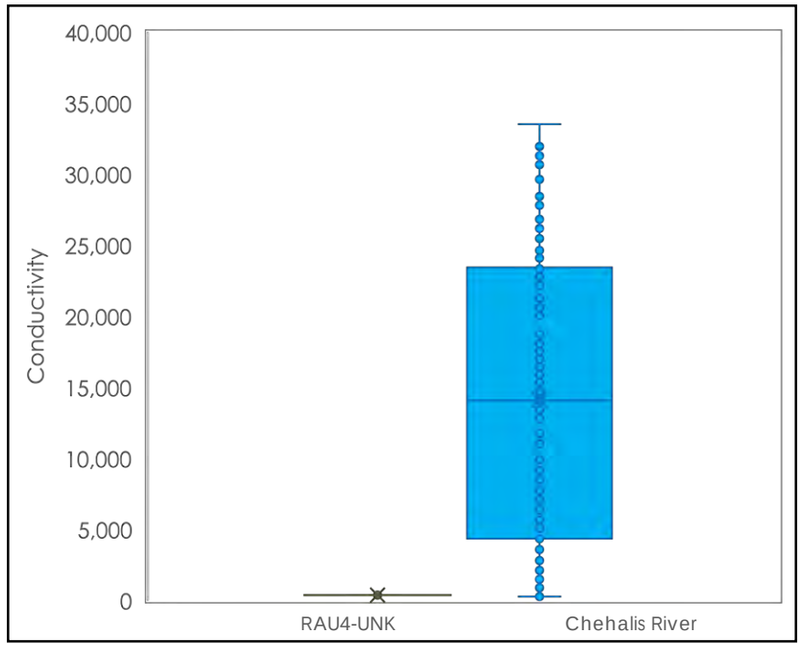
October 2020 Conductivity (uS/cm)

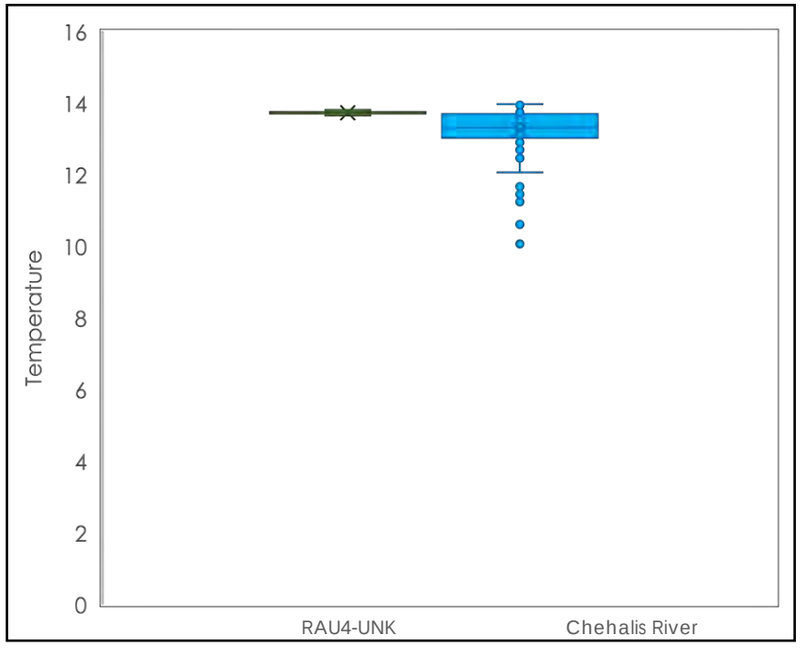


October 2020 Temperature (°C)









Notes:
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°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU4-UNK
Chehalis River

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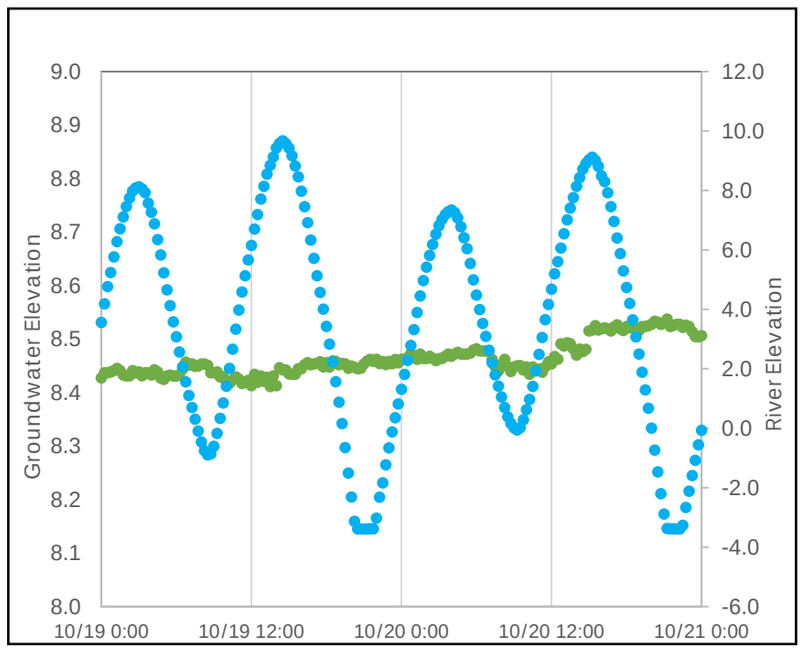
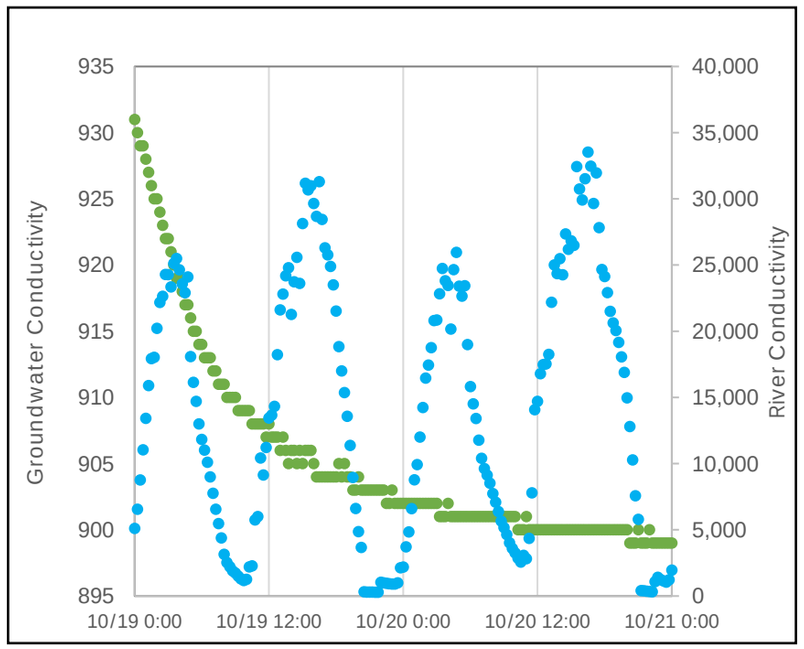
DRAFT

Figure A-44
RAU6-02—October 2020 Groundwater Compared to River Elevations, Conductivity, and Temperature
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Aberdeen, Washington

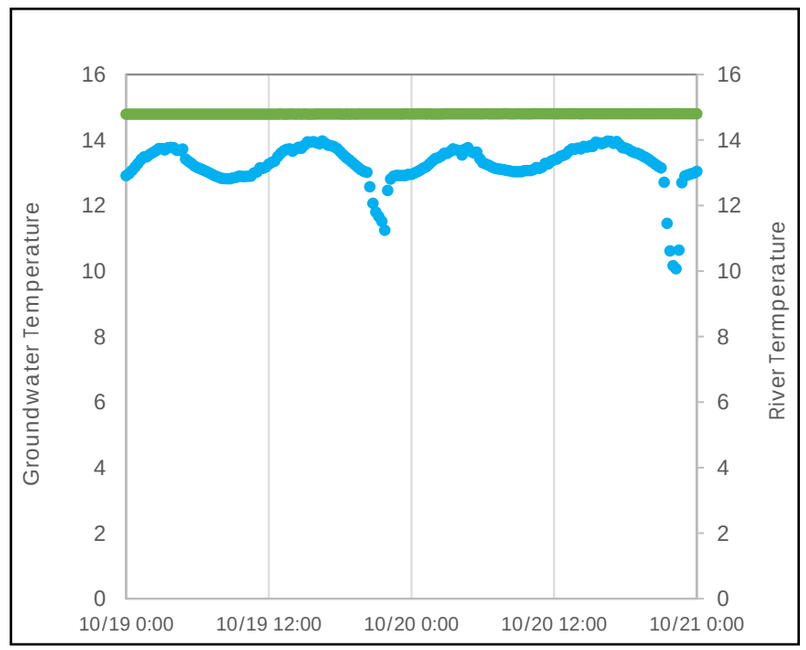
October 2020 Water Elevations (Feet NAVD 88)

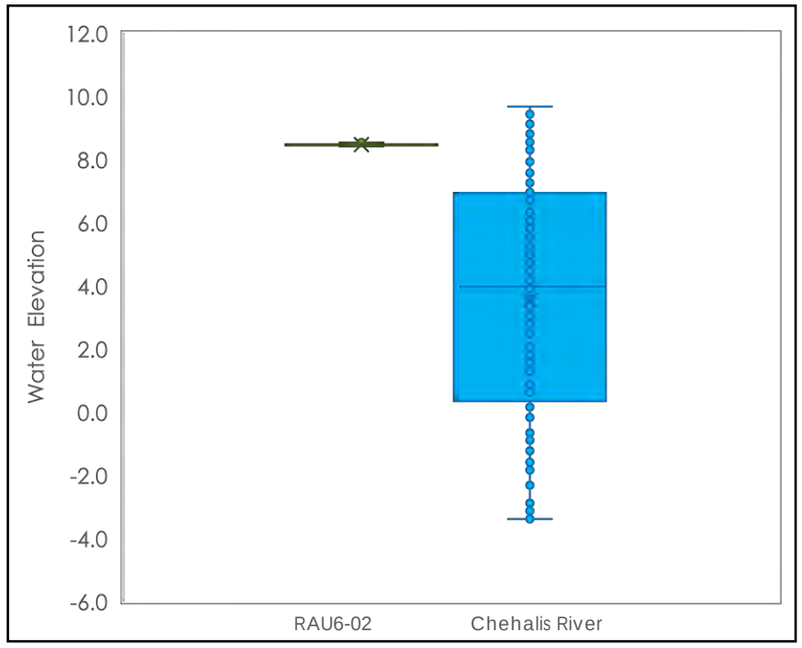


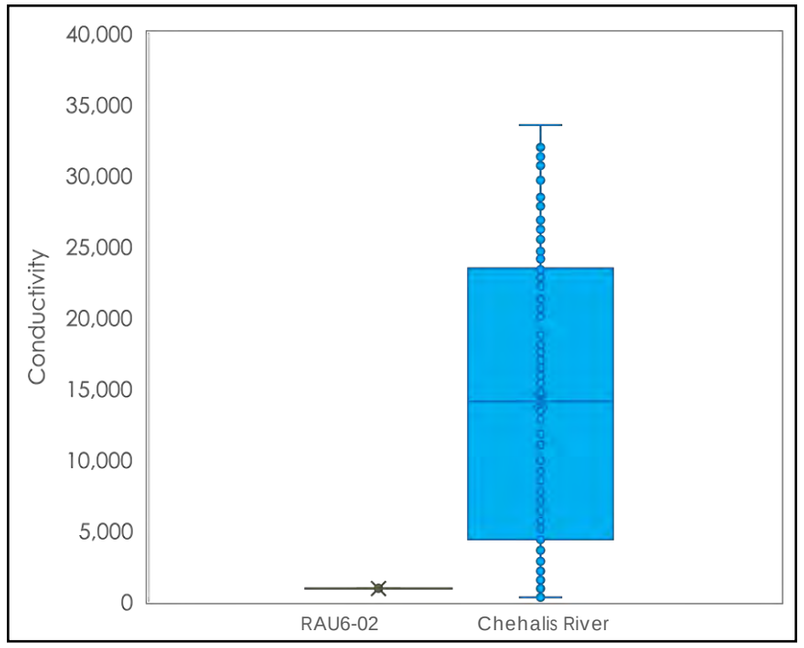
October 2020 Conductivity (uS/cm)

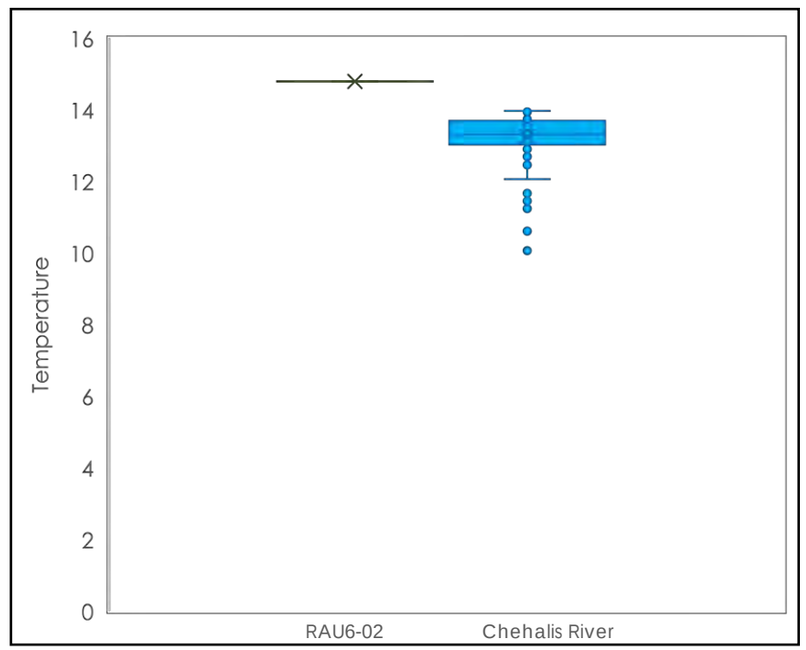


October 2020 Temperature (°C)









Notes:
Data shown above were collected from 0:00 on October 19, 2020, to 0:00 on October 21, 2020.
°C = degrees Celsius.
NAVD 88 = North American Vertical Datum of 1988.
uS/cm = microsiemens per centimeter.

Legend
RAU6-02
Chehalis River

APPENDIX F

SIMPLIFIED TERRESTRIAL ECOLOGICAL EVALUATION

MEMORANDUM

To:	Tom Middleton, LHG Washington State Department of Ecology	Date:	April 1, 2022
From:	Phil Wiescher, PhD Emily Hess, LHG	Project No.:	M1044.02.013

RE: Final Simplified Terrestrial Ecological Evaluation
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
Ecology Cleanup Site ID 4987, Agreed Order ID 11225

On behalf of Grays Harbor Historical Seaport Authority, Maul Foster & Alongi, Inc., has prepared this terrestrial ecological evaluation (TEE) for the upland portions of the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site (the Site), following the procedures outlined in Washington Administrative Code (WAC) 173-340-7490 through 173-340-7492. The Site is listed on the Washington Department of Ecology's database as Facility Site ID 1126/Cleanup Site ID 4987.

The TEE process is required at all Model Toxics Control Act sites where there has been a release or threatened release of a hazardous substance that may pose a threat to human health or the environment. The TEE procedure is structured with the intent of protecting terrestrial wildlife at industrial and commercial sites and protecting terrestrial plants, soil biota, and terrestrial wildlife at other sites, as provided under WAC 173-340-7490(3)(b). The purpose of this TEE is to present information to evaluate the ecological protectiveness of current and future conditions at the Site (see WAC 173-340-7490(1)(b)).

A TEE form documenting and summarizing the evaluation steps is provided as Attachment A. A simplified TEE exposure analysis procedure was conducted using Table 749-1 (Attachment B). The attached table is a modified version of Table 749-1 that provides the rationale of the scores entered on Attachment B. The attached figure estimates the area of contiguous undeveloped land on the Site.

Based on the evaluation, the Site qualifies for a simplified TEE because current or planned land use makes wildlife exposure unlikely (WAC 173-340-7492[2][a]). The simplified TEE analysis indicates the Site does not have a substantial potential for posing a threat of significant adverse effects to terrestrial ecological receptors and may be removed from further ecological consideration during the remedial investigation and cleanup process. Therefore, as part of the remedial investigation being conducted for the Site as required by Agreed Order ID 11225, soil cleanup level development will not include TEE ecological indicator concentrations.

ATTACHMENTS

Table
Figure
Attachment A – Terrestrial Ecological Evaluation Form
Attachment B – Table 749-1: Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

TABLE



Table
Simplified TEE Scoresheet
Grays Harbor Historical Seaport Authority Site
Aberdeen, Washington

Line Number	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	8	The total area of contiguous undeveloped land associated with the site is approximately 1.79 acres (see figure).
2	Is this an industrial or commercial property? If yes, enter a score of 3. If no, enter a score of 1.	3	The site is zoned as industrial.
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	The site is highly developed. Undeveloped areas of the site are primarily ruderal vegetation and grasses. According to the Critical Areas Report prepared by Grette Associates in 2019, there are no records of rare plants or high quality native ecosystems occurring on or in the vicinity of the property.
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 and is surrounded by active industrial/residential development. There is much suitable habitat for urban wildlife to the east of the site on less developed, previous industrial land and directly north on undeveloped land across the Chehalis River.
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	Chlorinated dioxins/furans, PCB mixtures, and pentachlorophenol have been detected in soil in the upland portion of the site.
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 8.

NOTES:
Table adapted from Model Toxics Control Act Table 749-1.
PCB = polychlorinated biphenyl.
TEE = terrestrial ecological evaluation.

FIGURE



Path: X:\1044_02_13\Projects\Fig_Undev_Land_for_TEE.mxd
Print Date: 3/31/2022
Approved By:
Produced By: jelstrott
Project: 1044.02.13



Source: Aerial photograph obtained from Esri ArcGIS Online.

NOTE:
OHWM = Ordinary High Water Mark, as determined from Grette Associates LLC critical areas report dated October 2019.

Legend

- Contiguous Undeveloped Land Above OHWM
- Seaport Authority Property Boundary
- Approximate Ordinary High Water Mark

Figure
Contiguous Undeveloped Land for Terrestrial Ecological Evaluation

Aberdeen, Washington

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This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

GRAYS HARBOR HISTORICAL SEAPORT

0 100 200
Feet

ATTACHMENT A

TERRESTIAL ECOLOGICAL EVALUATION FORM

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Weyerhaeuser Sawmill Aberdeen/Seaport Landing	
Facility/Site Address: 500 N Custer St, Aberdeen, WA 98520	
Facility/Site No: 1126	VCP Project No.: N/A

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Emily Hess, LHG		Title: Project Hydrogeologist	
Organization: Maul Foster & Alongi, Inc.			
Mailing address: 109 E 13th Street			
City: Vancouver		State: WA	Zip code: 98660
Phone: (360) 433-0244	Fax:	E-mail: ehess@maulfoster.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2**.*

☒ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☒ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☒ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

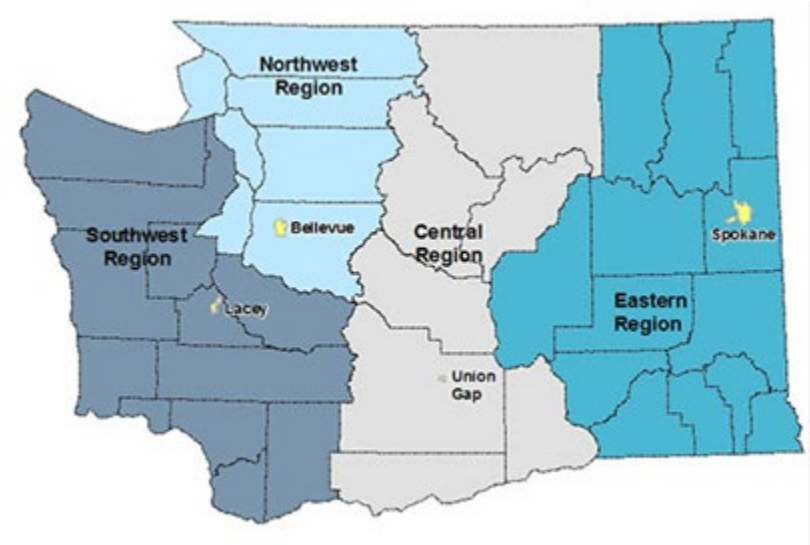
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.

ATTACHMENT B

TABLE 749-1: SIMPLIFIED TERRESTRIAL ECOLOGICAL EVALUATION-EXPOSURE ANALYSIS PROCEDURE



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	8
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]

APPENDIX G

CRITICAL AREAS REPORT

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

PREPARED FOR:

MAUL FOSTER ALONGI
109TH EAST 13TH ST.
VANCOUVER, WA 98660

PREPARED BY:

GRETTE ASSOCIATES LLC
2102 NORTH 30TH STREET, SUITE A
TACOMA, WASHINGTON 98403
(253) 573-9300



OCTOBER 2019

CHAD WALLIN
BIOLOGIST

DATE

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

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1 INTRODUCTION

Grette Associates is under contract with Maul Foster Alongi (MFA) to prepare a critical areas report that summarizes the critical areas reconnaissance performed at the Grays Harbor Historical Seaport Authority facility located along the Chehalis River (Figure 1) within the City of Aberdeen.

The purpose of this report is to document all wetlands and fish and wildlife habitat conservation areas (FWHCAs) that are located within the subject property to satisfy the reporting requirements defined in Chapter 14.50 of the City of Aberdeen's Shoreline Master Program (SMP).

Figure 1. Vicinity map



2 FEATURE SUMMARY

Two Grette Associates biologist visited the subject property on September 3, 2019 to conduct an assessment to identify all wetlands and FWHCAs within the subject property.

Grette Associates collected wetland delineation data and delineated three wetland features (Wetland A, B-1, and B-2; Appendix A) that contained all three wetland criteria defined in the U.S. Army Corps of Engineers (USACE) *Federal Wetland Delineation Manual* (1987), and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). Wetlands were rated according to Appendix 2 of the SMP and the

Washington State Department of Ecology's (Ecology) *Washington State Wetland Rating System for Western WA – 2014 Update* (Hruby 2014). Wetland delineation summaries, field datasheets and wetland rating forms are presented in Appendices B, C and D, respectively. A summary of the delineated wetlands is provided in Table 1.

In addition to the wetland delineation, two natural water features (Chehalis River and Shannon Slough) were identified within the subject property. An ordinary high water mark (OHWM) determination using the guidance in Ecology's *Determining OHWM for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) was completed for the Chehalis River and Shannon Slough (Table 2).

Table 1. Wetland delineation summary

Feature	Size (Approximate)	Cowardin Class[1]	Hydrology Modifier	HGM Class	Wetland Category	Buffer Width[2]
A	18,500 sq. ft.	REM	Regularly Flooded	Freshwater Tidal Fringe[3]	III	80 ft.
B-1	24,000 sq. ft.	REM	Regularly Flooded	Freshwater Tidal Fringe[3]	III	80 ft.
B-2	23,500 sq. ft.	REM	Regularly Flooded	Riverine	III	80 ft.

[1] Classification based on Cowardin et al. (1979).
[2] Buffers are based on Appendix 2 of the SMP. Per Chapter 15.50.914 of the SMP, any substantial development that provides a disconnect to a wetland feature is considered a buffer interruption.
[3] Per Hruby 2014, freshwater tidal fringe wetlands are rated using the riverine rating form.

Table 2. Natural water feature identification summary

Feature	Water Type[1]	Buffer[2]
Chehalis River	S	0-150 ft.[3]
Shannon Slough	Np	75 ft.

[1] Natural water features were rated according to Chapter 14.50 of the SMP and WAC 222-16-030.
[2] Buffers are based on Appendix 2 of the SMP. Per Chapter 15.50.918 of the SMP, any substantial development that provides a disconnect to a stream is considered a buffer interruption.
[3] Shoreline buffer range from 0-150 feet based on the nature of the proposed land use.

3 BACKGROUND

3.1 Existing Conditions

The subject property is the historic industrial site where the Weyerhaeuser Timber Company operated their Aberdeen sawmill. With the exception of a narrow band of vegetation along portions of the shoreline that is dominated by native and non-native species, the subject property is devoid of vegetation.

Please note that the road crossing associated within Shannon Slough that is located within the subject property has been recently improved and the improvements are not reflected on any aerial images associated with this report. The improvements appear to include narrowing of the access road, culvert replacement, and bank stabilization.

3.2 National Wetlands Inventory

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) was queried to determine if previously-identified wetlands are present within the subject property (USFWS 2019). According to the NWI Interactive Online Mapper, with the exception of

the Chehalis River and Shannon Slough, no aquatic features area mapped in the vicinity of the subject property (Appendix E).

3.3 Sensitive Wildlife and Plants

The Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database on-line mapper was queried to determine if state or federally listed fish or wildlife species occur near the subject property (WDFW 2019a). According to the PHS database, no priority habitats or species are mapped by PHS in the upland areas within the subject property (Appendix E).

Additionally, WDFW's SalmonScape on-line mapper was queried to determine what listed SalmonScape species are identified by WDFW to occur within the Chehalis River (WDFW 2019b). According to SalmonScape, the Chehalis River is mapped as providing habitat for numerous listed SalmonScape species (Appendix E).

The Washington Department of Natural Resources' (WDNR) Wetlands of High Conservation Value mapper was queried to determine if the subject parcels occurs in a location reported to contain high quality natural heritage wetland occurrences or occurrences of natural heritage features commonly associated with wetlands (WDNR 2019a). According to WDNR's mapper, there are no records of rare plants or high quality native ecosystems occurring on or in the vicinity of the subject property (Appendix E).

3.4 State Water Classification System

The Washington Department of Natural Resources' (WDNR) Forest Practice Application Mapping Tool on-line mapper was queried to identify the water typing of any streams mapped by WDNR (WDNR 2019b). According to WDNR, the Chehalis River is mapped as *Shorelines of the State* and Shannon Slough is mapped as a non-fish habitat stream (Appendix E).

4 METHODS

4.1 Wetland Determination

The subject property was traversed and data were collected to confirm wetland boundaries. The identified wetlands were delineated according to the procedures described in the USACE's *Federal Wetland Delineation Manual* (1987), and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). Paired data plots and soil test pits were excavated to evaluate wetland and upland conditions. Guidance from the USACE's *Regional Supplement* was used to evaluate the data at each data point.

The boundary of the wetland was established based on changes in vegetation, field indicators of hydric soils, water levels at or below 12 inches, topographic changes, and best professional judgment. Data plots were established in and adjacent to the wetland. The location of the wetland boundaries were recorded with a dGPS device.

Plants were determined to be more or less associated with wetlands based on their wetland indicator (FAC) status. The percent dominance for each plant strata was determined using the 50-20 Rule, which is the recommended method for selecting dominant species from a plant community in instances where quantitative data are

available (USACE 2010). In utilizing this rule, dominants are the most abundant species that individually or collectively accounts for more than 50 percent of the total coverage of vegetation in the stratum plus any other species that, by itself accounts for at least 20 percent of the total.

4.1.1 Hydrophytic Vegetation

The U.S. Fish and Wildlife Service (USFWS) and the NWI have established a rating system that has been applied to commonly occurring plant species on the basis of their frequency of occurrence in wetlands (Table 3). Species indicator status expresses the range in which plants may occur in wetlands and non-wetlands (uplands). Under this system, vegetation is considered hydrophytic when there is an indicator status of facultative (FAC), facultative wetland (FACW) or obligate wetland (OBL) (Table 3). The hydrophytic vegetation criterion for wetland determination is met when ***more than*** 50 percent of the dominant species in the plant community are FAC or wetter. The Corps' *National Wetland Plant List* (Lichvar 2016) was used to determine vegetation indicator status.

Table 3. Definitions for USFWS plant indicator status

Plant Indicator Status Category	Indicator Status Abbreviation	Definition (Estimated Probability of Occurrence)
Obligate Upland	UPL	Occur rarely (<1 percent) in wetlands, and almost always (>99 percent) in uplands
Facultative Upland	FACU	Occur sometimes (1 percent to <33 percent) in wetlands, but occur more often (>67 percent to 99 percent) in uplands
Facultative	FAC	Similar likelihood (33 percent to 67 percent) of occurring in both wetlands and uplands
Facultative Wetland	FACW	Occur usually in wetlands (>67 percent to 99 percent), but also occur in uplands (1 percent to 33 percent)
Obligate Wetland	OBL	Occur almost always (>99 percent) in wetlands, but rarely occur in uplands (<1 percent)
Not Listed	NL	Not listed due to insufficient information to determine status

4.1.2 Wetland Hydrology

Evidence of permanent or periodic inundation (water marks, drift lines, drainage patterns), or soil saturation to the surface for 14 consecutive days or more during the growing season meets the hydrology criterion. Oxidized root channels in the top 12 inches and hydrogen sulfide are primary indicators and water-stained leaves and geomorphic position are secondary indicators of wetland hydrology.

4.1.3 Hydric Soils

Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons are considered hydric soils. Field indicators include histosols, the presence of a histic epipedon, a sulfidic odor, low soil chroma, and gleying. Soil conditions were compared to the Field Indicators of Hydric Soils detailed in the USACE's *Regional Supplement*.

4.2 Ordinary High Water Mark Determination

An OHWM determination using the guidance in Ecology's *Determining OHWM for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) was

completed for the portion of the Chehalis River and Shannon Slough within the subject property.

Please note that portions of Shannon Slough upstream of the culvert (Appendix A) were not safely accessible due to site conditions. Therefore, representative elevations were recorded using a dGPS device and utilized to determine wetland boundaries and the OHWM in this area.

5 WETLAND RESULTS

Three wetland features were identified within the subject property (Appendix A).

5.1 Wetlands A and B-1

Wetlands A and B-1 are freshwater tidal wetlands that are situated along the Chehalis River (Appendix A). These features receive daily inundation due to fluctuating river levels that are influenced from tide cycles associated with the Pacific Ocean. While this marine and freshwater interaction is taking place in the Chehalis River, the marine water (saltwater wedge) and/or estuarine environment does not appear to extend up river to the point where the subject property is located. Based on the lack of salt tolerant vegetation observed in Wetlands A and B-1 (see below), the wetlands are classified as freshwater tidal wetlands (Hruby 2014).

5.1.1 Vegetation

Vegetation observed within Wetland A and B-1 predominantly consists of soft rush (*Juncus effusus*), slough sedge (*Carex obnupta*), and Pacific silverweed (*Potentilla pacifica*). According to Hruby (2014), these species generally are not associated with estuarine wetlands. Furthermore, cattail (*Typha latifolia*) was observed in portions of Wetland A which is sensitive to brackish environments (Hruby 2014).

5.1.2 Hydrology

Hydrologic support for Wetlands A and B-1 is primarily provided by daily tidal inundation and shallow groundwater. These wetland features are situated below the OHWM of the Chehalis River within the tidally influenced area along the shoreline.

5.1.3 Hydric Soils

During Grette Associates' soils evaluation a strong hydrogen sulfide odor was observed. Per the USACE's *Regional Supplement* (2010), observing a hydrogen sulfide odor while investigating soils is a primary hydric soils indicator.

5.2 Wetland B-2

Historically, Wetland B-2 was likely a continuation of Wetland B-1 (freshwater tidal wetland); however, during the development of the subject property a road crossing was constructed in Shannon Slough to provide internal access to other portions of the sawmill facilities. The current crossing configuration includes a tidal flap gate that prevents fresh waters from back-flooding up Shannon Slough during tidal exchanges. Given its geomorphic location, Wetland B-2 is classified as a riverine wetland. Wetland B-2 is located along the margins of Shannon Slough and situated in areas that are permanently flooded and/or seasonally flooded by fluctuating water depths within the slough

(Appendix A). Please note that the open water area associated with Shannon Slough is incorporated within Wetland B-2 for mapping purposes.

5.2.1 Vegetation

Vegetation observed within Wetland B-2 largely consists of soft rush and slough sedge.

5.2.2 Hydrology

Hydrologic support for Wetland B-2 is primarily provided by permanent and/or seasonal inundation and shallow groundwater. This feature is located along the edge of Shannon Slough and at the approximate stagnant elevation of the water within the slough.

5.2.3 Hydric Soils

During Grette Associates' site assessment Wetland B-2 was largely inundated by the waters associated with Shannon Slough. As a result, soils were not investigated. Hydric soils are those soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons (USACE 2010). Given that this wetland feature is permanently and/or regularly inundated, the soils within Wetland B-2 meet the definition of a hydric soil.

5.3 Wetland Categorization

To determine the categorization of the wetlands based on function, the wetland classification guidelines in Ecology's wetland rating system (Hruby 2014) were used. Based on this guidance, each wetland was given a score for each of three functions: Water Quality, Hydrology, and Habitat (Table 4).

Table 4. Wetland rating and categorization summary

Feature	Cowardin Class[1]	HGM Class	Water Quality	Hydrology	Habitat	Total	Category
Wetland A	REM	Freshwater Tidal Fringe[2]	8	6	4	18	III
Wetland B-1	REM	Freshwater Tidal Fringe	8	6	4	18	III
Wetland B-2	REM	Riverine	8	5	4	17	III

[1] Classification based on Cowardin et al. (1979).
[2] Per Hruby 2014, freshwater tidal fringe wetlands are rated using the riverine rating form.

Per Section 14.50.914 of the SMP, Category III wetlands with low habitat value are subject to an 80-foot wetland buffer. A high land use was assumed when determining wetland buffer widths. Furthermore, per 14.50.914(A) of the SMP, buffers shall not include areas that are disconnected functionally from a wetland; therefore, the substantial improvements function as a buffer interruption and the extent of said buffer ends at the edged on the developed area.

6 FISH AND WILDLIFE HABITAT CONSERVATION AREA RESULTS

Per Section 14.50.917 of the SMP, FWHCAs are typically those areas that support regulated fish and wildlife species or the habitats that play a critical role in sustaining said species. This section is intended to document all FWHCAs that were identified within the subject property.

6.1 Chehalis River

According to WDFW (2019a and 2019b), the Chehalis River provides habitat for numerous salmonid species. Provided below in Table 5 is the list of FWHCAs species that are typically known to occur within the Chehalis River basin.

Table 5. FWHCA species summary

FWHCA Species	State Status	Federal Status
Chinook salmon (*Oncorhynchus tshawytscha*)	Candidate	-
Coho salmon (*O. kisutch*)	Candidate	-
Chum salmon (*O. keta*)	Candidate	-
Steelhead trout (*O. mykiss*)	Candidate	-
Resident Coastal Cutthroat Trout (*O. clarki*)	-	-
Bull trout (*Salvelinus confluentus*)	Candidate	Threatened

In addition to being classified as a FWHCA, the Chehalis River is a *Water of the State*. Therefore, the river is subject to the buffer regulations defined in Section 14.50.430.2 of the SMP. Per said section, the shoreline buffer ranges from 0 feet to 150 feet depending on proposed land use. More specifically, water dependent structures and uses are not subject to a shoreline buffer whereas water-related/water-enjoyment mixed use structures and uses are subject to a 75-foot shoreline buffer and non-water oriented structures and uses are subject to a 150-foot shoreline buffer. Buffer determinations assumed high land use and the *Industrial and Port Development* shoreline environmental designation. Per 14.50.918 of the SMP, buffers shall not include areas that are disconnected functionally from a stream; therefore, the substantial improvements function as a buffer interruption and the extent of said buffer ends at the edged on the developed area.

6.2 Shannon Slough

Based on the queried databases summarized above in Section 3, Shannon Slough is not considered a FWHCA. Furthermore, there is no mapped distribution of any anadromous fish species within the slough and WDNR (2019b) maps Shannon Slough as a non-fish habitat stream. Based on this information, Shannon Slough likely does not provide habitat for fish and is classified as a non-fish habitat natural water feature. Per Section 14.50.918 of the SMP, perennial non-fish habitat natural water features are classified as a Type Np stream and are subject to a 75-foot buffer. Per 14.50.918 of the SMP, buffers shall not include areas that are disconnected functionally from a stream; therefore, the substantial improvements function as a buffer interruption and the extent of said buffer ends at the edged on the developed area.

7 REGULATORY CONSIDERATIONS

Critical areas are regulated by agencies at the local, state, and federal levels. At the local level, wetlands and streams and their associated buffers within 200 feet of *Waters of the State* are regulated under the City of Aberdeen's SMP.

At the state level, wetlands are regulated by the Washington Department of Ecology through the Federal Clean Water Act (Section 401). The requirement for a Water Quality Certification from Ecology for wetland impacts is triggered by an applicant's applying for a federal Clean Water Act Section 404 permit from the USACE. Ecology may also

issue an Administrative Order, allowing them wetland regulatory authority without a federal nexus.

Additionally, WDFW regulates work within state waters to protect fish life under the State's Hydraulic Code (Chapter 77.55 RCW) through the Hydraulic Project Approval (HPA) process.

At the federal level, impacts (specifically dredging or filling) to wetlands are regulated by the Environmental Protection Agency through the USACE. The USACE administers the federal Clean Water Act (Section 404) for projects involving dredging or filling in Waters of the US (lakes, streams, marine waters, and most non-isolated wetlands).

While it is the regulatory agencies that make the final determination regarding jurisdictional status, project proponents can infer jurisdiction using the guidance provided by each agency or local government. This inference can be used to design a project based on the anticipated regulatory constraints within the project area. However, it is the project proponent's responsibility to contact each potential regulating agency and confirm their regulatory status and requirements.

8 DISCLAIMER

The findings and conclusions documented in this report have been prepared for specific application to this proposed project site. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Because of such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

Wetland boundaries are based on conditions present at the time of the site visit and considered preliminary until the flagged wetland and/or drainage boundaries are validated by the appropriate jurisdictional agencies. Validation of the boundaries by the regulating agencies provide a certification, typically in writing, that the wetland boundaries verified are the boundaries that will be regulated by the agencies until a specific date or until the regulations are modified. Only the regulating agencies can provide this certification.

Since wetlands are dynamic communities affected by both natural and human activities, changes in wetland boundaries may be expected. Because of such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

9 BIOLOGIST QUALIFICATIONS

9.1 Chad Wallin

Chad Wallin is a Biologist with extensive training in wetland science and ecology restoration. Chad also has professional experience in stream and fish restoration, marine monitoring, mitigation monitoring, and fish and wildlife assessments.

Chad has earned a Bachelor's of Arts degree in Environmental Studies from the University of Washington along with certificates in ecology restoration and wetland science.

For a list of representative projects, please contact him at Grette Associates.

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MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX A: CRITICAL AREAS MAP

LEGEND

- APPROX. ASSESSMENT AREA BOUNDARY
- APPROX. CATEGORY III WETLAND BOUNDARY
- WB — APPROX. 80 FT. CATEGORY III WETLAND BUFFER

CHEHALIS RIVER

WETLAND B-1

OHWM

WETLAND A

CULVERT (OUTLET)

CULVERT (INLET)

WETLAND B-2 /SHANNON SLOUGH

FLOOD CONTROL STRUCTURE

SCALE IN FEET
175 0 175

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS
2102 North 30th Street, Suite A
TACOMA, WA 98403
(253) 573-9300
grettassociates.com

PROJECT #: 411.006
DESIGNED BY: CW — DATE: 10/17/19
CHECKED BY: MB — DATE: 10/17/19

CLIENT: MFA

MAUL FOSTER ALONGI
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
CRITICAL AREAS REPORT

DRAWING SCALE: SEE SCALE BAR

SITE ADDRESS: ABERDEEN, WA

CRITICAL AREAS MAP

SHEET 1 OF 3



PHOTOGRAPH: ECOLOGY'S COASTAL ATLAS DATABASE

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS
2102 North 30th Street, Suite A
TACOMA, WA 98403
(253) 573-9300
gretteassociates.com

CLIENT:	MFA
PROJECT #:	411.006
DESIGNED BY:	CW
DATE:	10/17/19
CHECKED BY:	MB
DATE:	10/17/19

MAUL FOSTER ALONGI
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
CRITICAL AREAS REPORT

SITE ADDRESS: ABERDEEN, WA

DRAWING SCALE: NTS

OBLIQUE VIEW

SHEET
2
OF
3



PHOTOGRAPH: ECOLOGY'S COASTAL ATLAS DATABASE

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS
2102 North 30th Street, Suite A
TACOMA, WA 98403
(253) 573-9300
gretteassociates.com

CLIENT:	MFA
PROJECT #:	411.006
DESIGNED BY:	CW
DATE:	10/17/19
CHECKED BY:	MB
DATE:	10/17/19

MAUL FOSTER ALONGI
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
CRITICAL AREAS REPORT

SITE ADDRESS: ABERDEEN, WA

DRAWING SCALE: NTS

OBLIQUE VIEW

SHEET 3 OF 3

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX B: WETLAND SUMMARY

WETLAND A SUMMARY		
Approximate Size (sq. ft.):	18,500	
Cowardin Classification[1]:	REM	
HGM Classification[2]:	Freshwater Tidal	
Wetland Category[3]:	III	
Wetland Buffer Width[4]:	80 ft.	
Sample Plot Total[5]:	2	
Hydrophytic Vegetation Present (Y/N)?	Yes	
Hydric Soil Indicator?	*Hydrogen Sulfide*	
Wetland Hydrology Present?	Yes	

Summary of Findings	
Dominant Vegetation:	Vegetation observed within Wetland A predominantly consists of soft rush, slough sedge, and Pacific silverweed.
Soil Profile:	Hydrologic support for Wetlands A is primarily provided by daily tidal inundation and shallow groundwater. These wetland features are situated below the OHWM of the Chehalis River within the tidally influenced area along the shoreline.
Primary Hydrological Support:	Hydrologic support for Wetlands A is primarily provided by daily tidal inundation and shallow groundwater.

Wetland Data Plot:	**Upland Data Plot:**
	

Notes:
[1] Classification based on Cowardin et al. (1979).
[2] HGM classification based on Brinson, M.M. (1993).
[3] Wetland rating was determined based on the guidelines defined in the local municipal code.
[4] Wetland buffer was determined based on the local municipal code.
[5] Sample plot total includes the collective amount of wetland and upland samples plots examined to define the wetland boundary.

WETLAND B-1 SUMMARY		
Approximate Size (sq. ft.):	24,000	
Cowardin Classification[1]:	REM	
HGM Classification[2]:	Freshwater Tidal	
Wetland Category[3]:	III	
Wetland Buffer Width[4]:	80 ft.	
Sample Plot Total[5]:	2	
Hydrophytic Vegetation Present (Y/N)?	Yes	
Hydric Soil Indicator?	*Hydrogen Sulfide*	
Wetland Hydrology Present?	Yes	

Summary of Findings	
Dominant Vegetation:	Vegetation observed within Wetland B-1 predominantly consists of soft rush, slough sedge, and Pacific silverweed.
Soil Profile:	Hydrologic support for Wetlands B-1 is primarily provided by daily tidal inundation and shallow groundwater. These wetland features are situated below the OHWM of the Chehalis River within the tidally influenced area along the shoreline.
Primary Hydrological Support:	Hydrologic support for Wetlands B-1 is primarily provided by daily tidal inundation and shallow groundwater.

Wetland Data Plot:	**Upland Data Plot:**
	

Notes:
[1] Classification based on Cowardin et al. (1979).
[2] HGM classification based on Brinson, M.M. (1993).
[3] Wetland rating was determined based on the guidelines defined in the local municipal code.
[4] Wetland buffer was determined based on the local municipal code.
[5] Sample plot total includes the collective amount of wetland and upland samples plots examined to define the wetland boundary.

WETLAND B-2 SUMMARY		
Approximate Size (sq. ft.):	23,500	
Cowardin Classification[1]:	REM	
HGM Classification[2]:	Riverine	
Wetland Category[3]:	III	
Wetland Buffer Width[4]:	80 ft.	
Sample Plot Total[5]:	2	
Hydrophytic Vegetation Present (Y/N)?	Yes	
Hydric Soil Indicator?	*Other*	
Wetland Hydrology Present?	Yes	

Summary of Findings	
Dominant Vegetation:	Vegetation observed within Wetland B-2 largely consists of soft rush and slough sedge.
Soil Profile:	During Grette Associates' site assessment Wetlands B-2 was largely inundated by the waters associated with Shannon Slough. As a result, soils were not investigated. Hydric soils are those soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons (USACE 2010).
Primary Hydrological Support:	Hydrologic support for Wetlands B-2 is primarily provided by permanent and/or seasonal inundation and shallow groundwater.

Wetland Data Plot:	**Upland Data Plot:**
N/A	N/A

Notes:
[1] Classification based on Cowardin et al. (1979).
[2] HGM classification based on Brinson, M.M. (1993).
[3] Wetland rating was determined based on the guidelines defined in the local municipal code.
[4] Wetland buffer was determined based on the local municipal code.
[5] Sample plot total includes the collective amount of wetland and upland samples plots examined to define the wetland boundary.

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX C: WETLAND DATASHEETS

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX D: WETLAND RATING FORM

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX E: QUERIED DATABASE FIGURES

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX A: CRITICAL AREAS MAP

LEGEND

- APPROX. ASSESSMENT AREA BOUNDARY
- APPROX. CATEGORY III WETLAND BOUNDARY
- WB — APPROX. 80 FT. CATEGORY III WETLAND BUFFER

CHEHALIS RIVER

WETLAND B-1

OHWM

WETLAND A

CULVERT (OUTLET)

CULVERT (INLET)

WETLAND B-2 /SHANNON SLOUGH

FLOOD CONTROL STRUCTURE

SCALE IN FEET
175 0 175

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS
2102 North 30th Street, Suite A
TACOMA, WA 98403
(253) 573-9300
grettassociates.com

PROJECT #: 411.006
DESIGNED BY: CW — DATE: 10/17/19
CHECKED BY: MB — DATE: 10/17/19

CLIENT: MFA

MAUL FOSTER ALONGI
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
CRITICAL AREAS REPORT

DRAWING SCALE: SEE SCALE BAR

SITE ADDRESS: ABERDEEN, WA

CRITICAL AREAS MAP

SHEET 1 OF 3



PHOTOGRAPH: ECOLOGY'S COASTAL ATLAS DATABASE

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS
2102 North 30th Street, Suite A
TACOMA, WA 98403
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GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
CRITICAL AREAS REPORT

SITE ADDRESS: ABERDEEN, WA

DRAWING SCALE: NTS

OBLIQUE VIEW

SHEET
2
OF
3



PHOTOGRAPH: ECOLOGY'S COASTAL ATLAS DATABASE

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS
2102 North 30th Street, Suite A
TACOMA, WA 98403
(253) 573-9300
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CLIENT:	MFA
PROJECT #:	411.006
DESIGNED BY:	CW
DATE:	10/17/19
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DATE:	10/17/19

MAUL FOSTER ALONGI
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
CRITICAL AREAS REPORT

SITE ADDRESS: ABERDEEN, WA

DRAWING SCALE: NTS

OBLIQUE VIEW

SHEET 3 OF 3

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX B: WETLAND SUMMARY

WETLAND A SUMMARY		
Approximate Size (sq. ft.):	18,500	
Cowardin Classification[1]:	REM	
HGM Classification[2]:	Freshwater Tidal	
Wetland Category[3]:	III	
Wetland Buffer Width[4]:	80 ft.	
Sample Plot Total[5]:	2	
Hydrophytic Vegetation Present (Y/N)?	Yes	
Hydric Soil Indicator?	*Hydrogen Sulfide*	
Wetland Hydrology Present?	Yes	

Summary of Findings	
Dominant Vegetation:	Vegetation observed within Wetland A predominantly consists of soft rush, slough sedge, and Pacific silverweed.
Soil Profile:	Hydrologic support for Wetlands A is primarily provided by daily tidal inundation and shallow groundwater. These wetland features are situated below the OHWM of the Chehalis River within the tidally influenced area along the shoreline.
Primary Hydrological Support:	Hydrologic support for Wetlands A is primarily provided by daily tidal inundation and shallow groundwater.

Wetland Data Plot:	**Upland Data Plot:**
	

Notes:
[1] Classification based on Cowardin et al. (1979).
[2] HGM classification based on Brinson, M.M. (1993).
[3] Wetland rating was determined based on the guidelines defined in the local municipal code.
[4] Wetland buffer was determined based on the local municipal code.
[5] Sample plot total includes the collective amount of wetland and upland samples plots examined to define the wetland boundary.

WETLAND B-1 SUMMARY		
Approximate Size (sq. ft.):	24,000	
Cowardin Classification[1]:	REM	
HGM Classification[2]:	Freshwater Tidal	
Wetland Category[3]:	III	
Wetland Buffer Width[4]:	80 ft.	
Sample Plot Total[5]:	2	
Hydrophytic Vegetation Present (Y/N)?	Yes	
Hydric Soil Indicator?	*Hydrogen Sulfide*	
Wetland Hydrology Present?	Yes	

Summary of Findings	
Dominant Vegetation:	Vegetation observed within Wetland B-1 predominantly consists of soft rush, slough sedge, and Pacific silverweed.
Soil Profile:	Hydrologic support for Wetlands B-1 is primarily provided by daily tidal inundation and shallow groundwater. These wetland features are situated below the OHWM of the Chehalis River within the tidally influenced area along the shoreline.
Primary Hydrological Support:	Hydrologic support for Wetlands B-1 is primarily provided by daily tidal inundation and shallow groundwater.

Wetland Data Plot:	**Upland Data Plot:**
	

Notes:
[1] Classification based on Cowardin et al. (1979).
[2] HGM classification based on Brinson, M.M. (1993).
[3] Wetland rating was determined based on the guidelines defined in the local municipal code.
[4] Wetland buffer was determined based on the local municipal code.
[5] Sample plot total includes the collective amount of wetland and upland samples plots examined to define the wetland boundary.

WETLAND B-2 SUMMARY		
Approximate Size (sq. ft.):	23,500	
Cowardin Classification[1]:	REM	
HGM Classification[2]:	Riverine	
Wetland Category[3]:	III	
Wetland Buffer Width[4]:	80 ft.	
Sample Plot Total[5]:	2	
Hydrophytic Vegetation Present (Y/N)?	Yes	
Hydric Soil Indicator?	*Other*	
Wetland Hydrology Present?	Yes	

Summary of Findings	
Dominant Vegetation:	Vegetation observed within Wetland B-2 largely consists of soft rush and slough sedge.
Soil Profile:	During Grette Associates' site assessment Wetlands B-2 was largely inundated by the waters associated with Shannon Slough. As a result, soils were not investigated. Hydric soils are those soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons (USACE 2010).
Primary Hydrological Support:	Hydrologic support for Wetlands B-2 is primarily provided by permanent and/or seasonal inundation and shallow groundwater.

Wetland Data Plot:	**Upland Data Plot:**
N/A	N/A

Notes:
[1] Classification based on Cowardin et al. (1979).
[2] HGM classification based on Brinson, M.M. (1993).
[3] Wetland rating was determined based on the guidelines defined in the local municipal code.
[4] Wetland buffer was determined based on the local municipal code.
[5] Sample plot total includes the collective amount of wetland and upland samples plots examined to define the wetland boundary.

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX C: WETLAND DATASHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Wy Co. Aberdeen City/County: Aberdeen / G.H. Sampling Date: 7/3/19
Applicant/Owner: State: WA Sampling Point: SP-1
Investigator(s): Wilder Section, Township, Range:
Landform (hillslope, terrace, etc.): slope / Riverine Local relief (concave, convex, none): ___ Slope (%): ___
Subregion (LRR): ___ Lat: ___ Long: ___ Datum: ___
Soil Map Unit Name: ___ NWI classification: ___
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: Data collected in tidal area below OHWM. Wetland 1 (W1)

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ___, 20% = ___		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
50% = ___, 20% = ___		= Total Cover	
Herb Stratum (Plot size: 5')			
1. POPA	20%	Y	OBL
2. CAOB	20%	Y	OBL
3. JUBA	20%	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = ___, 20% = ___	60%	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
50% = ___, 20% = ___		= Total Cover	
% Bare Ground in Herb Stratum ___			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x1 = ___
FACW species ___	x2 = ___
FAC species ___	x3 = ___
FACU species ___	x4 = ___
UPL species ___	x5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: ____

Sampling Point: SP-1

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): ____

Water Table Present? Yes ☐ No ☑ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): Surface

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data collected @ low tide.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: VeryCo - Aberdeen City/County: Aberdeen/GH. Sampling Date: 9/3/19
Applicant/Owner: State: WA Sampling Point: SP-2
Investigator(s): Walter Section, Township, Range:
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): ___ Slope (%): ___
Subregion (LRR): ___ Lat: ___ Long: ___ Datum: ___
Soil Map Unit Name: ___ NWI classification: ___
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☐ No ☒		

Remarks: Data collected in old storage area upslope of OHWM

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ___, 20% = ___		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Scotch broom	25%	Y	FACU
2. RUBU	25%	Y	FAC
3.			
4.			
5.			
50% = ___, 20% = ___	50%	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Agrostis sp.	40%	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = ___, 20% = ___	40%	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
50% = ___, 20% = ___		= Total Cover	
% Bare Ground in Herb Stratum ___			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x1 =	___
FACW species	___	x2 =	___
FAC species	___	x3 =	___
FACU species	___	x4 =	___
UPL species	___	x5 =	___
Column Totals:	___ (A)		___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: ____

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Rock	old gravel area

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Gravel surface

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Hwy 12 – Aberdeen City/County: Aberdeen / G.H. Sampling Date: 9/3/19
Applicant/Owner: State: WA Sampling Point: SP-3
Investigator(s): Walsh Section, Township, Range:
Landform (hillslope, terrace, etc.): Slope - Bowl Local relief (concave, convex, none): ___ Slope (%): ___
Subregion (LRR): ___ Lat: ___ Long: ___ Datum: ___
Soil Map Unit Name: ___ NWI classification: ___
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks: Data collected below OHWM Wetland 2 (W2)

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ___, 20% = ___		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
50% = ___, 20% = ___		= Total Cover	
Herb Stratum (Plot size: 5')			
1. PODA	40%		OBL
2. CAOB	50%		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = ___, 20% = ___		= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
50% = ___, 20% = ___		= Total Cover	
% Bare Ground in Herb Stratum ___			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x1 =	___
FACW species	___	x2 =	___
FAC species	___	x3 =	___
FACU species	___	x4 =	___
UPL species	___	x5 =	___
Column Totals:	___ (A)		___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: ____

Sampling Point: SP-3

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): Surface

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Tidal area

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Aberdeen WayCo. City/County: Aberdeen / GH. Sampling Date: 9/3/19
Applicant/Owner: State: WA Sampling Point: SP-4
Investigator(s): Wallin Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): ___ Slope (%): ___
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☐	
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks: Data collected along old fillslope / ar bank above ordinary

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. THPL	20%	Y	FAC
2. PSME	10%	Y	FACU
3.			
4.			
50% = ___, 20% = ___		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. RUDI	50%	Y	FAC
2. RONU	20%	N	FAC
3. Scotchbroom	20%	N	FACU
4.			
5.			
50% = ___, 20% = ___	90	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = ___, 20% = ___		= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
50% = ___, 20% = ___		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x1 =	___
FACW species	___	x2 =	___
FAC species	___	x3 =	___
FACU species	___	x4 =	___
UPL species	___	x5 =	___
Column Totals:	___ (A)		___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: ____

Sampling Point: SP4

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Fill slope / Rock

Depth (inches): surface

Hydric Soils Present? Yes ☐ No ☒

Remarks:

Plot @ fill slope of paved area

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX D: WETLAND RATING FORM

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A - Chehalis River Date of site visit: 9/3/19

Rated by Wallin Trained by Ecology? X Yes ___ No Date of training 2014

HGM Class used for rating Riverine Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics ___)

1. Category of wetland based on FUNCTIONS

___ **Category I** – Total score = 23 - 27

___ **Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

___ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	(H) M L	(H) M L	H M (L)	
Value	(H) M L	H M (L)	H (M) L	TOTAL
Score Based on Ratings	8	6	4	18

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	✓

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number 4

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover >$^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = (2)	2
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = (6)	
Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	6
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1 — Add the points in the boxes above		8

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** (M) ___ **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	(Yes) = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	(Yes) = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	(Yes) = 1 No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	(Yes) = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 (No) = 0	Ø
Total for R 2 — Add the points in the boxes above		5

Rating of Landscape Potential If score is: X **3-6 = H** (H) ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 (No) = 0	Ø
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = (1) No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = (2) No = 0	2
Total for R 3 — Add the points in the boxes above		3

Rating of Value If score is: X **2-4 = H** (H) ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 If the ratio is 10-20 If the ratio is 5-<10 If the ratio is 1-<5 If the ratio is < 1	points = 9 points = 6 points = 4 points = 2 points = (1)	1
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area Plants do not meet above criteria	points = (7) points = 4 points = 0	7
Total for R 4	Add the points in the boxes above	8

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 (No) = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	(Yes) = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 (No) = 1	1
Total for R 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: X **3 = H** ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	points = 2 points = 1 points = (0)	Ø
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 (No) = 0	Ø
Total for R 6	Add the points in the boxes above	Ø

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___Aquatic bed	4 structures or more: points = 4
_X_Emergent	3 structures: points = 2
___Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
___Forested (areas where trees have > 30% cover)	1 structure: points = (0)

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

Ø

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___Permanently flooded or inundated	4 or more types present: points = 3
___Seasonally flooded or inundated	3 types present: points = 2
___Occasionally flooded or inundated	2 types present: points = 1
___Saturated only	1 type present: points = 0
___Permanently flowing stream or river in, or adjacent to, the wetland	
___Seasonally flowing stream in, or adjacent to, the wetland	
___**Lake Fringe wetland**	**2 points**
_X_**Freshwater tidal wetland**	**(2 points)**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = (1)
< 5 species	points = 0

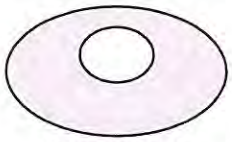
1

H 1.4. Interspersion of habitats

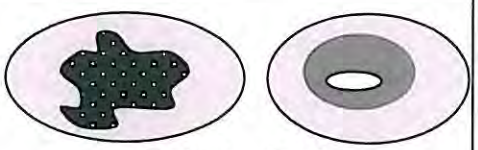
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points



Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



Ø

(3)

Wetland name or number A

3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ___ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 — Add the points in the boxes above	6

Rating of Site Potential If score is: ___ **15-18 = H** ___ **7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 10-20% % undisturbed habitat ___ + [(% moderate and low intensity land uses)/2] ___ = 10/20 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0 = River area	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10% % undisturbed habitat ___ + [(% moderate and low intensity land uses)/2] ___ = 10% % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1 km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is: ___ **2 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** (No= **Not an estuarine wetland**)	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** (No = **Not a WHCV**) SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No = **Is not a bog**) SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** (No) = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** (No) = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** (No) = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

Wetland name or number A

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Wetland name or number B-1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B-1 - Shannon Slough Date of site visit: 9/3/19

Rated by Wallin Trained by Ecology? ✓Yes ___No Date of training 2014

HGM Class used for rating Riverine Wetland has multiple HGM classes? ___Y ✗N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions ✓ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

___**Category I** – Total score = 23 - 27

___**Category II** – Total score = 20 - 22

✓**Category III** – Total score = 16 - 19

___**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	(H) M L	(H) M L	H M (L)	
Value	(H) M L	H M (L)	H (M) L	TOTAL
Score Based on Ratings	8	6	4	18

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	✓

Wetland name or number B-1

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number B-1

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number B-1

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number B-1

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover > 3/4 area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = (2)	2
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		
Trees or shrubs > 2/3 area of the wetland	points = 8	
Trees or shrubs > 1/3 area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > 2/3 area of the wetland	points = (6)	
Herbaceous plants (> 6 in high) > 1/3 area of the wetland	points = 3	6
Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland	points = 0	
Total for R 1 — Add the points in the boxes above		8

Rating of Site Potential If score is: ___ **12-16 = H** ~~X~~ **6-11 = M** (M) ___ **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	(Yes) = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	(Yes) = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	(Yes) = 1 No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	(Yes) = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 (No) = 0	Ø
Total for R 2 — Add the points in the boxes above		5

Rating of Landscape Potential If score is: ~~X~~ **3-6 = H** (H) ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 (No) = 0	Ø
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	(Yes) = 1 No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	(Yes) = 2 No = 0	2
Total for R 3 — Add the points in the boxes above		3

Rating of Value If score is: ~~X~~ **2-4 = H** (H) ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number B-1

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20	points = 9	
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = 2	1
If the ratio is < 1	points = (1)	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area	points = (7)	
Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area	points = 4	8
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	9

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** (circled) ___ **0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 (No) = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	(Yes) = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 (No) = 1	1
Total for R 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: ___ **3 = H** (circled) ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = (0)	Ø
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 (No) = 0	Ø
Total for R 6	Add the points in the boxes above	Ø

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** ___ **0 = L** (circled) *Record the rating on the first page*

Wetland name or number B-1

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___Aquatic bed
__✓__Emergent
___Scrub-shrub (areas where shrubs have > 30% cover)
___Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
1 structure: points = (0)

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

Ø

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___Permanently flooded or inundated
___Seasonally flooded or inundated
___Occasionally flooded or inundated
___Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 type present: points = 0

___Permanently flowing stream or river in, or adjacent to, the wetland
___Seasonally flowing stream in, or adjacent to, the wetland
___**Lake Fringe wetland** **2 points**
__✓__**Freshwater tidal wetland** **(2) points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species — points = 2
5 - 19 species — points = (1)
< 5 species — points = 0

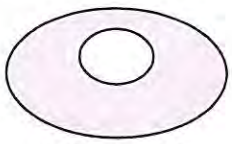
1

H 1.4. Interspersion of habitats

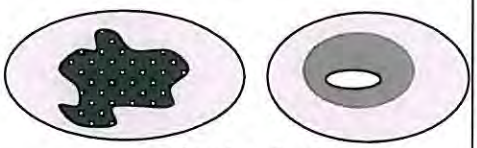
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = (0) points



Low = 1 point



Moderate = 2 points

Ø

All three diagrams in this row are **HIGH** = 3points



(3)

Wetland name or number B-1

3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ✓ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ___ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ✓ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ✓ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	6

Rating of Site Potential If score is: ___ **15-18 = H** ___ **7-14 = M** ✓ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 15% % undisturbed habitat ___ + [(% moderate and low intensity land uses)/2] ___ = 15 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10% % undisturbed habitat ___ + [(% moderate and low intensity land uses)/2] ___ = 10% % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** ✓ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If score is: ___ **2 = H** ✓ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number B-1

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

✓ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number B-1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** (No= **Not an estuarine wetland**)	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** (No = **Not a WHCV**) SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No = **Is not a bog**) SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number B-1

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** (No) = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** (No) = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** (No) = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

Wetland name or number B-1

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Wetland name or number B-2

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B-2 - Shannon Slaughter Date of site visit: 9/3/19

Rated by Wallin Trained by Ecology? X Yes ___No Date of training 2014

HGM Class used for rating Riverine Wetland has multiple HGM classes? ___Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics ___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	(H) M L	H (M) L	H M (L)	
Value	(H) M L	H M (L)	H (M) L	TOTAL
Score Based on Ratings	8	5	4	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number B-2

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number B-2

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   X The overbank flooding occurs at least once every 2 years.

Wetland name or number B2

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number B-2

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover > 3/4 area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = 2	Ø
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		
Trees or shrubs > 2/3 area of the wetland	points = 8	
Trees or shrubs > 1/3 area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > 2/3 area of the wetland	points = 6	6
Herbaceous plants (> 6 in high) > 1/3 area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland	points = 0	
Total for R 1 — Add the points in the boxes above		6

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	Ø
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 No = 0	Ø
Total for R 2 — Add the points in the boxes above		4

Rating of Landscape Potential If score is: ___ **3-6 = H** ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	Ø
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 No = 0	2
Total for R 3 — Add the points in the boxes above		3

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number B-2

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20	points = 9	
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = (2)	2
If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > 1/3 area OR emergent plants > 2/3 area	points = (7)	
Forest or shrub for > 1/10 area OR emergent plants > 1/3 area	points = 4	7
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	9

Rating of Site Potential If score is: ___ 12-16 = H ___ X 6-11 = (M) ___ 0-5 = L *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut? Ditch like feature	(Yes) = 0 No = 1	Ø
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	(Yes) = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams? Controlled structure upstream	(Yes) = 0 No = 1	Ø
Total for R 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___ 3 = H ___ X 1 or 2 = (M) ___ 0 = L *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = (0)	Ø
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 (No) = 0	Ø
Total for R 6	Add the points in the boxes above	Ø

Rating of Value If score is: ___ 2-4 = H ___ 1 = M ___ X 0 = (L) *Record the rating on the first page*

Wetland name or number B-2

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___Aquatic bed	4 structures or more: points = 4
_X_Emergent	3 structures: points = 2
___Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
___Forested (areas where trees have > 30% cover)	1 structure: points = (0)

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

Ø

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

_X_Permanently flooded or inundated	4 or more types present: points = 3
_X_Seasonally flooded or inundated	3 types present: points = 2
___Occasionally flooded or inundated	2 types present: points = (1)
___Saturated only	1 type present: points = 0
___Permanently flowing stream or river in, or adjacent to, the wetland	
___Seasonally flowing stream in, or adjacent to, the wetland	
___**Lake Fringe wetland**	**2 points**
___**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = (1)
< 5 species	points = 0

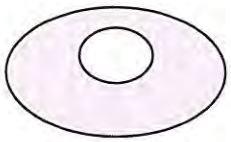
1

H 1.4. Interspersion of habitats

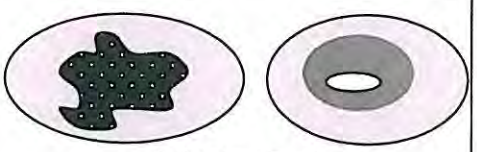
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

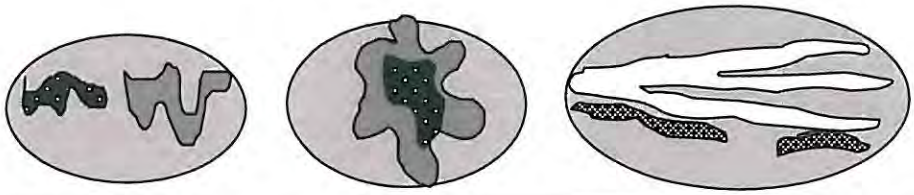


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



Ø

2

Wetland name or number B-2

2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* __X__At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* __X__Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 — Add the points in the boxes above	4

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** __X__**0-6 = L** (L) *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* ±15% % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]__/__ = ±15% % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = (1) < 10% of 1 km Polygon — points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* ±10 % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]__/__ = 10 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = (1) Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is:___**4-6 = H** ___**1-3 = M** __X__**< 1 = L** (L) *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = (1) Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is:___**2 = H** __X__**1 = M** ___**0 = L** (M) *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

I **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

✓ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number B2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** (No) = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** (No) = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No) = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number B-2

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** (No) = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** (No) = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** (No) = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

Wetland name or number B-2

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Figure 1

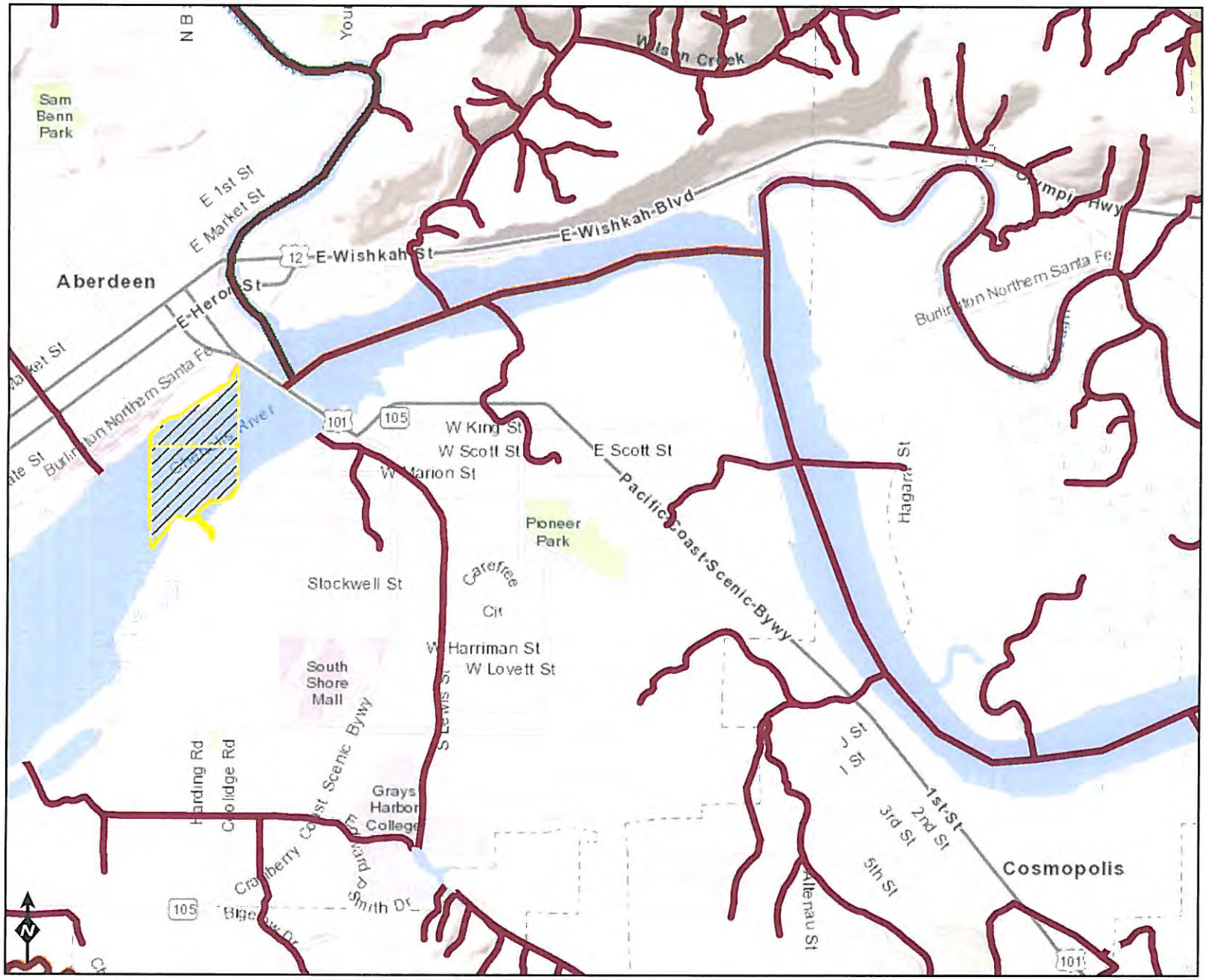

Wetland A
- Freshwater Tidal : EM
- Chehalis River Basin
Wetland B-1
- Freshwater Tidal : EM
- Chehalis River Basin
150'
Culvert
Wetland B-2
= Riverine : EM
150'
150'
Flow Control Structure
Google Earth
Curtis St
© 2018 Google
101
700 ft
N Evans St
N

Figure 7


2nd Ave
N E St
Arthur St
Essex Ave
Terrace Ave
Randal St
N B St Ln
Grant St
N A St
N F St
N C St
N G St
E 3rd St
Henry Al
Olympic Hwy
12
Sargent Rd
Hagara St
N Broadway St
N I St
N H St
S F St
S G St
N K St
S K St
S L St
S M St
W State St
River St
A
B-1
B-2
101
105
N Clark St
N Custer St
N Lawrence St
E Curtis St
E King St
E Scott St
E Marion St
E Cushing St
N Rogers St
N Decatur St
Decatur St
S Boone St
S Clark St
S Mill St
S Exchange S
Meander Way
E Schley St
Polk St
Taylor
N
3000 ft
Google Earth
© 2018 Google

October 15, 2019

Water Quality Atlas Map



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

WQ Standards

Miles
0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

DEPARTMENT OF ECOLOGY
State of Washington

Figure 3

Figure 7J

DEPARTMENT OF ECOLOGY State of Washington

Grays Harbor County

Water quality improvement projects

Select the waterbody or pollutant name to find more information about the specific project.

Waterbody Name(s)	Pollutant(s)	Status	Project Lead(s)
Chehalis River Basin - Simpson Timberlands	Temperature	Approved by EPA	Andrew Kolosseus 360-407-7543
Chehalis River Basin - Upper Chehalis River Watershed	Dissolved Oxygen	Approved by EPA	Devan Rostorfer 360-690-4665
Chehalis River Basin - Wildcat Creek	Ammonia-N BOD (5-Day) Chlorine Fecal Coliform	Approved by EPA	Devan Rostorfer 360-690-4665
Grays Harbor	Dioxin Fecal Coliform	Approved by EPA	Devan Rostorfer 360-690-4665
Grays Harbor - Humptulips River	Temperature	Approved by EPA	Devan Rostorfer 360-690-4665
North Ocean Beaches - • Pacific Ocean • Moclips River	Shellfish Closure Response - Fecal Coliform Bacteria Source Investigation Study	Under development	Leanne Whitesell 360-407-6295

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MAUL FOSTER ALONGI

GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY CRITICAL AREAS REPORT

APPENDIX E: QUERIED DATABASE FIGURES

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



October 16, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic
REPORT DATE: 10/16/2019 12.03

Query ID: P191016120257

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
	Source Record	More Information (URL)		PHS Listing Status		
Notes	Source Date	Mgmt Recommendations				

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necesssary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to vraition caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

WDFW Test Map



October 16, 2019

PHS Report Clip Area

PT

LN

POLY

AS MAPPED

SECTION

QTR-TWP

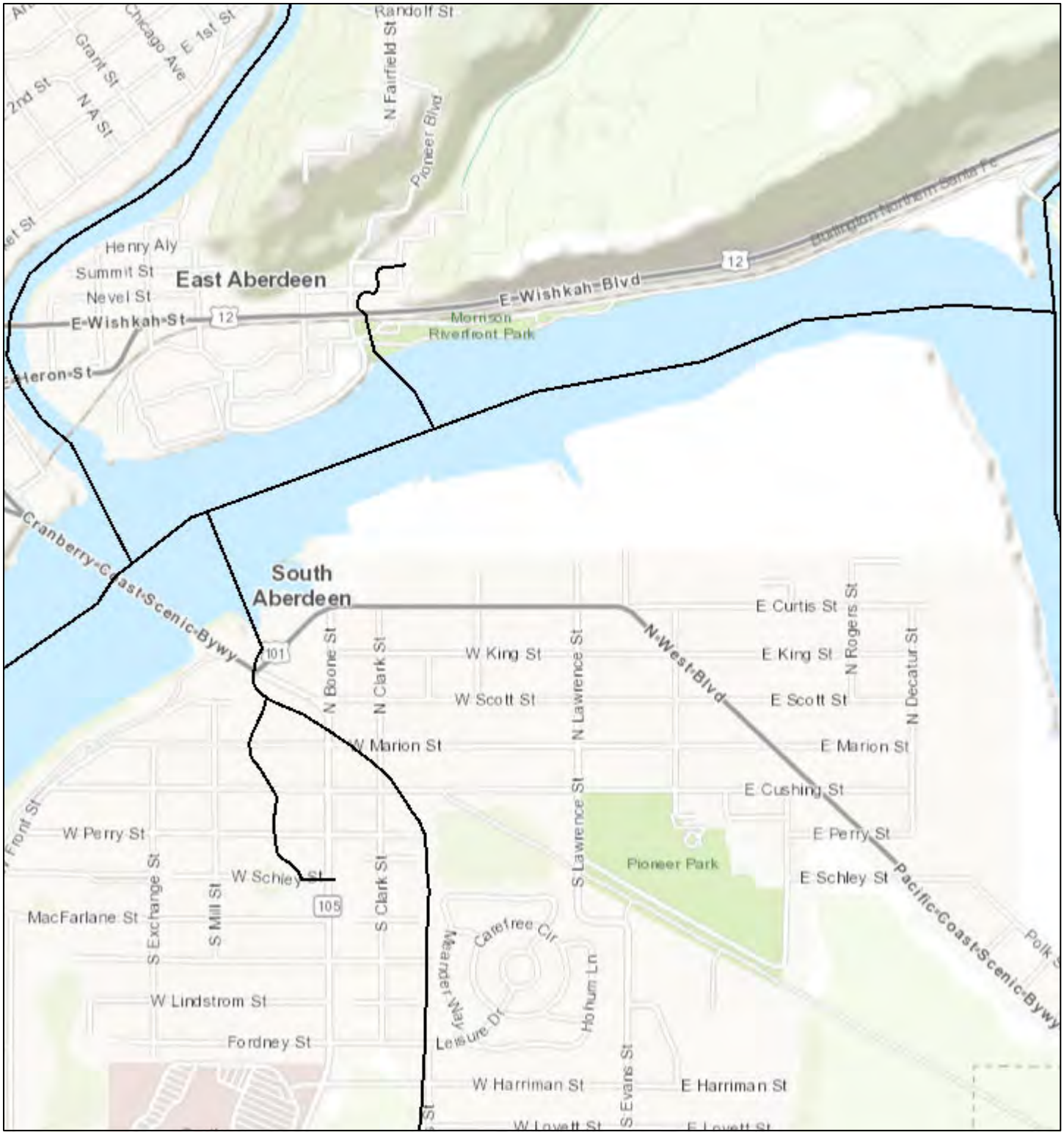
TOWNSHIP

1:19,842

0 0.15 0.3 0.6 mi

0 0.275 0.55 1.1 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



October 15, 2019

1:18,056

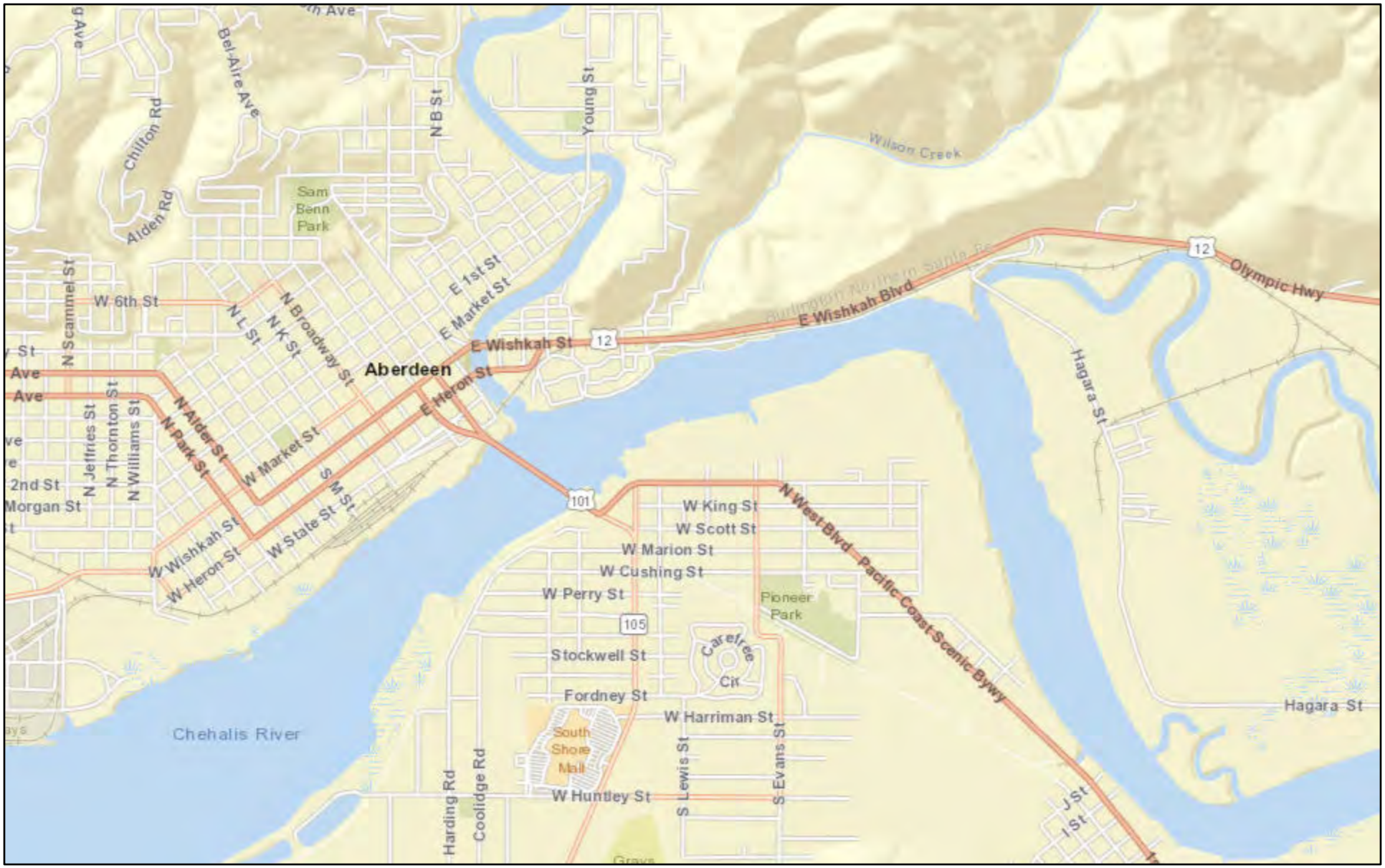
All SalmonScape Species

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
WDFW

WA Wetlands of High Conservation Value



10/16/2019, 12:17:08 PM

Counties

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan,

Washington Natural Heritage Program

Bureau of Land Management, Esri, HERE, Garmin, NGA, USGS | U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov | Washington Natural Heritage Program http://www.dnr.wa.gov/natural-heritage-program |

Forest Practices Activity Map - Application #_____



Map Symbols

- Harvest Boundary
- Road Construction
- Stream
- RMZ / WMZ Buffers
- Rock Pit
- Landing
- Waste Area
- Clumped WRTS/GRTS
- Existing Structure

Additional Information

Legal Description

S03 T17.0N R09.0W, S04 T17.0N R09.0W
S15 T17.0N R09.0W, S10 T17.0N R09.0W
S09 T17.0N R09.0W, S16 T17.0N R09.0W

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.

0 0.25 Miles

Date: 10/15/2019 Time: 1:59:20 PM

APPENDIX H

BORING LOGS

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-01**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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**					*0 to 1.8 feet: SILTY SAND (SM); 20% fines; 50% sand; 30% gravel; grass at surface; black with faint petroleum hydrocarbon-like odor at 1.1 to 1.2 feet and 1.4 to 1.8 feet.*
2						**PID = 0 ppm**			
3						**PID = 0 ppm RAU1-01-SO-2.4**			*1.8 to 3.0 feet: SANDY SILT (ML); bluish gray; 60% fines; 40% sand, fine to medium; moist.*
4									*3.0 to 5.0 feet: No recovery.*
5									
6			**50**	**GW GP**					*5.0 to 6.5 feet: SANDY SILT (ML); bluish gray; 60% fines; 40% sand, fine to coarse; trace gravel; wet.*
7						**PID = 0 ppm**			*6.5 to 7.0 feet: SILTY GRAVEL (GM); gray; 30% fines; 20% sand; 50% gravel, subangular; moist.*
8						**RAU1-01-GW-7.5**			*7.0 to 7.5 feet: SANDY GRAVEL with SILT (GW-GM); dark gray; 10% fines; 30% sand; 60% gravel; wet. Wood in shoe at base of borehole.*
9									*7.5 to 10.0 feet: No recovery.*
10									

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) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.29 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-02**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			30	GP		PID = 0 ppm RAU1-02-SO-1			0 to 1.5 feet: SILTY GRAVEL (GM); dark grayish brown; 30% fines; 10% sand; 60% gravel, subrounded to subangular; moist.
2									1.5 to 5.0 feet: No recovery.
3				GW					
4	▼								
5	▽		40	GP		PID = 0 ppm			5.0 to 5.5 feet: GRAVEL with SILT (GW-GM); dark gray; 10% fines; 10% sand; 80% gravel, subrounded to subangular; wet.
6						RAU1-02-GW-6 PID = 0.4 ppm			5.5 to 7.0 feet: WOODWASTE; 100% woodwaste, chips and pulp; hydrogen sulfide-like odor; wet.
7									7.0 to 10.0 feet: No recovery.
8									
9									
10									

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) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 3.0 to 8.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 3.90 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-03**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			50	GP					0 to 0.8 feet: ASPHALT.
2						PID = 0 ppm RAU1-03-SO-2.2			0.8 to 1.0 feet: SILT with SAND (ML); brown; 60% fines; 30% sand; 10% gravel; moist. 1.0 to 1.9 feet: SILTY GRAVEL (GM); gray; 20% fines; 10% sand; 70% gravel, subrounded to subangular; pulverized rock and gravel; moist.
3									1.9 to 2.5 feet: SILTY GRAVEL (GM); dark grayish brown; 30% fines, 20% sand, fine to coarse; 50% gravel, fine to coarse, subrounded to subangular; moist.
4									2.5 to 5.0 feet: No recovery.
5	▼		40	GW GP					5.0 to 7.0 feet: WOODWASTE; dark brown; 100% woodwaste, pulp to chips; wet.
6						PID = 0 ppm			
7									7.0 to 10.0 feet: No recovery.
8						RAU1-03-GW-7.5			
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 4.98 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-04**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/2/2019 to 12/2/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***E. Hess***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			30	GP	RAU1-04-SO-0.25 PID = 0.5 ppm PID = 0 ppm				0 to 0.5 feet: SILT with SAND (ML); brown; 60% fines, low plasticity; 30% sand; 10% gravel; grass at surface; moist. 0.5 to 1.0 feet: CONCRETE.
2					RAU1-04-SO-1.3				1.0 to 1.5 feet: SILT with SAND (ML); dark brown; 60% fines, low plasticity; 20% sand; 20% gravel; trace woodwaste; faint petroleum hydrocarbon-like odor; moist.
3									1.5 to 5.0 feet: No recovery.
4	▼								
5	▽			GW					
6			30	GP	PID = 3.0 ppm				5.0 to 6.5 feet: SILTY SAND (SM); dark gray; 40% fines; 50% sand; 10% gravel; trace wood; faint petroleum hydrocarbon-like odor; moist to wet. Wood pulp from 6.0 to 6.1 feet.
7									6.5 to 10.0 feet: No recovery. Note, a second boring was advanced a few feet from original boring location to determine if able to achieve greater recovery. However, limited recovery was encountered in second boring as well.
8					RAU1-04-GW-7.5				
9									
10									

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) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 3.98 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-05**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**30**	**GP**	**RAU1-05-SO-0.25**				*0 to 0.4 feet: GRAVEL with SILT (GW); dark brown; 20% fines; 10% sand; 70% gravel, angular; grass at surface.*
					PID = 0 ppm				*0.4 to 1.5 feet: SILTY GRAVEL (GM); dark brown; 40% fines; 20% sand, fine to coarse; 40% gravel, subrounded to angular; moist.*
2					**RAU1-05-SO-1.5**				*1.5 to 5.0 feet: No recovery.*
3									
4				**GW**					
5			**50**	**GP**					*5.0 to 5.5 feet: WOODWASTE; 100% woodwaste, chips; moist.*
6					**PID = 0.2 ppm**				*5.5 to 6.0 feet: SILTY GRAVEL (GM) with WOODWASTE; dark gray; 15% fines; 5% sand, fine to coarse; 20% gravel, subrounded to angular; 60% woodwaste; petroleum hydrocarbon-like odor; wet.*
7					**RAU1-05-GW-6.5**				*6.0 to 7.5 feet: WOODWASTE; 100% woodwaste, chips to pulp; mild petroleum hydrocarbon-like odor; moist.*
					PID = 0.5 ppm				
8									*7.5 to 10.0 feet: No recovery.*
9									
10									

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) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.5 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.48 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-06**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/3/2019 to 12/3/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***E. Hess***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			**100**	**GP**					*0 to 1.5 feet: ASPHALT.*
2						***PID = 0 ppm*** ***RAU1-06-SO-1.75***			*1.5 to 2.0 feet: SILTY GRAVEL (GM); blackish brown; 20% fines; 20% sand; 60% gravel, fine to medium, subangular to subrounded; petroleum hydrocarbon-like odor; moist.*
3						***PID = 0 ppm***			*2.0 to 3.5 feet: SILTY GRAVEL (GM); gray; 30% fines; 70% gravel, fine to coarse; trace wood; dry.*
4						***RAU1-06-SO-3.5***			*3.5 to 4.5 feet: WOODWASTE; 100% woodwaste, pulp; moist.*
5									*4.5 to 5.0 feet: SILTY SAND (SM); dark brownish gray; 30% fines; 70% sand; trace gravel; wet.*
6			**80**	**GW GP**					*5.0 to 9.0 feet: SILTY SAND (SM); grayish brown; 20% fines; 80% sand, fine to coarse; trace gravel; wet.*
7						***PID = 0 ppm***			
8						***RAU1-06-GW-7.5***			
9									*9.0 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 4.5 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.37 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-07**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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**					*0 to 0.9 feet: ASPHALT.*
2						***PID = 0 ppm RAU1-07-SO-1.8***			*0.9 to 2.6 feet: SANDY GRAVEL (GP); black and orangeish brown; 20% fines; 30% sand; 50% gravel; moist.*
3									*2.6 to 3.0 feet: SILTY SAND (SM); reddish brown; 20% fines; 70% sand; 10% gravel; moist.*
4									*3.0 to 5.0 feet: No recovery.*
5	▼ ▽								
6			**80**	**GW GP**					*5.0 to 9.0 feet: SILTY SAND (SM); gray; 20% fines; 80% sand, medium to coarse; trace gravel; wet.*
7						***PID = 0 ppm***			
8						***RAU1-07-GW-7.5***			
9									*9.0 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.51 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-08**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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**					0 to 1.0 feet: CONCRETE.
2						**RAU1-08-SO-2.0**			1.0 to 2.0 feet: SANDY SILT (ML); light brown; 70% fines, medium plasticity; 20% sand, fine to medium; 10% gravel, fine to medium, subrounded; moist.
3									2.0 to 2.5 feet: GRAVEL with SILT (GW-GM); 10% fines; 10% sand, fine to medium; 80% gravel, fine to medium, subrounded; dry.
4									2.5 to 3.0 feet: SAND (SW); reddish brown; 100% sand, medium to coarse, subrounded to subangular; trace fines; moist.
5	▼			**GW**					3.0 to 5.0 feet: No recovery.
6			**50**	**GP**					5.0 to 5.5 feet: GRAVELLY SAND (SW); reddish brown; 80% sand, medium to coarse; 20% gravel, fine to medium, subrounded to subangular; moist.
7	▽					**RAU1-08-SO-7.0** **RAU1-08-GW-7.0**			5.5 to 6.5 feet: GRAVELLY SAND (SW); greenish gray; 80% sand, fine to coarse; 20% gravel, medium, subrounded; dense; moist.
8									6.5 to 7.5 feet: SILT with SAND (ML); 80% fines, medium plasticity; 20% sand, fine to coarse; trace woodwaste (less than 0.5-inch); visible sheen, strong petroleum hydrocarbon-like odor; moist to wet.
9									7.5 to 10.0 feet: No recovery.
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 4) GW = groundwater sample. 5) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 7.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 5.02 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-09**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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
0			50	GP					0 to 0.6 feet: ASPHALT.
1						PID = 0 ppm			0.6 to 1.0 feet: GRAVELLY SAND with SILT (SW-SM); dark brown; 10% fines; 60% sand, medium to coarse; 30% gravel; moist.
2						RAU1-09-SO-1.5			1.0 to 1.4 feet: SILT with SAND (ML); dark brown; 60% fines; 30% sand; 10% gravel; trace woody debris; moist.
3						PID = 0 ppm			1.4 to 2.5 feet: SILTY SAND (SM); grayish brown; 30% fines; 60% sand; 10% gravel; moist.
4				GW					2.5 to 5.0 feet: No recovery.
5	▽		80	GP					5.0 to 9.0 feet: SILTY SAND (SM); grayish brown; 15% fines; 80% sand, medium to very coarse; 5% gravel; wet.
6									
7						PID = 0.1 ppm			
8						RAU1-09-GW-7.0			
9									
10									9.0 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 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 4.73 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-10**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/4/2019 to 12/4/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***R. Lewis***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			**50**	**GP**					*0 to 1.25 feet: CONCRETE.*
2						**RAU1-10-SO-2.0**			*1.25 to 2.5 feet: SANDY GRAVEL (GW); gray; 40% sand, medium to coarse; 60% gravel, fine to medium, angular to subrounded; trace fines; moist.*
3									*2.5 to 5.0 feet: No recovery.*
4									
5									
6	▽		**30**	**GW GP**					*5.0 to 6.5 feet: SANDY GRAVEL (GW); gray; 40% sand, medium to coarse; 60% gravel, fine to coarse, angular to subangular; trace brick debris.*
7									*6.5 to 10.0 feet: No recovery.*
8									
9						**RAU1-10-GW-8.5**			
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 4) GW = groundwater sample. 5) Depths are approximate and relative to feet bgs.*

▽ ***Water level 6.34 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-11**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			100	GP					0 to 1.5 feet: ASPHALT.
2									1.5 to 2.7 feet: SILTY GRAVEL (GM); dark gray; 30% fines; 10% sand; 60% gravel, subangular; moist. 1.9 to 2.7 feet: Interval of 30% woodwaste.
3						PID = 0 ppm			
4						PID = 0 ppm RAU1-11-SO-3.5			2.7 to 3.9 feet: SILTY SAND (SM); gray; 30% fines; 60% sand, fine to coarse; 10% gravel; mild petroleum hydrocarbon-like odor; moist.
5	▼					PID = 6.3 ppm			3.9 to 5.3 feet: SILTY SAND (SM); reddish gray; 40% fines; 60% sand, fine to medium; trace gravel; moist. @ 4.5 feet: Color changes to greenish gray; petroleum hydrocarbon-like odor.
6	▽		80	GW GP		PID = 6.9 ppm			5.3 to 7.0 feet: WOODWASTE; 100% woodwaste, pulp to chips; product coated; strong petroleum hydrocarbon-like odor; wet.
7						RAU1-11-GW-7.0			7.0 to 9.0 feet: SAND with SILT (SW-SM); grayish brown; 15% fines; 65% sand, fine to coarse; 20% gravel; wet.
8						PID = 0.5 ppm			
9									9.0 to 10.0 feet: No recovery.
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

Note, trace light nonaqueous phase liquid was present on water level indicator probe approximately 30 minutes after well was set, prior to groundwater purging.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.3 feet bgs, observed in macrocore during drilling.**

▼ **Water level 4.96 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU1-12**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			80	GP					0 to 0.8 feet: ASPHALT.
									0.8 to 1.2 feet: SILTY GRAVEL (GM); gray; 20% fines; 20% sand; 60% gravel, subangular; moist.
2						PID = 0.1 ppm			1.2 to 2.4 feet: SILT with SAND (ML); bluish gray; 50% fines; 20% sand; 30% gravel, fine to medium; moist.
3						RAU1-12-SO-2.7 PID = 2.1 ppm			2.4 to 3.6 feet: SILTY GRAVEL (GM); dark bluish gray; 30% fines; 20% sand; 50% gravel, subangular to subrounded, fine to coarse; moist.
4	▼					PID = 15.8 ppm			3.6 to 4.0 feet: SILT with SAND (ML); bluish gray; 50% fines; 20% sand; 30% gravel, fine to medium; moist to wet.
				GW					4.0 to 5.0 feet: No recovery.
5	▽		50	GP					5.0 to 5.2 feet: WOODWASTE; 100% woodwaste, chips to chunks; petroleum hydrocarbon-like odor; wet.
6									5.2 to 7.5 feet: SILTY SAND (SM); dark gray; 20% fines; 60% sand, fine to coarse; 30% gravel; trace wood; petroleum hydrocarbon-like odor, sheen on water in core; wet.
7						PID = 16.0 ppm RAUW-12-GW-7.0			
8									7.5 to 10.0 feet: No recovery.
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 3.77 feet bgs, measured after temporary well installation.**

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU1-13**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/22/2020 to 7/22/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 1.0 feet: ASPHALT.
2		100					1.0 to 4.2 feet: SILTY SAND with GRAVEL (SM); grayish brown; 20% fines; 60% sand, fine to coarse; 20% gravel; trace wood fragments; moist.
3							
4				RAU1-13-SO-3.5	0.6		
5	▼				3.4		4.2 to 4.8 feet: SILT (ML); dark brown; 90% fines, low plasticity; 10% sand, fine; trace to 20% roots; moist.
	▽						4.8 to 8.0 feet: Well-graded SAND with SILT (SW-SM); grayish brown; 10% fines; 80% sand, fine to coarse; 10% gravel, subangular to subrounded; moist.
6		100					@ 5.5 feet: Becomes wet.
7				RAU1-13-GW-7.0			
8					0.4		
9							8.0 to 12.0 feet: Well-graded SAND with SILT (SW-SM); grayish brown; 10% fines; 60% sand, fine to coarse; 30% gravel, subangular to subrounded; moist.
10		100			0.4		
11							
12					0.3		

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ **Water level measurement is 5.5 feet bgs, observed in macrocore during drilling.** ▼ **Water level measurement is 5.01 feet bgs, measured after temporary well installation.**

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU1-14**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/22/2020 to 7/22/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 2.5 feet: ASPHALT.
2		100					
3							2.5 to 4.8 feet: SANDY SILT (ML); grayish brown; 60% fines, low plasticity; 30% sand, fine to coarse; 10% gravel; very stiff; moist.
4				RAU1-14-SO-3.5	0.3		
5	▼ ▽						4.8 to 6.2 feet: SILTY SAND (SM); dark grayish brown; 40% fines; 50% sand, fine to coarse; 10% gravel; moist. @ 5.2 feet: Becomes wet.
6		100		RAU1-14-GW-3.5	0.8		
7							6.2 to 8.0 feet: SANDY SILT (ML); dark grayish brown; 60% fines, low plasticity; 30% sand, fine to coarse; 10% gravel; wet.
8					0.6		
9					0.6		8.0 to 9.6 feet: SANDY SILT (ML); dark grayish brown; 60% fines, low plasticity; 30% sand, fine to coarse; 10% gravel; wet.
10		60			0.3		9.6 to 10.4 feet: SILTY SAND with GRAVEL (SM); dark grayish brown; 30% fines; 50% sand, fine to coarse; 20% gravel, subangular to subrounded; wet.
11							10.4 to 12.0 feet: No recovery.
12							

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 5.2 feet bgs, observed in macrocore during drilling.*** ▼ ***Water level measurement is 4.63 feet bgs, measured after temporary well installation.***

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\1044.02.13\RAU1-RAU7.GPJ 4/14/22

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-01**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/2/2019 to 12/2/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***E. Hess***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			**80**	**GP**					*0 to 1.5 feet: ASPHALT.*
									@ 1.5 feet: Wood chunk.
2									*1.5 to 3.2 feet: SANDY GRAVEL with SILT (GW-GM); gray; 30% fines; 30% sand, fine to coarse; 40% gravel, subrounded to subangular; moist.*
3						***PID = 0 ppm***			*@ 2.8 feet: Color changes to brown.*
						RAU2-01-SO-3.5			*3.2 to 4.0 feet: SILT with SAND (ML); dark grayish brown; 60% fines, 30% sand, fine to coarse; 10% gravel; moist to wet.*
4	▼					***PID = 0 ppm***			
									4.0 to 5.0 feet: No recovery.
5	▽								
			60	**GW GP**					*5.0 to 6.5 feet: GRAVELLY SAND with SILT (SW-SM); dark grayish brown; 10% fines; 60% sand, medium to coarse; 30% gravel; wet.*
6						***PID = 0 ppm***			
7									*6.5 to 8.0 feet: WOODWASTE; 100% woodwaste, chunks; wet.*
8						***RAU2-01-GW-7.5***			
									8.0 to 10.0 feet: No recovery.
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.39 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-02**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**7.0-feet**
Sample Method	**Macro-core**	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**					*0 to 0.7 feet: ASPHALT.*
						PID = 0 ppm			*0.7 to 2.0 feet: SANDY GRAVEL with SILT (GW-GM); bluish gray; 10% fines; 20% sand; 70% gravel, subangular to subrounded; moist.*
2				**GW**		**RAU2-02-SO-2.5**			*2.0 to 3.0 feet: SILTY SAND (SM); brownish gray; 40% fines; 50% sand, fine to medium; 10% gravel; moist.*
3						**PID = 0 ppm**			*3.0 to 5.0 feet: No recovery.*
4									
5									
6			**100**	**GP**		**RAU2-02-GW-6**			*5.0 to 5.5 feet: SILTY SAND (SM); brownish gray; 20% fines; 70% sand; 10% gravel; moist.*
						PID = 0 ppm			*5.5 to 7.0 feet: SAND with SILT (SW-SM); brownish gray; 10% fines; 90% sand, fine to medium; wet.*
7									

Total Depth = 7.0 feet bgs.

Borehole Completion Details:
0 to 7.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 7.0 feet: Bentonite chips hydrated with potable water.

Note: Drilling rig encountered refusal due to the presence of wood at 7 feet below ground surface. A second boring was advanced a few feet from original location and refusal was also encountered at approximately 6 feet below ground surface.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 2.0 to 7.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.50 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 5.55 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-03**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			80	GP					0 to 0.5 feet: ASPHALT.
									0.5 to 1.1 feet: GRAVELLY SAND with SILT (SW-SM); dark gray; 20% fines; 50% sand, subangular to subrounded; 30% gravel; dry.
2									1.1 to 1.8 feet: SILTY SAND (SM); bluish gray with orange mottling; 40% fines; 30% sand; 30% gravel; moist.
									1.8 to 2.1 feet: SILTY SAND (SM); black; 20% fines; 60% sand, medium to coarse; 20% gravel; mild petroleum hydrocarbon-like odor; moist.
3						PID = 0 ppm			
						RAU2-03-SO-3			2.1 to 4.0 feet: SILTY SAND (SM); grayish brown; 30% fines; 60% sand, fine to coarse; 10% gravel, subrounded to subangular; moist.
4									4.0 to 5.0 feet: No recovery.
5	▼		60	GW GP					5.0 to 8.0 feet: SILTY SAND (SM); grayish brown; 20% fines; 70% sand; 10% gravel; wet. Wood in shoe at base of borehole.
6									
7						PID = 0 ppm			
8						RAU2-03-GW-7.5			@ 7.8 feet: Woodwaste.
									8.0 to 10.0 feet: No recovery.
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 5.14 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-04**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/2/2019 to 12/2/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***E. Hess***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			**100**	**GP**					*0 to 0.8 feet: ASPHALT.*
2									*0.8 to 3.2 feet: SILTY SAND (SM); gray; 20% fines; 40% sand, fine to coarse; 40% gravel, subrounded; dry to moist.*
3						***PID = 0 ppm***			
4						***PID = 0 ppm***			*3.2 to 5.0 feet: SILTY GRAVEL (GM); 30% fines; 20% sand; 50% gravel; moist.*
5	▼ ▽					***RAU2-04-SO-4.5***			*@ 4.2 feet: Color changes to brownish gray; becomes wet.*
6			**80**	**GW GP**					*5.0 to 8.0 feet: WOODWASTE; light to dark brown; 100% woodwaste, chips to chunks; wet.*
7						***PID = 0 ppm***			
8						***RAU2-04-GW-7.5***			
9									*8.0 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.41 feet bgs, measured after temporary well installation.***

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-05**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**70**	**GP**					*0 to 1.0 feet: ASPHALT.*
2						**PID = 0 ppm**			*1.0 to 1.5 feet: SANDY GRAVEL with SILT (GW-GM); dark gray; 10% fines; 20% sand; 70% gravel; moist.*
3						**PID = 0 ppm** **RAU2-05-SO-2.5**			*1.5 to 3.5 feet: SILT with SAND (ML); orangeish brown; 50% fines; 30% sand, fine to coarse; 20% gravel, subrounded; moist.*
4				**GW**					*3.5 to 5.0 feet: No recovery.*
5			**40**	**GP**					*5.0 to 7.0 feet: SANDY GRAVEL with SILT (GW-GM); grayish brown; 10% fines; 30% sand; 60% gravel, subrounded to rounded; wet.*
6						**PID = 0 ppm**			
7									*7.0 to 10.0 feet: No recovery.*
8						**RAU2-05-GW-7.5**			
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.30 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-06**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**9.5-feet**
Sample Method	**Macro-core**	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			**50**	**GP**					*0 to 0.8 feet: ASPHALT.*
2						**PID = 0 ppm RAU2-06-SO-1.3**			*0.8 to 2.5 feet: SANDY SILT (ML); yellowish brown; 60% fines; 20% sand, fine to coarse; 20% gravel, subrounded to subangular; moist.*
3				**GW**					*2.5 to 5.0 feet: No recovery.*
4									
5			**30**	**GP**					*5.0 to 6.5 feet: GRAVELLY SAND with SILT (SW-SM); grayish brown; 20% fines; 60% sand, fine to coarse; 20% gravel, subrounded to subangular; wet.*
6						**PID = 0 ppm**			
7						**RAU2-06-GW-6.5**			*6.5 to 9.5 feet: No recovery.*
8									
9									

Total Depth = 9.5 feet bgs.

Borehole Completion Details:
0 to 9.5 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 9.5 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 2.5 to 7.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.32 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-07**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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**					*0 to 0.5 feet: CONCRETE.*
									0.5 to 2.5 feet: GRAVELLY SAND (SW); brown; 65% sand, fine to coarse; 35% gravel, fine to medium, subrounded to subangular; dry.
2						***PID = 0.1 ppm***			
						RAU2-07-SO-1.5			
3									*2.5 to 3.0 feet: WOODWASTE; brown; 100% woodwaste; dry.*
									3.0 to 5.0 feet: No recovery.
4									
5									
			40	**GW GP**		***PID = 0 ppm***			*5.0 to 5.5 feet: SANDY GRAVEL (GW); gray; 35% sand, medium to coarse; 65% gravel, fine to medium, subrounded; wet.*
6									*5.5 to 6.0 feet: WOODWASTE; 100% woodwaste; wet.*
									6.0 to 7.0 feet: SILT (ML); dark gray; 100% fines, medium plasticity; trace wood fragments; wet.
7									*@ 6.5 feet: Becomes micaceous.*
									7.0 to 10.0 feet: No recovery.
8						***RAU2-07-GW-7.5***			
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.

Water level 4.82 feet bgs, measured after temporary well installation.

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-08**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**15.0-feet**
Sample Method	**Macro-core**	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
0			50	GP		PID = 0.4 ppm			0 to 0.5 feet: ASPHALT.
1									0.5 to 1.0 feet: SILTY GRAVEL (GM); light gray; 20% fines, medium plasticity; 20% sand; 60% gravel, fine to medium, subangular; moist.
2						RAU2-08-SO-2.0			1.0 to 2.0 feet: SILTY GRAVEL (GM); reddish brown; 20% fines; 20% sand, fine to medium; 60% gravel, fine to medium, subrounded to subangular; moist.
3									2.0 to 2.5 feet: GRAVELLY SILT (ML); light brown; 70% fines, medium plasticity; 30% gravel, fine to medium, subrounded; trace wood fragments; moist.
4									2.5 to 5.0 feet: No recovery.
5	▽		20	GP		PID = 0.4 ppm			5.0 to 6.0 feet: GRAVELLY SAND with SILT (GW-GM); 10% fines; 50% sand, medium to coarse; 40% gravel, fine to medium, subrounded; wet.
6	▼								6.0 to 10.0 feet: No recovery.
7									
8									
9									Note: Poor recovery was noted at boring location. A second boring was advanced in an attempt to recover additional soil, but it also had limited recovery.
10									10.0 to 15.0 feet: Not sampled; advanced to 15 feet without soil core retrieval for monitoring well construction.
11									
12									
13									
14									
15									Total Depth = 15.0 feet bgs.

<u>Borehole Completion Details:</u>
0 to 15.0 feet bgs: 2.25-inch borehole.
0 to 1.0 feet bgs: Concrete.
1.0 to 2.75 feet bgs: Bentonite chips hydrated with potable water.
2.75 to 15.0 feet bgs: 10x20 silica filter pack sand.

<u>Monitoring Well Completion Details:</u>
0.3 to 4.25 feet bgs: Flush mount monument. 2-inch diameter, PVC schedule 40, flush threaded, riser pipe.
4.25 to 14.25 feet bgs: 2-inch diameter, PVC schedule 40, 0.010-inch machine slotted, pre-pack well screen.
14.25 to 14.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

Washington Well Identification BME561

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) PVC = polyvinyl chloride. 6) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 5.72 feet bgs, measured after monitoring well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-09**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**15.0-feet**
Sample Method	**Macro-core**	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			40	GP					0 to 1.0 feet: ASPHALT.
2						PID = 0 ppm RAU2-09-SO-1.5			1.0 to 1.5 feet: SILTY GRAVEL (GM); brown; 20% fines, plastic; 10% sand, fine; 70% gravel, subrounded to subangular, fine to coarse; trace wood fragments (less than 0.5 inches in thickness); moist.
3									1.5 to 2.0 feet: SILTY GRAVEL (GM); light gray; 20% fines, non-plastic; 80% gravel, subrounded to subangular, fine to coarse; trace wood fragments; moist.
4									2.0 to 5.0 feet: No recovery.
5									
6			70	GP					5.0 to 6.0 feet: SILTY GRAVEL (GM); light brown; 20% fines, non-plastic; 80% gravel; trace wood fragments (1- to 2-inches in thickness); wet.
7									6.0 to 6.5 feet: GRAVEL with SILT (GW-GM); 10% fines; 10% sand; 80% gravel, fine to medium, subrounded; moist.
8						PID = 14.7 ppm RAU2-09-SO-8.0			6.5 to 8.5 feet: WOODWASTE; brown; 100% woodwaste; pulp; moist. @ 7.5 feet: Becomes black to red/brown; visible oil/sheen.
9									8.5 to 10.0 feet: No recovery.
10									
11									10.0 to 15.0 feet: Not sampled; advanced to 15 feet without soil core retrieval for monitoring well construction.
12									
13									
14									
15									Total Depth = 15.0 feet bgs.

<u>Borehole Completion Details:</u>
0 to 15.0 feet bgs: 2.25-inch borehole.
0 to 1.0 feet bgs: Concrete.
1.0 to 2.75 feet bgs: Bentonite chips hydrated with potable water.
2.75 to 15.0 feet bgs: 10x20 silica filter pack sand.

<u>Monitoring Well Completion Details:</u>
0.3 to 4.4 feet bgs: Flush mount monument. 2-inch diameter, PVC schedule 40, flush threaded, riser pipe.
4.4 to 14.4 feet bgs: 2-inch diameter, PVC schedule 40, 0.010-inch machine slotted, pre-pack well screen.
14.4 to 14.65 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

Washington Well Identification BME560

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) PVC = polyvinyl chloride. 6) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 3.76 feet bgs, measured after monitoring well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-GA1**	**1 of 2**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	**615307.7**
Driller/Equipment	**Holocene Drilling, Inc./Diedrich D-50**	Easting	**817000.7**
Geologist/Engineer	**R. Lewis**	Hole Depth	**26.5-feet**
Sample Method	**Standard Penetration Test**	Outer Hole Diam	**3.0-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1									0 to 2.5 feet: Not sampled.
2									
3			20	SP					2.5 to 3.0 feet: WOODWASTE; brown; 100% woodwaste; wet.
4						RAU2-GA1-SO-3.25			3.0 to 6.0 feet: SILT (ML); gray; 90% fines, medium plasticity; 10% sand, fine to medium; trace woodwaste, organics; wet.
5			5	SP					
6						RAU2-GA1-SO-5.75			@ 6.0 feet: Slight sheen, organic-like odor.
7									6.0 to 10.0 feet: SILT with SAND (ML); gray; 80% fines, medium plasticity; 20% sand, medium; trace woodwaste, organics; wet.
8			15	SP					
9						RAU2-GA1-SO-8.25			
10			50	SP					10.0 to 20.5 feet: SILTY SAND (SM); gray; 40% fines, medium plasticity; 60% sand, fine to medium; trace woodwaste, organics; wet.
11						RAU2-GA1-SO-10.75			
12									
13									
14									
15			100	SP					
16						RAU2-GA1-SO-15.5			
17									
18									
19									
20									

NOTES: *1) Soil lithology determined from soil cuttings during drilling and SP sample intervals. 2) bml = below mudline. 3) SP = split spoon. 4) Depths are approximate and relative to feet bml.*

▽ ***Water level measurement is 2.5 feet bml, observed in split spoon sample during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-GA1**	**2 of 2**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
21			**100**	**SP**		**RAU2-GA1-SO-20.25**			*20.5 to 26.5 feet: SAND with SILT (SP-SM); gray; 10% fines; 90% sand, medium; wet.*
22									
23									
24									
25			**100**	**SP**					
26						**RAU2-GA1-SO-25.75**			

Total Depth = 26.5 feet bml.

Borehole Completion Details:
0 to 26.5 feet: 3-inch boring.
0 to 26.5 feet: bentonite chips hydrated with potable water.

NOTES: *1) Soil lithology determined from soil cuttings during drilling and SP sample intervals. 2) bml = below mudline. 3) SP = split spoon. 4) Depths are approximate and relative to feet bml.*

▽ ***Water level measurement is 2.5 feet bml, observed in split spoon sample during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-GA2**	**1 of 2**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	**614931.7**
Driller/Equipment	**Holocene Drilling, Inc./Diedrich D-50**	Easting	**816674.7**
Geologist/Engineer	**R. Lewis**	Hole Depth	**26.5-feet**
Sample Method	**Standard Penetration Test**	Outer Hole Diam	**3.0-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1									0 to 2.5 feet: Not sampled.
2									
3			20	SP					2.5 to 4.0 feet: WOODWASTE; reddish brown; 100% woodwaste; wood chips and sawdust; wet.
4						RAU2-GA2-SO-3.25			4.0 to 5.0 feet: No recovery.
5			5	SP					5.0 to 6.0 feet: WOODWASTE; reddish brown; 100% woodwaste, wood chips and sawdust; wet.
6						RAU2-GA2-SO-5.75			6.0 to 6.5 feet: No recovery.
7									6.5 to 8.5 feet: WOODWASTE; reddish brown; 100% woodwaste, wood chips and sawdust; wet.
8			15	SP					
9						RAU2-GA2-SO-8.25			8.5 to 9.0 feet: No recovery.
10									9.0 to 10.0 feet: WOODWASTE; reddish brown; 100% woodwaste, wood chips and sawdust; wet.
11			50	SP		RAU2-GA2-SO-10.75			10.0 to 20.0 feet: SILT (ML); gray; 70% fines, medium plasticity; 30% woodwaste, chips; wet.
12									
13									
14									
15			100	SP					
16						RAU2-GA2-SO-15.75			
17									
18									
19									
20									

NOTES: *1) Soil lithology determined from soil cuttings during drilling and SP sample intervals. 2) bml = below mudline. 3) SP = split spoon. 4) Depths are approximate and relative to feet bml.*

▽ ***Water level measurement is 2.5 feet bml, observed in split spoon sample during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU2-GA2**	**2 of 2**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
21			**100**	**SP**		**RAU2-GA2-SO-20.75**			*20.0 to 21.0 feet: SAND with SILT (SW-SM); gray; 20% fines, medium plasticity; 80% sand, fine to medium; wet.*
									21.0 to 26.5 feet: SAND (SP); gray; 100% sand, medium, subrounded to subangular; wet.
22									
23									
24									
25			**100**	**SP**					
26						**RAU2-GA2-SO-25.75**			

Total Depth = 26.5 feet bml.

Borehole Completion Details:
0 to 26.5 feet: 3-inch boring.
0 to 26.5 feet: bentonite chips hydrated with potable water.

NOTES: *1) Soil lithology determined from soil cuttings during drilling and SP sample intervals. 2) bml = below mudline. 3) SP = split spoon. 4) Depths are approximate and relative to feet bml.*

▽ ***Water level measurement is 2.5 feet bml, observed in split spoon sample during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU3-01**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**70**	**GP**					*0 to 0.5 feet: ASPHALT.*
									0.5 to 2.0 feet: SILTY GRAVEL (GM); light gray; 15% fines; 5% sand, fine; 80% gravel, fine to medium, crushed; dry.
2						**RAU3-01-SO-2.0**			
						PID = 0.3 ppm			*2.0 to 3.5 feet: SANDY GRAVEL (GW); dark brown; 35% sand, fine to coarse, subrounded to subangular; 65% gravel, fine to coarse, subrounded to subangular; moist.*
3									*@ 2.5 feet: Color change to gray; 30% sand; 70% gravel.*
4									*3.5 to 5.0 feet: No recovery.*
5			**45**	**GP**					*5.0 to 5.5 feet: GRAVELLY SAND (SW); brown; 60% sand, fine to coarse; 40% gravel, fine to coarse, subangular to subrounded; moist.*
6	▽					**PID = 0.1 ppm**			*@ 5.5 feet: Change to 70% sand; 30% gravel; wet.*
7						**RAU3-01-SO-6.5**			
									7.25 to 10.0 feet: No recovery.
8									
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.5 feet bgs, observed in macrocore during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU3-03**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**100**	**GP**					0 to 1.5 feet: ASPHALT.
2									1.5 to 2.6 feet: GRAVELLY SAND with SILT (GW-GM); reddish brown; 20% fines; 60% sand, fine to coarse; 20% gravel, fine to coarse, subrounded.
3						**RAU3-03-SO-2.5 PID = 0 ppm**			2.6 to 5.0 feet: SANDY GRAVEL with SILT (GW-GM); grayish brown; 20% fines; 30% sand, fine to coarse; 50% gravel, fine to coarse; moist.
4									@ 3.5 feet: Becomes wet.
5									
6			**80**	**GP**					5.0 to 9.0 feet: SILT (MH); brown; 95% fines, medium to high plasticity; 5% sand; trace rootlets; moist to wet.
7						**PID = 0 ppm**			@ 6.0 feet: Wood chunk.
8									8.0 to 8.4 feet: Woodwaste.
9									9.0 to 10.0 feet: No recovery.
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet bgs: 2.25-inch borehole.
0 to 1.0 feet bgs: Concrete.
1.0 to 1.5 feet bgs: Bentonite chips hydrated with potable water.
1.5 to 10.0 feet bgs: 10x20 silica filter pack sand.

Monitoring Well Completion Details:
0.3 to 2.3 feet bgs: Flush mount monument. 2-inch diameter, PVC schedule 40, flush threaded, riser pipe.
2.3 to 7.3 feet bgs: 2-inch diameter, PVC schedule 40, 0.010-inch machine slotted, pre-pack well screen.
7.3 to 7.55 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

Washington Well Identification BME557

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) PVC = polyvinyl chloride. 4) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 3.5 feet bgs, observed in macrocore during drilling.**

▼ **Water level 1.50 feet bgs, measured after monitoring well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU3-04**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/3/2019 to 12/3/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***M. Pollock***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			75	GP		PID = 0.4 ppm			0 to 1.2 feet: ASPHALT.
2						PID = 0.7 ppm RAU3-04-SO-2.5			1.2 to 2.3 feet: SANDY GRAVEL with SILT (GW-GM); blackish brown; 20% fines; 40% sand, fine to coarse; 40% gravel; moist to wet.
3									2.3 to 3.5 feet: GRAVELLY SAND with SILT (SW-SM); yellowish brown; 30% fines, dense; 50% sand, fine to coarse; 20% gravel, subrounded; moist to wet.
4									3.5 to 3.8 feet: SILT (MH); grayish brown; 95% fines, medium to high plasticity; 5% sand; moist.
									@ 3.7 feet: Becomes greenish gray.
5	▽								3.8 to 5.0 feet: No recovery.
			70	GP					5.0 to 8.5 feet: SILT (MH); grayish brown; 95% fines, medium to high plasticity; 5% sand; trace rootlets; wet.
6						PID = 0.7 ppm RAU3-04-SO-6.5			
7									
8									
9									8.5 to 10.0 feet: No recovery.
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU3-05**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/2/2019 to 12/2/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**80**	**GP**					*0 to 1.2 feet: ASPHALT.*
2						**PID = 20.5 ppm RAU3-05-SO-1.6**			*1.2 to 2.0 feet: SILTY GRAVEL (GM); light gray; 20% fines; 10% sand; 70% gravel, subrounded to subangular; dry. Soil may be associated with asphalt layer above; such as a subbase.*
3						**PID = 0.1 ppm RAU3-05-SO-3**			*2.0 to 4.0 feet: SILTY SAND (SM); grayish brown; 40% fines; 30% sand, fine to coarse; 30% gravel, subrounded to rounded; moist.*
4									*4.0 to 5.0 feet: No recovery.*
5	▽ ▼			**GW**					
6			**60**	**GP**					*5.0 to 6.0 feet: SILTY SAND (SM); dark gray; 20% fines; 80% sand, medium to coarse; wet.*
7						**PID = 0 ppm**			*6.0 to 8.0 feet: SILT with SAND (ML); brown; 80% fines, low plasticity; 20% sand; trace gravel, wood chips; moist to wet.*
8						**RAU3-05-GW-8.0**			*8.0 to 10.0 feet: No recovery.*
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.54 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU3-06**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			100	GP					0 to 1.2 feet: ASPHALT.
2						PID = 0.2 ppm			1.2 to 3.0 feet: SILTY SAND (SM); dark brown; 30% fines; 50% sand, fine to coarse; 20% gravel, fine to medium, subangular to subrounded; moist.
3						RAU3-06-SO-3			
4	▼			GW		PID = 0.2 ppm			3.0 to 5.0 feet: SANDY SILT (ML); grayish brown; 50% fines; 40% sand, fine to medium; 10% gravel, medium to coarse, subrounded; moist. @ 4.0 feet: Color change to brown.
5	▽								
6			20	GP		PID = 0.3 ppm			5.0 to 6.0 feet: GRAVELLY SILT (ML); grayish brown; 50% fines; 20% sand, fine to medium; 30% gravel, medium to coarse, subrounded; wet.
7						RAU3-06-GW-6.5			6.0 to 10.0 feet: No recovery.
8									
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.27 feet bgs, measured after temporary well installation.***

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU3-07**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**50**	**GP**					*0 to 0.5 feet: ASPHALT.*
									0.5 to 1.0 feet: SILTY SAND (SM); gray; 20% fines; 40% sand, fine to coarse; 40% gravel, fine to medium, subangular; dry.
2						**PID = 0 ppm**			*1.0 to 2.0 feet: SILTY SAND (SM); light brown; 30% fines; 40% sand, medium to coarse; 30% gravel, fine to medium, subangular; dry.*
						RAU3-07-SO-2.0			*2.0 to 2.5 feet: SILTY GRAVEL (GM); dark brown; 40% fines; 10% sand, fine to medium; 50% gravel, fine to medium, subrounded; moist.*
3									*2.5 to 5.0 feet: No recovery.*
4									
5			**30**	**GP**		**PID = 0 ppm**			*5.0 to 5.5 feet: GRAVELLY SAND with SILT (SW-SM); light brown; 10% fines; 60% sand, fine to coarse; 30% gravel, medium, subrounded; dry to moist.*
6	▽					**RAU3-07-SO-6.0**			*5.5 to 6.5 feet: GRAVELLY SILT (MH); 60% fines, medium plasticity; 10% sand; 30% gravel, fine to medium, subrounded; trace wood fragments; moist to wet.*
7									*6.5 to 10.0 feet: No recovery.*
8									
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.5 feet bgs, observed in macrocore during drilling.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-01**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**70**	**GP**		**PID = 0 ppm**			*0 to 0.5 feet: ASPHALT.*
									0.5 to 1.2 feet: SILTY SAND (SM); grayish brown; 20% fines; 60% sand, fine to coarse; 20% gravel, fine to coarse; subangular to subrounded; moist.
2						**PID = 0 ppm** **RAU4-01-SO-2**			*1.2 to 2.4 feet: GRAVELLY SAND with SILT (SW-SM); gray with orange redox features; 40% fines; 40% sand, fine to coarse; 20% gravel; moist.*
3						**PID = 0 ppm**			*2.4 to 3.5 feet: SILTY SAND (SM); gray; 20% fines; 80% sand, medium to coarse; trace gravel, coarse; moist.*
4	▼			**GW**					*3.5 to 5.0 feet: No recovery.*
5	▽		**20**	**GP**					*5.0 to 6.0 feet: SAND with SILT (SW-SM); brownish gray; 10% fines; 90% sand; trace gravel, coarse; wet.*
6						**PID = 0 ppm**			*6.0 to 10.0 feet: No recovery.*
7						**RAU4-01-GW-6.5**			
8									
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 3.86 feet bgs, measured after temporary well installation.***

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-02**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**100**	**GP**					*0 to 1.8 feet: ASPHALT.*
2									*1.8 to 2.5 feet: SILTY GRAVEL (GM); dark bluish gray; 20% fines; 30% sand; 50% gravel; moist.*
3						**RAU4-02-SO-2.5**			*2.5 to 2.8 feet: WOODWASTE; 100% woodwaste, chips; moist.*
			70	**GP**		**PID = 0 ppm**			*2.8 to 4.2 feet: SILTY GRAVEL (GM); dark bluish gray; 20% fines; 30% sand, fine to coarse; 50% gravel, fine to coarse; moist.*
4									
5	▼			**GW**		**PID = 0.1 ppm**			*4.2 to 5.3 feet: SILTY SAND (SM); dark brownish gray; 20% fines, dense; 50% sand, fine to coarse; 30% gravel, fine to coarse, subrounded; moist.*
	▽								*5.3 to 8.5 feet: SILTY SAND (SM); dark brownish gray; 40% fines; 50% sand, medium to coarse; 10% gravel, subrounded; wet.*
6									
7						**PID = 0.1 ppm** **RAU4-02-GW-7**			
8									
9									*8.5 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.3 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.73 feet bgs, measured after temporary well installation.***

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-03**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**M. Pollock**	Hole Depth	**15.0-feet**
Sample Method	**Macro-core**	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**		**RAU4-03-SO-1.2**			0 to 0.8 feet: ASPHALT. 0.8 to 1.5 feet: SANDY GRAVEL with SILT (GW-GM); gray; 10% fines; 10% sand, fine to medium; 80% gravel, fine to medium; dry.
2									@ 1.2 feet: Becomes black. 1.5 to 3.0 feet: GRAVELLY SAND with SILT (SW-SM); brownish gray; 20% fines; 40% sand, fine to coarse; 40% gravel, fine; moist.
3									3.0 to 5.0 feet: No recovery.
4									
5			**75**	**GP**					5.0 to 5.6 feet: SILTY SAND (SM); brownish gray; 20% fines; 60% sand, fine to coarse; 20% gravel, fine; moist.
6									5.6 to 8.8 feet: SILT (ML); gray; 95% fines, low plasticity; 5% sand, fine; trace rootlets, mica; moist.
7									
8									
9									8.8 to 10.0 feet: No recovery.
10			**100**	**GP**					10.0 to 15.0 feet: SILT (ML); gray; 95% fines, low plasticity; 5% sand, fine; trace rootlets, mica; moist.
11									
12									
13									
14									
15						**RAU4-03-SO-14.5**			

Total Depth = 15.0 feet bgs.

Borehole Completion Details:
0 to 15.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 15.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) Depths are approximate and relative to feet bgs.*

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-04**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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**					*0 to 1.2 feet: CONCRETE.*
2						**PID = 7.1 ppm**			*1.2 to 2.7 feet: SANDY GRAVEL (GW); dark brown/black; 20% sand, fine to coarse; 80% gravel, fine to coarse, angular to subangular; moist.*
3									*2.7 to 4.2 feet: SANDY GRAVEL with SILT (GW-GM); dark gray; 10% fines; 40% sand, fine to coarse; 50% gravel, fine to coarse, subrounded to subangular; moist.*
4						**PID = 10.6 ppm** **RAU4-04-SO-3.45**			
5	▼			**GW**					*4.2 to 5.0 feet: No recovery.*
6	▽		**70**	**GP**		**PID = 3.9 ppm**			*5.0 to 6.0 feet: SILTY SAND (SM); gray; 20% fines; 50% sand, fine to coarse; subrounded to subangular; 30% gravel, fine to coarse, subrounded to subangular; moist.* *6.0 to 6.5 feet: SAND (SP); gray; 100% sand, fine to medium; wet.*
7						**RAU4-04-GW-7.0**			*6.5 to 8.5 feet: SILTY SAND (SM); brown; 40% fines; 40% sand, fine to medium; 20% gravel, fine to medium, subrounded to subangular; wet.*
8						**PID = 2.1 ppm**			
9									*8.5 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 6.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.88 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-05**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**70**	**GP**					*0 to 0.5 feet: ASPHALT.*
									0.5 to 2.5 feet: SILTY GRAVEL (GM); greenish gray; 30% fines; 30% sand, fine to coarse; 40% gravel, fine to coarse, subrounded to subangular; trace wood chips (less than 2-inches); dense; moist.
2						***RAU4-05-SO-1.75***			
3	▽ ▼								*2.5 to 3.5 feet: SANDY GRAVEL (GP); brown; 5% fines; 45% sand, medium to coarse; 50% gravel, medium, subangular to subrounded; wet.*
4									*3.5 to 5.0 feet: No recovery.*
5									
6			**80**	**GW GP**					*5.0 to 8.0 feet: SANDY GRAVEL (GP); light brown; 5% fines; 20% sand, medium to coarse; 75% gravel, medium, subangular to subrounded; dense; wet.*
7									
8						***RAU4-05-GW-7.5***			
9									*8.0 to 9.0 feet: SANDY SILT (MH); dark brown; 50% fines, medium plasticity; 15% sand, fine to medium; 15% gravel, fine, subangular; 20% woodwaste, chips; trace organics; dense; organic-like odor; wet.*
10									*9.0 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 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 4) GW = groundwater sample. 5) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 2.5 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 3.02 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-06**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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**					*0 to 0.5 feet: ASPHALT.*
									0.5 to 1.0 feet: SANDY GRAVEL (GW); dark brown; 40% sand, fine to coarse; 60% gravel, fine to medium, subangular to subrounded, crushed; minor organic-like odor; moist.
2						**RAU4-06-SO-1.5**			*1.0 to 2.5 feet: GRAVELLY SAND (SW); greenish gray; 70% sand, fine to coarse; 30% gravel, fine to coarse, subrounded to subangular; minor organic-like odor; moist.*
				GW		**PID = 3.1 ppm**			
3	▽ ▼								*2.5 to 3.0 feet: GRAVELLY SAND (SW); greenish gray; 80% sand, fine to coarse; 20% gravel, fine to coarse, subrounded; minor organic-like odor; moist to wet.*
4									*3.0 to 5.0 feet: No recovery.*
5						**RAU4-06-GW-4.5**			
			50	**GP**					*5.0 to 5.5 feet: GRAVELLY SAND (SW); greenish gray; 80% sand, fine to coarse; 20% gravel, fine to coarse, subrounded to subangular; minor organic-like odor; wet.*
6									*5.5 to 7.5 feet: GRAVELLY SAND (SW); gray; 60% sand, fine to coarse; 40% gravel, fine to coarse, subrounded to subangular; minor organic-like odor; wet.*
7						**PID = 2.3 ppm**			
8									*7.5 to 10.0 feet: No recovery.*
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 2.0 to 7.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 2.5 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 2.92 feet bgs, measured after temporary well installation.***

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-07**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			80	GP					0 to 1.2 feet: ASPHALT.
2						PID = 0.3 ppm			1.2 to 3.2 feet: SILTY GRAVEL (GM); black gravel in brown fines; 30% fines; 20% sand; 50% gravel, fine to coarse, subangular; moist.
3									
4				GW		RAU4-07-SO-3.5 PID = 0.2 ppm			3.1 to 4.0 feet: SANDY SILT (ML); bluish green; 50% fines; 30% sand, fine; 20% gravel, subrounded; dense; moist. @ 3.3 feet: Color change to orangeish brown. 4.0 to 5.0 feet: No recovery.
5	▼								
6	▽		100	GP					5.0 to 6.0 feet: WOODWASTE; 100% woodwaste, chips to chunks.
7						RAU4-07-GW-7.0 PID = 0.3 ppm			6.0 to 9.4 feet: SILTY SAND (SM); dark grayish brown; 20% fines; 60% sand, medium to coarse; 20% gravel, subrounded; wet.
8									
9									@ 9.0 feet: Color change to orangeish brown.
10						PID = 0.3 ppm			9.4 to 10.0 feet: GRAVELLY SAND with SILT (SW-SM); dark grayish brown; 10% fines; 80% sand, medium to coarse; 10% gravel, subrounded; wet.

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 3.5 to 8.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 6.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 4.85 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-08**	**1 of 1**

Project Name	***Upland RI -- Grays Harbor Historical Seaport Authority***	*TOC Elevation (feet)*	
Project Location	***500 N Custer Street, Aberdeen, Washington***	*Surface Elevation (feet)*	
Start/End Date	***12/4/2019 to 12/4/2019***	*Northing*	
Driller/Equipment	***Holt Services Inc./Geoprobe 7822DT***	*Easting*	
Geologist/Engineer	***R. Lewis***	*Hole Depth*	***10.0-feet***
Sample Method	***Macro-core***	*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			**80**	**GP**					*0 to 1.0 feet: ASPHALT.*
2						**RAU4-08-SO-1.75**			*1.0 to 2.5 feet: SANDY GRAVEL (GW); dark gray; 40% sand; 60% gravel, fine to medium, subangular to subrounded; trace wood fragments; moist.*
3						**PID = 0.5 ppm**			*2.5 to 3.5 feet: SILTY GRAVEL (GM); dark gray; 20% fines, medium plasticity; 40% gravel, fine to coarse; 40% woodwaste; moist.*
4									*3.5 to 4.0 feet: GRAVEL (GP); gray; 100% gravel, angular, crushed; dry.*
5									*4.0 to 5.0 feet: No recovery.*
6			**90**	**GW GP**					*5.0 to 5.5 feet: SANDY GRAVEL (GW); light gray; 20% sand; 80% gravel, fine to medium, angular to subrounded, crushed; moist.*
7						**PID = 0.8 ppm**			*5.5 to 7.0 feet: SANDY GRAVEL (GW); gray; 20% sand, fine to medium; 80% gravel, fine to coarse, subrounded to subangular; wet.*
8						**RAU4-08-GW-7.5**			*7.0 to 9.0 feet: SILTY GRAVEL (GM); light brown; 30% fines; 20% sand; 50% gravel, fine to medium, subrounded to subangular; dense; wet.*
9									*9.0 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.5 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 5.42 feet bgs, measured after temporary well installation.***

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-09**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			80	GP					0 to 1.5 feet: ASPHALT.
2									1.5 to 3.5 feet: SILTY GRAVEL (GM); brown; 35% fines, medium plasticity; 65% gravel, fine to coarse, angular to subangular, crushed; dry.
3						PID = 3.5 ppm RAU4-09-SO-2.5			
4									3.5 to 4.0 feet: GRAVELLY SAND (SW); light brown; 75% sand, fine to coarse, subrounded to subangular; 25% gravel, fine to coarse, subrounded to subangular; moist.
5	▼			GW					4.0 to 5.0 feet: No recovery.
			70	GP					5.0 to 6.5 feet: GRAVELLY SAND (SW); light brown; 60% sand, fine to coarse; 40% gravel, fine to coarse, subrounded to subangular; trace fines; wet.
6						PID = 1.9 ppm			
7						RAU4-09-GW-7.0			6.5 to 8.5 feet: SAND (SW); gray; 90% sand, fine to coarse; 10% gravel, fine to coarse, subrounded to rounded; trace fines; wet.
8									
9									8.5 to 10.0 feet: No recovery.
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 4.82 feet bgs, measured after temporary well installation.**

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-10**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**70**	**GP**					*0 to 1.0 feet: ASPHALT.*
2						**PID = 0.8 ppm**			*1.0 to 2.5 feet: WOODWASTE; dark brown; 100% woodwaste, chips and pulp; moist.*
3						**RAU4-10-SO-3.0**			*2.5 to 3.0 feet: SANDY GRAVEL (GW); dark brown; 20% sand, medium to coarse; 80% gravel, fine to coarse, angular to subangular; trace wood fragments (less than 0.5-inches); dense; moist.*
4									*3.0 to 3.5 feet: SAND (SW); green; 100% sand, medium to coarse; moist.*
5		▽							*3.5 to 5.0 feet: No recovery.*
6		▼	**60**	**GW GP**		**PID = 0.7 ppm**			*5.0 to 6.0 feet: GRAVELLY SAND (SW); brown; 40% sand, medium to coarse; 40% gravel, fine to coarse, subangular to subrounded; 20% woodwaste; wet.*
7									*6.0 to 7.0 feet: GRAVELLY SAND (SW); gray; 70% sand, medium to coarse; 30% gravel, fine to coarse, subrounded to rounded; trace fines; wet.*
8						**RAU4-10-GW-8.0**			*7.0 to 8.0 feet: SILTY GRAVEL (GM); light brown; 40% fines, medium plasticity; 10% sand; 50% gravel, fine to medium, subrounded to rounded; wet.*
9									*8.0 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 5.0 to 10.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 5.85 feet bgs, measured after temporary well installation.***

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-11**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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					0 to 1.5 feet: ASPHALT.
2						PID = 3.4 ppm RAU4-11-SO-2.5			1.5 to 2.5 feet: GRAVELLY SAND (SW); light brown; 50% sand, fine to coarse; 50% gravel, fine to coarse, subangular to subrounded, crushed; dry.
3									2.5 to 3.0 feet: GRAVEL (GW); gray; 100% gravel, fine to coarse, crushed; dry.
4									3.0 to 5.0 feet: No recovery.
5	▼			GW					
6			60	GP					5.0 to 5.5 feet: SANDY GRAVEL (GW); brown; 40% sand, fine to coarse, subrounded to subangular; 60% gravel, fine to coarse, subangular to subrounded, crushed; moist.
7	▽					PID = 7.2 ppm RAU4-11-GW-7.0			5.5 to 7.5 feet: SILT (ML); gray; 70% fines; 10% gravel, fine to coarse, subrounded to rounded; 20% woodwaste (less than 2-inches); laminated; moist.
8									7.5 to 8.0 feet: GRAVELLY SAND (SW); light gray to gray; 85% sand, medium to coarse; 15% gravel, fine to medium, rounded to subrounded; trace fines; wet.
9									8.0 to 10.0 feet: No recovery.
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 7.5 feet bgs, observed in macrocore during drilling.**

▼ **Water level 4.82 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU4-12**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**M. Pollock**	Hole Depth	**15.0-feet**
Sample Method	**Macro-core**	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**					0 to 1.0 feet: ASPHALT.
									1.0 to 1.8 feet: GRAVEL with SILT (GW-GM); gray; 10% fines; 10% sand, fine to medium; 80% gravel, fine to medium; moist.
2									1.8 to 2.8 feet: SILTY SAND (SM); brownish gray; 20% fines; 80% sand, medium to coarse; trace gravel; moist.
3						**RAU4-12-SO-2.4**			2.8 to 3.0 feet: SILTY SAND (SM); brown; 30% fines; 60% sand, medium to coarse; 10% gravel, fine; trace wood; moist.
4									3.0 to 5.0 feet: No recovery.
5			**75**	**GP**					5.0 to 8.8 feet: SILTY SAND (SM); brown; 30% fines; 60% sand, medium to coarse; 10% gravel, fine; trace wood; moist.
6									
7									
8									
9									8.8 to 10.0 feet: No recovery.
10			**100**	**GP**					10.0 to 12.5 feet: SILTY SAND (SM); brown; 30% fines; 60% sand, medium to coarse; 10% gravel, fine; trace wood; moist.
11									
12									
13									12.5 to 15.0 feet: SILT (ML); gray; 95% fines, low plasticity; 5% sand, fine; trace rootlets; moist.
14									
15									Total Depth = 15.0 feet bgs.

<u>Borehole Completion Details:</u>
0 to 15.0 feet bgs: 2.25-inch borehole.
0 to 1.0 feet bgs: Concrete.
1.0 to 2.7 feet bgs: Bentonite chips hydrated with potable water.
2.7 to 15.0 feet bgs: 10x20 silica filter pack sand.

<u>Monitoring Well Completion Details:</u>
0.3 to 4.3 feet bgs: Flush mount monument. 2-inch diameter, PVC schedule 40, flush threaded, riser pipe.
4.3 to 14.45 feet bgs: 2-inch diameter, PVC schedule 40, 0.010-inch machine slotted, pre-pack well screen.
14.45 to 14.7 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

Washington Well Identification BME558

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) PVC = polyvinyl chloride. 4) Depths are approximate and relative to feet bgs.

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-13**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/22/2020 to 7/22/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Sample Data: Percent Recovery	Sample Data: Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 3.0 feet: ASPHALT and GRAVEL SUBBASE.
2		100					
3					0.1		3.0 to 3.5 feet: SILTY GRAVEL (SM); dark grayish brown; 40% fines; 10% sand; 50% gravel; gravel consists of broken rock; moist.
4							3.5 to 4.0 feet: WOODWASTE; dark reddish brown; moist.
5	▽ ▼			RAU4-13-SO-4.5			4.0 to 7.5 feet: SILTY SAND (SM); reddish gray-brown; 20% fines; 70% sand, fine to medium; 10% gravel, subangular to subrounded; moist. @ 5.0 feet: Becomes wet.
6		100			0.2		
7				RAU4-13-GW-6.5			
8					0.1		7.5 to 11.0 feet: SANDY SILT (ML); orangish brown to brownish gray; 70% fines, low plasticity; 30% sand, fine to medium; trace gravel, clay; very stiff; wet. @ 8.0 feet: Increase in sand content to 40%.
9							
10		100			0.2		
11							11.0 to 12.0 feet: SANDY SILT (ML); dark brown; 50% fines, low plasticity; 40% sand, fine to medium; 10% gravel; wet.
12					0.2		

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 5.0 feet bgs, observed during drilling.*** ▼ ***Water level measurement is 5.38 feet bgs, observed after temporary well installation.***

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-14**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/22/2020 to 7/22/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 1.4 feet: ASPHALT.
2		100					1.4 to 2.3 feet: GRAVEL (GP); 100% gravel; trace rock; dry.
3					0.1		2.3 to 3.0 feet: WOODWASTE; dark brown; 100% wood, sawdust; moist.
4	▽			RAU4-14-SO-3.5	0.2		3.0 to 4.0 feet: SILTY SAND (SM); gray; 20% fines; 70% sand, fine to coarse; 10% gravel; moist.
5	▼						4.0 to 6.8 feet: SILTY SAND with GRAVEL (SM); dark grayish brown; 20% fines; 60% sand, fine to coarse; 20% gravel, subangular to subrounded; wet.
6		100		RAU4-14-GW-6.0	0.3		
7							6.8 to 9.3 feet: SILT with SAND (ML); brown; 80% fines, low plasticity; 20% sand, fine to coarse; trace gravel; wet.
8					0.2		
9							
10		100			0.1		9.3 to 12.0 feet: SANDY SILT (ML); dark grayish brown; 60% fines, low plasticity; 30% sand, fine to coarse; 10% gravel; wet.
11							
12							

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 4.0 feet bgs, observed during drilling.*** ▼ ***Water level measurement is 4.47 feet bgs, observed after temporary well installation.***

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-15**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Sample Data: Percent Recovery	Sample Data: Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 1.0 feet: ASPHALT.
2		100			1.0		1.0 to 1.5 feet: WOODWASTE; dark brown; 10% fines; 10% sand; 20% gravel, subangular to angular; 60% wood; moist.
3				RAU4-15-SO-3	1.2		1.5 to 2.3 feet: SILTY GRAVEL with SAND (GM); dark gray; 20% fines; 30% sand, fine to coarse; 50% gravel, fine, subrounded to subangular; moist.
4	▼						2.3 to 5.6 feet: SILTY SAND with GRAVEL (SM); dark grayish brown; 20% fines; 50% sand, fine to coarse; 30% gravel, fine to medium; moist.
5				RAU4-15-GW-5.0	1.5		@ 4.0 feet: Becomes wet.
6		65			0.5		5.6 to 6.6 feet: SANDY SILT (ML); brown; 60% fines, low plasticity; 30% sand, fine to medium; 10% gravel; very stiff; moist.
7							6.6 to 8.0 feet: No recovery.
8							
9							8.0 to 12.0 feet: SILTY SAND with GRAVEL (SM); brown; 30% fines; 50% sand, medium to coarse; 20% gravel, subrounded to rounded, fine to medium; wet.
10		100			0.7		
11							
12							

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 4.0 feet bgs, observed in macrocore during drilling.*** ▼ ***Water level measurement is 3.68 feet bgs, measured after temporary well installation.***

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-16**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 1.0 feet: ASPHALT.
2		100					1.0 to 1.8 feet: Well-graded SAND (SW); orangish brown; 90% sand; 10% gravel; trace fines; moist.
3	▼			RAU4-16-SO-3	1.8		1.8 to 2.3 feet: SILT (ML); dark grayish brown; 90% fines, low plasticity; 10% sand; very stiff; moist.
4	▽			RAU4-16-GW-4.0			2.3 to 4.0 feet: SILTY SAND with GRAVEL (SM); orangish brown; 30% fines; 50% sand; 20% gravel; petroleum hydrocarbon-like odor; moist.
5					5.1		@ 3.5 feet: Becomes grayish brown, wet.
6		75					4.0 to 7.0 feet: SILTY GRAVEL with SAND (GM); dark grayish brown; 20% fines; 30% sand; 50% gravel; trace wood chunks; sheen and petroleum hydrocarbon-like odor; wet.
7							7.0 to 8.0 feet: No recovery.
8					1.6		8.0 to 9.5 feet: SILTY GRAVEL with SAND (GM); dark grayish brown; 20% fines; 30% sand; 50% gravel; trace wood chunks; sheen and petroleum hydrocarbon-like odor; wet.
9					1.4		
10		100			2.0		9.5 to 12.0 feet: SILT with SAND (ML); dark grayish brown; 80% fines, low plasticity; 20% sand; approximately 30% wood; faint petroleum hydrocarbon-like odor; wet.
11							
12					2.3		

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 3.0 to 8.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 4.0 feet bgs, observed in macrocore during drilling.*** ▼ ***Water level measurement is 3.18 feet bgs, measured after temporary well installation.***

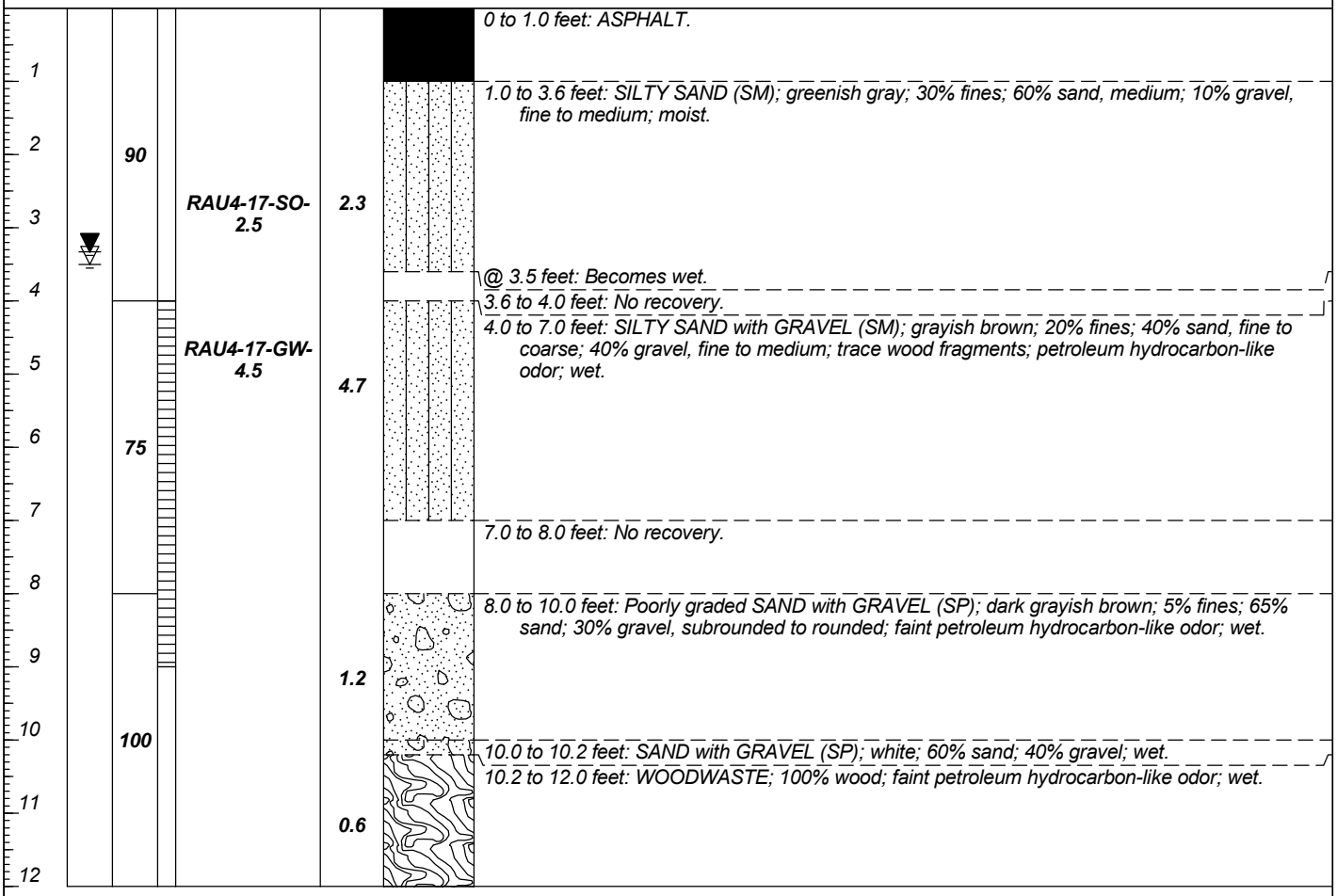
MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\1044.02.13\RAU1-RAU7.GPJ 4/14/22

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-17**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**



Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

Water level measurement is 3.5 feet bgs, observed in macrocore during drilling. Water level measurement is 3.33 feet bgs, measured after temporary well installation.

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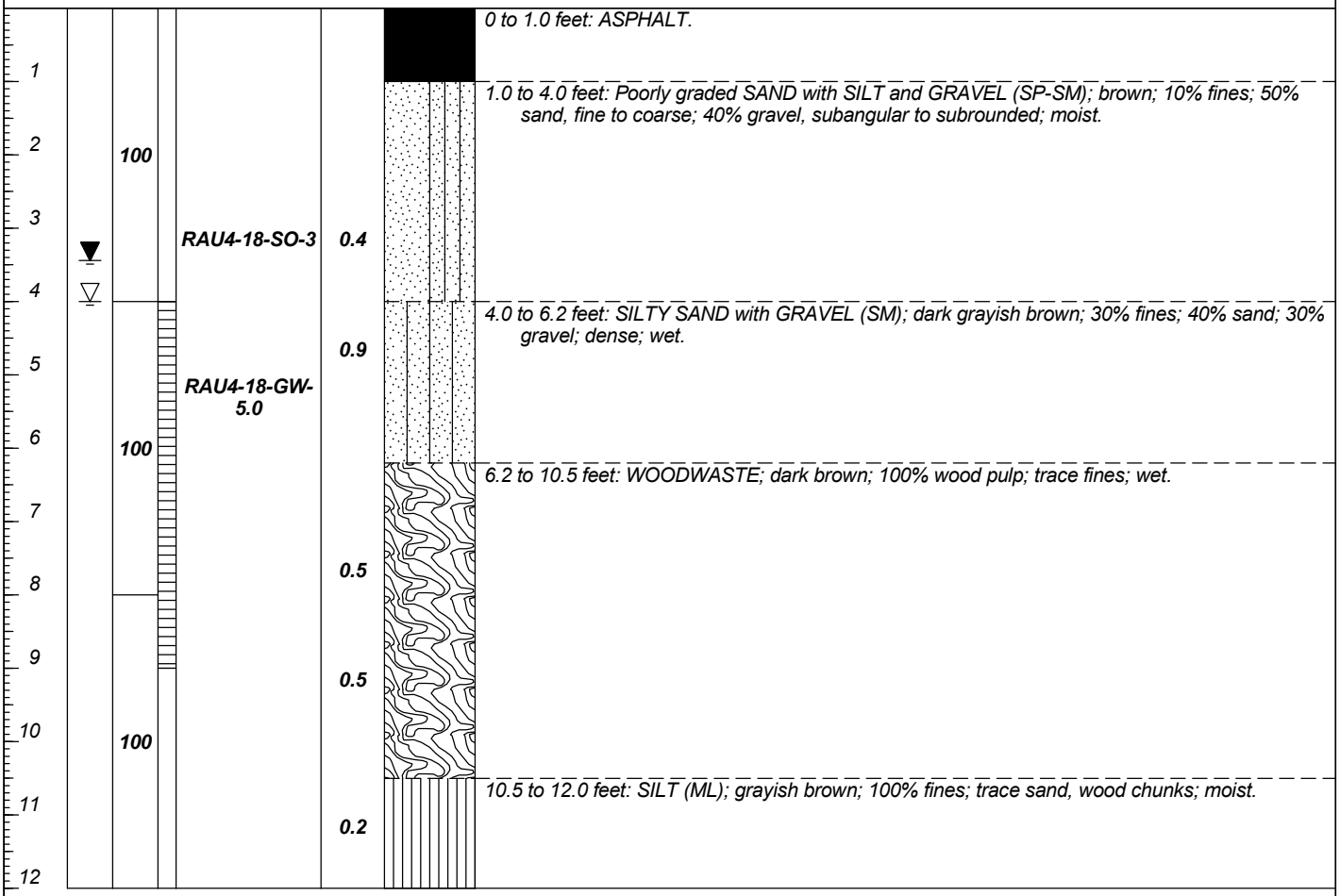
Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-18**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**



Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ Water level measurement is 4.0 feet bgs, observed in macrocore during drilling. ▼ Water level measurement is 3.44 feet bgs, measured after temporary well installation.

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-19**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Sample Data: Percent Recovery	Screen Int.	Sample ID	PID (ppm)	Lithologic Column	Soil Description
1							0 to 1.0 feet: ASPHALT.
2		90		RAU4-19-SO-2.5	0.5		1.0 to 3.5 feet: SAND with SILT and GRAVEL (SP-SM); grayish brown; 10% fines; 70% sand; 20% gravel; moist.
3	▽						
4							3.5 to 3.6 feet: Well-graded SAND (SW); dark brown; 5% fines; 90% sand; 5% gravel; wet.
							3.6 to 4.0 feet: No recovery.
5				RAU4-19-GW-5.0	1.7		4.0 to 8.0 feet: SILTY SAND with GRAVEL (SM); dark brown; 15% fines; 55% sand; 30% gravel; wet.
6		100					
7							
8							
9					0.3		8.0 to 9.5 feet: SAND with SILT and GRAVEL (SP-SM); dark grayish brown; 10% fines; 70% sand; 20% gravel; wet.
					0.6		
10		100			0.3		9.5 to 10.2 feet: SILT (ML); dark grayish brown; 100% fines, low plasticity; approximately 20% organics; wet.
11					0.4		10.2 to 11.5 feet: WOODWASTE; 100% organics, wood; wet.
12					0.4		11.5 to 12.0 feet: SILT (ML); dark grayish brown; 100% fines, low plasticity; wet.

Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 3.5 feet bgs, observed in macrocore during drilling.*** ▼ ***Water level measurement is 3.71 feet bgs, measured after temporary well installation.***

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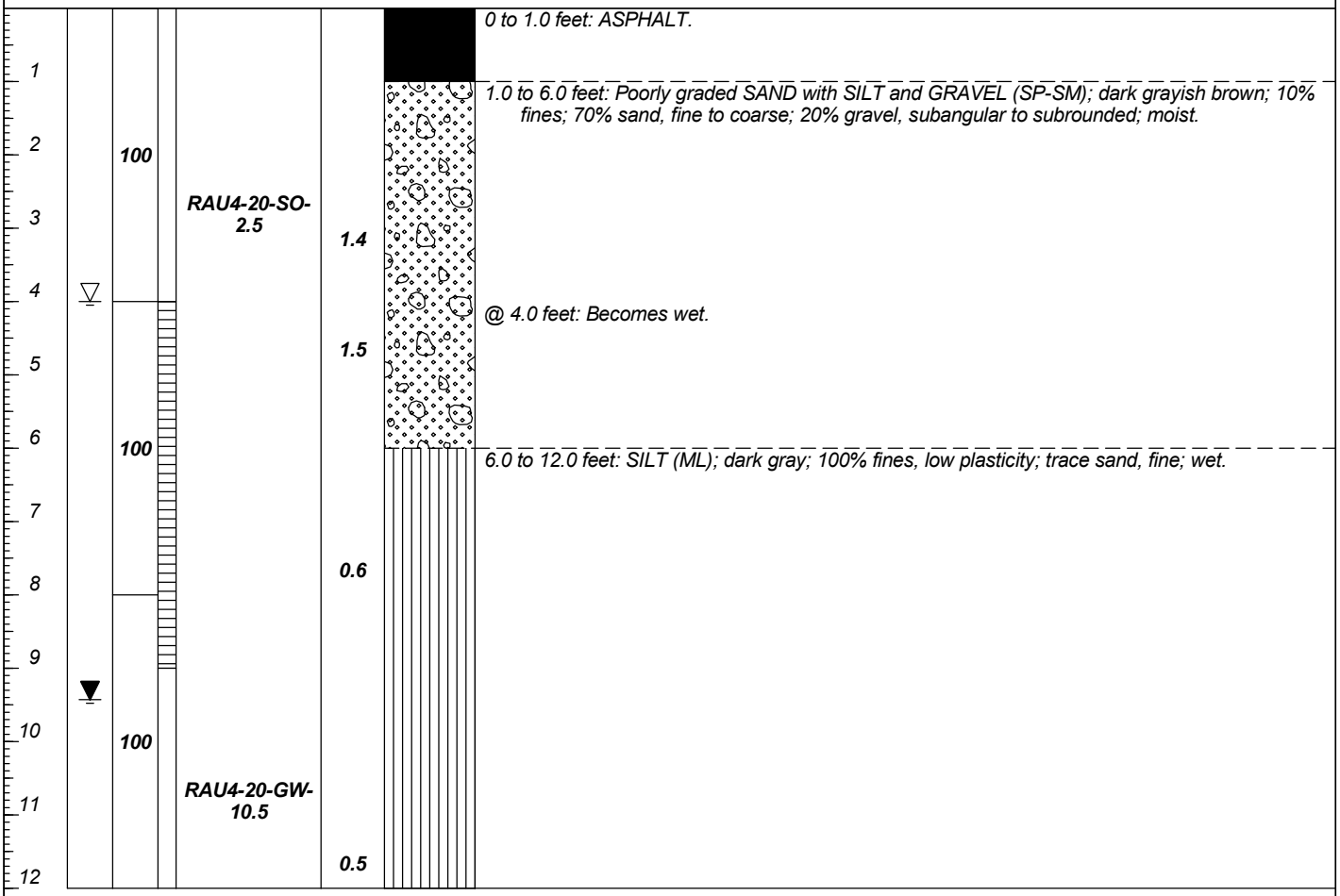
Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-20**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**



Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ Water level measurement is 4.0 feet bgs, observed in macrocore during drilling. ▼ Water level measurement is 9.43 feet bgs, measured after temporary well installation.

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
1044.02.13	**RAU4-21**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/21/2020 to 7/21/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**20.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 2.5 feet: ASPHALT.
2		100					
3					0.6		2.5 to 4.0 feet: GRAVELLY SILT (ML); dark brown; 60% fines, low plasticity; 10% sand; 30% gravel; moist.
4				RAU4-21-SO-3.5			@ 3.0 feet: Rock observed in core.
5					1.0		@ 3.7 feet: Rock observed in core.
6		100					4.0 to 9.0 feet: SILTY GRAVEL with SAND (GM); gray; 20% fines; 30% sand, fine to coarse; 50% gravel, subangular; moist.
7							
8					0.7		
9							9.0 to 10.3 feet: WOODWASTE; yellow; 100% wood, sawdust; moist.
10		100			1.6		
11	▽						10.3 to 11.2 feet: SILTY SAND with GRAVEL (SM); grayish brown; 20% fines; 50% sand, fine to coarse; 30% gravel; faint petroleum hydrocarbon-like odor; moist to wet.
12	▼			RAU4-21-SO-11	1.1		11.2 to 14.0 feet: SILTY SAND (SM); grayish brown; 20% fines; 70% sand, fine to medium; 10% gravel; petroleum hydrocarbon-like odor, sheen; wet.
13							
14		75		RAU4-21-GW-13.0	2.1		14.0 to 15.0 feet: No recovery.
15							15.0 to 16.0 feet: SILT with SAND (ML); dark brown; 80% fines, low plasticity; 20% sand, fine; 30% wood; wet.
16					0.7		
17							16.0 to 20.0 feet: SILT (ML); 100% fines, low plasticity; trace wood; wet.
18		100			0.6		
19							
20							

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\1044.02.13\RAU1-RAU7.GPJ 4/14/22

Total Depth = 20.0 feet bgs

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU5-01**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**50**	**GP**					*0 to 0.5 feet: ASPHALT.*
									0.5 to 2.0 feet: SANDY GRAVEL (GW); grayish brown; 10% fines; 30% sand, medium to coarse; 60% gravel, fine to medium; moist.
2						**PID = 0.1 ppm**			
						PID = 4.4 ppm			*2.0 to 2.5 feet: SILT with SAND (ML); greenish gray; 85% fines, low to medium plasticity; 15% sand, fine; trace mica; moist.*
3						**RAU5-01-SO-4.5**			*@ 2.2 feet: Becomes black, petroleum hydrocarbon-like odor.*
									2.5 to 5.0 feet: No recovery.
4									
5	▼			**GW**					
			60	**GP**					*5.0 to 6.8 feet: SILT with SAND (ML); greenish gray; 85% fines, low to medium plasticity; 15% sand, fine; trace mica; moist.*
6									
7						**RAU5-01-GW-7.0**			*6.8 to 7.2 feet: SANDY GRAVEL with SILT (GW-GM); dark gray; 10% fines; 20% sand, medium to coarse; 70% gravel, fine to medium; wet.*
8	▽					**PID = 0.1 ppm**			*7.2 to 8.0 feet: SILT with SAND (ML); brownish gray; 85% fines, low to medium plasticity; 15% sand, fine; trace wood chips, rootlets, mica; moist.*
9									*8.0 to 10.0 feet: No recovery.*
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 8.0 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 4.70 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU5-02**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/3/2019 to 12/3/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**E. Hess**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**70**	**GP**					*0 to 0.6 feet: ASPHALT.*
						PID = 0.1 ppm			*0.6 to 1.6 feet: SILTY GRAVEL (GM); dark gray gravel with dark brown fines; 30% fines; 10% sand, fine to coarse; 60% gravel, fine to coarse; moist.*
2						***RAU5-02-SO-2***			*1.6 to 2.0 feet: SILTY SAND (SM); blackish brown; 20% fines; 40% sand, fine to coarse; 40% gravel; moist.*
						PID = 0.2 ppm			
3						***PID = 0.4 ppm***			*2.0 to 3.5 feet: SANDY GRAVEL with SILT (GW-GM); brownish gray; 10% fines; 30% sand; 60% gravel; moist.*
4									*3.5 to 5.0 feet: No recovery.*
5			**50**	**GP**					*5.0 to 7.5 feet: SILT (ML); brownish gray; 95% fines, low to medium plasticity; 5% sand; trace wood and rootlets; moist.*
6									
						PID = 0.2 ppm			
7						***RAU5-02-SO-7.5***			
8									*7.5 to 10.0 feet: No recovery.*
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Depths are approximate and relative to feet bgs.*

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Geologic Borehole Log

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Project Number	Boring Number	Sheet
1044.02.13	**RAU5-03**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**		
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**7/22/2020 to 7/22/2020**	Northing	
Driller/Equipment	**Standard Environmental Probe, Inc./Geoprobe 5410**	Easting	
Geologist/Engineer	**E. Hess**	Total Depth of Borehole	**12.0-feet**
Sample Method	**Macro-core**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1							0 to 1.5 feet: ASPHALT.
2		80					1.5 to 2.1 feet: No recovery.
3				RAU5-03-SO-2.5	0.4		2.1 to 3.1 feet: SANDY SILT with GRAVEL (ML); grayish brown; 50% fines, low plasticity; 30% sand, fine to medium; 20% gravel; moist.
				RAU5-03-SO-2.5-DUP	0.5		3.1 to 3.2 feet: SILTY SAND (SM); brownish gray; 30% fines; 70% sand, fine; moist.
4	▼						3.8 to 4.0 feet: Wood chunk.
							4.0 to 6.0 feet: SILTY SAND (SM); dark grayish brown; 40% fines; 50% sand, fine to coarse; 10% gravel; moist.
5	▽						@ 5.0 feet: Becomes wet.
6		80			0.7		6.0 to 7.2 feet: SILT (ML); grayish brown; 95% fines, low plasticity; 5% sand, fine; trace wood debris, clay; wet.
7				RAU5-03-GW-6.5			7.2 to 8.0 feet: No recovery.
8					0.5		8.0 to 12.0 feet: SILT (ML); grayish brown; 95% fines, low plasticity; 5% sand, fine; trace wood debris, clay; wet.
9							
10		100			0.5		
11							
12					1.0		Total Depth = 12.0 feet bgs

NOTES:

1) bgs = below ground surface. 2) PID = photoionization detector. 3) ppm = parts per million.

Borehole Completion Details
0 to 12.0 feet: 2.25-inch borehole.

Reconnaissance Well Completion Details
Temporary polyvinyl chloride screen set from 4.0 to 9.0 feet bgs, indicated by dashed graphic in the interval column.

Borehole Abandonment Details
0 to 1.0 foot: Asphalt.
1.0 to 12.0 feet: Bentonite chips hydrated with potable water.

▽ ***Water level measurement is 5.0 feet bgs, observed in macrocore during drilling.*** ▼ ***Water level measurement is 4.05 feet bgs, measured after temporary well installation.***

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Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU6-01**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			80	GP					0 to 1.8 feet: ASPHALT.
2									1.8 to 3.2 feet: SAND with SILT (SW-SM); dark gray; 10% fines; 80% sand, medium to coarse; 10% gravel, fine; moist.
3						RAU6-01-SO-2.3			
4									3.2 to 4.0 feet: SILT (ML); brownish gray; 90% fines; 10% sand, fine; trace mica and rootlets; moist.
5									4.0 to 5.0 feet: No recovery.
6			50	GP					5.0 to 7.5 feet: SILT (ML); brown; 90% fines; 10% sand, fine; trace mica; moist.
7									
8									7.5 to 10.0 feet: No recovery.
9									
10									

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: 1) bgs = below ground surface. 2) GP = geoprobe. 3) Depths are approximate and relative to feet bgs.

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU6-02**	**1 of 2**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/4/2019 to 12/4/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**M. Pollock**	Hole Depth	**20.0-feet**
Sample Method	**Macro-core**	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			**40**	**GP**		**RAU6-02-SO-1.5**			0 to 0.8 feet: ASPHALT.
									0.8 to 2.0 feet: SAND with SILT (SW-SM); gray; 10% fines; 90% sand, fine to medium; trace gravel; moist.
2									2.0 to 5.0 feet: No recovery.
5			**50**	**GP**					5.0 to 5.2 feet: SAND with SILT (SW-SM); gray; 10% fines; 90% sand, fine to medium; trace gravel; moist.
6									5.2 to 7.5 feet: SILT (ML); brownish gray; 90% fines, low plasticity; 10% sand; trace wood chips and mica; moist.
8									7.5 to 10.0 feet: No recovery.
10			**75**	**GP**					10.0 to 13.8 feet: SILT (ML); brownish gray; 90% fines, low plasticity; 10% sand; trace wood chips and mica; moist.
14									13.8 to 15.0 feet: No recovery.
15			**50**	**GP**					15.0 to 17.5 feet: SILT (ML); gray; 90% fines, low plasticity; 10% sand; trace wood chips and mica; moist.
18									17.5 to 20.0 feet: No recovery.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) PVC = polyvinyl chloride. 4) Depths are approximate and relative to feet bgs.*

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Maul Foster & Alongi, Inc.	Geologic Borehole Log/Well Construction		
	Project Number **1044.02.13**	Well Number **RAU6-02**	Sheet **2 of 2**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
									Total Depth = 20.0 feet bgs.

Borehole Completion Details:
0 to 20.0 feet bgs: 2.25-inch borehole.
0 to 1.0 feet bgs: Concrete.
1.0 to 2.45 feet bgs: Bentonite chips hydrated with potable water.
2.45 to 20.0 feet bgs: 10x20 silica filter pack sand.

Monitoring Well Completion Details:
0.3 to 3.45 feet bgs: Flush mount monument. 2-inch diameter, PVC schedule 40, flush threaded, riser pipe.
3.45 to 18.45 feet bgs: 2-inch diameter, PVC schedule 40, 0.010-inch machine slotted, pre-pack well screen.
18.45 to 18.7 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

Washington Well Identification BME559

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) PVC = polyvinyl chloride. 4) Depths are approximate and relative to feet bgs.*

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU6-03**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			**80**	**GP**					*0 to 0.5 feet: ASPHALT.*
									0.5 to 4.0 feet: GRAVELLY SAND (SW); brown to gray; 80% sand, fine to coarse, subrounded to subangular; 20% gravel, fine to coarse, subrounded to subangular, crushed; trace brick; moist.
2									
3						***RAU6-03-SO-2.5***			
						PID = 10.3 ppm			
4									
5									*4.0 to 5.0 feet: No recovery.*
			100	**GP**					*5.0 to 10.0 feet: SILT (ML); gray; 100% fines, medium plasticity; micaceous; moist.*
6									
7									
8									
9									
10						***RAU6-03-SO-9.5***			

Total Depth = 10.0 feet bgs.

Borehole Completion Details:
0 to 10.0 feet: 2.25-inch borehole.
0 to 0.5 feet: Asphalt.
0.5 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *1) bgs = below ground surface. 2) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Depths are approximate and relative to feet bgs.*

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU7-01**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**10.0-feet**
Sample Method	**Macro-core**	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			50	GP		PID = 2.1 ppm			0 to 0.5 feet: WOODWASTE; brown; 100% woodwaste, chips (less than 1-inch); moist.
									0.5 to 1.0 feet: SANDY GRAVEL (GW); light gray; 40% sand, medium to coarse, subangular to subrounded; 60% gravel, fine to coarse, subangular to subrounded; dry.
2						PID = 2.2 ppm RAU7-01-SO-1.5			1.0 to 1.5 feet: SANDY GRAVEL (GW); light brown; 30% sand, medium to coarse; 70% gravel, fine to coarse, subrounded; moist.
3									1.5 to 2.5 feet: SANDY GRAVEL (GW); brown; 20% sand, medium to coarse, subangular to subrounded; 80% gravel, fine to coarse, subangular to angular, crushed; moist.
4									2.5 to 5.0 feet: No recovery.
5				GW					
			50	GP					5.0 to 6.0 feet: SANDY GRAVEL (GW); brown; 40% sand, medium to coarse; 60% gravel, medium, subrounded to subangular; moist.
6	▽					PID = 2.7 ppm			6.0 to 7.0 feet: WOODWASTE; 100% woodwaste, pulp and chips (less than 2-inches); wet.
7	▼								7.0 to 7.5 feet: SAND (SP); greenish gray; 100% sand, medium; wet.
8									7.5 to 10.0 feet: No recovery.
9						RAU7-01-GW-8.5			
10									

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) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 4.5 to 9.5 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.

▽ **Water level measurement is 6.0 feet bgs, observed in macrocore during drilling.**

▼ **Water level 6.92 feet bgs, measured after temporary well installation.**

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Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.13	**RAU7-02**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	TOC Elevation (feet)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**12/5/2019 to 12/5/2019**	Northing	
Driller/Equipment	**Holt Services Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**R. Lewis**	Hole Depth	**15.0-feet**
Sample Method	**Macro-core**	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**					*0 to 1.0 feet: ORGANIC SOIL (OL); brown; 45% fines; 55% gravel, fine to medium, subrounded to rounded; dry.*
2									*1.0 to 3.0 feet: GRAVELLY SAND (SW); gray; 10% fines; 45% sand, fine to coarse; 45% gravel, fine to medium, subangular to subrounded; dry.*
3						**PID = 0.1 ppm** **RAU7-02-SO-2.5**			
4									*3.0 to 5.0 feet: No recovery.*
5									
6			**50**	**GP**					*5.0 to 6.5 feet: SILTY SAND (SM); brown; 25% fines; 45% sand, fine to coarse; 30% gravel, fine to medium, subangular to subrounded; moist.*
7	▽			**GW**		**PID = 0.1 ppm**			*6.5 to 7.5 feet: SILTY SAND (SM); brown; 20% fines; 65% sand, fine to coarse, subangular to subrounded; 15% gravel, fine, subrounded; wet.*
8									*7.5 to 10.0 feet: No recovery.*
9									
10						**RAU7-02-GW-9.5**			
11			**70**	**GP**					*10.0 to 11.5 feet: SANDY GRAVEL (GW); gray; 35% sand, medium to coarse; 65% gravel, fine to coarse, subrounded; wet.*
12						**PID = 0 ppm**			*11.5 to 12.0 feet: SILT with SAND (ML); dark brown; 55% fines; 10% sand, fine to medium; 35% woodwaste and organics; wet.*
13						**PID = 0 ppm**			*12.0 to 13.5 feet: SAND (SW); greenish gray; 100% sand, medium to coarse; wet.*
14									*13.5 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) GP = geoprobe. 3) ppm = parts per million. 4) PID = Photo-ionization detector. 5) Temporary polyvinyl chloride screen from 7.0 to 12.0 feet bgs, indicated by dashed graphic in the interval column. 6) GW = groundwater sample. 7) Depths are approximate and relative to feet bgs.*

▽ ***Water level measurement is 6.5 feet bgs, observed in macrocore during drilling.***

▼ ***Water level 6.68 feet bgs, measured after temporary well installation.***

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Maul Foster & Alongi, Inc.

Geologic Test Pit Log

Project Number	Test Pit Number	Sheet
1044.02.13	**RAU3-02**	**1 of 1**

Project Name	**Upland RI -- Grays Harbor Historical Seaport Authority**	Surface Elevation (feet above MSL)	
Project Location	**500 N Custer Street, Aberdeen, Washington**	Northing	
Start/End Date	**12/3/2019 to 12/3/2019**	Easting	
Excavating Contractor	**Quigg Bros Inc.**	Pit Depth	**3-feet**
Equipment	**John Deere 50G**	Pit Width	**-feet**
Geologist/Engineer	**M. Pollock**	Pit Length	**-feet**

Depth (feet, BGS)	Sample Data: Interval	Collection Method	Number	Name (Type)	Lithologic Column	Soil Description
1						0 to 1.3 feet: ASPHALT.
2						1.3 to 1.7 feet: SANDY GRAVEL with SILT (GW-GM); bluish gray; 10% fines; 35% sand, medium to coarse; 55% grave;, medium to coarse; wire cross-cuting excavation; moist.
3		**GRAB**		**PID = 4.0 ppm RAU3-02-SO-2.5**		1.7 to 3.0 feet: GRAVELLY SAND with SILT (SW-SM); brownish gray; 15% fines; 65% sand, medium to coarse; 20% gravel, fine; moist.

Total Depth = 3.0 feet bgs.

NOTES: *1) bgs = below ground surface. 2) ppm = parts per million. 3) PID = Photo-ionization detector. 4) Concrete at base of test pit prevented excavator from deepening test pit.*

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APPENDIX I

WATER 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	Grays Harbor Historical Seaport	**Sample Location**	RAU1-01		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/2/2019		
Sampling Event	December 2019	**Sample Name**	RAU1-01-GW-7.5		
Sub Area		**Sample Depth**	7.5		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	16:09	10		4.29		5.71	0.23

(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									
Final Field Parameters	4:15:00 PM	0.2	0.25	6.96	12.7	862			182.2

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:

Turbid, gray, organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:15:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly	1	No
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	11	

General Sampling Comments

Began purging at 16:11.
Final turbidity = 45.58 NTU.

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	Grays Harbor Historical Seaport	**Sample Location**	RAU1-02				
Project #	1044.02.13	**Sampler**	ENH				
Project Name	Upland RI	**Sampling Date**	12/2/2019				
Sampling Event	December 2019	**Sample Name**	RAU1-02-GW-6				
Sub Area		**Sample Depth**	6				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	16:00	8		3.9		4.1	0.17

(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	4:10:00 PM	0.2	0.25	6.53	10.9	13720			73.4
Final Field Parameters	4:13:00 PM	0.4	0.25	6.48	10.9	14040			43.8

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:

Reddish tint, slightly turbid.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:13:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly	1	No
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	11	

General Sampling Comments

Began purging at 16:07.
Hydrogen sulfide odor.

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	Grays Harbor Historical Seaport	**Sample Location**	RAU1-03				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/3/2019				
Sampling Event	December 2019	**Sample Name**	RAU1-03-GW-7.5				
Sub Area		**Sample Depth**	7.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	8:49	10		4.98		5.02	0.21

(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	9:02:00 AM	0.5	0.6	6.68	13.2	1728			OR
Final Field Parameters	9:15:00 AM	1.2	0.5	6.7	13.3	1723			50

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:

Slightly turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:15:00 AM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 08:55.
Final turbidity = 22.0 NTU.
OR: overrange.
Duplicate sample also collected at this location: RAU1-03-GW-7.5-DUP.

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	Grays Harbor Historical Seaport	**Sample Location**	RAU1-04				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/2/2019				
Sampling Event	December 2019	**Sample Name**	RAU1-04-GW-7.5				
Sub Area		**Sample Depth**	7.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	15:19	9.5		3.98		5.52	0.23

(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									
Final Field Parameters	3:23:00 PM	0.2	0.35	6.45	13.8	9660			109.6

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:

Slightly turbid, sheen, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	3:23:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 15:20.
Final turbidity = 2.58 NTU.
OR: overrange.

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	Grays Harbor Historical Seaport	**Sample Location**	RAU1-05
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/2/2019
Sampling Event	December 2019	**Sample Name**	RAU1-05-GW-6.5
Sub Area		**Sample Depth**	6.5
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	16:46	9		4.48		4.52	0.19

(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									
Final Field Parameters	4:50:00 PM	0.2	0.27	6.44	14.4	720			314.5

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:

Turbid, grayish brown, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:50:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 16:46.
Final turbidity = 89.58 NTU.

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-06		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/3/2019		
Sampling Event	December 2019	**Sample Name**	RAU1-06-GW-7.5		
Sub Area		**Sample Depth**	7.5		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	8:43	10		4.37		5.63	0.23

(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	8:56:00 AM	0.5	0.31	7.15	14.7	609			174
Final Field Parameters	9:06:00 AM	1.25	0.35	7.1	15	603			138.3

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:

Slightly turbid, light gray.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:06:00 AM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 08:46.
Final turbidity = 62.14 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-07				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/2/2019				
Sampling Event	December 2019	**Sample Name**	RAU1-07-GW-7.5				
Sub Area		**Sample Depth**	7.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	14:03	10		4.51		5.49	0.23

(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									
Final Field Parameters	2:08:00 PM	0.3	0.35	6.68	12.5	173.4			20.9

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:

Turbid, brown, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:08:00 PM	VOA-Glass	9	No
			Amber Glass	12	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	2	No
			Red Dissolved Poly	2	Yes
			Total Bottles	26	

General Sampling Comments

Began purging at 14:05.
Extra volume collected for MS/MSD.
Final turbidity = 16.2 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-08
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/4/2019
Sampling Event	December 2019	**Sample Name**	RAU1-08-GW-7.0
Sub Area		**Sample Depth**	7
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/4/2019	10:09	9.5		5.02		4.48	0.18

(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	10:14:00 AM	0.25	0.25	6.35	16.3	177.9			144.2
	10:18:00 AM	0.5	0.25	6.42	16.7	185			53.93
	10:22:00 AM	0.75	0.25	6.45	17	181.9			13.68
Final Field Parameters	10:26:00 AM	1	0.25	6.45	17.2	184.3			10.51

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, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:26:00 AM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 10:10.
Final turbidity = 4.65 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-09				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/3/2019				
Sampling Event	December 2019	**Sample Name**	RAU1-09-GW-7.0				
Sub Area		**Sample Depth**	7				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	16:44	9		4.73		4.27	0.18

(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									
Final Field Parameters	4:47:00 PM	0.1	0.2	6.49	12.1	346			OR

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:

Slightly turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:47:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 16:46. Purged dry at 16:49.
Final turbidity = 11.7 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-10				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/4/2019				
Sampling Event	December 2019	**Sample Name**	RAU1-10-GW-8.5				
Sub Area		**Sample Depth**	8.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/4/2019	10:59	10		6.34		3.66	0.15

(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	11:04:00 AM	0.25	0.25	6.26	12.9	483			OR
Final Field Parameters	11:08:00 AM	0.45	0.2	6.43	12.5	480			195.2

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:

Turbid, colorless, petroleum hydrocarbon-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:08:00 AM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 11:00.
Final turbidity = 67.03 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-11		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/3/2019		
Sampling Event	December 2019	**Sample Name**	RAU1-11-GW-7.0		
Sub Area		**Sample Depth**	7		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	9:40	10		4.96		5.04	0.21

(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	9:56:00 AM	1	0.46	7.04	13	376			310.3
Final Field Parameters	10:04:00 AM	2	0.45	6.94	13	354			78.13

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:

Slight sheen, petroleum hydrocarbon-like odor, slightly effervescent.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:04:00 AM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 09:47.
Trace free product identified with interface probe.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-12		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/3/2019		
Sampling Event	December 2019	**Sample Name**	RAU1-12-GW-7.0		
Sub Area		**Sample Depth**	7		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	10:00	9.5		3.77		5.73	0.23

(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	10:08:00 AM	0.5	0.4	7.02	13	640			OR
Final Field Parameters	10:14:00 AM	1	0.4	6.95	13.5	619			83.4

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:

Faint sheen on water, faint petroleum hydrocarbon-like odor, slightly turbid, colorless.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:14:00 AM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 10:02.
Final turbidity = 22.9 NTU.
OR: overrange.
Interface probe did not detect presence of LNAPL.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-13		
Project #	1044.02.13	**Sampler**	M. Pollock/E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/22/2020		
Sampling Event	July 2020	**Sample Name**	RAU1-13-GW-7		
Sub Area		**Sample Depth**	7		
FSDS QA:	F. Bellows; 8/2/21	**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**
7/22/2020	12:07	9		5.01		3.99	0.16

(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	12:17:00 PM	0.3	0.15	6.4	17.4	114.5			689.2
	12:22:00 PM	0.5	0.15	6.47	17	110.5			184.6
	12:27:00 PM	0.7	0.15	6.44	17.2	105.7			176.4
	12:32:00 PM	0.9	0.15	6.43	17	102.4			168.4
Final Field Parameters	12:37:00 PM	1.1	0.15	6.44	17.1	101.4			121.1

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:

Cloudy, grayish brown

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:37:00 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 purging at 12:10.

Duplicate samples RAU1-13-GW-7-DUP also collected at this location.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU1-14
Project #	1044.02.13	**Sampler**	M. Pollock/E. Hess
Project Name	Upland RI Data Gaps	**Sampling Date**	7/22/2020
Sampling Event	July 2020	**Sample Name**	RAU1-14-GW-6.0
Sub Area		**Sample Depth**	6
FSDS QA:	F. Bellows; 8/2/21	**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**
7/22/2020	13:10	10		4.63		5.37	0.22

(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	1:18:00 PM	0.2	0.15	5.83	18.2	428			560.1
	1:26:00 PM	0.5	0.15	5.78	18.1	420			578.6
Final Field Parameters	1:30:00 PM	0.65	0.15	5.83	18.2	415			567.6

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: Turbid, grayish brown.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:30:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments Began purging at 13:13.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-01		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/2/2019		
Sampling Event	December 2019	**Sample Name**	RAU2-01-GW-7.5		
Sub Area		**Sample Depth**	7.5		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	12:00	10		4.39		5.61	0.23

(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									
Final Field Parameters	12:04:00 PM	0.2	0.25	6.35	13	311			OR

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:

Turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:04:00 PM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 12:01.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-02				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/2/2019				
Sampling Event	December 2019	**Sample Name**	RAU2-02-GW-6				
Sub Area		**Sample Depth**	6				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	9:51	7		5.55		1.45	0.06

(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									
Final Field Parameters	10:04:00 AM	0.01	0.1	6.94	8.2	456			301

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:

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:44:00 PM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 09:58.
Well dry at 10:04 after purging 0.01 gallons. Re-drilled and set new temporary well at RAU2-02.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-03		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/2/2019		
Sampling Event	December 2019	**Sample Name**	RAU2-03-GW-7.5		
Sub Area		**Sample Depth**	7.5		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	10:14	10		5.14		4.86	0.2

(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	10:18:00 AM	0.1	0.14	6.35	13.4	387			238.1
	10:21:00 AM	0.2	0.16	6.29	13.5	392			289.3
Final Field Parameters	10:24:00 AM	0.3	0.15	6.26	13.3	382			227.3

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:

Turbid, slightly brown, no odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:24:00 AM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 10:15.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-04		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/2/2019		
Sampling Event	December 2019	**Sample Name**	RAU2-04-GW-7.5		
Sub Area		**Sample Depth**	7.5		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	11:07	10		4.41		5.59	0.23

(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									
Final Field Parameters	11:18:00 AM	0.5	0.2	6.22	13.5	427			164.8

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:

Turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:18:00 AM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 11:15.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-05				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/2/2019				
Sampling Event	December 2019	**Sample Name**	RAU2-05-GW-7.5				
Sub Area		**Sample Depth**	7.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	12:40	9		4.3		4.7	0.19

(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									
Final Field Parameters	12:45:00 PM	0.25	0.3	6.49	12.7	395			79.8

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:

Turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:45:00 PM	VOA-Glass		
			Amber Glass	12	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	2	No
			Red Dissolved Poly	2	Yes
			Total Bottles	17	

General Sampling Comments

Began purging at 12:42.
Extra volume collected for MS/MSD.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-06				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/2/2019				
Sampling Event	December 2019	**Sample Name**	RAU2-06-GW-6.5				
Sub Area		**Sample Depth**	6.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	13:30	7.5		4.32		3.18	0.13

(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									
Final Field Parameters	1:38:00 PM	0.2	0.25	6.55	11.8	475			OR

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:

Turbid, faint brown color, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:38:00 PM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 13:35.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-07
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/5/2019
Sampling Event	December 2019	**Sample Name**	RAU2-07-GW-7.5
Sub Area		**Sample Depth**	7.5
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	8:17	10		4.82		5.18	0.21

(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	8:22:00 AM	0.3	0.3	6.95	12.7	307			OR
	8:26:00 AM	0.6	0.3	6.73	11.6	252			327.9
	8:30:00 AM	0.9	0.3	6.73	11	222			287
	8:34:00 AM	1.2	0.3	6.71	11.1	216			245.1
Final Field Parameters	8:38:00 AM	1.5	0.3	6.73	11	209			189

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:

Turbid, colorless, organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	8:38:00 AM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 08:18.
Final turbidity = 92.27 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-08				
Project #	1044.02.13	**Sampler**	ENH				
Project Name	Upland RI	**Sampling Date**	12/11/2019				
Sampling Event	December 2019	**Sample Name**	RAU2-08-GW-9				
Sub Area		**Sample Depth**	9				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/11/2019	13:23	14.46		4		10.46	1.7

(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	1:53:00 PM	0.2	0.4	6.79	11.2	13098	5.67	224.8	41.61
	1:57:00 PM	0.5	0.4	7.07	11.1	13095	5.73	220.6	46.85
	2:01:00 PM	0.8	0.25	7.02	10.9	13168	5.51	216.1	37.72
	2:05:00 PM	1.1	0.25	7.02	11	13355	5.22	204.5	29.75
	2:09:00 PM	1.4	0.25	6.99	11	13380	5.18	202.3	17.36
Final Field Parameters	2:13:00 PM	1.7	0.25	6.98	11	13402	5.12	199.4	10.82

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: Colorless, slightly turbid.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:13:00 PM	VOA-Glass		
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	9	

General Sampling Comments Began purging at 13:50.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU2-09
Project #	1044.02.13	**Sampler**	ENH
Project Name	Upland RI	**Sampling Date**	12/11/2019
Sampling Event	December 2019	**Sample Name**	RAU2-09-GW-9
Sub Area		**Sample Depth**	9
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/11/2019	13:27	14.39		2.65		11.74	1.91

(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	2:25:00 PM	0.3	0.25	7.07	12.7	14411	2.13	188.7	10.65
	2:29:00 PM	0.5	0.25	7.15	12.5	14333	1.79	184.6	8.85
	2:33:00 PM	0.7	0.25	7.19	12.3	13982	1.42	181.6	4.12
Final Field Parameters	2:37:00 PM	0.9	0.25	7.21	12.2	13830	1.2	180.6	3.21

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, colorless, sulfur-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:37:00 PM	VOA-Glass		
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly	1	Yes
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments Began purging at 14:19.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU3-03				
Project #	1044.02.13	**Sampler**	ENH				
Project Name	Upland RI	**Sampling Date**	12/11/2019				
Sampling Event	December 2019	**Sample Name**	RAU3-03-GW-5				
Sub Area		**Sample Depth**	5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/11/2019	13:36	7.23		1.5		5.73	0.93

(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	3:19:00 PM	0.1	0.2	7.31	11.2	696	0.31	72.7	167.4
	3:23:00 PM	0.2	0.2	7.1	11.3	606.6	0.27	80.5	125.7
	3:27:00 PM	0.3	0.2	7.02	11	359.9	0.26	82.6	86.82
	3:31:00 PM	0.4	0.2	7.01	10.9	354	0.26	88.1	66.15
Final Field Parameters	3:34:00 PM	0.5	0.2	6.99	10.9	347.8	0.27	89.7	57.21

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:

Colorless, slightly turbid.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	3:34:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 15:15.
Water level dropped to 2.53 feet below top of casing during purging.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU3-05		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/2/2019		
Sampling Event	December 2019	**Sample Name**	RAU3-05-GW-8.0		
Sub Area		**Sample Depth**	8		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/2/2019	11:42	9.5		4.54		4.96	0.2

(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									
Final Field Parameters	11:49:00 AM	0.2	0.25	7.25	13.4	770			346.5

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:

Turbid, colorless.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:49:00 AM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 11:46.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU3-06
Project #	1044.02.13	**Sampler**	ENH
Project Name	Upland RI	**Sampling Date**	12/3/2019
Sampling Event	December 2019	**Sample Name**	RAU3-06-GW-6.5
Sub Area		**Sample Depth**	6.5
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	11:58	9		4.27		4.73	0.19

(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	12:04:00 PM	0.3	0.3	6.65	14.8	372			275.3
	12:07:00 PM	0.5	0.3	6.71	14.5	368			284.3
	12:10:00 PM	0.7	0.3	6.63	14.8	367			215.6
Final Field Parameters	12:13:00 PM	0.9	0.3	6.69	14.8	368			80.77

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:

Turbid, colorless, no odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:13:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 12:00.
Final turbidity = 5.88 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-01				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/3/2019				
Sampling Event	December 2019	**Sample Name**	RAU4-01-GW-6.5				
Sub Area		**Sample Depth**	6.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	16:23	9		3.86		5.14	0.21

(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	4:27:00 PM	0.2	0.2	6.62	11.1	157.1			OR
Final Field Parameters	4:55:00 PM	1.5	0.2	6.53	11.4	145.4			OR

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:

Turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	4:55:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 16:24.
Final turbidity = 23.4 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-02		
Project #	1044.02.13	**Sampler**	MVP		
Project Name	Upland RI	**Sampling Date**	12/3/2019		
Sampling Event	December 2019	**Sample Name**	RAU4-02-GW-7		
Sub Area		**Sample Depth**	7		
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	16:45	9.5		4.73		4.77	0.2

(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	4:49:00 PM	0.25	0.25	6.97	13.8	350			OR
	5:05:00 PM	1	0.25	6.91	13.9	340			OR
Final Field Parameters	5:10:00 PM	1.25	0.25	6.82	14.1	342			OR

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:

Turbid, no odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	5:10:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 16:46.
Final turbidity = 102.6 NTU.
OR: overrange.
Duplicate sample also collected at this location: RAU4-02-GW-7-DUP.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-04				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/5/2019				
Sampling Event	December 2019	**Sample Name**	RAU4-04-GW-7.0				
Sub Area		**Sample Depth**	7				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	14:08	9.5		4.88		4.62	0.19

(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									
Final Field Parameters	2:14:00 PM	0.2	0.2	6.71	12.7	9210			62.23

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:

Slightly turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:14:00 PM	VOA-Glass		
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	9	

General Sampling Comments

Began purging at 14:10.
Final turbidity = 5.66 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-05
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/4/2019
Sampling Event	December 2019	**Sample Name**	RAU4-05-GW-7.5
Sub Area		**Sample Depth**	7.5
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/4/2019	17:20	10		3.02		6.98	0.29

(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	5:26:00 PM	0.2	0.2	6.35	11.6	428			174.4
	5:30:00 PM	0.45	0.25	6.38	11.7	407			162.7
Final Field Parameters	5:38:00 PM	0.85	0.2	6.41	11.5	402			155.45

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:

Turbid, gray, organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	5:38:00 PM	VOA-Glass		
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	9	

General Sampling Comments

Began purging at 17:22.
Final turbidity = 131.4 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-06
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/5/2019
Sampling Event	December 2019	**Sample Name**	RAU4-06-GW-4.5
Sub Area		**Sample Depth**	4.5
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	9:06	7		2.92		4.08	0.17

(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	9:08:00 AM	0.15	0.3	6.37	11.2	424			OR
	9:12:00 AM	0.35	0.2	6.41	11.2	436			OR
	9:16:00 AM	0.55	0.2	6.41	11.7	462			OR
	9:20:00 AM	0.85	0.3	6.43	11.9	456			OR
Final Field Parameters	9:24:00 AM	1.15	0.3	6.44	11.8	493			OR

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:

Sheen, turbid, organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:24:00 AM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 09:06.
Final turbidity = 486.0 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-07
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/3/2019
Sampling Event	December 2019	**Sample Name**	RAU4-07-GW-7.0
Sub Area		**Sample Depth**	7
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	17:55	8.5		4.85		3.65	0.15

(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									
Final Field Parameters	6:00:00 PM	0.1	0.25	6.24	14.6	520			95

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:

Slightly turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	6:00:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 17:57.
Final turbdiity = 22.8 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-08				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/4/2019				
Sampling Event	December 2019	**Sample Name**	RAU4-08-GW-7.5				
Sub Area		**Sample Depth**	7.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/4/2019	14:39	10		5.42		4.58	0.19

(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									
Final Field Parameters	2:49:00 PM	1	0.25	6.58	15.2	1007			OR

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:

Turbid, colorless, no odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:49:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 14:39.
Final turbidity = 14.96 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-09
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/5/2019
Sampling Event	December 2019	**Sample Name**	RAU4-09-GW-7.0
Sub Area		**Sample Depth**	7
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	13:20	9.5		4.82		4.69	0.19

(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	1:25:00 PM	0.25	0.25	6.81	14.2	845			OR
	1:29:00 PM	0.55	0.3	6.78	14.4	820			OR
	1:33:00 PM	0.85	0.3	6.8	14.3	803			482.6
	1:37:00 PM	1.15	0.3	6.82	14.1	791			470.7
Final Field Parameters	1:41:00 PM	1.45	0.3	6.81	13.9	800			535.5

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:

Turbid, colorless, organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:41:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 13:21.
Final turbidity = 12.35 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-10
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/4/2019
Sampling Event	December 2019	**Sample Name**	RAU4-10-GW-8.0
Sub Area		**Sample Depth**	8
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/4/2019	14:15	10		5.85		4.15	0.17

(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	2:43:00 PM	1	0.2	6.12	13.9	170.4			97.41
	2:47:00 PM	1.2	0.21	6.03	13.8	171			116.4
Final Field Parameters	2:51:00 PM	1.4	0.15	6.12	14	173.2			124.2

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:

Turbid, gray, effervescent.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:51:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly	1	No
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	13	

General Sampling Comments

Began purging at 14:20.
Final turbidity = 10.92 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-11
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/5/2019
Sampling Event	December 2019	**Sample Name**	RAU4-11-GW-7.0
Sub Area		**Sample Depth**	7
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	10:45	9.5		4.82		4.68	0.19

(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	10:52:00 AM	0.2	0.2	6.55	14.8	1578			OR
	11:02:00 AM	0.4	0.2	6.56	15.6	1583			57.49
	11:06:00 AM	0.7	0.3	6.57	15.3	1567			39.71
	11:10:00 AM	1	0.3	6.53	15.4	1552			42.16
Final Field Parameters	11:14:00 AM	1.3	0.3	6.53	15.3	1552			33.44

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, colorless, organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:14:00 AM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly	1	No
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	13	

General Sampling Comments

Began purging at 10:47.
Final turbidity = 16.24 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-12
Project #	1044.02.13	**Sampler**	ENH
Project Name	Upland RI	**Sampling Date**	12/11/2019
Sampling Event	December 2019	**Sample Name**	RAU4-12-GW-9
Sub Area		**Sample Depth**	9
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/11/2019	16:08	14.7		2.62		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	4:15:00 PM	0.2	0.4	6.41	13.1	5995	1.36	194.3	81.39
	4:19:00 PM	0.3	0.15	6.47	12.4	5994	1.06	183.8	73.12
	4:23:00 PM	0.5	0.15	6.43	12.2	5979	0.89	178	71.19
Final Field Parameters	4:27:00 PM	0.6	0.15	6.41	12.3	5965	0.85	175.4	69.94

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: Colorless, moderate turbidity.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:27:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 16:11.
Water level dropped to 6.61 feet below top of casing during purging.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-13
Project #	1044.02.13	**Sampler**	M. Pollock/E. Hess
Project Name	Upland RI Data Gaps	**Sampling Date**	7/22/2020
Sampling Event	July 2020	**Sample Name**	RAU4-13-GW-6.5
Sub Area		**Sample Depth**	6.5
FSDS QA:	F. Bellows; 8/2/21	**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**
7/22/2020	12:02	9		5.38		3.62	0.15

(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	12:10:00 PM	0.5	0.25	6.04	18.3	461			OR
	12:14:00 PM	0.75	0.25	6.01	18.2	425			72.5
Final Field Parameters	12:18:00 PM	1	0.25	6.03	18.1	431			67.2

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:

Slightly turbid, grayish brown.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:18:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 12:03. Well became dry at 12:18 after purging 1.0 gallon.
OR = over range.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-14		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-14-GW-6.0		
Sub Area		**Sample Depth**	6		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	16:10	9		4.47		4.53	0.19

(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	4:28:00 PM	0.7	0.2	5.94	17.3	890			OR
	4:32:00 PM	0.9	0.2	5.89	17.3	812			OR
	4:44:00 PM	1.5	0.2	5.89	17.4	805			OR
	5:03:00 PM	2.5	0.2	5.87	16.7	797			OR
Final Field Parameters	5:07:00 PM	2.7	0.2	5.88	16.5	801			OR

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:

Turbid, grayish brown.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	5:07:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 16:10.
OR = over range.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-15		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-15-GW-5.0		
Sub Area		**Sample Depth**	5		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	18:05	9		3.68		5.32	0.22

(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	4:15:00 PM	0.4	0.2	6.73	15.9	158.9			1100
	4:22:00 PM	0.8	0.2	6.62	15.5	117.3			1056
	4:26:00 PM	1	0.2	6.62	15.8	111.5			629.6
	4:30:00 PM	1.2	0.2	6.62	15.8	105.4			71.5
	4:34:00 PM	1.4	0.2	6.62	15	104.2			72.4
Final Field Parameters	4:38:00 PM	1.6	0.2	6.62	14.9	104.1			68.7

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:

Slightly turbid, grayish brown, faint organic-like odor.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	4:38:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 16:07.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-16				
Project #	1044.02.13	**Sampler**	E. Hess				
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020				
Sampling Event	July 2020	**Sample Name**	RAU4-16-GW-4.0				
Sub Area		**Sample Depth**	4				
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	12:45	8		3.18		4.82	0.2

(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	1:02:00 PM	0.75	0.2	6.17	17.6	397			406.1
	1:06:00 PM	0.95	0.2	6.2	17.4	374			405.2
	1:10:00 PM	1.15	0.2	6.17	17.3	366			415.1
Final Field Parameters	1:14:00 PM	1.35	0.2	6.23	17.2	361			408.6

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:

Turbid, grayish brown, faint petroleum hydrocarbon-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:14:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 12:47

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-17		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-17-GW-4.5		
Sub Area		**Sample Depth**	4.5		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	11:07	9		3.33		5.66	0.23

(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	11:28:00 AM	0.25	0.22	6.11	19.2	1112			684.1
	11:38:00 AM	0.75	0.2	6.14	19.2	636			635
	11:48:00 AM	1.25	0.2	6.15	19.2	549			572.4
	11:58:00 AM	1.75	0.2	6.15	19.2	528			591.9
	12:02:00 PM	1.95	0.2	6.15	19.2	517			550.2
Final Field Parameters	12:06:00 PM	2.15	0.2	6.15	19.3	519			584.3

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: Turbid, colorless, petrolum hydrocarbon-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:06:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments Began purging at 11:24.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-18		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-18-GW-5.0		
Sub Area		**Sample Depth**	5		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	13:43	9		3.44		5.56	0.23

(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	1:50:00 PM	0.1	0.2	6.26	18.7	597			210.5
	2:00:00 PM	0.5	0.15	6.36	17.8	621			415.9
	2:04:00 PM	0.65	0.15	6.4	17.6	624			390.9
Final Field Parameters	2:08:00 PM	0.8	0.15	6.4	17.5	625			377.3

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: Turbid, grayish brown, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:08:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments Began purging at 13:48.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-19		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-19-GW-5.0		
Sub Area		**Sample Depth**	5		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	11:38	9		3.71		5.29	0.22

(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	11:55:00 AM	0.25	0.13	5.82	19.4	892			OR
	12:13:00 PM	0.75	0.2	5.91	19.2	480			OR
	12:28:00 PM	1.25	0.2	5.87	18.7	441			OR
	12:32:00 PM	1.45	0.2	5.85	18.6	438			OR
	12:36:00 PM	1.65	0.2	5.82	18.7	443			85.1
Final Field Parameters	12:40:00 PM	1.85	0.2	5.82	18.7	448			80.3

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:

Slightly turbid, colorless.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	12:40:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 11:45.
OR = overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-20		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-20-GW-10.5		
Sub Area		**Sample Depth**	10.5		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	13:10	12		9.43		2.57	0.11

(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									
Final Field Parameters	1:53:00 PM			6.27	19.3	640			104.5

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:

Slightly turbid, colorless.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	1:53:00 PM	VOA-Glass	0	
			Amber Glass	1	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	3	

General Sampling Comments

Began purging at 13:11.
Well became dry at 13:20. Came back at 13:53 to sample. Well became dry again at 13:56.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU4-21		
Project #	1044.02.13	**Sampler**	E. Hess		
Project Name	Upland RI Data Gaps	**Sampling Date**	7/21/2020		
Sampling Event	July 2020	**Sample Name**	RAU4-21-GW-13.0		
Sub Area		**Sample Depth**	13		
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/21/2020	14:33	18		12.03		5.97	0.24

(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	3:06:00 PM	0.1	0.2	6.2	19	660			OR
	3:10:00 PM	0.3	0.2	6.2	16.9	563			OR
	3:24:00 PM	1	0.2	6.16	16.7	518			573.5
	3:28:00 PM	1.2	0.2	6.18	16.9	498			575.7
Final Field Parameters	3:32:00 PM	1.4	0.2	6.18	16.7	495			585.2

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: Turbid, grayish brown.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	3:32:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 15:03.
OR = overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU5-01				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/3/2019				
Sampling Event	December 2019	**Sample Name**	RAU5-01-GW-7.0				
Sub Area		**Sample Depth**	7				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/3/2019	16:17	9.5		4.7		4.8	0.2

(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									
Final Field Parameters	4:22:00 PM	0.15	0.15	6.73	11.3	1631			354

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:

Slightly turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:22:00 PM	VOA-Glass	3	No
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	10	

General Sampling Comments

Began purging at 16:21. Well purged dry at 16:25.
1-L unpreserved amber and 1-L HCl-preserved amber not filled due to insufficient volume.
Final turbidity = 70.7 NTU.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU5-03
Project #	1044.02.13	**Sampler**	E. Hess
Project Name	Upland RI Data Gaps	**Sampling Date**	7/22/2020
Sampling Event	July 2020	**Sample Name**	RAU5-03-GW-6.5
Sub Area		**Sample Depth**	6.5
FSDS QA:	M. Pollock; 10/17/2022	**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**
7/22/2020	13:40	9		4.05		4.95	0.2

(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	1:52:00 PM	0.25	0.25	6.23	21	125.8			179.6
	1:56:00 PM	0.5	0.25	6.25	20.8	119.1			133.7
Final Field Parameters	2:00:00 PM	0.75	0.25	6.23	20.5	112.8			78.24

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:

Cloudy, grayish brown.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:00:00 PM	VOA-Glass	0	
			Amber Glass	2	No
			White Poly	0	
			Yellow Poly	0	
			Green Poly	0	
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	4	

General Sampling Comments

Began purging at 13:47.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU6-02
Project #	1044.02.13	**Sampler**	ENH
Project Name	Upland RI	**Sampling Date**	12/11/2019
Sampling Event	December 2019	**Sample Name**	RAU6-02-GW-12
Sub Area		**Sample Depth**	12
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/11/2019	16:35	13.7		2.52		11.18	1.82

(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	4:44:00 PM	0.3	0.25	6.88	14.3	753	0.65	143.1	132.9
	4:50:00 PM	0.5	0.25	6.89	14.2	748	0.29	164.4	96.33
	4:54:00 PM	0.7	0.25	6.8	14	758	0.22	168.2	99.39
Final Field Parameters	4:58:00 PM	0.9	0.25	6.8	14	762	0.23	170.4	92.61

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:

Colorless, moderate turbidity.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:58:00 PM	VOA-Glass	3	No
			Amber Glass	6	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	12	

General Sampling Comments

Began purging at 16:39.
Water level dropped to 6.18 feet below top of casing during purging.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU7-01				
Project #	1044.02.13	**Sampler**	MVP				
Project Name	Upland RI	**Sampling Date**	12/5/2019				
Sampling Event	December 2019	**Sample Name**	RAU7-01-GW-8.5				
Sub Area		**Sample Depth**	8.5				
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	15:40	9.5		6.92		2.58	0.11

(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									
Final Field Parameters	3:45:00 PM	0.1	0.1	7.91	12.3	1862			OR

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:

Slightly turbid, colorless.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	3:45:00 PM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 15:41.
Final turbidity = 5.36 NTU.
OR: overrange.

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Water Field Sampling Data Sheet

Client Name	Grays Harbor Historical Seaport	**Sample Location**	RAU7-02
Project #	1044.02.13	**Sampler**	MVP
Project Name	Upland RI	**Sampling Date**	12/5/2019
Sampling Event	December 2019	**Sample Name**	RAU7-02-GW-9.5
Sub Area		**Sample Depth**	9.5
FSDS QA:	S. Maloney; 12/19/2019	**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**
12/5/2019	16:00	12		6.68		5.32	0.22

(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	4:15:00 PM	0.25	0.25	6.48	13.8	372			184.7
	4:19:00 PM	0.5	0.25	6.3	14.3	374			93.59
	4:23:00 PM	0.75	0.25	6.23	14	353			72.35
	4:27:00 PM	1	0.25	6.25	14	342			74.87
Final Field Parameters	4:31:00 PM	1.25	0.25	6.24	14	337			79.51

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:

Slightly turbid, colorless, faint organic-like odor.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	4:31:00 PM	VOA-Glass		
			Amber Glass	4	No
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly	1	Yes
			Total Bottles	7	

General Sampling Comments

Began purging at 16:11.
Final turbidity = 95.14 NTU.

APPENDIX J

GEOPHYSICAL SURVEY REPORT

PACIFIC GEOPHYSICS
Applied Geophysics

GEOPHYSICAL SURVEY REPORT

Underground Storage Tank Survey

Former Lumber Mill
500 N Custer Street,
Aberdeen, Washington

Project number: 190904
Survey Dates: October 22-25, 28-31, 2019

Prepared for:
Maul, Foster, and Alongi [MFA]

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Appendix A. Geophysical Survey Methods

Introduction

Pacific Geophysics conducted a geophysical survey at the Aberdeen Seaport property formerly owned by Weyerhaeuser and operated as a lumber mill. The survey was conducted to detect underground storage tanks (USTs), other metallic objects or anomalous areas, and utility corridors across the majority of the property. An additional goal was to clear several proposed borehole locations of underground obstructions across the site.

A magnetometer, hand-held metal detectors and ground penetrating radar (GPR) were used for the survey.

This report includes descriptions of the site and scope of work, methodology and results of the geophysical survey.

Site Description

The magnetic survey was conducted across the areas shown in Figure 1. The west and southwest asphalt lots (West), the south asphalt lot (South), and the asphalt areas around and east of the east building (East) now used as a truss-manufacturing facility. From personal communication with the manager of the truss-making facility, an auto wrecking/salvage facility occupied part of the site in the past.

Many metallic surface objects were seen across the site, including chain-link fences, piled building debris, a vehicle scale, poles, bollards, catch basins, and vaults. These features, including the buildings, interfered with the magnetic survey. Buried metallic objects of interest located near or under these objects may have been missed because of the magnetic noise produced by the surface objects.

No surface evidence of USTs, like fill ports and vent pipes, was seen in the areas covered with the magnetometer. During the clearance of one of the boreholes, a UST vent pipe and fuel pump piping were seen by the guard shack.

Scope of Work

The project included the following scopes:

- To detect possible underground storage tanks (USTs) and other metallic objects including underground infrastructure,
- To detect anomalous fill areas containing ferrous metal,
- To detect utility corridors,
- To clear several proposed borehole locations of buried obstructions for drilling.

Jeff Mann and Nikos Tzetos of Pacific Geophysics conducted the survey for Ms. Emily Hess of MFA in October 2019. This report was written by Nikos Tzetos, reviewed by Jeff Mann and emailed to Ms. Hess on November 11, 2019.

Geophysical Equipment and Survey Procedures

General Procedures:

A magnetometer is the first instrument used to investigate a site for subsurface ferrous metallic objects because it enables the operator to rapidly scan the subsurface. Data are collected across an accurately measured survey grid established on the site. For this particular survey, the magnetometer was coupled to a Juniper Systems Geode 2 sub-meter-accuracy GPS unit.

Upon completing the data acquisition phase of the survey, contour maps of the earth's local magnetic field are produced. Small, handheld metal detectors are then used to more thoroughly investigate the magnetic anomalies detected with the magnetometer. These instruments are excellent at detecting and characterizing buried metal objects; however, they do not record data, and are not adequate to survey large areas.

Ground Penetrating Radar (GPR) is usually the last method used to investigate a site for buried metallic objects. The shape of radar reflections produced by buried objects may assist in the interpretation of magnetic anomalies. GPR is the only instrument capable of detecting disturbed-soil zones caused by excavations or UST pits.

Magnetic Survey:

At this site, a Geometrics G858 Portable Cesium Magnetometer was used to acquire the magnetic data. Magnetic data positions were accurately located with the Geode GPS. Traverses were made along survey lines spaced approximately every 5 feet; however, data were collected wherever the operator walked, for example, around piles of building material and small buildings. All data shown in the following figures are shown in the UTM coordinate system in feet.

Colored contour maps showing the earth's local magnetic field at the time of the survey were created and printed in the field. Data were contoured and examined using a contour interval of 250 nT (nanoTesla). Magnetic anomalies higher in amplitude than the normal local magnetic background are shown in red, and are usually found over areas where ferrous objects are located below the sensor, carried at a height of about 3 feet. The objects may be surface objects such as manholes or other surface features, or buried objects of interest, such as USTs, drums, pipes and debris. Magnetic anomalies at or below the amplitude of the local magnetic field are shown in blue, and are caused by ferrous objects located above the sensor. Buildings, fences, metal posts, and cars, usually produce magnetic lows. Depending on their size and orientation, large buried objects may produce both positive (red) and negative (blue) anomalies.

Surface objects can produce significant magnetic interference that can conceal buried objects of interest. The metallic objects that produced significant magnetic interference at this site are noted above in the Site Description.

Hand-held instruments:

An Aquatronics A6 Tracer and a Schonstedt GA92XTd magnetic gradiometer were used to locate and investigate the anomalies detected by the magnetometer. These

instruments can pinpoint the peaks and troughs of the anomalies, and in many cases determine if an object is linear (pipe or utility) or three-dimensional (UST).

The transmitter unit of a Radio Detection RD8000 PDL pipe and cable detector may be used to electrically charge an accessible metal pipe or utility. The charged object can then be “traced” using the receiver unit. The receiver can also detect some metallic features indirectly, using the system’s “radio” function.

Ground Penetrating Radar:

Following the hand-held instrument survey, a GSSI SIR-2000 GPR system coupled to radar antennas of various frequencies may be used to investigate suspicious magnetic anomalies. Radar data collected across the anomalies may give clues to the size and shape of the buried metallic objects producing them. A GSSI 400-MHz antenna was used in this survey.

The collection of radar data is very time consuming; therefore, GPR is not a cost-effective method to blindly scan a site for buried metallic objects; however, it is one of the only methods capable of detecting non-metallic features, including PVC and clay pipes, septic tanks, drywells and trenches and excavations. GPR was used at this site to detect disturbed-soil zones and to clear boreholes.

Additional information regarding these instruments, methods, surveys and limitations with references can be found in the Appendix.

Results

West Areas (Figure 2):
Magnetic data produced with this survey are shown as filled and colored contours, contoured at an interval of 500 nT (nanoTesla).

Several magnetic anomalies were investigated. Most are interpreted to be caused by non-three-dimensional, or small 3D objects. Several pipes and concrete pads were detected. Anomaly A is caused by a concrete vault.

Two prominent groups of anomalies can be seen in Figure 2:

Anomalies labeled B are possibly caused by remnants of a building. Several pipes were detected within this footprint and are shown in the figure.

Anomalies labeled C were readily detected with the Schonstedt but did not with the Tracer, which is an unusual occurrence. It is possible that non-contiguous metallic debris (small, individual pieces of ferrous metal) is causing them. GPR traverses were made across the anomalies and an area with varying degrees of disturbance was detected.

At the time of the survey, a large puddle limited access to the southeast corner of this area, labeled on Figure 2 a puddle extent.

A conductive pipe was detected south of the swales. It extends from a vault to the east, up to the western property line (Figure 2). Several pipes trending mostly WSW-

ENE were detected in the area north of the swales. A known drain pipe between catch basins was detected and is shown in the figure. Also shown are pipes of unknown function between the concrete pads in the north of this survey area.

South Area (Figure 3):
This area appeared to be fairly clean. Most anomalies are interpreted to be caused by surface metal, pipes, concrete pads, or small objects. Anomalies marked D1 appear to be caused by ferrous debris. The characteristics of this zone are similar to anomalies C above. Only the Schonstedt and magnetometer responded to the ferrous metal comprising the zone. No response from the Tracer was detected across this anomaly. The anomaly extends farther to the east.

East Area, Lower Portion (Figure 4):
No anomalies caused by buried 3D objects were detected in this area. Anomalies D1 discussed above continue into D2. Anomalies D and E are interpreted to be caused by buried metallic debris.

Anomalies F, G, and H could only be detected with the Schonstedt hand-held magnetometer indicating they are caused by ferrous debris. No distinct objects or soil disturbances were seen in radar profiles. These anomalies are not caused by USTs. A metallic pipe, possibly a drain to the slough, was detected in this area (please see Figure 4).

Anomalies I are caused by surface objects and/or the building.

Several pipes are shown in Figures 3 and 4. They were detected during the borehole clearance process. A known storm pipe was detected between catch basins; it extends to the east toward the slough but it could not be determined if it drains in the slough. Other pipes trending in the same WSW-ENE direction were detected and are shown in the figures. One may be a water line. Two are extending toward the slough. It is unknown whether they exit the property at the slough.

East Area, Upper Portion (Figure 5):
A large metal structure on a concrete pad caused anomaly J. Two sets of large bollards/lumber stops caused a very large negative anomaly (K). Zones containing ferrous debris with the same characteristics as anomalies C, D1, D2, and E were detected in the south corner of this area (L) and at the south end of anomaly K. Several other anomalies were investigated and are caused by pipes and surface objects.

Borehole Clearance:
Fifty two proposed borehole locations were cleared using GPR and hand-held instruments across the entire property.

During the clearance of RAU5-01, a UST vent pipe and fuel pump piping were seen by the guard shack. The pipes were traced a few feet toward the west, to an asphalt patch located under a covered bulletin board. No metallic object was detected under the patch. This may be the former location of a fuel UST. A possible tank excavation was detected, whose edges coincided with a patch seen on the surface (asterisk, Figure 1).

Figure 6 is an overlay of the resulting magnetic maps on a base photo from Google Earth.

Conclusion

No USTs were detected with the magnetic survey across three areas at the former lumber mill. Most anomalies detected with the survey were caused by surface objects, piping and concrete pads.

Seven large areas containing ferrous debris were detected.

Fifty two borehole locations were cleared with hand-held detectors and GPR.

Limitations

The conclusions presented in this report were based upon widely accepted geophysical principles, methods and equipment. This survey was conducted with limited knowledge of the site, the site history and the subsurface conditions.

The goal of near-surface geophysics is to provide a rapid means of characterizing the subsurface using non-intrusive methods. Conclusions based upon these methods are generally reliable; however, due to the inherent ambiguity of the methods, no single interpretation of the data can be made. As an example, rocks and roots produce radar reflections that may appear the same as pipes and tanks.

Under reasonable site conditions, geophysical surveys are good at detecting changes in the subsurface caused by manmade objects or changes in subsurface conditions, but they are poor at identifying those objects or subsurface conditions.

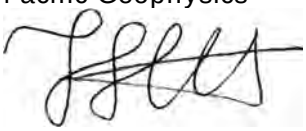
Objects of interest are not always detectable due to surface and subsurface conditions. The deeper an object is buried, the more difficult it is to detect, and the less accurately it can be located.

The only way to see an object is to physically expose it.

Jeff Mann — November 11, 2019
Pacific Geophysics



Nikos Tzetos — November 11, 2019
Pacific Geophysics





PACIFIC GEOPHYSICS
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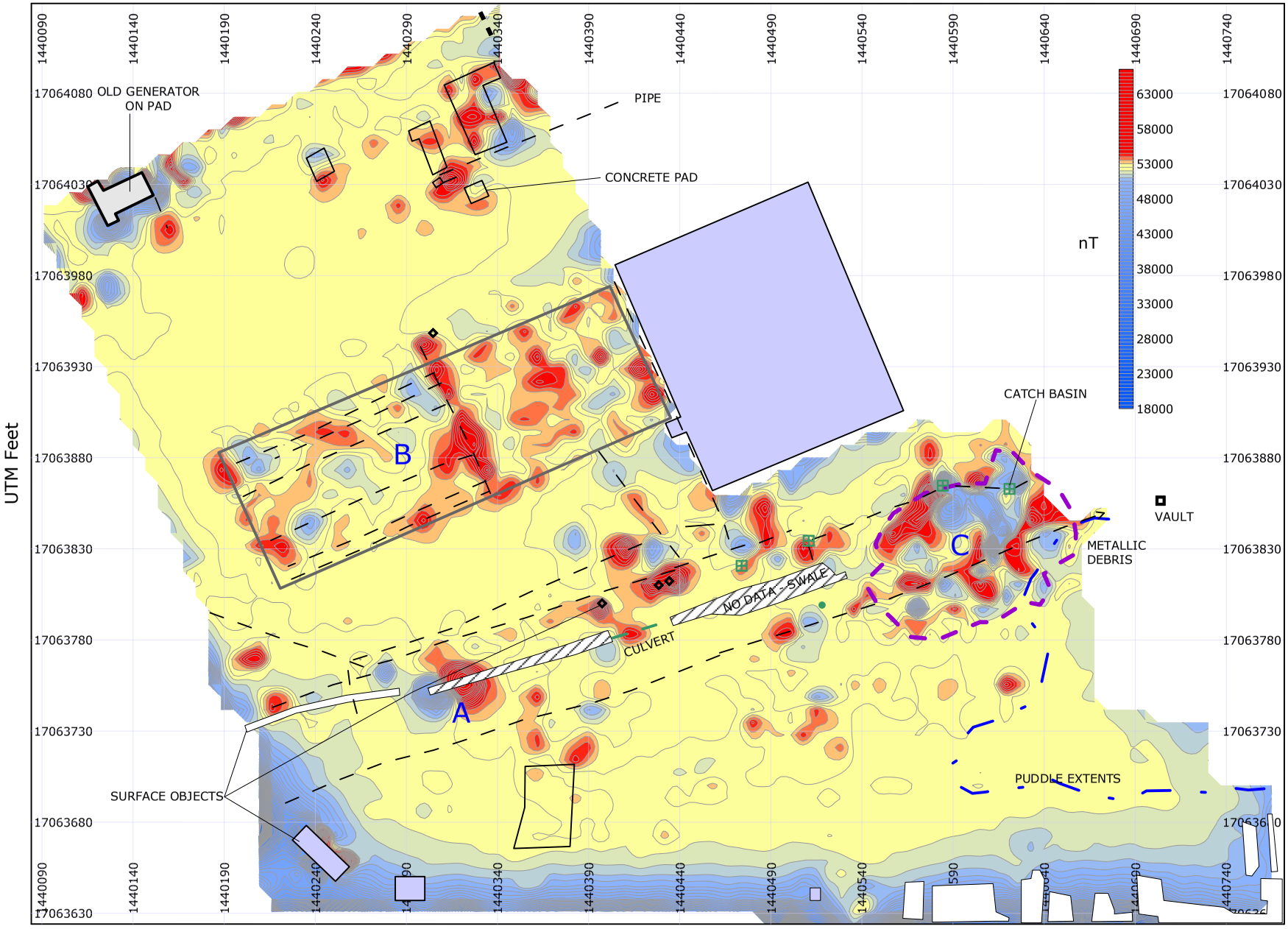
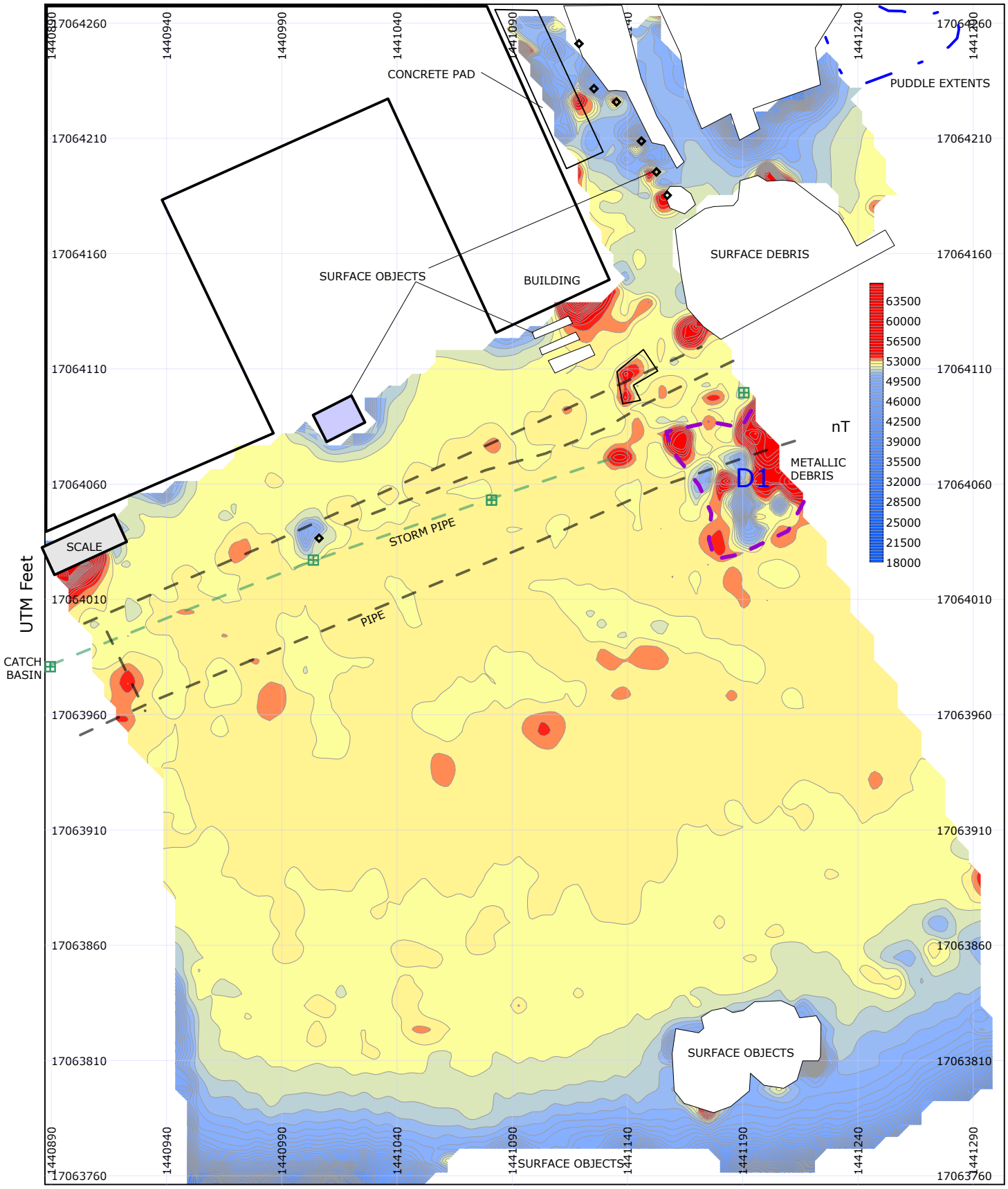
FIGURE 1	Site Aerial Photo and Survey Areas	
	Project: 190904	Former Lumber Mill 500 N Custer Street, Aberdeen, Washington
	Drawn by : NT	Prepared for: Maul, Foster, and Alongi
		Base Photo from Google Earth Pro



Contour Interval: 500 nT

PACIFIC GEOPHYSICS
Applied Geophysics

FIGURE	Magnetic Contour Map - West	
2	Project: 190904	Former Lumber Mill 500 N Custer Street, Aberdeen, Washington
	Drawn by : NT	Prepared for: Maul, Foster, and Alongi
		Survey Date: Oct. 22-25, 28-31, 2019



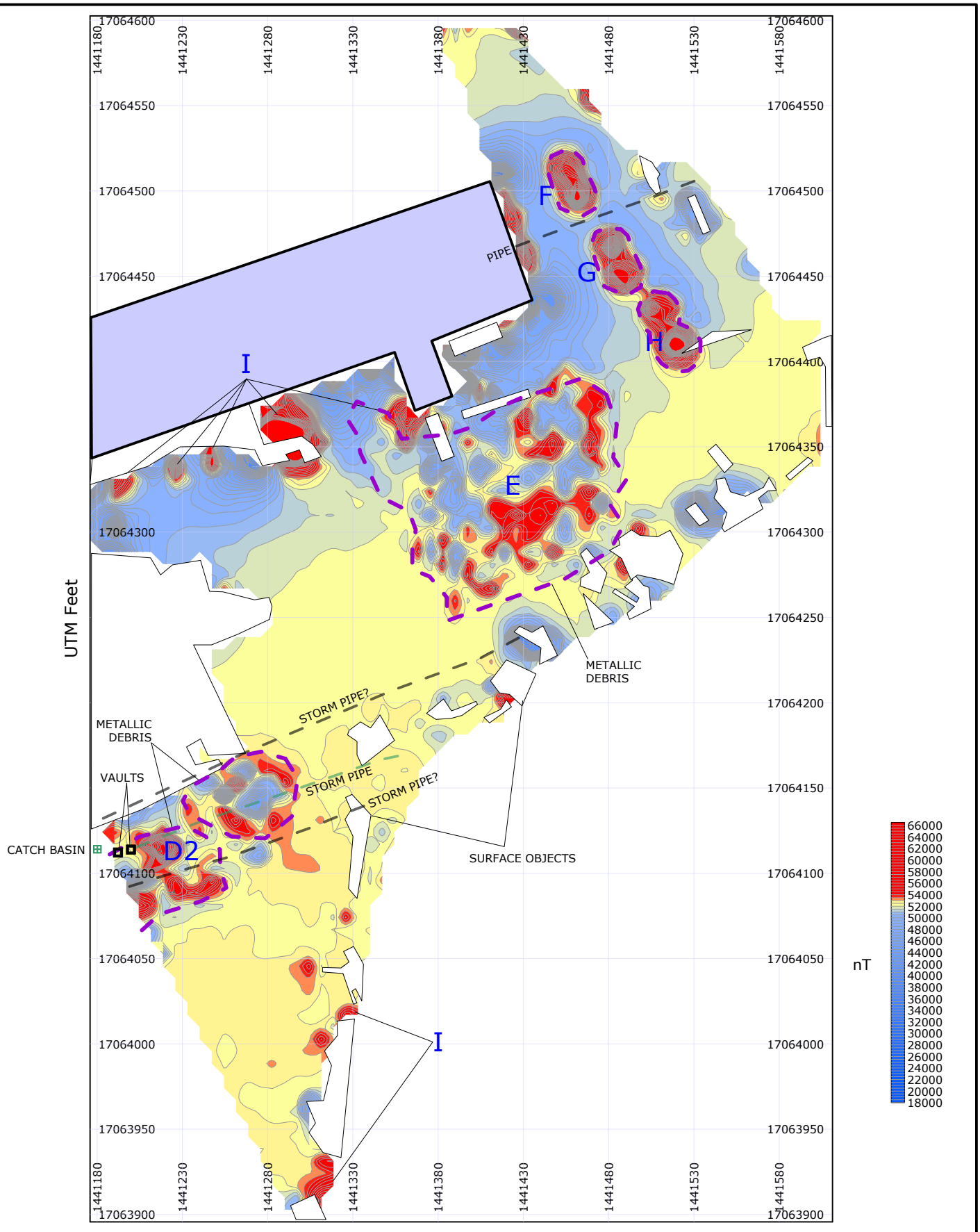
Contour Interval: 500 nT

PACIFIC GEOPHYSICS
Applied Geophysics

FIGURE 3

Magnetic Contour Map - South

Project: 190904	Former Lumber Mill 500 N Custer Street, Aberdeen, Washington
Drawn by : NT	Prepared for: Maul, Foster, and Alongi
	Survey Date: Oct. 22-25, 28-31, 2019



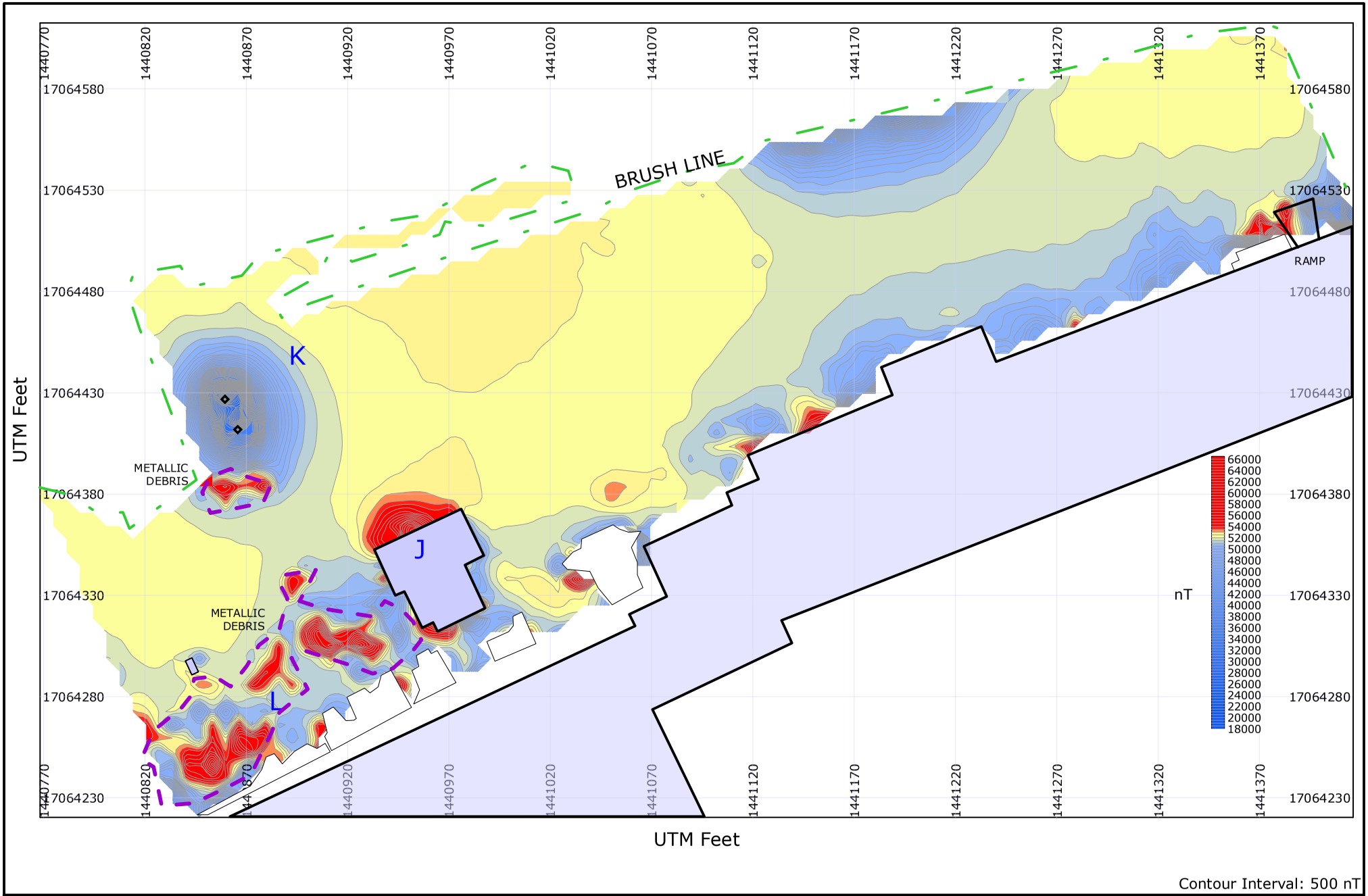
Contour Interval: 500 nT

PACIFIC GEOPHYSICS
Applied Geophysics

FIGURE 4

Magnetic Contour Map - East, Lower

Project: 190904	Former Lumber Mill 500 N Custer Street, Aberdeen, Washington
Drawn by : NT	Prepared for: Maul, Foster, and Alongi
	Survey Date: Oct. 22-25, 28-31, 2019



Contour Interval: 500 nT

PACIFIC GEOPHYSICS
Applied Geophysics

N

FIGURE 5	Magnetic Contour Map - East, Upper	
	Project: 190904	Former Lumber Mill 500 N Custer Street, Aberdeen, Washington
	Drawn by : NT	Prepared for: Maul, Foster, and Alongi
		Survey Date: Oct. 22-25, 28-31, 2019



PACIFIC GEOPHYSICS
Applied Geophysics

FIGURE 6	Magnetic-Contour Overlay	
	Project: 190904	Former Lumber Mill 500 N Custer Street, Aberdeen, Washington
	Drawn by : NT	Prepared for: Maul, Foster, and Alongi
		Base Photo from Google Earth Pro

Appendix A. Geophysical Survey Methods

Magnetometer Surveys

Small disturbances in the Earth's local magnetic field are called "magnetic anomalies". These may be caused by naturally occurring features such as metallic mineral ore bodies, or from manmade features such as metal buildings, vehicles, fences, and underground storage tanks. The magnetometer only detects changes produced by ferrous objects. Aluminum and brass are non-ferrous metals and cannot be detected using a magnetometer.

A magnetometer is an electronic instrument designed to detect small changes in the Earth's local magnetic field. Over the years different technologies have been used in magnetometers. The Geometrics G-858 Portable Cesium Magnetometer used to collect magnetic data for Pacific Geophysics uses one of the most recent methods to detect magnetic anomalies. A detailed discussion describing the method this unit uses is available at Geometrics.com.

This magnetometer enables the operator to collect data rapidly and continuously rather than the older instruments that collected data at discreet points only. The G-858 is carried by hand across the site. The sensor is carried at waist level. Typically individual data points collected at normal walking speed are about 6" apart along survey lines usually 5 feet apart, depending on the dimensions of the target objects.

It is critical to know the exact location of each data point so that if an anomaly is detected it can be accurately plotted on a magnetic contour map. At most small sites, data are collected along straight, parallel survey lines set up on the site before the data collection stage begins. For very large, complex sites, the G-858 can be connected to a Global Positioning System (GPS) antenna which allows the operator to collect accurately-located data without establishing a survey grid. With GPS, data are collected and positioned wherever the operator walks. A limitation using GPS is that the GPS antenna must have line of sight with the GPS satellites. Data can be mislocated if the GPS antenna is under trees or near tall buildings.

Data are stored in the unit's memory for later downloading and processing. A magnetic contour map of the data is plotted in the field. Geographical features are plotted on the map. Magnetic anomalies appearing to be caused by objects of interest are then investigated on the site using several small hand-held metal detectors. If an object appears to be a possible object of interest, it may be investigated with GPR.

Magnetic contour maps may be printed in color in order to highlight anomalies caused by ferrous objects located under the magnetic sensor. Usually, ferrous objects situated below the sensor produce magnetic "highs" and anomalies located above the sensor produce magnetic "lows". Magnetic highs are of interest to the operator since most objects of interest are located underground.

Depending on the orientation, shape and mass of a metallic object, a high/low pair of magnetic anomalies may be present. In the northern hemisphere the magnetic low is located north of the object and the magnetic high toward the south. The object producing the anomaly is located part way between the high and the low anomalies.

Magnetometer surveys have limitations. Magnetometers only detect objects made of ferrous (iron-containing) metal. Large ferrous objects (buildings, cars, fences, etc.) within several feet of the magnetometer create interference that may hide the anomaly produced by a nearby object of interest.

Ground Penetrating Radar

A Geophysical Survey Systems, Inc. (GSSI) SIR-2000 GPR system coupled to GSSI antennas of various central frequencies is used to obtain the radar data for our surveys.

GPR antennas both transmit and receive electromagnetic energy. EM energy is transmitted into the material the antenna passes over. A portion of that energy is reflected back to the antenna and amplified. Reflections are displayed in real-time in a continuous cross section. Reflections are produced where there is a sufficient electrical contrast between two materials. Changes in the electrical properties (namely the dielectric constant) that produce radar reflections are caused by changes in the moisture content, porosity, mineralogy, and texture of the material. Metallic objects of interest exhibit a strong electrical contrast with the surrounding material and thus produce relatively strong reflections. Non-metallic objects of interest (septic tanks, cesspools, dry wells, and PVC and clay tile pipes) are not always good reflectors.

Radar data are ambiguous. It can be difficult to distinguish the reflection produced by an object of interest from the reflection caused by some natural feature. Rocks or tree roots have reflections that appear similar to reflections from pipes. In concrete investigations reflections produced by metal rebar look exactly like those from electrical conduit or post-tension cables. Objects with too small an electrical contrast may produce no reflections at all and may be missed. Target objects buried below objects with contrasting properties that also produce reflections may be missed (e.g. USTs below roots, concrete pieces, pipes or rocks). If an object of interest like a UST is buried below the depth of penetration of the radar signal, it will be missed.

In addition to interpreting ambiguous data, radar has several limitations that cannot be controlled by the operator. The radar signal is severely attenuated by electrically conductive material, including wet, clay-rich soil and reinforced concrete. The quality of the data is affected by the surface conditions over which the antenna is pulled. Ideally the antenna should rest firmly on a smooth surface. Rough terrain and tall grass reduce the quality of radar data.

It is the job of an experienced interpreter to examine the GPR profiles and deduce if reflections are from objects of interest. A GPR interpreter cannot see underground, but can only interpret reflections based on experience.

The only way to truly identify an object is to excavate.

Hand-held Metal detectors

Two small, non-recording metal detectors are used to locate suspect magnetic anomalies detected using the G-858 Magnetometer in order to determine the likely cause of the anomaly. First, the magnetic contour map and a Schonstedt Magnetic Gradiometer are used to locate the center of the magnetic anomalies.

Once the anomaly is located an Aqua-Tronics Tracer is used to determine if the object producing the anomaly is a possible object of interest. Most anomalies are at least in part produced by features observed on the ground surface.

Schonstedt Magnetic Gradiometer: This magnetometer has two magnetic sensors separated vertically by 10". The magnetic field surrounding a ferrous object is strongest near the object and decreases rapidly as the distance increases. If the magnitude measured by the sensor located in the tip of the Schonstedt is very high, and the magnetic field measured by the sensor located farther up the shaft of the Schonstedt is low, there is a large vertical magnetic gradient and the instrument responds with a loud whistle indicating the object is near the surface. If there is a small difference in the magnitudes measured by the two sensors, the object is deeper. The instrument responds with a softer tone. A discussion of this instrument is available at Schonstedt.com.

Aqua-Tronics A-6 Tracer: The Aqua-Tronics A-6 Tracer uses a different method of detecting metallic objects. This instrument measures the electrical conductivity of a metal object. It is capable of detecting any electrically conductive metal, including non-ferrous aluminum and brass. The Tracer is capable of detecting three-dimensional objects as well as pipes.

The Tracer consists of a transmitter coil and a receiver coil. In the absence of any electrically conductive material in the vicinity of the Tracer, the electromagnetic field around each coil is balanced.

Basically the electromagnetic field produced by the transmitter induces an electric current into the area surrounding the instrument. Nearby conductive objects distort the EM field. The balance between the two coils is disturbed and the instrument produces an audible tone and meter indication.

Radio Detection RD8000 PDL pipe and cable detector: This instrument may be used to detect buried, conductive pipes and utilities. It consists of a transmitter and a receiver and can be used in two configurations.

The transmitter may be used to directly apply a small electrical current to exposed, electrically conductive pipes and utilities. The RD receiver is then able to "trace" the underground portion of the pipe or utility, under some conditions for several hundred feet. The transmitter can also induce an electrical current into buried pipes and utilities where direct contact is not available.

The receiver can also be used alone. It has the capability to locate pipes and utilities by detecting the very small electrical currents induced into the features by nearby AM/FM radio stations.

The receiver also has an AC power function that may be used to detect underground power lines.

APPENDIX K
LABORATORY REPORTS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 December 2019

Philip Nerenberg
Apex Laboratories LLC
12232 SW Garden Place
Tigard, OR 97223

RE: A9L0097

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19L0091	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
DN: c=US, st=Washington, l=Tukwila, o=Analytical Resources, Inc., cn=Amanda Volgardsen, email=amanda.volgardsen@arilabs.com
Date: 2019.12.26 14:14:04 -08'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

NRP 12/5/19

HAD 12/5/19

19L0091

SUBCONTRACT ORDER

Apex Laboratories

A9L0097

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Analytical Resources, INC
4611 S. 134th Place
Tukwila, WA 98168
Phone :(206) 695-6200
Fax: (206) 695-6201

Sample Name: A9L0097-20 **Water** **Sampled: 12/02/19 16:15** (RAU1-01-GW-7.5)

Analysis	Due	Expires	Comments
Sulfide (PSEP/SM4500-S) (SUB)	12/17/19 17:00	12/09/19 16:15	ARI
Containers Supplied: (K)125 mL Poly - NaOH/Zinc Acetate			

Sample Name: A9L0097-24 **Water** **Sampled: 12/02/19 16:13** (RAU1-02-GW-6)

Analysis	Due	Expires	Comments
Sulfide (PSEP/SM4500-S) (SUB)	12/17/19 17:00	12/09/19 16:13	Strong Odor ARI
Containers Supplied: (K)125 mL Poly - NaOH/Zinc Acetate			

Standard TAT

Released By	Date	Received By	Date
	12-5-19	UPS (Shipper)	
UPS (Shipper)			
Released By	Date	Received By	Date
		Jacobsen	12/06/19 0943

Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A9L0097-20	19L0091-01	Water	02-Dec-2019 16:15	06-Dec-2019 09:43
A9L0097-24	19L0091-02	Water	02-Dec-2019 16:13	06-Dec-2019 09:43

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

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Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received December 6, 2019 under ARI work order 19L0091. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Sulfide - Method SM4500

The samples were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The LCS percent recoveries were within control limits.

The matrix spike percent recoveries were within QC limits.

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

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WORK ORDER

19L0091

Client: Apex Laboratories LLC | **Project Manager: Amanda Volgardsen**

Project: A9L0097 | **Project Number: A9L0097**

Report To:
Apex Laboratories LLC
Philip Nerenberg
12232 SW Garden Place
Tigard, OR 97223
Phone: 503-718-2323
Fax: -

Invoice To:
Apex Laboratories LLC
Accounts Payable
12232 SW Garden Place
Tigard, OR 97223
Phone :503-718-2323
Fax: -

Date Due: 20-Dec-2019 18:00 (10 day TAT)

Received By: Jacob Walter | Date Received: 06-Dec-2019 09:43

Logged In By: Jacob Walter | Date Logged In: 06-Dec-2019 12:11

Samples Received at: **1.4°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	Yes	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

19L0091-01 A9L0097-20 [Water] Sampled 02-Dec-2019 16:15

Sulfide, SM 4500-S2 D-0, Water	12/20/2019	10	12/9/2019	Client preserved w/ NaOH/Zinc Acetate

19L0091-02 A9L0097-24 [Water] Sampled 02-Dec-2019 16:13

Sulfide, SM 4500-S2 D-0, Water	12/20/2019	10	12/9/2019	Client preserved w/ NaOH/Zinc Acetate

Preservation Confirmation

Container ID	Container Type	pH		
19L0091-01 A	Miscellaneous Container	NaOH/ZnOAc	>12	Pass
19L0091-02 A	Miscellaneous Container	NaOH/ZnOAc	>12	Pass

JB
Preservation Confirmed By

12/06/19
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Apex Labs Project Name: A9L0097

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 19L0091 Tracking No: 12X472DR0197095902 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 0943 1.4c

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: JM Date: 12/06/19 Time: 0943

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		trash bag
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 12/06/19 Time: 1211 Labels checked by: JM

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

A9L0097-20

19L0091-01RE1 (Water)

Wet Chemistry

Method: SM 4500-S2 D-00 — Sampled: 12/02/2019 16:15

Instrument: UV1800-2 Analyst: CDE — Analyzed: 12/09/2019 17:39

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 19L0091-01RE1 A

Preparation Batch: BHL0233 — Sample Size: 5 mL

Prepared: 09-Dec-2019 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfide	18496-25-8	1	0.050	0.050	ND	mg/L	U

Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

A9L0097-24

19L0091-02RE1 (Water)

Wet Chemistry

Method: SM 4500-S2 D-00 — Sampled: 12/02/2019 16:13

Instrument: UV1800-2 Analyst: CDE — Analyzed: 12/09/2019 17:40

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 19L0091-02RE1 A

Preparation Batch: BHL0233 — Sample Size: 5 mL

Prepared: 09-Dec-2019 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfide	18496-25-8	1	0.050	0.050	ND	mg/L	U

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

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Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

Wet Chemistry - Quality Control

Batch BHL0233 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: CDE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0233-BLK1)					Prepared: 09-Dec-2019 Analyzed: 09-Dec-2019 17:04						
Sulfide	ND	0.050	0.050	mg/L							U
LCS (BHL0233-BS1)					Prepared: 09-Dec-2019 Analyzed: 09-Dec-2019 17:04						
Sulfide	0.506	0.050	0.050	mg/L	0.501		101	75-125			
Matrix Spike (BHL0233-MS2)		**Source: 19L0091-01RE1**			Prepared: 09-Dec-2019 Analyzed: 09-Dec-2019 17:39						
Sulfide	0.458	0.050	0.050	mg/L	0.501	ND	91.3	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BHL0233-MS3)		**Source: 19L0091-02RE1**			Prepared: 09-Dec-2019 Analyzed: 09-Dec-2019 17:40						
Sulfide	0.447	0.050	0.050	mg/L	0.501	ND	89.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

Certified Analyses included in this Report

Analyte	Certifications
SM 4500-S2 D-00 in Water	
Sulfide	DoD-ELAP,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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

Apex Laboratories LLC	Project: A9L0097	
12232 SW Garden Place	Project Number: A9L0097	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:11

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 December 2019

Philip Nerenberg
Apex Laboratories LLC
12232 SW Garden Place
Tigard, OR 97223

RE: A9L0191

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19L0152	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
DN: c=US, st=Washington, l=Tukwila, o=Analytical Resources, Inc., cn=Amanda Volgardsen, email=amanda.volgardsen@arilabs.com
Date: 2019.12.26 14:32:29 -08'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

CFX

WAD 12/9/19

SUBCONTRACT ORDER

Apex Laboratories

A9L0191

19L0152

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Analytical Resources, INC
4611 S. 134th Place
Tukwila, WA 98168
Phone :(206) 695-6200
Fax: (206) 695-6201

1.2

Sample Name: A9L0191-13 **Water** **Sampled: 12/04/19 14:51** (RAU4-10-GW-8.0)

Analysis	Due	Expires	Comments
Sulfide (PSEP/SM4500-S) (SUB)	12/19/19 17:00	12/11/19 14:51	ARI
Containers Supplied: (E)125 mL Poly - NaOH/Zinc Acetate			

Sample Name: A9L0191-50 **Water** **Sampled: 12/05/19 11:14** (RAU4-11-GW-7.0)

Analysis	Due	Expires	Comments
Sulfide (PSEP/SM4500-S) (SUB)	12/19/19 17:00	12/12/19 11:14	ARI
Containers Supplied: (E)125 mL Poly - NaOH/Zinc Acetate			

Standard TAT

Watch hold

Released By	Date	Received By	Date
	12/9/19 1700	UPS (Shipper)	
UPS (Shipper)			
Released By	Date	Received By	Date
			12/10/19 1050

Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A9L0191-13	19L0152-01	Water	04-Dec-2019 14:51	10-Dec-2019 10:50
A9L0191-50	19L0152-02	Water	04-Dec-2019 11:14	10-Dec-2019 10:50

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

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Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received December 10, 2019 under ARI work order 19L0152. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Sulfide - Method SM4500

The samples were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The LCS has low percent recovery. The LCS was re-read to verify with data reported as is. Possible low bias. No remaining volume for a reanalysis. No further corrective action was taken.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: APEX Project Name: ASL0191

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 19L0152 Tracking No: 1ZX47ZOR0198334053 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1050 1.2

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: Date: 12/10/19 Time: 1050

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: Date: 12/10/19 Time: 1110 Labels checked by:

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

WORK ORDER

19L0152

Client: Apex Laboratories LLC | **Project Manager:** Amanda Volgardsen

Project: A9L0191 | **Project Number:** A9L0191

Report To:
Apex Laboratories LLC
Philip Nerenberg
12232 SW Garden Place
Tigard, OR 97223
Phone: 503-718-2323
Fax: -

Invoice To:
Apex Laboratories LLC
Accounts Payable
12232 SW Garden Place
Tigard, OR 97223
Phone :503-718-2323
Fax: -

Date Due: 24-Dec-2019 18:00 (10 day TAT)

Received By: Erin I. Salle | Date Received: 10-Dec-2019 10:50

Logged In By: Jacob Walter | Date Logged In: 10-Dec-2019 11:11

Samples Received at: **1.2°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	No
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

19L0152-01 A9L0191-13 [Water] Sampled 04-Dec-2019 14:51 ZnOAC/NaOH Preserved

Sulfide, SM 4500-S2 D-0, Water	12/24/2019	10	12/11/2019

19L0152-02 A9L0191-50 [Water] Sampled 04-Dec-2019 11:14 ZnOAC/NaOH Preserved

Sulfide, SM 4500-S2 D-0, Water	12/24/2019	10	12/11/2019

Preservation Confirmation

Container ID	Container Type	pH	
19L0152-01 A	Miscellaneous Container	<12	Fail
19L0152-02 A	Miscellaneous Container	<12	Fail

JBW
Preservation Confirmed By

12/10/19
Date

Reviewed By

Date

Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

A9L0191-13

19L0152-01 (Water)

Wet Chemistry

Method: SM 4500-S2 D-00 — Sampled: 12/04/2019 14:51
Instrument: UV1800-2 Analyst: CDE — Analyzed: 12/17/2019 19:00

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 19L0152-01 A
Preparation Batch: BHL0315 — Sample Size: 100 mL
Prepared: 11-Dec-2019 — Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfide	18496-25-8	1	0.050	0.050	ND	mg/L	U

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Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

A9L0191-50

19L0152-02 (Water)

Wet Chemistry

Method: SM 4500-S2 D-00 — Sampled: 12/04/2019 11:14

Instrument: UV1800-2 Analyst: CDE — Analyzed: 12/17/2019 19:01

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 19L0152-02 A

Preparation Batch: BHL0315 — Sample Size: 100 mL

Prepared: 11-Dec-2019 — Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfide	18496-25-8	1	0.050	0.050	ND	mg/L	U

Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

Wet Chemistry - Quality Control

Batch BHL0315 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: CDE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0315-BLK1)				Prepared: 11-Dec-2019 Analyzed: 17-Dec-2019 18:58							
Sulfide	ND	0.050	0.050	mg/L							U
LCS (BHL0315-BS1)				Prepared: 11-Dec-2019 Analyzed: 17-Dec-2019 18:58							
Sulfide	4.85	0.500	0.500	mg/L	7.12		68.1	75-125			*, D

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Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

Certified Analyses included in this Report

Analyte	Certifications
SM 4500-S2 D-00 in Water	
Sulfide	DoD-ELAP,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Apex Laboratories LLC	Project: A9L0191	
12232 SW Garden Place	Project Number: A9L0191	**Reported:**
Tigard OR, 97223	Project Manager: Philip Nerenberg	26-Dec-2019 14:31

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ALS Environmental

301 Fulling Mill Road - Middletown, PA 17057 - Phone: 717-944-5541 - Fax:717-944-1430 - www.alsglobal.com

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

January 1, 2020

Mr. Philip Nerenberg
Apex Laboratories
6700 S.W. Sandburg St
Portland, OR 97223

Certificate of Analysis

Project Name:	**Water Sampling**	Workorder:	**3078114**
Purchase Order:		Workorder ID:	**A9L0191**

Dear Mr. Nerenberg:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, December 31, 2019.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Shannon Butler (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Shannon Butler

Ms. Shannon Butler
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 3078114 A9L0191

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3078114001	RAU4-06-GW-4.5	Water	12/5/2019 09:24	12/31/2019 12:27	Collected by Client

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SAMPLE SUMMARY

Workorder: 3078114 A9L0191

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
-- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3078114 A9L0191

Lab ID: **3078114001** Date Collected: 12/5/2019 09:24 Matrix: Water

Sample ID: **RAU4-06-GW-4.5** Date Received: 12/31/2019 12:27

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	ND	1	ug/L	0.25	EPA 218.6			1/1/20 03:23	MBW	A

Shannon Butler

Ms. Shannon Butler
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3078114 A9L0191

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3078114001	1	RAU4-06-GW-4.5	EPA 218.6	Hexavalent Chromium

The recovery of the Matrix Spike (MS) associated to this analyte was outside of the control limits. The LCS was within established control limits.
The failed recovery of the MS may be due to sample matrix interferences.

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3078114 A9L0191

Lab ID	Sample ID	Analysis Method	Prep Method
3078114001	RAU4-06-GW-4.5	EPA 218.6	

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

QUALITY CONTROL DATA

Workorder: 3078114 A9L0191

QC Batch: WETC/232617 **Analysis Method:** EPA 218.6

QC Batch Method: EPA 218.6

Associated Lab Samples: 3078114001

METHOD BLANK: 3067888

Parameter	Blank Result	Units	Reporting Limit
Hexavalent Chromium	ND	ug/L	0.25

LABORATORY CONTROL SAMPLE: 3067891

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Hexavalent Chromium	98.9	ug/L	10	9.9	90 - 110

MATRIX SPIKE: 3067892 DUPLICATE: 3067893 ORIGINAL: 3078114001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Hexavalent Chromium	0	ug/L	5	.408	.132	8.16*	2.64*	90 - 110	102	20

METHOD BLANK: 3067895

Parameter	Blank Result	Units	Reporting Limit
Hexavalent Chromium	ND	ug/L	0.25

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3078114 A9L0191

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3078114001	RAU4-06-GW-4.5			EPA 218.6	WETC/232617

SUBCONTRACT ORDER

Apex Laboratories

A9L0191

12/30/19



SENDING LABORATORY:

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

RECEIVING LABORATORY:

ALS Laboratory Group - Middletown
301 Fulling Mill Rd
Middletown, PA 17057-3500
Phone :(717) 944-5541
Fax:

Sed in 3/3 voas

Sample Name: RAU4-06-GW-4.5 **Water** **Sampled:** 12/05/19 09:24 (A9L0191-46)

Analysis	Due	Expires	Comments
Hex. Chromium (Cr6)- LL - 218.6 (SUB)	01/06/20 17:00	06/02/20 09:24	
Containers Supplied: (A)Other			

1ZX472OR1590437654

1 c 525

Standard TAT, watch hold

Released By — Date 12/30/19 — Received By — Date: UPS (Shipper)

Released By: UPS (Shipper) — Date — Received By AW — Date 12/31/19 1227

Page 1 of 1

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client:	Work Order #:	Initials:	Date:
Apex		QV	12/31/19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 1ZX472OR1590437654			
2. Are Custody Seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement?		(YES)	NO
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name? collected by client		YES	(NO)
5d. Does the COC note the type(s) of preservation for all bottles?		(YES)	NO
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab? not provided		YES	(NO)
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	(N/A)	YES	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

Cooler #:								
Temperature (°C):	1							
Thermometer ID:	S2S							
Radiological (µCi):								

COMMENTS (Required for all NO responses above and any sample non-conformance):

Rev. 4/29/2019

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Thursday, February 13, 2020

Emily Hess
Maul Foster & Alongi, INC.
2001 NW 19th Ave, STE 200
Portland, OR 97209

RE: A9L0097 - Seaport Upland - 1044.02.13

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

Enclosed are the results of analyses for work order A9L0097, which was received by the laboratory on 12/4/2019 at 9:39:00AM.

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

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

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #01	2.9 degC	Cooler #02	3.0 degC
Cooler #03	1.1 degC	Cooler #04	4.8 degC
Cooler #05	3.3 degC	Cooler #06	3.0 degC
Cooler #07	2.9 degC	Cooler #08	2.1 degC
Cooler #09	0.3 degC	Cooler #10	4.1 degC
Cooler #11	2.2 degC	Cooler #12	5.7 degC
Cooler #13	3.1 degC	Cooler #14	4.4 degC
Cooler #15	1.9 degC		

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

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RAU2-02-SO-2.5	A9L0097-01	Soil	12/02/19 09:45	12/04/19 09:39
RAU2-03-GW-7.5	A9L0097-02	Water	12/02/19 10:24	12/04/19 09:39
RAU2-03-SO-3	A9L0097-03	Soil	12/02/19 10:20	12/04/19 09:39
RAU2-04-SO-4.5	A9L0097-04	Soil	12/02/19 10:50	12/04/19 09:39
RAU2-04-GW-7.5	A9L0097-05	Water	12/02/19 11:18	12/04/19 09:39
RAU3-05-SO-1.6	A9L0097-06	Soil	12/02/19 11:25	12/04/19 09:39
RAU3-05-GW-8.0	A9L0097-07	Water	12/02/19 11:49	12/04/19 09:39
RAU2-01-SO-3.5	A9L0097-08	Soil	12/02/19 11:45	12/04/19 09:39
RAU2-01-GW-7.5	A9L0097-09	Water	12/02/19 12:04	12/04/19 09:39
RAU3-05-SO-3	A9L0097-10	Soil	12/02/19 11:15	12/04/19 09:39
RAU2-05-SO-2.5	A9L0097-11	Soil	12/02/19 12:40	12/04/19 09:39
RAU2-05-GW-7.5	A9L0097-12	Water	12/02/19 12:45	12/04/19 09:39
RAU2-06-SO-1.3	A9L0097-13	Soil	12/02/19 12:55	12/04/19 09:39
RAU2-06-GW-6.5	A9L0097-14	Water	12/02/19 13:38	12/04/19 09:39
RAU1-07-SO-1.8	A9L0097-15	Soil	12/02/19 12:15	12/04/19 09:39
RAU1-07-GW-7.5	A9L0097-16	Water	12/02/19 14:08	12/04/19 09:39
RAU1-04-SO-1.3	A9L0097-17	Soil	12/02/19 14:25	12/04/19 09:39
RAU1-04-GW-7.5	A9L0097-18	Water	12/02/19 15:23	12/04/19 09:39
RAU1-01-SO-2.4	A9L0097-19	Soil	12/02/19 14:03	12/04/19 09:39
RAU1-01-GW-7.5	A9L0097-20	Water	12/02/19 16:15	12/04/19 09:39
RAU1-05-SO-1.5	A9L0097-21	Soil	12/02/19 14:55	12/04/19 09:39
RAU1-05-GW-6.5	A9L0097-22	Water	12/02/19 16:50	12/04/19 09:39
RAU1-02-SO-1	A9L0097-23	Soil	12/02/19 15:35	12/04/19 09:39
RAU1-02-GW-6	A9L0097-24	Water	12/02/19 16:13	12/04/19 09:39
RAU2-02-GW-6	A9L0097-25	Water	12/02/19 16:44	12/04/19 09:39
RAU1-04-SO-0.25	A9L0097-26	Soil	12/02/19 14:20	12/04/19 09:39
RAU1-05-SO-0.25	A9L0097-27	Soil	12/02/19 14:40	12/04/19 09:39
Trip Blank	A9L0097-28	Water	12/02/19 00:00	12/04/19 09:39
RAU2-05-SO-2.5-DUP	A9L0097-29	Soil	12/02/19 12:40	12/04/19 09:39
RAU1-03-SO-2.2	A9L0097-30	Soil	12/03/19 08:45	12/04/19 09:39
RAU1-03-GW-7.5	A9L0097-31	Water	12/03/19 09:15	12/04/19 09:39
RAU1-06-SO-1.75	A9L0097-32	Soil	12/03/19 08:05	12/04/19 09:39
RAU1-06-SO-3.5	A9L0097-33	Soil	12/03/19 08:10	12/04/19 09:39

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RAU1-06-GW-7.5	A9L0097-34	Water	12/03/19 09:06	12/04/19 09:39
RAU1-11-SO-3.5	A9L0097-35	Soil	12/03/19 09:05	12/04/19 09:39
RAU1-11-GW-7.0	A9L0097-36	Water	12/03/19 10:04	12/04/19 09:39
RAU1-03-GW-7.5-DUP	A9L0097-37	Water	12/03/19 09:15	12/04/19 09:39
RAU1-12-SO-2.7	A9L0097-38	Soil	12/03/19 09:50	12/04/19 09:39
RAU1-12-GW-7.0	A9L0097-39	Water	12/03/19 10:14	12/04/19 09:39
RAU3-06-SO-3	A9L0097-40	Soil	12/03/19 11:30	12/04/19 09:39
RAU3-06-GW-6.5	A9L0097-41	Water	12/03/19 12:13	12/04/19 09:39
RAU3-04-SO-2.5	A9L0097-42	Soil	12/03/19 11:45	12/04/19 09:39
RAU3-04-SO-6.5	A9L0097-43	Soil	12/03/19 12:35	12/04/19 09:39
RAU3-03-SO-2.5	A9L0097-44	Soil	12/03/19 13:00	12/04/19 09:39
RAU5-02-SO-2	A9L0097-45	Soil	12/03/19 13:40	12/04/19 09:39
RAU5-02-SO-7.5	A9L0097-46	Soil	12/03/19 13:45	12/04/19 09:39
RAU3-02-SO-2.5	A9L0097-47	Soil	12/03/19 15:30	12/04/19 09:39
RAU5-01-SO-4.5	A9L0097-48	Soil	12/03/19 16:00	12/04/19 09:39
RAU5-01-GW-7.0	A9L0097-49	Water	12/03/19 16:22	12/04/19 09:39
RAU1-09-SO-1.5	A9L0097-50	Soil	12/03/19 14:45	12/04/19 09:39
RAU1-09-GW-7.0	A9L0097-51	Water	12/03/19 16:47	12/04/19 09:39
RAU4-01-SO-2	A9L0097-52	Soil	12/03/19 15:00	12/04/19 09:39
RAU4-01-GW-6.5	A9L0097-53	Water	12/03/19 16:55	12/04/19 09:39
RAU4-02-SO-2.5	A9L0097-54	Soil	12/03/19 15:30	12/04/19 09:39
RAU4-02-GW-7	A9L0097-55	Water	12/03/19 17:10	12/04/19 09:39
RAU4-07-SO-3.5	A9L0097-56	Soil	12/03/19 15:55	12/04/19 09:39
RAU4-07-GW-7.0	A9L0097-57	Water	12/03/19 18:00	12/04/19 09:39
RAU4-02-GW-7-DUP	A9L0097-58	Water	12/03/19 17:10	12/04/19 09:39

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL CASE NARRATIVE

Work Order: A9L0097

Amended Report Revision 1: This report supersedes all previous reports.

Gasoline by NWTPH-Gx: Missing Result

The original report was missing a result for Gasoline by NWTPH-Gx for client sample "RAU1-12-GW-7.0" (A9L0097-39RE1).
The result is now included.

David Jack
Technical Manager
Apex Laboratories
February 13, 2020

Apex Laboratories



Philip Nerenberg, Lab Director

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	20.2	20.2	mg/kg dry	1	12/06/19 00:47	NWTPH-HCID	
Diesel Range Organics	ND	50.4	50.4	mg/kg dry	1	12/06/19 00:47	NWTPH-HCID	
Oil Range Organics	DET	101	101	mg/kg dry	1	12/06/19 00:47	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*	*1*	*12/06/19 00:47*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*	*1*	*12/06/19 00:47*	*NWTPH-HCID*	
RAU3-05-GW-8.0 (A9L0097-07)				**Matrix: Water**		**Batch: 9120563**		
Gasoline Range Organics	ND	0.103	0.103	mg/L	1	12/06/19 01:08	NWTPH-HCID	
Diesel Range Organics	ND	0.258	0.258	mg/L	1	12/06/19 01:08	NWTPH-HCID	
Oil Range Organics	ND	0.258	0.258	mg/L	1	12/06/19 01:08	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 83 %*	*Limits: 50-150 %*	*1*	*12/06/19 01:08*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*59 %*	*10-120 %*	*1*	*12/06/19 01:08*	*NWTPH-HCID*	
RAU3-05-SO-3 (A9L0097-10)				**Matrix: Soil**		**Batch: 9120727**		
Gasoline Range Organics	ND	23.2	23.2	mg/kg dry	1	12/10/19 21:55	NWTPH-HCID	
Diesel Range Organics	ND	58.1	58.1	mg/kg dry	1	12/10/19 21:55	NWTPH-HCID	
Oil Range Organics	ND	116	116	mg/kg dry	1	12/10/19 21:55	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*	*1*	*12/10/19 21:55*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*84 %*	*50-150 %*	*1*	*12/10/19 21:55*	*NWTPH-HCID*	
RAU3-06-SO-3 (A9L0097-40)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	41.0	41.0	mg/kg dry	2	12/06/19 01:08	NWTPH-HCID	
Diesel Range Organics	ND	102	102	mg/kg dry	2	12/06/19 01:08	NWTPH-HCID	
Oil Range Organics	DET	205	205	mg/kg dry	2	12/06/19 01:08	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*	*2*	*12/06/19 01:08*	*NWTPH-HCID*	*S-05*
4-Bromofluorobenzene (Surr)			*96 %*	*50-150 %*	*2*	*12/06/19 01:08*	*NWTPH-HCID*	*S-05*
RAU3-06-GW-6.5 (A9L0097-41)				**Matrix: Water**		**Batch: 9120563**		
Gasoline Range Organics	ND	0.100	0.100	mg/L	1	12/06/19 05:15	NWTPH-HCID	
Diesel Range Organics	ND	0.250	0.250	mg/L	1	12/06/19 05:15	NWTPH-HCID	
Oil Range Organics	ND	0.250	0.250	mg/L	1	12/06/19 05:15	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 83 %*	*Limits: 50-150 %*	*1*	*12/06/19 05:15*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*60 %*	*10-120 %*	*1*	*12/06/19 05:15*	*NWTPH-HCID*	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-04-SO-2.5 (A9L0097-42)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	21.9	21.9	mg/kg dry	1	12/06/19 01:49	NWTPH-HCID	
Diesel Range Organics	ND	54.6	54.6	mg/kg dry	1	12/06/19 01:49	NWTPH-HCID	
Oil Range Organics	ND	109	109	mg/kg dry	1	12/06/19 01:49	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*82 %*	*Limits: 50-150 %*	*1*	*12/06/19 01:49*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*85 %*	*50-150 %*	*1*	*12/06/19 01:49*	*NWTPH-HCID*	
RAU3-04-SO-6.5 (A9L0097-43)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	38.2	38.2	mg/kg dry	1	12/06/19 02:10	NWTPH-HCID	
Diesel Range Organics	ND	95.4	95.4	mg/kg dry	1	12/06/19 02:10	NWTPH-HCID	
Oil Range Organics	ND	191	191	mg/kg dry	1	12/06/19 02:10	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*86 %*	*Limits: 50-150 %*	*1*	*12/06/19 02:10*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*85 %*	*50-150 %*	*1*	*12/06/19 02:10*	*NWTPH-HCID*	
RAU3-03-SO-2.5 (A9L0097-44)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	21.9	21.9	mg/kg dry	1	12/06/19 02:30	NWTPH-HCID	
Diesel Range Organics	ND	54.6	54.6	mg/kg dry	1	12/06/19 02:30	NWTPH-HCID	
Oil Range Organics	ND	109	109	mg/kg dry	1	12/06/19 02:30	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*91 %*	*Limits: 50-150 %*	*1*	*12/06/19 02:30*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*94 %*	*50-150 %*	*1*	*12/06/19 02:30*	*NWTPH-HCID*	
RAU5-02-SO-2 (A9L0097-45)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	21.3	21.3	mg/kg dry	1	12/06/19 02:51	NWTPH-HCID	
Diesel Range Organics	ND	53.3	53.3	mg/kg dry	1	12/06/19 02:51	NWTPH-HCID	
Oil Range Organics	DET	107	107	mg/kg dry	1	12/06/19 02:51	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*91 %*	*Limits: 50-150 %*	*1*	*12/06/19 02:51*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*	*1*	*12/06/19 02:51*	*NWTPH-HCID*	
RAU5-02-SO-7.5 (A9L0097-46)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	36.4	36.4	mg/kg dry	1	12/06/19 03:32	NWTPH-HCID	
Diesel Range Organics	ND	91.0	91.0	mg/kg dry	1	12/06/19 03:32	NWTPH-HCID	
Oil Range Organics	ND	182	182	mg/kg dry	1	12/06/19 03:32	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*93 %*	*Limits: 50-150 %*	*1*	*12/06/19 03:32*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*92 %*	*50-150 %*	*1*	*12/06/19 03:32*	*NWTPH-HCID*	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU5-01-SO-4.5 (A9L0097-48)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	22.3	22.3	mg/kg dry	1	12/06/19 03:52	NWTPH-HCID	
Diesel Range Organics	ND	55.7	55.7	mg/kg dry	1	12/06/19 03:52	NWTPH-HCID	
Oil Range Organics	ND	111	111	mg/kg dry	1	12/06/19 03:52	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*67 %*	*Limits: 50-150 %*	*1*	*12/06/19 03:52*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*68 %*	*50-150 %*	*1*	*12/06/19 03:52*	*NWTPH-HCID*	
RAU5-01-GW-7.0 (A9L0097-49)				**Matrix: Water**		**Batch: 9120563**		
Gasoline Range Organics	ND	0.132	0.132	mg/L	1	12/06/19 05:35	NWTPH-HCID	
Diesel Range Organics	ND	0.329	0.329	mg/L	1	12/06/19 05:35	NWTPH-HCID	
Oil Range Organics	DET	0.329	0.329	mg/L	1	12/06/19 05:35	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*77 %*	*Limits: 50-150 %*	*1*	*12/06/19 05:35*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*42 %*	*10-120 %*	*1*	*12/06/19 05:35*	*NWTPH-HCID*	
RAU4-07-SO-3.5 (A9L0097-56)				**Matrix: Soil**		**Batch: 9120583**		
Gasoline Range Organics	ND	23.8	23.8	mg/kg dry	1	12/06/19 04:13	NWTPH-HCID	
Diesel Range Organics	ND	59.4	59.4	mg/kg dry	1	12/06/19 04:13	NWTPH-HCID	
Oil Range Organics	ND	119	119	mg/kg dry	1	12/06/19 04:13	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*85 %*	*Limits: 50-150 %*	*1*	*12/06/19 04:13*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*86 %*	*50-150 %*	*1*	*12/06/19 04:13*	*NWTPH-HCID*	
RAU4-07-GW-7.0 (A9L0097-57)				**Matrix: Water**		**Batch: 9120563**		
Gasoline Range Organics	ND	0.0990	0.0990	mg/L	1	12/06/19 05:56	NWTPH-HCID	
Diesel Range Organics	ND	0.248	0.248	mg/L	1	12/06/19 05:56	NWTPH-HCID	
Oil Range Organics	ND	0.248	0.248	mg/L	1	12/06/19 05:56	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*84 %*	*Limits: 50-150 %*	*1*	*12/06/19 05:56*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*64 %*	*10-120 %*	*1*	*12/06/19 05:56*	*NWTPH-HCID*	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-SO-2.5 (A9L0097-01)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	111	223	mg/kg dry	10	12/10/19 01:09	NWTPH-Dx	
Oil	**459**	223	445	mg/kg dry	10	12/10/19 01:09	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 102 %*		*Limits: 50-150 %*	*10*	*12/10/19 01:09*	*NWTPH-Dx*	*S-05*
RAU2-03-GW-7.5 (A9L0097-02)				**Matrix: Water**		**Batch: 9120563**		
Diesel	ND	0.0952	0.190	mg/L	1	12/06/19 00:27	NWTPH-Dx	
Oil	ND	0.190	0.381	mg/L	1	12/06/19 00:27	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 106 %*		*Limits: 50-150 %*	*1*	*12/06/19 00:27*	*NWTPH-Dx*	
RAU2-03-SO-3 (A9L0097-03)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	10.3	25.0	mg/kg dry	1	12/10/19 00:47	NWTPH-Dx	
Oil	ND	20.7	50.0	mg/kg dry	1	12/10/19 00:47	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 96 %*		*Limits: 50-150 %*	*1*	*12/10/19 00:47*	*NWTPH-Dx*	
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	10.8	25.0	mg/kg dry	1	12/09/19 20:08	NWTPH-Dx	
Oil	ND	21.6	50.0	mg/kg dry	1	12/09/19 20:08	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 92 %*		*Limits: 50-150 %*	*1*	*12/09/19 20:08*	*NWTPH-Dx*	
RAU2-04-GW-7.5 (A9L0097-05)				**Matrix: Water**		**Batch: 9120563**		
Diesel	ND	0.105	0.211	mg/L	1	12/06/19 00:47	NWTPH-Dx	
Oil	ND	0.211	0.421	mg/L	1	12/06/19 00:47	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 110 %*		*Limits: 50-150 %*	*1*	*12/06/19 00:47*	*NWTPH-Dx*	
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	10.1	25.0	mg/kg dry	1	12/13/19 19:29	NWTPH-Dx	
Oil	**949**	20.1	50.0	mg/kg dry	1	12/13/19 19:29	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*		*Limits: 50-150 %*	*1*	*12/13/19 19:29*	*NWTPH-Dx*	
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	11.6	25.0	mg/kg dry	1	12/09/19 20:30	NWTPH-Dx	
Oil	ND	23.3	50.0	mg/kg dry	1	12/09/19 20:30	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 81 %*		*Limits: 50-150 %*	*1*	*12/09/19 20:30*	*NWTPH-Dx*	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-GW-7.5 (A9L0097-09)				**Matrix: Water**		**Batch: 9120563**		
Diesel	ND	0.115	0.230	mg/L	1	12/06/19 01:29	NWTPH-Dx	
Oil	ND	0.230	0.460	mg/L	1	12/06/19 01:29	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 109 %*		*Limits: 50-150 %*	*1*	*12/06/19 01:29*	*NWTPH-Dx*	
RAU2-05-SO-2.5 (A9L0097-11RE1)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	11.9	25.0	mg/kg dry	1	12/10/19 20:54	NWTPH-Dx	
Oil	ND	23.9	50.0	mg/kg dry	1	12/10/19 20:54	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 88 %*		*Limits: 50-150 %*	*1*	*12/10/19 20:54*	*NWTPH-Dx*	
RAU2-05-GW-7.5 (A9L0097-12)				**Matrix: Water**		**Batch: 9120563**		
Diesel	ND	0.106	0.213	mg/L	1	12/06/19 01:49	NWTPH-Dx	
Oil	ND	0.213	0.426	mg/L	1	12/06/19 01:49	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 99 %*		*Limits: 50-150 %*	*1*	*12/06/19 01:49*	*NWTPH-Dx*	
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	11.1	25.0	mg/kg dry	1	12/09/19 21:13	NWTPH-Dx	
Oil	ND	22.1	50.0	mg/kg dry	1	12/09/19 21:13	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 99 %*		*Limits: 50-150 %*	*1*	*12/09/19 21:13*	*NWTPH-Dx*	
RAU2-06-GW-6.5 (A9L0097-14)				**Matrix: Water**		**Batch: 9120671**		
Diesel	ND	0.101	0.202	mg/L	1	12/10/19 01:39	NWTPH-Dx	
Oil	ND	0.202	0.404	mg/L	1	12/10/19 01:39	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 109 %*		*Limits: 50-150 %*	*1*	*12/10/19 01:39*	*NWTPH-Dx*	
RAU1-07-SO-1.8 (A9L0097-15RE1)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	56.5	113	mg/kg dry	5	12/11/19 07:47	NWTPH-Dx	
Oil	**3270**	113	226	mg/kg dry	5	12/11/19 07:47	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 95 %*		*Limits: 50-150 %*	*5*	*12/11/19 07:47*	*NWTPH-Dx*	*S-05*
RAU1-07-GW-7.5 (A9L0097-16)				**Matrix: Water**		**Batch: 9120563**		
Diesel	ND	0.106	0.213	mg/L	1	12/06/19 02:51	NWTPH-Dx	
Oil	ND	0.213	0.426	mg/L	1	12/06/19 02:51	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 59 %*		*Limits: 50-150 %*	*1*	*12/06/19 02:51*	*NWTPH-Dx*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	16.6	33.2	mg/kg dry	1	12/09/19 21:34	NWTPH-Dx	
Oil	**1380**	33.2	66.4	mg/kg dry	1	12/09/19 21:34	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 68 %*		*Limits: 50-150 %*	*1*	*12/09/19 21:34*	*NWTPH-Dx*	
RAU1-04-GW-7.5 (A9L0097-18)				**Matrix: Water**		**Batch: 9120671**		
Diesel	**0.108**	0.102	0.204	mg/L	1	12/10/19 01:59	NWTPH-Dx	**J**
Oil	ND	0.204	0.408	mg/L	1	12/10/19 01:59	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 110 %*		*Limits: 50-150 %*	*1*	*12/10/19 01:59*	*NWTPH-Dx*	
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	11.6	25.0	mg/kg dry	1	12/09/19 22:17	NWTPH-Dx	
Oil	**30.9**	23.1	50.0	mg/kg dry	1	12/09/19 22:17	NWTPH-Dx	**J**
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*		*Limits: 50-150 %*	*1*	*12/09/19 22:17*	*NWTPH-Dx*	
RAU1-01-GW-7.5 (A9L0097-20)				**Matrix: Water**		**Batch: 9120671**		
Diesel	**0.204**	0.101	0.202	mg/L	1	12/10/19 02:20	NWTPH-Dx	**F-17**
Oil	ND	0.202	0.404	mg/L	1	12/10/19 02:20	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 109 %*		*Limits: 50-150 %*	*1*	*12/10/19 02:20*	*NWTPH-Dx*	
RAU1-05-SO-1.5 (A9L0097-21)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	1110	2230	mg/kg dry	100	12/09/19 22:39	NWTPH-Dx	
Oil	**8260**	2230	4450	mg/kg dry	100	12/09/19 22:39	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*100*	*12/09/19 22:39*	*NWTPH-Dx*	*S-01*
RAU1-05-GW-6.5 (A9L0097-22)				**Matrix: Water**		**Batch: 9120671**		
Diesel	ND	0.110	0.220	mg/L	1	12/10/19 02:40	NWTPH-Dx	
Oil	**0.958**	0.220	0.440	mg/L	1	12/10/19 02:40	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 112 %*		*Limits: 50-150 %*	*1*	*12/10/19 02:40*	*NWTPH-Dx*	
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120667**		
Diesel	ND	57.7	115	mg/kg dry	5	12/09/19 22:59	NWTPH-Dx	
Oil	**1280**	115	231	mg/kg dry	5	12/09/19 22:59	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 101 %*		*Limits: 50-150 %*	*5*	*12/09/19 22:59*	*NWTPH-Dx*	*S-05*

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-GW-6 (A9L0097-24)				**Matrix: Water**		**Batch: 9120671**		
Diesel	ND	0.108	0.215	mg/L	1	12/10/19 03:01	NWTPH-Dx	
Oil	ND	0.215	0.430	mg/L	1	12/10/19 03:01	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 106 %*		*Limits: 50-150 %*	*1*	*12/10/19 03:01*	*NWTPH-Dx*	
RAU2-02-GW-6 (A9L0097-25)				**Matrix: Water**		**Batch: 9120671**		
Diesel	**0.200**	0.108	0.215	mg/L	1	12/10/19 03:21	NWTPH-Dx	**J**
Oil	ND	0.215	0.430	mg/L	1	12/10/19 03:21	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 113 %*		*Limits: 50-150 %*	*1*	*12/10/19 03:21*	*NWTPH-Dx*	
RAU2-05-SO-2.5-DUP (A9L0097-29RE1)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	11.4	25.0	mg/kg dry	1	12/11/19 07:47	NWTPH-Dx	
Oil	ND	22.9	50.0	mg/kg dry	1	12/11/19 07:47	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 92 %*		*Limits: 50-150 %*	*1*	*12/11/19 07:47*	*NWTPH-Dx*	
RAU1-03-SO-2.2 (A9L0097-30RE1)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	**13.2**	11.2	25.0	mg/kg dry	1	12/11/19 08:10	NWTPH-Dx	**J**
Oil	ND	22.5	50.0	mg/kg dry	1	12/11/19 08:10	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 83 %*		*Limits: 50-150 %*	*1*	*12/11/19 08:10*	*NWTPH-Dx*	
RAU1-03-GW-7.5 (A9L0097-31)				**Matrix: Water**		**Batch: 9120671**		
Diesel	**0.189**	0.109	0.217	mg/L	1	12/10/19 03:42	NWTPH-Dx	**J**
Oil	ND	0.217	0.435	mg/L	1	12/10/19 03:42	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 111 %*		*Limits: 50-150 %*	*1*	*12/10/19 03:42*	*NWTPH-Dx*	
RAU1-06-SO-3.5 (A9L0097-33)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	12.9	25.8	mg/kg dry	1	12/10/19 22:59	NWTPH-Dx	
Oil	**483**	25.8	51.5	mg/kg dry	1	12/10/19 22:59	NWTPH-Dx	**F-03**
Surrogate: o-Terphenyl (Surr)		*Recovery: 88 %*		*Limits: 50-150 %*	*1*	*12/10/19 22:59*	*NWTPH-Dx*	
RAU1-06-GW-7.5 (A9L0097-34)				**Matrix: Water**		**Batch: 9120726**		
Diesel	ND	0.105	0.211	mg/L	1	12/10/19 21:21	NWTPH-Dx	
Oil	ND	0.211	0.421	mg/L	1	12/10/19 21:21	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 94 %*		*Limits: 50-150 %*	*1*	*12/10/19 21:21*	*NWTPH-Dx*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	11.0	25.0	mg/kg dry	1	12/10/19 23:19	NWTPH-Dx	
Oil	**1060**	22.0	50.0	mg/kg dry	1	12/10/19 23:19	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 102 %*		*Limits: 50-150 %*	*1*	*12/10/19 23:19*	*NWTPH-Dx*	
RAU1-11-GW-7.0 (A9L0097-36)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.781**	0.104	0.208	mg/L	1	12/10/19 21:44	NWTPH-Dx	**F-15**
Oil	**1.99**	0.208	0.417	mg/L	1	12/10/19 21:44	NWTPH-Dx	**F-16**
Surrogate: o-Terphenyl (Surr)		*Recovery: 98 %*		*Limits: 50-150 %*	*1*	*12/10/19 21:44*	*NWTPH-Dx*	
RAU1-03-GW-7.5-DUP (A9L0097-37)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.133**	0.100	0.200	mg/L	1	12/10/19 22:06	NWTPH-Dx	**J**
Oil	**0.201**	0.200	0.400	mg/L	1	12/10/19 22:06	NWTPH-Dx	**J**
Surrogate: o-Terphenyl (Surr)		*Recovery: 94 %*		*Limits: 50-150 %*	*1*	*12/10/19 22:06*	*NWTPH-Dx*	
RAU1-12-SO-2.7 (A9L0097-38RE1)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	10.5	25.0	mg/kg dry	1	12/11/19 08:32	NWTPH-Dx	
Oil	**108**	21.0	50.0	mg/kg dry	1	12/11/19 08:32	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 93 %*		*Limits: 50-150 %*	*1*	*12/11/19 08:32*	*NWTPH-Dx*	
RAU1-12-GW-7.0 (A9L0097-39)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.683**	0.108	0.215	mg/L	1	12/10/19 22:29	NWTPH-Dx	**F-15**
Oil	**1.29**	0.215	0.430	mg/L	1	12/10/19 22:29	NWTPH-Dx	**F-16**
Surrogate: o-Terphenyl (Surr)		*Recovery: 95 %*		*Limits: 50-150 %*	*1*	*12/10/19 22:29*	*NWTPH-Dx*	
RAU3-06-SO-3 (A9L0097-40)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	104	209	mg/kg dry	10	12/13/19 20:09	NWTPH-Dx	
Oil	**1780**	209	418	mg/kg dry	10	12/13/19 20:09	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*		*Limits: 50-150 %*	*10*	*12/13/19 20:09*	*NWTPH-Dx*	*S-05*
RAU5-02-SO-2 (A9L0097-45)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	11.0	25.0	mg/kg dry	1	12/13/19 20:49	NWTPH-Dx	
Oil	**129**	21.9	50.0	mg/kg dry	1	12/13/19 20:49	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 92 %*		*Limits: 50-150 %*	*1*	*12/13/19 20:49*	*NWTPH-Dx*	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-02-SO-2.5 (A9L0097-47)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	10.6	25.0	mg/kg dry	1	12/11/19 00:21	NWTPH-Dx	
Oil	**357**	21.2	50.0	mg/kg dry	1	12/11/19 00:21	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 103 %*		*Limits: 50-150 %*	*1*	*12/11/19 00:21*	*NWTPH-Dx*	
RAU5-01-GW-7.0 (A9L0097-49)				**Matrix: Water**		**Batch: 9120563**		
Diesel	ND	0.132	0.263	mg/L	1	12/06/19 05:35	NWTPH-Dx	
Oil	**1.84**	0.263	0.526	mg/L	1	12/06/19 05:35	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 95 %*		*Limits: 50-150 %*	*1*	*12/06/19 05:35*	*NWTPH-Dx*	
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	210	421	mg/kg dry	20	12/11/19 00:42	NWTPH-Dx	
Oil	**4100**	421	841	mg/kg dry	20	12/11/19 00:42	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*20*	*12/11/19 00:42*	*NWTPH-Dx*	*S-01*
RAU1-09-GW-7.0 (A9L0097-51)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.205**	0.119	0.238	mg/L	1	12/10/19 22:52	NWTPH-Dx	**J**
Oil	ND	0.238	0.476	mg/L	1	12/10/19 22:52	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 99 %*		*Limits: 50-150 %*	*1*	*12/10/19 22:52*	*NWTPH-Dx*	
RAU4-01-SO-2 (A9L0097-52)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	**13.3**	11.0	25.0	mg/kg dry	1	12/10/19 20:13	NWTPH-Dx	**J**
Oil	ND	22.0	50.0	mg/kg dry	1	12/10/19 20:13	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 104 %*		*Limits: 50-150 %*	*1*	*12/10/19 20:13*	*NWTPH-Dx*	
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.204**	0.115	0.230	mg/L	1	12/10/19 23:14	NWTPH-Dx	**J**
Oil	ND	0.230	0.460	mg/L	1	12/10/19 23:14	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 98 %*		*Limits: 50-150 %*	*1*	*12/10/19 23:14*	*NWTPH-Dx*	
RAU4-02-SO-2.5 (A9L0097-54)				**Matrix: Soil**		**Batch: 9120721**		
Diesel	ND	10.6	25.0	mg/kg dry	1	12/10/19 20:33	NWTPH-Dx	
Oil	**160**	21.2	50.0	mg/kg dry	1	12/10/19 20:33	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 100 %*		*Limits: 50-150 %*	*1*	*12/10/19 20:33*	*NWTPH-Dx*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.167**	0.100	0.200	mg/L	1	12/10/19 23:37	NWTPH-Dx	**J**
Oil	ND	0.200	0.400	mg/L	1	12/10/19 23:37	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*		*Limits: 50-150 %*	*1*	*12/10/19 23:37*	*NWTPH-Dx*	
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.180**	0.103	0.206	mg/L	1	12/11/19 00:00	NWTPH-Dx	**J**
Oil	ND	0.206	0.412	mg/L	1	12/11/19 00:00	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 96 %*		*Limits: 50-150 %*	*1*	*12/11/19 00:00*	*NWTPH-Dx*	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-SO-2.7 (A9L0097-38)				**Matrix: Soil**		**Batch: 9120608**		
Gasoline Range Organics	**118**	2.90	5.80	mg/kg dry	50	12/06/19 18:55	NWTPH-Gx (MS)	**F-09, Q-42**
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery: 114 %*	*Limits: 50-150 %*		*1*	*12/06/19 18:55*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)		*109 %*	*50-150 %*		*1*	*12/06/19 18:55*	*NWTPH-Gx (MS)*	
RAU1-12-GW-7.0 (A9L0097-39RE1)				**Matrix: Water**		**Batch: 9120654**		**AMEND**
Gasoline Range Organics	**0.239**	0.0500	0.100	mg/L	1	12/09/19 20:05	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery: 97 %*	*Limits: 50-150 %*		*1*	*12/09/19 20:05*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)		*108 %*	*50-150 %*		*1*	*12/09/19 20:05*	*NWTPH-Gx (MS)*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120751**		
Benzene	**8.20**	4.66	9.32	ug/kg dry	50	12/11/19 15:40	5035A/8260C	**J**
Toluene	**118**	23.3	46.6	ug/kg dry	50	12/11/19 15:40	5035A/8260C	
Ethylbenzene	**96.1**	11.7	23.3	ug/kg dry	50	12/11/19 15:40	5035A/8260C	
Xylenes, total	**794**	35.0	69.9	ug/kg dry	50	12/11/19 15:40	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*100 %*	*Limits: 80-120 %*	*1*	*12/11/19 15:40*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*12/11/19 15:40*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/11/19 15:40*	*5035A/8260C*	
RAU3-06-SO-3 (A9L0097-40)				**Matrix: Soil**		**Batch: 9120813**		
Benzene	ND	5.41	10.8	ug/kg dry	50	12/12/19 17:33	5035A/8260C	
Toluene	ND	27.0	54.1	ug/kg dry	50	12/12/19 17:33	5035A/8260C	
Ethylbenzene	ND	13.5	27.0	ug/kg dry	50	12/12/19 17:33	5035A/8260C	
Xylenes, total	ND	40.5	81.1	ug/kg dry	50	12/12/19 17:33	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*99 %*	*Limits: 80-120 %*	*1*	*12/12/19 17:33*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*12/12/19 17:33*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/12/19 17:33*	*5035A/8260C*	
RAU5-02-SO-2 (A9L0097-45)				**Matrix: Soil**		**Batch: 9120813**		
Benzene	ND	5.40	10.8	ug/kg dry	50	12/12/19 18:00	5035A/8260C	
Toluene	**32.6**	27.0	54.0	ug/kg dry	50	12/12/19 18:00	5035A/8260C	**J**
Ethylbenzene	ND	27.0	27.0	ug/kg dry	50	12/12/19 18:00	5035A/8260C	
Xylenes, total	**75.7**	40.5	81.0	ug/kg dry	50	12/12/19 18:00	5035A/8260C	**J**
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits: 80-120 %*	*1*	*12/12/19 18:00*	*5035A/8260C*	
Toluene-d8 (Surr)			*97 %*	*80-120 %*	*1*	*12/12/19 18:00*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/12/19 18:00*	*5035A/8260C*	
RAU5-01-GW-7.0 (A9L0097-49)				**Matrix: Water**		**Batch: 9120635**		
Benzene	ND	0.100	0.200	ug/L	1	12/07/19 14:25	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/07/19 14:25	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 14:25	EPA 8260C	
Xylenes, total	ND	0.750	1.50	ug/L	1	12/07/19 14:25	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*113 %*	*Limits: 80-120 %*	*1*	*12/07/19 14:25*	*EPA 8260C*	
Toluene-d8 (Surr)			*102 %*	*80-120 %*	*1*	*12/07/19 14:25*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*	*1*	*12/07/19 14:25*	*EPA 8260C*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120751**		
Acetone	ND	740	1480	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Acrylonitrile	ND	74.0	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Benzene	ND	7.40	14.8	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Bromobenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Bromochloromethane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Bromodichloromethane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Bromoform	ND	74.0	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Bromomethane	ND	740	740	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
2-Butanone (MEK)	ND	370	740	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
n-Butylbenzene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
sec-Butylbenzene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
tert-Butylbenzene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Carbon disulfide	ND	370	740	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Carbon tetrachloride	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Chlorobenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Chloroethane	ND	740	740	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Chloroform	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Chloromethane	ND	370	370	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
2-Chlorotoluene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
4-Chlorotoluene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Dibromochloromethane	ND	74.0	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	185	370	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Dibromomethane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2-Dichlorobenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,3-Dichlorobenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,4-Dichlorobenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Dichlorodifluoromethane	ND	74.0	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1-Dichloroethane	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1-Dichloroethene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
cis-1,2-Dichloroethene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
trans-1,2-Dichloroethene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120751**		
1,2-Dichloropropane	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,3-Dichloropropane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
2,2-Dichloropropane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1-Dichloropropene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
cis-1,3-Dichloropropene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
trans-1,3-Dichloropropene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Ethylbenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Hexachlorobutadiene	ND	74.0	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
2-Hexanone	ND	370	740	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Isopropylbenzene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
4-Isopropyltoluene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Methylene chloride	ND	370	370	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	370	740	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Naphthalene	ND	74.0	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
n-Propylbenzene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Styrene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Tetrachloroethene (PCE)	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Toluene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2,3-Trichlorobenzene	ND	185	370	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2,4-Trichlorobenzene	ND	185	370	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1,1-Trichloroethane	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,1,2-Trichloroethane	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Trichloroethene (TCE)	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Trichlorofluoromethane	ND	148	148	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2,3-Trichloropropane	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,2,4-Trimethylbenzene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
1,3,5-Trimethylbenzene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
Vinyl chloride	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
m,p-Xylene	ND	37.0	74.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	
o-Xylene	ND	18.5	37.0	ug/kg dry	50	12/11/19 16:07	5035A/8260C	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120751**		
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits:* *80-120 %*	*1*	*12/11/19 16:07*	*5035A/8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/11/19 16:07*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/11/19 16:07*	*5035A/8260C*	
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120603**		
Acetone	ND	1250	2500	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Acrylonitrile	ND	125	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Benzene	ND	12.5	25.0	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Bromobenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Bromochloromethane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Bromodichloromethane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Bromoform	ND	125	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Bromomethane	ND	1250	1250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
2-Butanone (MEK)	ND	625	1250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
n-Butylbenzene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
sec-Butylbenzene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
tert-Butylbenzene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Carbon disulfide	ND	625	1250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Carbon tetrachloride	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Chlorobenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Chloroethane	ND	625	1250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Chloroform	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Chloromethane	ND	625	625	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
2-Chlorotoluene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
4-Chlorotoluene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Dibromochloromethane	ND	125	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	313	625	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Dibromomethane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2-Dichlorobenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,3-Dichlorobenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,4-Dichlorobenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Dichlorodifluoromethane	ND	250	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1-Dichloroethane	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120603**		
1,2-Dichloroethane (EDC)	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1-Dichloroethene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
cis-1,2-Dichloroethene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
trans-1,2-Dichloroethene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2-Dichloropropane	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,3-Dichloropropane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
2,2-Dichloropropane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1-Dichloropropene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
cis-1,3-Dichloropropene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
trans-1,3-Dichloropropene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Ethylbenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Hexachlorobutadiene	ND	125	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
2-Hexanone	ND	625	1250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Isopropylbenzene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
4-Isopropyltoluene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Methylene chloride	ND	313	625	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	625	1250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Naphthalene	ND	125	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
n-Propylbenzene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Styrene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Tetrachloroethene (PCE)	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Toluene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2,3-Trichlorobenzene	ND	313	625	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2,4-Trichlorobenzene	ND	313	625	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1,1-Trichloroethane	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,1,2-Trichloroethane	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Trichloroethene (TCE)	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Trichlorofluoromethane	ND	125	250	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2,3-Trichloropropane	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
1,2,4-Trimethylbenzene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120603**		
1,3,5-Trimethylbenzene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Vinyl chloride	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
m,p-Xylene	ND	62.5	125	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
o-Xylene	ND	31.3	62.5	ug/kg dry	50	12/06/19 18:34	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*102 %*	*Limits: 80-120 %*	*1*	*12/06/19 18:34*	*5035A/8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*12/06/19 18:34*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/06/19 18:34*	*5035A/8260C*	
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9120751**		
Acetone	ND	549	1100	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Acrylonitrile	ND	54.9	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Benzene	ND	5.49	11.0	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Bromobenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Bromochloromethane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Bromodichloromethane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Bromoform	ND	54.9	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Bromomethane	ND	549	549	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
2-Butanone (MEK)	ND	275	549	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
n-Butylbenzene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
sec-Butylbenzene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
tert-Butylbenzene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Carbon disulfide	ND	275	549	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Carbon tetrachloride	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Chlorobenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Chloroethane	ND	549	549	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Chloroform	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Chloromethane	ND	275	275	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
2-Chlorotoluene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
4-Chlorotoluene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Dibromochloromethane	ND	54.9	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	137	275	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Dibromomethane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2-Dichlorobenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9120751**		
1,3-Dichlorobenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,4-Dichlorobenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Dichlorodifluoromethane	ND	54.9	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1-Dichloroethane	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1-Dichloroethene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
cis-1,2-Dichloroethene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
trans-1,2-Dichloroethene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2-Dichloropropane	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,3-Dichloropropane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
2,2-Dichloropropane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1-Dichloropropene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
cis-1,3-Dichloropropene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
trans-1,3-Dichloropropene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Ethylbenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Hexachlorobutadiene	ND	54.9	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
2-Hexanone	ND	275	549	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Isopropylbenzene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
4-Isopropyltoluene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Methylene chloride	ND	137	275	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	275	549	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Naphthalene	ND	54.9	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
n-Propylbenzene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Styrene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Tetrachloroethene (PCE)	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Toluene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2,3-Trichlorobenzene	ND	137	275	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2,4-Trichlorobenzene	ND	137	275	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1,1-Trichloroethane	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,1,2-Trichloroethane	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9120751**		
Trichloroethene (TCE)	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Trichlorofluoromethane	ND	110	110	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2,3-Trichloropropane	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,2,4-Trimethylbenzene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
1,3,5-Trimethylbenzene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Vinyl chloride	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
m,p-Xylene	ND	27.5	54.9	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
o-Xylene	ND	13.7	27.5	ug/kg dry	50	12/11/19 17:02	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits: 80-120 %*	*1*	*12/11/19 17:02*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*12/11/19 17:02*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/11/19 17:02*	*5035A/8260C*	
RAU1-05-SO-1.5 (A9L0097-21)				**Matrix: Soil**		**Batch: 9120751**		
Acetone	ND	620	1240	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Acrylonitrile	ND	62.0	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Benzene	ND	6.20	12.4	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Bromobenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Bromochloromethane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Bromodichloromethane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Bromoform	ND	62.0	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Bromomethane	ND	620	620	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
2-Butanone (MEK)	ND	310	620	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
n-Butylbenzene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
sec-Butylbenzene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
tert-Butylbenzene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Carbon disulfide	ND	310	620	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Carbon tetrachloride	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Chlorobenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Chloroethane	ND	620	620	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Chloroform	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Chloromethane	ND	310	310	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
2-Chlorotoluene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
4-Chlorotoluene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Dibromochloromethane	ND	62.0	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-SO-1.5 (A9L0097-21)				**Matrix: Soil**		**Batch: 9120751**		
1,2-Dibromo-3-chloropropane	ND	155	310	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Dibromomethane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2-Dichlorobenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,3-Dichlorobenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,4-Dichlorobenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Dichlorodifluoromethane	ND	62.0	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1-Dichloroethane	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1-Dichloroethene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
cis-1,2-Dichloroethene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
trans-1,2-Dichloroethene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2-Dichloropropane	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,3-Dichloropropane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
2,2-Dichloropropane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1-Dichloropropene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
cis-1,3-Dichloropropene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
trans-1,3-Dichloropropene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Ethylbenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Hexachlorobutadiene	ND	62.0	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
2-Hexanone	ND	310	620	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Isopropylbenzene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
4-Isopropyltoluene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Methylene chloride	ND	155	310	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	310	620	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Naphthalene	ND	62.0	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
n-Propylbenzene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Styrene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Tetrachloroethene (PCE)	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Toluene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-SO-1.5 (A9L0097-21)				**Matrix: Soil**		**Batch: 9120751**		
1,2,3-Trichlorobenzene	ND	155	310	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2,4-Trichlorobenzene	ND	155	310	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1,1-Trichloroethane	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,1,2-Trichloroethane	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Trichloroethene (TCE)	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Trichlorofluoromethane	ND	124	124	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2,3-Trichloropropane	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,2,4-Trimethylbenzene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
1,3,5-Trimethylbenzene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Vinyl chloride	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
m,p-Xylene	ND	31.0	62.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
o-Xylene	ND	15.5	31.0	ug/kg dry	50	12/11/19 17:29	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*102 %*	*Limits: 80-120 %*	*1*	*12/11/19 17:29*	*5035A/8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/11/19 17:29*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/11/19 17:29*	*5035A/8260C*	
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120751**		
Acetone	ND	588	1180	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Acrylonitrile	ND	58.8	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Benzene	ND	5.88	11.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Bromobenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Bromochloromethane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Bromodichloromethane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Bromoform	ND	58.8	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Bromomethane	ND	588	588	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
2-Butanone (MEK)	ND	294	588	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
n-Butylbenzene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
sec-Butylbenzene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
tert-Butylbenzene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Carbon disulfide	ND	294	588	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Carbon tetrachloride	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Chlorobenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Chloroethane	ND	588	588	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Chloroform	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120751**		
Chloromethane	ND	294	294	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
2-Chlorotoluene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
4-Chlorotoluene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Dibromochloromethane	ND	58.8	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	147	294	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Dibromomethane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2-Dichlorobenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,3-Dichlorobenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,4-Dichlorobenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Dichlorodifluoromethane	ND	58.8	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,1-Dichloroethane	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,1-Dichloroethene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
cis-1,2-Dichloroethene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
trans-1,2-Dichloroethene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2-Dichloropropane	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,3-Dichloropropane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
2,2-Dichloropropane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,1-Dichloropropene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
cis-1,3-Dichloropropene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
trans-1,3-Dichloropropene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Ethylbenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Hexachlorobutadiene	ND	58.8	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
2-Hexanone	ND	294	588	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Isopropylbenzene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
4-Isopropyltoluene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Methylene chloride	ND	147	294	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	294	588	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Naphthalene	ND	58.8	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
n-Propylbenzene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Styrene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120751**		
1,1,1,2-Tetrachloroethane	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Tetrachloroethene (PCE)	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Toluene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2,3-Trichlorobenzene	ND	147	294	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2,4-Trichlorobenzene	ND	147	294	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,1,1-Trichloroethane	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,1,2-Trichloroethane	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Trichloroethene (TCE)	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Trichlorofluoromethane	ND	118	118	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2,3-Trichloropropane	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,2,4-Trimethylbenzene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
1,3,5-Trimethylbenzene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Vinyl chloride	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
m,p-Xylene	ND	29.4	58.8	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
o-Xylene	ND	14.7	29.4	ug/kg dry	50	12/11/19 18:51	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits: 80-120 %*	*1*	*12/11/19 18:51*	*5035A/8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/11/19 18:51*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/11/19 18:51*	*5035A/8260C*	
RAU1-06-SO-3.5 (A9L0097-33)				**Matrix: Soil**		**Batch: 9120751**		
Acetone	ND	929	1860	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Acrylonitrile	ND	92.9	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Benzene	ND	9.29	18.6	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Bromobenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Bromochloromethane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Bromodichloromethane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Bromoform	ND	92.9	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Bromomethane	ND	929	929	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
2-Butanone (MEK)	ND	464	929	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
n-Butylbenzene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
sec-Butylbenzene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
tert-Butylbenzene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Carbon disulfide	ND	464	929	ug/kg dry	50	12/11/19 17:57	5035A/8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-SO-3.5 (A9L0097-33)				**Matrix: Soil**		**Batch: 9120751**		
Carbon tetrachloride	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Chlorobenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Chloroethane	ND	929	929	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Chloroform	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Chloromethane	ND	464	464	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
2-Chlorotoluene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
4-Chlorotoluene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Dibromochloromethane	ND	92.9	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	232	464	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Dibromomethane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2-Dichlorobenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,3-Dichlorobenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,4-Dichlorobenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Dichlorodifluoromethane	ND	92.9	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1-Dichloroethane	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1-Dichloroethene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
cis-1,2-Dichloroethene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
trans-1,2-Dichloroethene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2-Dichloropropane	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,3-Dichloropropane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
2,2-Dichloropropane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1-Dichloropropene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
cis-1,3-Dichloropropene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
trans-1,3-Dichloropropene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Ethylbenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Hexachlorobutadiene	ND	92.9	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
2-Hexanone	ND	464	929	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Isopropylbenzene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
4-Isopropyltoluene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Methylene chloride	ND	232	464	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	464	929	ug/kg dry	50	12/11/19 17:57	5035A/8260C	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-SO-3.5 (A9L0097-33)				**Matrix: Soil**		**Batch: 9120751**		
Methyl tert-butyl ether (MTBE)	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Naphthalene	ND	92.9	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
n-Propylbenzene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Styrene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Tetrachloroethene (PCE)	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Toluene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2,3-Trichlorobenzene	ND	232	464	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2,4-Trichlorobenzene	ND	232	464	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1,1-Trichloroethane	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,1,2-Trichloroethane	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Trichloroethene (TCE)	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Trichlorofluoromethane	ND	186	186	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2,3-Trichloropropane	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,2,4-Trimethylbenzene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
1,3,5-Trimethylbenzene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Vinyl chloride	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
m,p-Xylene	ND	46.4	92.9	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
o-Xylene	ND	23.2	46.4	ug/kg dry	50	12/11/19 17:57	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*102 %*	*Limits: 80-120 %*	*1*	*12/11/19 17:57*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*12/11/19 17:57*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/11/19 17:57*	*5035A/8260C*	
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120751**		
Acetone	ND	645	1290	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Acrylonitrile	ND	64.5	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Benzene	ND	6.45	12.9	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Bromobenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Bromochloromethane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Bromodichloromethane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Bromoform	ND	64.5	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Bromomethane	ND	645	645	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
2-Butanone (MEK)	ND	323	645	ug/kg dry	50	12/11/19 18:24	5035A/8260C	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120751**		
n-Butylbenzene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
sec-Butylbenzene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
tert-Butylbenzene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Carbon disulfide	ND	323	645	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Carbon tetrachloride	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Chlorobenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Chloroethane	ND	645	645	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Chloroform	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Chloromethane	ND	323	323	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
2-Chlorotoluene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
4-Chlorotoluene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Dibromochloromethane	ND	64.5	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	161	323	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Dibromomethane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2-Dichlorobenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,3-Dichlorobenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,4-Dichlorobenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Dichlorodifluoromethane	ND	64.5	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1-Dichloroethane	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1-Dichloroethene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
cis-1,2-Dichloroethene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
trans-1,2-Dichloroethene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2-Dichloropropane	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,3-Dichloropropane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
2,2-Dichloropropane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1-Dichloropropene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
cis-1,3-Dichloropropene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
trans-1,3-Dichloropropene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Ethylbenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Hexachlorobutadiene	ND	64.5	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
2-Hexanone	ND	323	645	ug/kg dry	50	12/11/19 18:24	5035A/8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120751**		
Isopropylbenzene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
4-Isopropyltoluene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Methylene chloride	ND	161	323	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	323	645	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Naphthalene	**103**	64.5	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	**J**
n-Propylbenzene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Styrene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Tetrachloroethene (PCE)	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Toluene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2,3-Trichlorobenzene	ND	161	323	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2,4-Trichlorobenzene	ND	161	323	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1,1-Trichloroethane	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,1,2-Trichloroethane	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Trichloroethene (TCE)	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Trichlorofluoromethane	ND	129	129	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2,3-Trichloropropane	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,2,4-Trimethylbenzene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
1,3,5-Trimethylbenzene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Vinyl chloride	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
m,p-Xylene	ND	32.3	64.5	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
o-Xylene	ND	16.1	32.3	ug/kg dry	50	12/11/19 18:24	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*99 %*	*Limits:*	*80-120 %*	*1*	*12/11/19 18:24*	*5035A/8260C*	
Toluene-d8 (Surr)			*101 %*		*80-120 %*	*1*	*12/11/19 18:24*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*	*1*	*12/11/19 18:24*	*5035A/8260C*	
RAU1-12-SO-2.7 (A9L0097-38)				**Matrix: Soil**		**Batch: 9120608**		
Acetone	ND	580	1160	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Acrylonitrile	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Benzene	**11.1**	5.80	11.6	ug/kg dry	50	12/06/19 18:55	5035A/8260C	**J**
Bromobenzene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Bromochloromethane	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-SO-2.7 (A9L0097-38)				**Matrix: Soil**		**Batch: 9120608**		
Bromodichloromethane	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Bromoform	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Bromomethane	ND	580	580	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
2-Butanone (MEK)	ND	290	580	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
n-Butylbenzene	**113**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	**M-02**
sec-Butylbenzene	**50.7**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	**J**
tert-Butylbenzene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Carbon disulfide	ND	290	580	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Carbon tetrachloride	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Chlorobenzene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Chloroethane	ND	290	580	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Chloroform	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Chloromethane	ND	145	290	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
2-Chlorotoluene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
4-Chlorotoluene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Dibromochloromethane	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	145	290	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Dibromomethane	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2-Dichlorobenzene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,3-Dichlorobenzene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,4-Dichlorobenzene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Dichlorodifluoromethane	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1-Dichloroethane	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1-Dichloroethene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
cis-1,2-Dichloroethene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
trans-1,2-Dichloroethene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2-Dichloropropane	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,3-Dichloropropane	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
2,2-Dichloropropane	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1-Dichloropropene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
cis-1,3-Dichloropropene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-SO-2.7 (A9L0097-38)				**Matrix: Soil**		**Batch: 9120608**		
trans-1,3-Dichloropropene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Ethylbenzene	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Hexachlorobutadiene	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
2-Hexanone	ND	290	580	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Isopropylbenzene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
4-Isopropyltoluene	**73.4**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Methylene chloride	ND	145	290	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	290	580	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Naphthalene	**204**	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	**M-04**
n-Propylbenzene	**58.6**	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Styrene	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	58.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Tetrachloroethene (PCE)	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Toluene	**49.6**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	**J**
1,2,3-Trichlorobenzene	ND	145	290	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2,4-Trichlorobenzene	ND	145	290	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1,1-Trichloroethane	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,1,2-Trichloroethane	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Trichloroethene (TCE)	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Trichlorofluoromethane	ND	58.0	116	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2,3-Trichloropropane	ND	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,2,4-Trimethylbenzene	**855**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
1,3,5-Trimethylbenzene	**145**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Vinyl chloride	ND	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
m,p-Xylene	**53.1**	29.0	58.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	**J**
o-Xylene	**58.0**	14.5	29.0	ug/kg dry	50	12/06/19 18:55	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*93 %*	*Limits: 80-120 %*	*1*	*12/06/19 18:55*	*5035A/8260C*	
Toluene-d8 (Surr)			*97 %*	*80-120 %*	*1*	*12/06/19 18:55*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*96 %*	*80-120 %*	*1*	*12/06/19 18:55*	*5035A/8260C*	
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120813**		

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120813**		
Acetone	ND	522	1040	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Acrylonitrile	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Benzene	**47.4**	5.22	10.4	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Bromobenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Bromochloromethane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Bromodichloromethane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Bromoform	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Bromomethane	ND	522	522	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
2-Butanone (MEK)	ND	261	522	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
n-Butylbenzene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
sec-Butylbenzene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
tert-Butylbenzene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Carbon disulfide	ND	261	522	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Carbon tetrachloride	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Chlorobenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Chloroethane	ND	261	522	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Chloroform	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Chloromethane	ND	130	261	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
2-Chlorotoluene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
4-Chlorotoluene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Dibromochloromethane	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	130	261	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Dibromomethane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2-Dichlorobenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,3-Dichlorobenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,4-Dichlorobenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Dichlorodifluoromethane	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1-Dichloroethane	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1-Dichloroethene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
cis-1,2-Dichloroethene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
trans-1,2-Dichloroethene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120813**		
1,2-Dichloropropane	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,3-Dichloropropane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
2,2-Dichloropropane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1-Dichloropropene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
cis-1,3-Dichloropropene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
trans-1,3-Dichloropropene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Ethylbenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Hexachlorobutadiene	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
2-Hexanone	ND	261	522	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Isopropylbenzene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
4-Isopropyltoluene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Methylene chloride	ND	130	261	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	261	522	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Naphthalene	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
n-Propylbenzene	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Styrene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Tetrachloroethene (PCE)	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Toluene	**154**	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2,3-Trichlorobenzene	ND	130	261	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2,4-Trichlorobenzene	ND	130	261	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1,1-Trichloroethane	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,1,2-Trichloroethane	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Trichloroethene (TCE)	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Trichlorofluoromethane	ND	52.2	104	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2,3-Trichloropropane	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
1,2,4-Trimethylbenzene	**51.2**	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	**J**
1,3,5-Trimethylbenzene	ND	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
Vinyl chloride	ND	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
m,p-Xylene	**244**	26.1	52.2	ug/kg dry	50	12/12/19 19:49	5035A/8260C	
o-Xylene	**66.7**	13.0	26.1	ug/kg dry	50	12/12/19 19:49	5035A/8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120813**		
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*	*Limits: 80-120 %*	*1*	*12/12/19 19:49*	*5035A/8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/12/19 19:49*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/12/19 19:49*	*5035A/8260C*	
RAU4-01-SO-2 (A9L0097-52)				**Matrix: Soil**		**Batch: 9120813**		
Acetone	ND	567	1130	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Acrylonitrile	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Benzene	ND	5.67	11.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Bromobenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Bromochloromethane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Bromodichloromethane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Bromoform	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Bromomethane	ND	567	567	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
2-Butanone (MEK)	ND	283	567	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
n-Butylbenzene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
sec-Butylbenzene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
tert-Butylbenzene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Carbon disulfide	ND	283	567	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Carbon tetrachloride	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Chlorobenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Chloroethane	ND	283	567	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Chloroform	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Chloromethane	ND	142	283	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
2-Chlorotoluene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
4-Chlorotoluene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Dibromochloromethane	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	142	283	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Dibromomethane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2-Dichlorobenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,3-Dichlorobenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,4-Dichlorobenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Dichlorodifluoromethane	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1-Dichloroethane	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-SO-2 (A9L0097-52)				**Matrix: Soil**		**Batch: 9120813**		
1,2-Dichloroethane (EDC)	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1-Dichloroethene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
cis-1,2-Dichloroethene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
trans-1,2-Dichloroethene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2-Dichloropropane	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,3-Dichloropropane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
2,2-Dichloropropane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1-Dichloropropene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
cis-1,3-Dichloropropene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
trans-1,3-Dichloropropene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Ethylbenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Hexachlorobutadiene	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
2-Hexanone	ND	283	567	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Isopropylbenzene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
4-Isopropyltoluene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Methylene chloride	ND	142	283	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	283	567	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Naphthalene	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
n-Propylbenzene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Styrene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Tetrachloroethene (PCE)	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Toluene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2,3-Trichlorobenzene	ND	142	283	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2,4-Trichlorobenzene	ND	142	283	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1,1-Trichloroethane	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,1,2-Trichloroethane	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Trichloroethene (TCE)	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Trichlorofluoromethane	ND	56.7	113	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2,3-Trichloropropane	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
1,2,4-Trimethylbenzene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-SO-2 (A9L0097-52)				**Matrix: Soil**		**Batch: 9120813**		
1,3,5-Trimethylbenzene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Vinyl chloride	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
m,p-Xylene	ND	28.3	56.7	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
o-Xylene	ND	14.2	28.3	ug/kg dry	50	12/12/19 18:27	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*102 %*	*Limits: 80-120 %*	*1*	*12/12/19 18:27*	*5035A/8260C*	
Toluene-d8 (Surr)			*97 %*	*80-120 %*	*1*	*12/12/19 18:27*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*	*1*	*12/12/19 18:27*	*5035A/8260C*	
RAU4-02-SO-2.5 (A9L0097-54)				**Matrix: Soil**		**Batch: 9120813**		
Acetone	ND	577	1150	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Acrylonitrile	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Benzene	ND	5.77	11.5	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Bromobenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Bromochloromethane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Bromodichloromethane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Bromoform	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Bromomethane	ND	577	577	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
2-Butanone (MEK)	ND	289	577	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
n-Butylbenzene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
sec-Butylbenzene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
tert-Butylbenzene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Carbon disulfide	ND	289	577	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Carbon tetrachloride	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Chlorobenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Chloroethane	ND	289	577	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Chloroform	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Chloromethane	ND	144	289	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
2-Chlorotoluene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
4-Chlorotoluene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Dibromochloromethane	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	144	289	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Dibromomethane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2-Dichlorobenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-SO-2.5 (A9L0097-54)				**Matrix: Soil**		**Batch: 9120813**		
1,3-Dichlorobenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,4-Dichlorobenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Dichlorodifluoromethane	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1-Dichloroethane	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1-Dichloroethene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
cis-1,2-Dichloroethene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
trans-1,2-Dichloroethene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2-Dichloropropane	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,3-Dichloropropane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
2,2-Dichloropropane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1-Dichloropropene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
cis-1,3-Dichloropropene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
trans-1,3-Dichloropropene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Ethylbenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Hexachlorobutadiene	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
2-Hexanone	ND	289	577	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Isopropylbenzene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
4-Isopropyltoluene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Methylene chloride	ND	144	289	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	289	577	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Naphthalene	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
n-Propylbenzene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Styrene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Tetrachloroethene (PCE)	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Toluene	**36.8**	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	**J**
1,2,3-Trichlorobenzene	ND	144	289	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2,4-Trichlorobenzene	ND	144	289	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1,1-Trichloroethane	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,1,2-Trichloroethane	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-SO-2.5 (A9L0097-54)				**Matrix: Soil**		**Batch: 9120813**		
Trichloroethene (TCE)	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Trichlorofluoromethane	ND	57.7	115	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2,3-Trichloropropane	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,2,4-Trimethylbenzene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
1,3,5-Trimethylbenzene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Vinyl chloride	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
m,p-Xylene	ND	28.9	57.7	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
o-Xylene	ND	14.4	28.9	ug/kg dry	50	12/12/19 19:22	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*100 %*	*Limits: 80-120 %*	*1*	*12/12/19 19:22*	*5035A/8260C*	
Toluene-d8 (Surr)			*101 %*	*80-120 %*	*1*	*12/12/19 19:22*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/12/19 19:22*	*5035A/8260C*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-GW-7.5 (A9L0097-16)				**Matrix: Water**		**Batch: 9120593**		
Acetone	ND	10.0	20.0	ug/L	1	12/06/19 13:57	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/06/19 13:57	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/06/19 13:57	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/06/19 13:57	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/06/19 13:57	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/06/19 13:57	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-GW-7.5 (A9L0097-16)				**Matrix: Water**		**Batch: 9120593**		
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/06/19 13:57	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/06/19 13:57	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/06/19 13:57	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/06/19 13:57	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Naphthalene	ND	1.00	2.00	ug/L	1	12/06/19 13:57	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/06/19 13:57	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/06/19 13:57	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/06/19 13:57	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-GW-7.5 (A9L0097-16)				**Matrix: Water**		**Batch: 9120593**		
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 113 %*	*Limits: 80-120 %*	*1*	*12/06/19 13:57*	*EPA 8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/06/19 13:57*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/06/19 13:57*	*EPA 8260C*	
RAU1-04-GW-7.5 (A9L0097-18)				**Matrix: Water**		**Batch: 9120593**		
Acetone	ND	10.0	20.0	ug/L	1	12/06/19 15:45	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/06/19 15:45	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/06/19 15:45	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/06/19 15:45	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/06/19 15:45	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/06/19 15:45	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-GW-7.5 (A9L0097-18)				**Matrix: Water**		**Batch: 9120593**		
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/06/19 15:45	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/06/19 15:45	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/06/19 15:45	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/06/19 15:45	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Naphthalene	ND	1.00	2.00	ug/L	1	12/06/19 15:45	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-GW-7.5 (A9L0097-18)				**Matrix: Water**		**Batch: 9120593**		
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/06/19 15:45	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/06/19 15:45	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/06/19 15:45	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*112 %*	*Limits: 80-120 %*	*1*	*12/06/19 15:45*	*EPA 8260C*	
Toluene-d8 (Surr)			*101 %*	*80-120 %*	*1*	*12/06/19 15:45*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/06/19 15:45*	*EPA 8260C*	
RAU1-01-GW-7.5 (A9L0097-20)				**Matrix: Water**		**Batch: 9120593**		
Acetone	ND	10.0	20.0	ug/L	1	12/06/19 16:12	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/06/19 16:12	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/06/19 16:12	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/06/19 16:12	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/06/19 16:12	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/06/19 16:12	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20)				**Matrix: Water**		**Batch: 9120593**		
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/06/19 16:12	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/06/19 16:12	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/06/19 16:12	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/06/19 16:12	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Naphthalene	**2.90**	1.00	2.00	ug/L	1	12/06/19 16:12	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20)				**Matrix: Water**		**Batch: 9120593**		
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/06/19 16:12	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/06/19 16:12	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/06/19 16:12	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*114 %*	*Limits: 80-120 %*	*1*	*12/06/19 16:12*	*EPA 8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/06/19 16:12*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*96 %*	*80-120 %*	*1*	*12/06/19 16:12*	*EPA 8260C*	
RAU1-05-GW-6.5 (A9L0097-22)				**Matrix: Water**		**Batch: 9120593**		
Acetone	ND	10.0	20.0	ug/L	1	12/06/19 16:39	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/06/19 16:39	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/06/19 16:39	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/06/19 16:39	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/06/19 16:39	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/06/19 16:39	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-GW-6.5 (A9L0097-22)				**Matrix: Water**		**Batch: 9120593**		
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/06/19 16:39	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/06/19 16:39	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/06/19 16:39	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/06/19 16:39	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Naphthalene	ND	1.00	2.00	ug/L	1	12/06/19 16:39	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-GW-6.5 (A9L0097-22)				**Matrix: Water**		**Batch: 9120593**		
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/06/19 16:39	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/06/19 16:39	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/06/19 16:39	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*113 %*	*Limits: 80-120 %*	*1*	*12/06/19 16:39*	*EPA 8260C*	
Toluene-d8 (Surr)			*101 %*	*80-120 %*	*1*	*12/06/19 16:39*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*	*1*	*12/06/19 16:39*	*EPA 8260C*	
RAU1-02-GW-6 (A9L0097-24RE1)				**Matrix: Water**		**Batch: 9120635**		
Acetone	ND	10.0	20.0	ug/L	1	12/07/19 11:17	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/07/19 11:17	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/07/19 11:17	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/07/19 11:17	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/07/19 11:17	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Chloroethane	ND	30.0	30.0	ug/L	1	12/07/19 11:17	EPA 8260C	R-02
Chloroform	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-GW-6 (A9L0097-24RE1)				**Matrix: Water**		**Batch: 9120635**		
Chloromethane	ND	7.00	7.00	ug/L	1	12/07/19 11:17	EPA 8260C	R-02
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/07/19 11:17	EPA 8260C	
2-Hexanone	ND	5.00	10.0	ug/L	1	12/07/19 11:17	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/07/19 11:17	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/07/19 11:17	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Naphthalene	ND	2.00	2.00	ug/L	1	12/07/19 11:17	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-GW-6 (A9L0097-24RE1)				**Matrix: Water**		**Batch: 9120635**		
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/07/19 11:17	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/07/19 11:17	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/07/19 11:17	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*113 %*	*Limits: 80-120 %*	*1*	*12/07/19 11:17*	*EPA 8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/07/19 11:17*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*	*1*	*12/07/19 11:17*	*EPA 8260C*	
Trip Blank (A9L0097-28)				**Matrix: Water**		**Batch: 9120593**		
Acetone	ND	10.0	20.0	ug/L	1	12/06/19 11:43	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/06/19 11:43	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/06/19 11:43	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/06/19 11:43	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/06/19 11:43	EPA 8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank (A9L0097-28)				**Matrix: Water**		**Batch: 9120593**		
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/06/19 11:43	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/06/19 11:43	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/06/19 11:43	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/06/19 11:43	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/06/19 11:43	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank (A9L0097-28)				**Matrix: Water**		**Batch: 9120593**		
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Naphthalene	ND	1.00	2.00	ug/L	1	12/06/19 11:43	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/06/19 11:43	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/06/19 11:43	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/06/19 11:43	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*114 %*	*Limits:*	*80-120 %*	*1*	*12/06/19 11:43*	*EPA 8260C*	
Toluene-d8 (Surr)			*101 %*		*80-120 %*	*1*	*12/06/19 11:43*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*102 %*		*80-120 %*	*1*	*12/06/19 11:43*	*EPA 8260C*	
RAU1-06-GW-7.5 (A9L0097-34)				**Matrix: Water**		**Batch: 9120593**		
Acetone	ND	10.0	20.0	ug/L	1	12/06/19 17:32	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/06/19 17:32	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/06/19 17:32	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/06/19 17:32	EPA 8260C	

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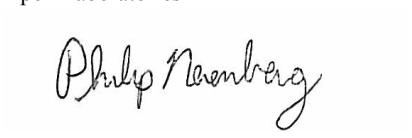

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-GW-7.5 (A9L0097-34)				**Matrix: Water**		**Batch: 9120593**		
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/06/19 17:32	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/06/19 17:32	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/06/19 17:32	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/06/19 17:32	EPA 8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-GW-7.5 (A9L0097-34)				**Matrix: Water**		**Batch: 9120593**		
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/06/19 17:32	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/06/19 17:32	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Naphthalene	ND	1.00	2.00	ug/L	1	12/06/19 17:32	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/06/19 17:32	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/06/19 17:32	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/06/19 17:32	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*113 %*	*Limits:*	*80-120 %*	*1*	*12/06/19 17:32*	*EPA 8260C*	
Toluene-d8 (Surr)			*101 %*		*80-120 %*	*1*	*12/06/19 17:32*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*	*1*	*12/06/19 17:32*	*EPA 8260C*	
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**		**Batch: 9120654**		
Acetone	ND	20.0	20.0	ug/L	1	12/09/19 19:38	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/09/19 19:38	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**		**Batch: 9120654**		
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/09/19 19:38	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/09/19 19:38	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/09/19 19:38	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/09/19 19:38	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1-Dichloroethane	**0.721**	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**		**Batch: 9120654**		
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/09/19 19:38	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/09/19 19:38	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Methylene chloride	ND	1.50	3.00	ug/L	1	12/09/19 19:38	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/09/19 19:38	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Naphthalene	ND	2.00	2.00	ug/L	1	12/09/19 19:38	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
1,2,4-Trimethylbenzene	**0.674**	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	**J**
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/09/19 19:38	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/09/19 19:38	EPA 8260C	
o-Xylene	**0.292**	0.250	0.500	ug/L	1	12/09/19 19:38	EPA 8260C	**J**
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*113 %*	*Limits:*	*80-120 %*	*1*	*12/09/19 19:38*	*EPA 8260C*	
Toluene-d8 (Surr)			*100 %*		*80-120 %*	*1*	*12/09/19 19:38*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*	*1*	*12/09/19 19:38*	*EPA 8260C*	
RAU1-12-GW-7.0 (A9L0097-39RE1)				**Matrix: Water**		**Batch: 9120654**		
Acetone	ND	20.0	20.0	ug/L	1	12/09/19 20:05	EPA 8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE1)				**Matrix: Water**		**Batch: 9120654**		
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/09/19 20:05	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/09/19 20:05	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/09/19 20:05	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/09/19 20:05	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/09/19 20:05	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE1)				**Matrix: Water**		**Batch: 9120654**		
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Ethylbenzene	**0.686**	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/09/19 20:05	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/09/19 20:05	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Methylene chloride	ND	1.50	3.00	ug/L	1	12/09/19 20:05	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/09/19 20:05	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
n-Propylbenzene	**0.567**	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,2,4-Trimethylbenzene	**11.2**	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
1,3,5-Trimethylbenzene	**2.88**	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/09/19 20:05	EPA 8260C	
m,p-Xylene	**5.02**	0.500	1.00	ug/L	1	12/09/19 20:05	EPA 8260C	
o-Xylene	**3.04**	0.250	0.500	ug/L	1	12/09/19 20:05	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*111 %*	*Limits:*	*80-120 %*	*1*	*12/09/19 20:05*	*EPA 8260C*
Toluene-d8 (Surr)			*101 %*		*80-120 %*	*1*	*12/09/19 20:05*	*EPA 8260C*

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE1)				**Matrix: Water**		**Batch: 9120654**		
Surrogate: 4-Bromofluorobenzene (Surr)			*Recovery: 94 %*	*Limits: 80-120 %*	*1*	*12/09/19 20:05*	*EPA 8260C*	
RAU1-12-GW-7.0 (A9L0097-39RE2)				**Matrix: Water**		**Batch: 9120700**		
Naphthalene	**4.60**	1.00	2.00	ug/L	1	12/10/19 14:22	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*	*1*	*12/10/19 14:22*	*EPA 8260C*	
Toluene-d8 (Surr)			*96 %*	*80-120 %*	*1*	*12/10/19 14:22*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/10/19 14:22*	*EPA 8260C*	
RAU1-09-GW-7.0 (A9L0097-51)				**Matrix: Water**		**Batch: 9120635**		
Acetone	ND	10.0	20.0	ug/L	1	12/07/19 12:38	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/07/19 12:38	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/07/19 12:38	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/07/19 12:38	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/07/19 12:38	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/07/19 12:38	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-GW-7.0 (A9L0097-51)				**Matrix: Water**		**Batch: 9120635**		
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/07/19 12:38	EPA 8260C	
2-Hexanone	ND	5.00	10.0	ug/L	1	12/07/19 12:38	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/07/19 12:38	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/07/19 12:38	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Naphthalene	ND	2.00	2.00	ug/L	1	12/07/19 12:38	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-GW-7.0 (A9L0097-51)				**Matrix: Water**		**Batch: 9120635**		
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/07/19 12:38	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/07/19 12:38	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/07/19 12:38	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*112 %*	*Limits: 80-120 %*	*1*	*12/07/19 12:38*	*EPA 8260C*	
Toluene-d8 (Surr)			*101 %*	*80-120 %*	*1*	*12/07/19 12:38*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*	*1*	*12/07/19 12:38*	*EPA 8260C*	
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**		**Batch: 9120635**		
Acetone	ND	10.0	20.0	ug/L	1	12/07/19 13:05	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/07/19 13:05	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/07/19 13:05	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/07/19 13:05	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/07/19 13:05	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/07/19 13:05	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**		**Batch: 9120635**		
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/07/19 13:05	EPA 8260C	
2-Hexanone	ND	5.00	10.0	ug/L	1	12/07/19 13:05	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/07/19 13:05	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/07/19 13:05	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Naphthalene	ND	2.00	2.00	ug/L	1	12/07/19 13:05	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.
2001 NW 19th Ave, STE 200
Portland, OR 97209

Project: **Seaport Upland**
Project Number: **1044.02.13**
Project Manager: **Emily Hess**

Report ID:
A9L0097 - 02 13 20 1501

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**		**Batch: 9120635**		
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/07/19 13:05	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/07/19 13:05	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/07/19 13:05	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*114 %*	*Limits: 80-120 %*	*1*	*12/07/19 13:05*	*EPA 8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/07/19 13:05*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/07/19 13:05*	*EPA 8260C*	
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**		**Batch: 9120635**		
Acetone	ND	10.0	20.0	ug/L	1	12/07/19 13:31	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/07/19 13:31	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/07/19 13:31	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/07/19 13:31	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/07/19 13:31	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**		**Batch: 9120635**		
Chloromethane	ND	2.50	5.00	ug/L	1	12/07/19 13:31	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/07/19 13:31	EPA 8260C	
2-Hexanone	ND	5.00	10.0	ug/L	1	12/07/19 13:31	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/07/19 13:31	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/07/19 13:31	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Naphthalene	ND	2.00	2.00	ug/L	1	12/07/19 13:31	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**		**Batch: 9120635**		
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/07/19 13:31	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/07/19 13:31	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/07/19 13:31	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*113 %*	*Limits: 80-120 %*	*1*	*12/07/19 13:31*	*EPA 8260C*	
Toluene-d8 (Surr)			*101 %*	*80-120 %*	*1*	*12/07/19 13:31*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/07/19 13:31*	*EPA 8260C*	
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**		**Batch: 9120635**		
Acetone	ND	10.0	20.0	ug/L	1	12/07/19 13:58	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/07/19 13:58	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/07/19 13:58	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/07/19 13:58	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/07/19 13:58	EPA 8260C	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**		**Batch: 9120635**		
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/07/19 13:58	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/07/19 13:58	EPA 8260C	
2-Hexanone	ND	5.00	10.0	ug/L	1	12/07/19 13:58	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Methylene chloride	ND	2.50	5.00	ug/L	1	12/07/19 13:58	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/07/19 13:58	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**		**Batch: 9120635**		
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Naphthalene	ND	2.00	2.00	ug/L	1	12/07/19 13:58	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/07/19 13:58	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/07/19 13:58	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/07/19 13:58	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*114 %*	*Limits: 80-120 %*	*1*	*12/07/19 13:58*	*EPA 8260C*	
Toluene-d8 (Surr)			*102 %*	*80-120 %*	*1*	*12/07/19 13:58*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/07/19 13:58*	*EPA 8260C*	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1221	ND	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1232	ND	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1242	ND	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1248	ND	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1254	**32.7**	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	**P-10**
Aroclor 1260	**8.87**	2.08	4.17	ug/kg dry	1	12/12/19 09:32	EPA 8082A	**P-10**
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 79 %*		*Limits: 60-125 %*	*1*	*12/12/19 09:32*	*EPA 8082A*	
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Aroclor 1221	ND	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Aroclor 1232	ND	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Aroclor 1242	ND	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Aroclor 1248	ND	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Aroclor 1254	ND	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Aroclor 1260	**8.33**	3.13	6.27	ug/kg dry	1	12/12/19 10:43	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 67 %*		*Limits: 60-125 %*	*1*	*12/12/19 10:43*	*EPA 8082A*	
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Aroclor 1221	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Aroclor 1232	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Aroclor 1242	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Aroclor 1248	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Aroclor 1254	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Aroclor 1260	ND	2.26	4.51	ug/kg dry	1	12/12/19 11:18	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 64 %*		*Limits: 60-125 %*	*1*	*12/12/19 11:18*	*EPA 8082A*	
RAU1-05-SO-1.5 (A9L0097-21RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	
Aroclor 1221	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	
Aroclor 1232	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-SO-1.5 (A9L0097-21RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1242	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	
Aroclor 1248	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	
Aroclor 1254	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	
Aroclor 1260	ND	2.07	4.15	ug/kg dry	1	12/13/19 12:59	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 64 %*		*Limits: 60-125 %*	*1*	*12/13/19 12:59*	*EPA 8082A*	
RAU1-02-SO-1 (A9L0097-23RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	A-01, Q-31
Aroclor 1221	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	A-01, Q-31
Aroclor 1232	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	A-01, Q-31
Aroclor 1242	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	A-01, Q-31
Aroclor 1248	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	Q-31, A-01
Aroclor 1254	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1260	ND	2.33	4.67	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 76 %*		*Limits: 60-125 %*	*1*	*12/17/19 08:59*	*EPA 8082A*	
RAU3-06-SO-3 (A9L0097-40RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	A-01, Q-31
Aroclor 1221	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	Q-31, A-01
Aroclor 1232	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	A-01, Q-31
Aroclor 1242	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	Q-31, A-01
Aroclor 1248	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	Q-31, A-01
Aroclor 1254	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Aroclor 1260	ND	2.00	4.00	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 80 %*		*Limits: 60-125 %*	*1*	*12/17/19 09:51*	*EPA 8082A*	
RAU5-02-SO-2 (A9L0097-45RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	
Aroclor 1221	ND	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	
Aroclor 1232	ND	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	
Aroclor 1242	ND	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	
Aroclor 1248	ND	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	
Aroclor 1254	ND	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU5-02-SO-2 (A9L0097-45RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1260	**667**	10.9	21.7	ug/kg dry	5	12/13/19 11:27	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 81 %*		*Limits: 60-125 %*	*5*	*12/13/19 11:27*	*EPA 8082A*	
RAU5-01-GW-7.0 (A9L0097-49)				**Matrix: Water**		**Batch: 9120841**		**C-07**
Aroclor 1016	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Aroclor 1221	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Aroclor 1232	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Aroclor 1242	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Aroclor 1248	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Aroclor 1254	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Aroclor 1260	ND	0.0235	0.0471	ug/L	1	12/16/19 15:44	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 87 %*		*Limits: 40-135 %*	*1*	*12/16/19 15:44*	*EPA 8082A*	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU5-01-GW-7.0 (A9L0097-49)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Acenaphthylene	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Anthracene	ND	0.0377	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Benz(a)anthracene	ND	0.00943	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Benzo(a)pyrene	ND	0.00943	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.00943	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.00943	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Chrysene	ND	0.00943	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	0.00943	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Fluoranthene	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Fluorene	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.0189	0.0189	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
1-Methylnaphthalene	ND	0.0377	0.0754	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0377	0.0754	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Naphthalene	ND	0.0754	0.0754	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Phenanthrene	ND	0.0377	0.0754	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Pyrene	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Carbazole	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Dibenzofuran	ND	0.0189	0.0377	ug/L	1	12/10/19 22:05	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*107 %*	*Limits:* *80-120 %*	*1*	*12/10/19 22:05*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*108 %*	*80-143 %*	*1*	*12/10/19 22:05*	*EPA 8270D LVI*	
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	**0.0266**	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	**J**
Acenaphthylene	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Anthracene	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Benz(a)anthracene	ND	0.00968	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Benzo(a)pyrene	ND	0.00968	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.00968	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.00968	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Chrysene	ND	0.00968	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**		**Batch: 9120718**		
Dibenz(a,h)anthracene	ND	0.0194	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Fluoranthene	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Fluorene	**0.0610**	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.00968	0.0194	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
1-Methylnaphthalene	ND	0.0387	0.0774	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0387	0.0774	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Naphthalene	ND	0.0387	0.0774	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Phenanthrene	ND	0.0387	0.0774	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Pyrene	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Carbazole	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Dibenzofuran	ND	0.0194	0.0387	ug/L	1	12/10/19 22:38	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*109 %*	*Limits: 80-120 %*	*1*	*12/10/19 22:38*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*108 %*	*80-143 %*	*1*	*12/10/19 22:38*	*EPA 8270D LVI*	
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	ND	0.0625	0.0625	ug/L	1	12/10/19 23:10	EPA 8270D LVI	R-02
Acenaphthylene	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Anthracene	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Benz(a)anthracene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Benzo(a)pyrene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Chrysene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Fluoranthene	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Fluorene	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.0100	0.0200	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
1-Methylnaphthalene	ND	0.0400	0.0800	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0875	0.0875	ug/L	1	12/10/19 23:10	EPA 8270D LVI	R-02
Naphthalene	ND	0.0800	0.0800	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Phenanthrene	ND	0.0400	0.0800	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Pyrene	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**		**Batch: 9120718**		
Carbazole	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Dibenzofuran	ND	0.0200	0.0400	ug/L	1	12/10/19 23:10	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*106 %*	*Limits: 80-120 %*	*1*	*12/10/19 23:10*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*108 %*	*80-143 %*	*1*	*12/10/19 23:10*	*EPA 8270D LVI*	
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	ND	0.0709	0.0709	ug/L	1	12/10/19 23:42	EPA 8270D LVI	R-02
Acenaphthylene	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Anthracene	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Benz(a)anthracene	ND	0.0189	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Benzo(a)pyrene	ND	0.00945	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.00945	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.00945	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Chrysene	ND	0.00945	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	0.00945	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Fluoranthene	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Fluorene	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.00945	0.0189	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
1-Methylnaphthalene	ND	0.0756	0.0756	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0756	0.0756	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Naphthalene	ND	0.0378	0.0756	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Phenanthrene	ND	0.0378	0.0756	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Pyrene	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Carbazole	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Dibenzofuran	ND	0.0189	0.0378	ug/L	1	12/10/19 23:42	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*107 %*	*Limits: 80-120 %*	*1*	*12/10/19 23:42*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*105 %*	*80-143 %*	*1*	*12/10/19 23:42*	*EPA 8270D LVI*	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-SO-2.5 (A9L0097-01RE1)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
Acenaphthene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Acenaphthylene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Anthracene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benz(a)anthracene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benzo(a)pyrene	ND	46.2	92.5	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benzo(b)fluoranthene	ND	46.2	92.5	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benzo(k)fluoranthene	ND	46.2	92.5	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benzo(g,h,i)perylene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Chrysene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Dibenz(a,h)anthracene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Fluoranthene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Fluorene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1-Methylnaphthalene	ND	61.7	123	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2-Methylnaphthalene	ND	61.7	123	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Naphthalene	ND	61.7	123	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Phenanthrene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Pyrene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Carbazole	ND	46.2	92.5	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Dibenzofuran	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4-Chloro-3-methylphenol	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2-Chlorophenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,4-Dichlorophenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,4-Dimethylphenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,4-Dinitrophenol	ND	770	1540	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	770	1540	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2-Methylphenol	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
3+4-Methylphenol(s)	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2-Nitrophenol	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4-Nitrophenol	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Pentachlorophenol (PCP)	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Phenol	ND	61.7	123	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-SO-2.5 (A9L0097-01RE1)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
2,3,5,6-Tetrachlorophenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,4,5-Trichlorophenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,4,6-Trichlorophenol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	462	925	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Butyl benzyl phthalate	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Diethylphthalate	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Dimethylphthalate	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Di-n-butylphthalate	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Di-n-octyl phthalate	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
N-Nitrosodimethylamine	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
N-Nitrosodiphenylamine	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Hexachlorobenzene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Hexachlorobutadiene	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Hexachlorocyclopentadiene	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Hexachloroethane	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2-Chloronaphthalene	ND	30.8	61.7	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1,2-Dichlorobenzene	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1,3-Dichlorobenzene	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1,4-Dichlorobenzene	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1,2,4-Trichlorobenzene	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4-Bromophenyl phenyl ether	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Aniline	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4-Chloroaniline	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2-Nitroaniline	ND	617	1230	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
3-Nitroaniline	ND	617	1230	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
4-Nitroaniline	ND	617	1230	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Nitrobenzene	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
2,4-Dinitrotoluene	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-SO-2.5 (A9L0097-01RE1)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
2,6-Dinitrotoluene	ND	308	617	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benzoic acid	ND	3860	7700	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Benzyl alcohol	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Isophorone	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Azobenzene (1,2-DPH)	ND	77.0	154	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	770	1540	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
3,3'-Dichlorobenzidine	ND	617	1230	ug/kg dry	20	12/12/19 15:11	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	770	1540	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1,3-Dinitrobenzene	ND	770	1540	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
1,4-Dinitrobenzene	ND	770	1540	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Pyridine	ND	154	308	ug/kg dry	20	12/12/19 15:11	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*97 %*	*Limits: 37-122 %*	*20*	*12/12/19 15:11*	*EPA 8270D*	*Q-41*
2-Fluorobiphenyl (Surr)			*87 %*	*44-115 %*	*20*	*12/12/19 15:11*	*EPA 8270D*	
Phenol-d6 (Surr)			*96 %*	*33-122 %*	*20*	*12/12/19 15:11*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*94 %*	*54-127 %*	*20*	*12/12/19 15:11*	*EPA 8270D*	
2-Fluorophenol (Surr)			*90 %*	*35-115 %*	*20*	*12/12/19 15:11*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*91 %*	*39-132 %*	*20*	*12/12/19 15:11*	*EPA 8270D*	
RAU2-03-GW-7.5 (A9L0097-02RE2)				**Matrix: Water**		**Batch: 9120673**		**R-04**
Benzo(g,h,i)perylene	ND	0.0396	0.0792	ug/L	4	12/10/19 10:57	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0396	0.0792	ug/L	4	12/10/19 10:57	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0396	0.0792	ug/L	4	12/10/19 10:57	EPA 8270D	
RAU2-03-GW-7.5 (A9L0097-02RE3)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**0.0772**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
Acenaphthylene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
Anthracene	**0.0120**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	**J**
Benz(a)anthracene	**0.0119**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	**J**
Benzo(a)pyrene	**0.0223**	0.0149	0.0297	ug/L	1	12/11/19 18:47	EPA 8270D	**J**
Benzo(b)fluoranthene	**0.0183**	0.0149	0.0297	ug/L	1	12/11/19 18:47	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	0.0149	0.0297	ug/L	1	12/11/19 18:47	EPA 8270D	
Chrysene	**0.0100**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	**J**
Fluoranthene	**0.0253**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
Fluorene	**0.0184**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	**J**

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-03-GW-7.5 (A9L0097-02RE3)				**Matrix: Water**		**Batch: 9120673**		
1-Methylnaphthalene	ND	0.0198	0.0396	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
2-Methylnaphthalene	**0.0269**	0.0198	0.0396	ug/L	1	12/11/19 18:47	EPA 8270D	**J, Q-30**
Naphthalene	**0.0420**	0.0198	0.0396	ug/L	1	12/11/19 18:47	EPA 8270D	**Q-30, B-02**
Phenanthrene	**0.0471**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
Pyrene	**0.0242**	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
Carbazole	ND	0.0149	0.0297	ug/L	1	12/11/19 18:47	EPA 8270D	
Dibenzofuran	ND	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.297	0.297	ug/L	1	12/11/19 18:47	EPA 8270D	R-02
2-Chlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
2,4-Dichlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
2,4-Dimethylphenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
2,4-Dinitrophenol	ND	0.248	0.495	ug/L	1	12/11/19 18:47	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.248	0.495	ug/L	1	12/11/19 18:47	EPA 8270D	
2-Methylphenol	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
3+4-Methylphenol(s)	**0.0322**	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	**J**
2-Nitrophenol	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
4-Nitrophenol	ND	0.198	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
Phenol	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
Butyl benzyl phthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
Diethylphthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
Dimethylphthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
Di-n-butylphthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
Di-n-octyl phthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
N-Nitrosodimethylamine	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.0495	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-03-GW-7.5 (A9L0097-02RE3)				**Matrix: Water**		**Batch: 9120673**		
Bis(2-Chloroethyl) ether	ND	0.0495	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
Hexachlorobenzene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	
Hexachlorobutadiene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
Hexachloroethane	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
Aniline	ND	0.0495	0.0990	ug/L	1	12/11/19 18:47	EPA 8270D	
4-Chloroaniline	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
2-Nitroaniline	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
3-Nitroaniline	ND	0.396	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
4-Nitroaniline	ND	0.198	0.396	ug/L	1	12/11/19 18:47	EPA 8270D	
Nitrobenzene	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
2,4-Dinitrotoluene	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
2,6-Dinitrotoluene	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
Benzoic acid	ND	1.24	2.48	ug/L	1	12/11/19 18:47	EPA 8270D	
Benzyl alcohol	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
Isophorone	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.0248	0.0495	ug/L	1	12/11/19 18:47	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	0.248	0.495	ug/L	1	12/11/19 18:47	EPA 8270D	
3,3'-Dichlorobenzidine	ND	0.495	0.990	ug/L	1	12/11/19 18:47	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	0.248	0.495	ug/L	1	12/11/19 18:47	EPA 8270D	
1,3-Dinitrobenzene	ND	0.248	0.495	ug/L	1	12/11/19 18:47	EPA 8270D	
1,4-Dinitrobenzene	ND	0.248	0.495	ug/L	1	12/11/19 18:47	EPA 8270D	
Pyridine	ND	0.0990	0.198	ug/L	1	12/11/19 18:47	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*71 %*	*Limits: 44-120 %*	*1*	*12/11/19 18:47*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*50 %*	*44-120 %*	*1*	*12/11/19 18:47*	*EPA 8270D*	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-03-GW-7.5 (A9L0097-02RE3)				**Matrix: Water**		**Batch: 9120673**		
Surrogate: Phenol-d6 (Surr)		*Recovery:*	*39 %*	*Limits: 10-120 %*	*1*	*12/11/19 18:47*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*58 %*	*50-133 %*	*1*	*12/11/19 18:47*	*EPA 8270D*	
2-Fluorophenol (Surr)			*51 %*	*19-120 %*	*1*	*12/11/19 18:47*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*97 %*	*43-140 %*	*1*	*12/11/19 18:47*	*EPA 8270D*	*Q-41*
RAU2-03-SO-3 (A9L0097-03RE1)				**Matrix: Soil**		**Batch: 9120708**		
Acenaphthene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Acenaphthylene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Anthracene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Benz(a)anthracene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Benzo(a)pyrene	**2.35**	2.16	4.33	ug/kg dry	1	12/11/19 12:43	EPA 8270D	**J**
Benzo(b)fluoranthene	**2.25**	2.16	4.33	ug/kg dry	1	12/11/19 12:43	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	2.16	4.33	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Chrysene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Fluoranthene	**2.37**	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	**J**
Fluorene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1-Methylnaphthalene	ND	2.89	5.76	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2-Methylnaphthalene	ND	2.89	5.76	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Naphthalene	**6.63**	2.89	5.76	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Phenanthrene	**3.35**	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Pyrene	**2.17**	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	**J**
Carbazole	ND	2.16	4.33	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Dibenzofuran	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4-Chloro-3-methylphenol	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2-Chlorophenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,4-Dichlorophenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,4-Dimethylphenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,4-Dinitrophenol	ND	36.0	72.1	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	36.0	72.1	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2-Methylphenol	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
3+4-Methylphenol(s)	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	

Apex Laboratories



Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-03-SO-3 (A9L0097-03RE1)				**Matrix: Soil**		**Batch: 9120708**		
2-Nitrophenol	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4-Nitrophenol	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Pentachlorophenol (PCP)	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Phenol	ND	2.89	5.76	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	21.6	43.3	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Butyl benzyl phthalate	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Diethylphthalate	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Dimethylphthalate	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Di-n-butylphthalate	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Di-n-octyl phthalate	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
N-Nitrosodimethylamine	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Hexachlorobenzene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Hexachlorobutadiene	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Hexachloroethane	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2-Chloronaphthalene	ND	1.44	2.89	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1,2-Dichlorobenzene	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1,3-Dichlorobenzene	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1,4-Dichlorobenzene	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Aniline	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4-Chloroaniline	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-03-SO-3 (A9L0097-03RE1)				**Matrix: Soil**		**Batch: 9120708**		
2-Nitroaniline	ND	28.9	57.6	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
3-Nitroaniline	ND	28.9	57.6	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
4-Nitroaniline	ND	28.9	57.6	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Nitrobenzene	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,4-Dinitrotoluene	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
2,6-Dinitrotoluene	ND	14.4	28.9	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Benzoic acid	ND	181	360	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Benzyl alcohol	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Isophorone	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.60	7.21	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	36.0	72.1	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
3,3'-Dichlorobenzidine	ND	28.9	57.6	ug/kg dry	1	12/11/19 12:43	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	36.0	72.1	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1,3-Dinitrobenzene	ND	36.0	72.1	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
1,4-Dinitrobenzene	ND	36.0	72.1	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Pyridine	ND	7.21	14.4	ug/kg dry	1	12/11/19 12:43	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*84 %*	*Limits: 37-122 %*	*1*	*12/11/19 12:43*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*80 %*	*44-115 %*	*1*	*12/11/19 12:43*	*EPA 8270D*	
Phenol-d6 (Surr)			*84 %*	*33-122 %*	*1*	*12/11/19 12:43*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*96 %*	*54-127 %*	*1*	*12/11/19 12:43*	*EPA 8270D*	
2-Fluorophenol (Surr)			*88 %*	*35-115 %*	*1*	*12/11/19 12:43*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*98 %*	*39-132 %*	*1*	*12/11/19 12:43*	*EPA 8270D*	*Q-41*
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**		**Batch: 9120708**		
Acenaphthene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Acenaphthylene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Anthracene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benz(a)anthracene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benzo(a)pyrene	ND	2.26	4.53	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benzo(b)fluoranthene	ND	2.26	4.53	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benzo(k)fluoranthene	ND	2.26	4.53	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Chrysene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**		**Batch: 9120708**		
Fluoranthene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Fluorene	**1.60**	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1-Methylnaphthalene	**4.49**	3.02	6.03	ug/kg dry	1	12/11/19 12:51	EPA 8270D	**J**
2-Methylnaphthalene	**5.40**	3.02	6.03	ug/kg dry	1	12/11/19 12:51	EPA 8270D	**J**
Naphthalene	ND	3.02	6.03	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Phenanthrene	**4.39**	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Pyrene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Carbazole	ND	2.26	4.53	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Dibenzofuran	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4-Chloro-3-methylphenol	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2-Chlorophenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,4-Dichlorophenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,4-Dimethylphenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,4-Dinitrophenol	ND	37.7	75.5	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	37.7	75.5	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2-Methylphenol	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
3+4-Methylphenol(s)	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2-Nitrophenol	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4-Nitrophenol	ND	30.2	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Pentachlorophenol (PCP)	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Phenol	ND	3.02	6.03	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	22.6	45.3	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Butyl benzyl phthalate	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Diethylphthalate	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Dimethylphthalate	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Di-n-butylphthalate	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Di-n-octyl phthalate	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
N-Nitrosodimethylamine	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**		**Batch: 9120708**		
N-Nitroso-di-n-propylamine	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Hexachlorobenzene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Hexachlorobutadiene	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Hexachloroethane	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2-Chloronaphthalene	ND	1.51	3.02	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1,2-Dichlorobenzene	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1,3-Dichlorobenzene	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1,4-Dichlorobenzene	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Aniline	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4-Chloroaniline	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2-Nitroaniline	ND	30.2	60.3	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
3-Nitroaniline	ND	30.2	60.3	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
4-Nitroaniline	ND	30.2	60.3	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Nitrobenzene	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,4-Dinitrotoluene	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
2,6-Dinitrotoluene	ND	15.1	30.2	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benzoic acid	ND	189	377	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Benzyl alcohol	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Isophorone	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.77	7.55	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	37.7	75.5	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
3,3'-Dichlorobenzidine	ND	30.2	60.3	ug/kg dry	1	12/11/19 12:51	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	37.7	75.5	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1,3-Dinitrobenzene	ND	37.7	75.5	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
1,4-Dinitrobenzene	ND	37.7	75.5	ug/kg dry	1	12/11/19 12:51	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**		**Batch: 9120708**		
Pyridine	ND	7.55	15.1	ug/kg dry	1	12/11/19 12:51	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*63 %*	*Limits: 37-122 %*	*1*	*12/11/19 12:51*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*70 %*	*44-115 %*	*1*	*12/11/19 12:51*	*EPA 8270D*	
Phenol-d6 (Surr)			*59 %*	*33-122 %*	*1*	*12/11/19 12:51*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*98 %*	*54-127 %*	*1*	*12/11/19 12:51*	*EPA 8270D*	
2-Fluorophenol (Surr)			*57 %*	*35-115 %*	*1*	*12/11/19 12:51*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*100 %*	*39-132 %*	*1*	*12/11/19 12:51*	*EPA 8270D*	
RAU2-04-GW-7.5 (A9L0097-05RE2)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**3.47**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Acenaphthylene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Anthracene	**0.140**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Benz(a)anthracene	**0.0548**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	**J**
Benzo(a)pyrene	ND	0.0632	0.126	ug/L	4	12/10/19 11:31	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0632	0.126	ug/L	4	12/10/19 11:31	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0632	0.126	ug/L	4	12/10/19 11:31	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Chrysene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Fluoranthene	**0.568**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Fluorene	**1.45**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
1-Methylnaphthalene	**0.945**	0.0842	0.168	ug/L	4	12/10/19 11:31	EPA 8270D	**Q-30**
2-Methylnaphthalene	**1.41**	0.0842	0.168	ug/L	4	12/10/19 11:31	EPA 8270D	**Q-30**
Naphthalene	**2.41**	0.0842	0.168	ug/L	4	12/10/19 11:31	EPA 8270D	**Q-30, B-02**
Phenanthrene	**1.54**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Pyrene	**0.378**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Carbazole	**0.269**	0.0632	0.126	ug/L	4	12/10/19 11:31	EPA 8270D	
Dibenzofuran	**0.603**	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
2-Chlorophenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
2,4-Dichlorophenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
2,4-Dimethylphenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
2,4-Dinitrophenol	ND	1.05	2.11	ug/L	4	12/10/19 11:31	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-04-GW-7.5 (A9L0097-05RE2)				**Matrix: Water**		**Batch: 9120673**		
4,6-Dinitro-2-methylphenol	ND	1.05	2.11	ug/L	4	12/10/19 11:31	EPA 8270D	
2-Methylphenol	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
3+4-Methylphenol(s)	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
2-Nitrophenol	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
4-Nitrophenol	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
Phenol	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
Butyl benzyl phthalate	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
Diethylphthalate	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
Dimethylphthalate	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
Di-n-butylphthalate	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
Di-n-octyl phthalate	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
N-Nitrosodimethylamine	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
Hexachlorobenzene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	
Hexachlorobutadiene	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
Hexachloroethane	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0421	0.0842	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-04-GW-7.5 (A9L0097-05RE2)				**Matrix: Water**		**Batch: 9120673**		
4-Chlorophenyl phenyl ether	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
Aniline	ND	0.211	0.421	ug/L	4	12/10/19 11:31	EPA 8270D	
4-Chloroaniline	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
2-Nitroaniline	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
3-Nitroaniline	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
4-Nitroaniline	ND	0.842	1.68	ug/L	4	12/10/19 11:31	EPA 8270D	
Nitrobenzene	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
2,4-Dinitrotoluene	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
2,6-Dinitrotoluene	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
Benzoic acid	ND	5.26	10.5	ug/L	4	12/10/19 11:31	EPA 8270D	
Benzyl alcohol	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
Isophorone	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.105	0.211	ug/L	4	12/10/19 11:31	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.05	2.11	ug/L	4	12/10/19 11:31	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.11	4.21	ug/L	4	12/10/19 11:31	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.05	2.11	ug/L	4	12/10/19 11:31	EPA 8270D	
1,3-Dinitrobenzene	ND	1.05	2.11	ug/L	4	12/10/19 11:31	EPA 8270D	
1,4-Dinitrobenzene	ND	1.05	2.11	ug/L	4	12/10/19 11:31	EPA 8270D	
Pyridine	ND	0.421	0.842	ug/L	4	12/10/19 11:31	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*69 %*	*Limits: 44-120 %*	*4*	*12/10/19 11:31*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*72 %*	*44-120 %*	*4*	*12/10/19 11:31*	*EPA 8270D*	
Phenol-d6 (Surr)			*23 %*	*10-120 %*	*4*	*12/10/19 11:31*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*59 %*	*50-133 %*	*4*	*12/10/19 11:31*	*EPA 8270D*	
2-Fluorophenol (Surr)			*34 %*	*19-120 %*	*4*	*12/10/19 11:31*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*108 %*	*43-140 %*	*4*	*12/10/19 11:31*	*EPA 8270D*	
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Acenaphthylene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Anthracene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Benz(a)anthracene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Benzo(a)pyrene	**106**	81.7	163	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
Benzo(b)fluoranthene	**89.8**	81.7	163	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	81.7	163	ug/kg dry	40	12/10/19 01:47	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120660**		
Benzo(g,h,i)perylene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Chrysene	**55.5**	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Fluoranthene	**57.4**	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
Fluorene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
1-Methylnaphthalene	**195**	109	218	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
2-Methylnaphthalene	**445**	109	218	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Naphthalene	**272**	109	218	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Phenanthrene	**88.1**	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
Pyrene	**79.7**	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	**J**
Carbazole	ND	81.7	163	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Dibenzofuran	ND	54.3	109	ug/kg dry	40	12/10/19 01:47	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*83 %*	*Limits: 37-122 %*	*40*	*12/10/19 01:47*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*81 %*	*44-115 %*	*40*	*12/10/19 01:47*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*70 %*	*33-122 %*	*40*	*12/10/19 01:47*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*94 %*	*54-127 %*	*40*	*12/10/19 01:47*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*54 %*	*35-115 %*	*40*	*12/10/19 01:47*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*54 %*	*39-132 %*	*40*	*12/10/19 01:47*	*EPA 8270D*	*S-05*
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9120708**		
Acenaphthene	**4.71**	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Acenaphthylene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Anthracene	**1.77**	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	**J**
Benz(a)anthracene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Benzo(a)pyrene	**2.65**	2.36	4.73	ug/kg dry	1	12/11/19 13:19	EPA 8270D	**J**
Benzo(b)fluoranthene	ND	2.36	4.73	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Benzo(k)fluoranthene	ND	2.36	4.73	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Chrysene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Fluoranthene	**3.46**	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Fluorene	**2.21**	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9120708**		
1-Methylnaphthalene	**4.15**	3.16	6.30	ug/kg dry	1	12/11/19 13:19	EPA 8270D	**J**
2-Methylnaphthalene	**8.02**	3.16	6.30	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Naphthalene	**33.5**	3.16	6.30	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Phenanthrene	**9.94**	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Pyrene	**4.44**	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Carbazole	ND	2.36	4.73	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Dibenzofuran	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4-Chloro-3-methylphenol	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2-Chlorophenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,4-Dichlorophenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,4-Dimethylphenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,4-Dinitrophenol	ND	39.4	78.9	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	39.4	78.9	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2-Methylphenol	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
3+4-Methylphenol(s)	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2-Nitrophenol	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4-Nitrophenol	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Pentachlorophenol (PCP)	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Phenol	ND	3.16	6.30	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	23.6	47.3	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Butyl benzyl phthalate	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Diethylphthalate	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Dimethylphthalate	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Di-n-butylphthalate	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Di-n-octyl phthalate	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
N-Nitrosodimethylamine	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9120708**		
Bis(2-Chloroethyl) ether	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Hexachlorobenzene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Hexachlorobutadiene	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Hexachloroethane	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2-Chloronaphthalene	ND	1.57	3.16	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
1,2-Dichlorobenzene	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
1,3-Dichlorobenzene	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
1,4-Dichlorobenzene	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Aniline	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4-Chloroaniline	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2-Nitroaniline	ND	31.6	63.0	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
3-Nitroaniline	ND	31.6	63.0	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
4-Nitroaniline	ND	31.6	63.0	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Nitrobenzene	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,4-Dinitrotoluene	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
2,6-Dinitrotoluene	ND	15.7	31.6	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Benzoic acid	ND	197	394	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Benzyl alcohol	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Isophorone	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.94	7.89	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	39.4	78.9	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
3,3'-Dichlorobenzidine	ND	31.6	63.0	ug/kg dry	1	12/11/19 13:19	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	39.4	78.9	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
1,3-Dinitrobenzene	ND	39.4	78.9	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
1,4-Dinitrobenzene	ND	39.4	78.9	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Pyridine	ND	7.89	15.7	ug/kg dry	1	12/11/19 13:19	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*74 %*	*Limits: 37-122 %*	*1*	*12/11/19 13:19*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*77 %*	*44-115 %*	*1*	*12/11/19 13:19*	*EPA 8270D*	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9120708**		
Surrogate: Phenol-d6 (Surr)		*Recovery:*	*88 %*	*Limits: 33-122 %*	*1*	*12/11/19 13:19*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*	*1*	*12/11/19 13:19*	*EPA 8270D*	
2-Fluorophenol (Surr)			*86 %*	*35-115 %*	*1*	*12/11/19 13:19*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*87 %*	*39-132 %*	*1*	*12/11/19 13:19*	*EPA 8270D*	*Q-41*
RAU2-01-GW-7.5 (A9L0097-09RE2)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**1.58**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Acenaphthylene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Anthracene	**0.0655**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	**J**
Benz(a)anthracene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Benzo(a)pyrene	ND	0.0594	0.119	ug/L	4	12/10/19 12:05	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0594	0.119	ug/L	4	12/10/19 12:05	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0594	0.119	ug/L	4	12/10/19 12:05	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Chrysene	**0.0534**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Fluoranthene	**0.201**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Fluorene	**0.262**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
1-Methylnaphthalene	ND	0.0792	0.158	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0792	0.158	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
Naphthalene	ND	0.158	0.158	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
Phenanthrene	**0.189**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Pyrene	**0.162**	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Carbazole	ND	0.0594	0.119	ug/L	4	12/10/19 12:05	EPA 8270D	
Dibenzofuran	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
2-Chlorophenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
2,4-Dichlorophenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
2,4-Dimethylphenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
2,4-Dinitrophenol	ND	0.990	1.98	ug/L	4	12/10/19 12:05	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.990	1.98	ug/L	4	12/10/19 12:05	EPA 8270D	
2-Methylphenol	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
3+4-Methylphenol(s)	**0.346**	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-GW-7.5 (A9L0097-09RE2)				**Matrix: Water**		**Batch: 9120673**		
2-Nitrophenol	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
4-Nitrophenol	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
Phenol	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
Butyl benzyl phthalate	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
Diethylphthalate	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
Dimethylphthalate	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
Di-n-butylphthalate	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
Di-n-octyl phthalate	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
N-Nitrosodimethylamine	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
Hexachlorobenzene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	
Hexachlorobutadiene	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
Hexachloroethane	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0396	0.0792	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
Aniline	ND	0.198	0.396	ug/L	4	12/10/19 12:05	EPA 8270D	
4-Chloroaniline	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-GW-7.5 (A9L0097-09RE2)				**Matrix: Water**		**Batch: 9120673**		
2-Nitroaniline	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
3-Nitroaniline	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
4-Nitroaniline	ND	0.792	1.58	ug/L	4	12/10/19 12:05	EPA 8270D	
Nitrobenzene	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
2,4-Dinitrotoluene	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
2,6-Dinitrotoluene	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
Benzoic acid	ND	4.95	9.90	ug/L	4	12/10/19 12:05	EPA 8270D	
Benzyl alcohol	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
Isophorone	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.0990	0.198	ug/L	4	12/10/19 12:05	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	0.990	1.98	ug/L	4	12/10/19 12:05	EPA 8270D	
3,3'-Dichlorobenzidine	ND	1.98	3.96	ug/L	4	12/10/19 12:05	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	0.990	1.98	ug/L	4	12/10/19 12:05	EPA 8270D	
1,3-Dinitrobenzene	ND	0.990	1.98	ug/L	4	12/10/19 12:05	EPA 8270D	
1,4-Dinitrobenzene	ND	0.990	1.98	ug/L	4	12/10/19 12:05	EPA 8270D	
Pyridine	ND	0.396	0.792	ug/L	4	12/10/19 12:05	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*60 %*	*Limits: 44-120 %*	*4*	*12/10/19 12:05*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*52 %*	*44-120 %*	*4*	*12/10/19 12:05*	*EPA 8270D*	
Phenol-d6 (Surr)			*16 %*	*10-120 %*	*4*	*12/10/19 12:05*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*51 %*	*50-133 %*	*4*	*12/10/19 12:05*	*EPA 8270D*	
2-Fluorophenol (Surr)			*25 %*	*19-120 %*	*4*	*12/10/19 12:05*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*90 %*	*43-140 %*	*4*	*12/10/19 12:05*	*EPA 8270D*	
RAU2-05-SO-2.5 (A9L0097-11)				**Matrix: Soil**		**Batch: 9120708**		
Acenaphthene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Acenaphthylene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Anthracene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benz(a)anthracene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benzo(a)pyrene	ND	2.32	4.64	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benzo(b)fluoranthene	ND	2.32	4.64	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benzo(k)fluoranthene	ND	2.32	4.64	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Chrysene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-SO-2.5 (A9L0097-11)				**Matrix: Soil**		**Batch: 9120708**		
Fluoranthene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Fluorene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1-Methylnaphthalene	ND	3.09	6.18	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2-Methylnaphthalene	ND	3.09	6.18	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Naphthalene	ND	3.09	6.18	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Phenanthrene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Pyrene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Carbazole	ND	2.32	4.64	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Dibenzofuran	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4-Chloro-3-methylphenol	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2-Chlorophenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,4-Dichlorophenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,4-Dimethylphenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,4-Dinitrophenol	ND	38.6	77.3	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	38.6	77.3	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2-Methylphenol	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
3+4-Methylphenol(s)	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2-Nitrophenol	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4-Nitrophenol	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Pentachlorophenol (PCP)	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Phenol	ND	3.09	6.18	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	23.2	46.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Butyl benzyl phthalate	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Diethylphthalate	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Dimethylphthalate	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Di-n-butylphthalate	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Di-n-octyl phthalate	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
N-Nitrosodimethylamine	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-SO-2.5 (A9L0097-11)				**Matrix: Soil**		**Batch: 9120708**		
N-Nitroso-di-n-propylamine	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Hexachlorobenzene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Hexachlorobutadiene	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Hexachloroethane	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2-Chloronaphthalene	ND	1.54	3.09	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1,2-Dichlorobenzene	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1,3-Dichlorobenzene	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1,4-Dichlorobenzene	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Aniline	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4-Chloroaniline	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2-Nitroaniline	ND	30.9	61.8	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
3-Nitroaniline	ND	30.9	61.8	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
4-Nitroaniline	ND	30.9	61.8	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Nitrobenzene	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,4-Dinitrotoluene	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
2,6-Dinitrotoluene	ND	15.4	30.9	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benzoic acid	ND	194	386	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Benzyl alcohol	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Isophorone	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.86	7.73	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	38.6	77.3	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
3,3'-Dichlorobenzidine	ND	30.9	61.8	ug/kg dry	1	12/11/19 13:56	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	38.6	77.3	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1,3-Dinitrobenzene	ND	38.6	77.3	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
1,4-Dinitrobenzene	ND	38.6	77.3	ug/kg dry	1	12/11/19 13:56	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-SO-2.5 (A9L0097-11)				**Matrix: Soil**		**Batch: 9120708**		
Pyridine	ND	7.73	15.4	ug/kg dry	1	12/11/19 13:56	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*80 %*	*Limits: 37-122 %*	*1*	*12/11/19 13:56*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*75 %*	*44-115 %*	*1*	*12/11/19 13:56*	*EPA 8270D*	
Phenol-d6 (Surr)			*73 %*	*33-122 %*	*1*	*12/11/19 13:56*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*90 %*	*54-127 %*	*1*	*12/11/19 13:56*	*EPA 8270D*	
2-Fluorophenol (Surr)			*70 %*	*35-115 %*	*1*	*12/11/19 13:56*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*82 %*	*39-132 %*	*1*	*12/11/19 13:56*	*EPA 8270D*	*Q-41*
RAU2-05-GW-7.5 (A9L0097-12RE2)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**0.117**	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Acenaphthylene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Anthracene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Benz(a)anthracene	**0.0441**	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	**J**
Benzo(a)pyrene	ND	0.0638	0.128	ug/L	4	12/10/19 12:39	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0638	0.128	ug/L	4	12/10/19 12:39	EPA 8270D	
Benzo(k)fluoranthene	**0.0667**	0.0638	0.128	ug/L	4	12/10/19 12:39	EPA 8270D	**J**
Benzo(g,h,i)perylene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Chrysene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Fluoranthene	**0.0577**	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	**J**
Fluorene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
1-Methylnaphthalene	ND	0.0851	0.170	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0851	0.170	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
Naphthalene	ND	0.0851	0.170	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
Phenanthrene	**0.0662**	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	**J**
Pyrene	**0.0550**	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	**J**
Carbazole	ND	0.0638	0.128	ug/L	4	12/10/19 12:39	EPA 8270D	
Dibenzofuran	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
2-Chlorophenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
2,4-Dichlorophenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
2,4-Dimethylphenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
2,4-Dinitrophenol	ND	1.06	2.13	ug/L	4	12/10/19 12:39	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-GW-7.5 (A9L0097-12RE2)				**Matrix: Water**		**Batch: 9120673**		
4,6-Dinitro-2-methylphenol	ND	1.06	2.13	ug/L	4	12/10/19 12:39	EPA 8270D	
2-Methylphenol	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
3+4-Methylphenol(s)	**2.78**	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	**Q-42**
2-Nitrophenol	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
4-Nitrophenol	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
Phenol	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	Q-42
2,3,4,6-Tetrachlorophenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
Butyl benzyl phthalate	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
Diethylphthalate	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
Dimethylphthalate	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
Di-n-butylphthalate	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
Di-n-octyl phthalate	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
N-Nitrosodimethylamine	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.298	0.298	ug/L	4	12/10/19 12:39	EPA 8270D	R-02
Bis(2-Chloroethyl) ether	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-42
2,2'-Oxybis(1-Chloropropane)	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
Hexachlorobenzene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	
Hexachlorobutadiene	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
Hexachloroethane	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0426	0.0851	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-GW-7.5 (A9L0097-12RE2)				**Matrix: Water**		**Batch: 9120673**		
4-Chlorophenyl phenyl ether	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
Aniline	ND	0.213	0.426	ug/L	4	12/10/19 12:39	EPA 8270D	
4-Chloroaniline	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
2-Nitroaniline	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
3-Nitroaniline	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
4-Nitroaniline	ND	0.851	1.70	ug/L	4	12/10/19 12:39	EPA 8270D	
Nitrobenzene	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
2,4-Dinitrotoluene	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
2,6-Dinitrotoluene	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
Benzoic acid	ND	5.32	10.6	ug/L	4	12/10/19 12:39	EPA 8270D	
Benzyl alcohol	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	
Isophorone	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.106	0.213	ug/L	4	12/10/19 12:39	EPA 8270D	Q-42
Bis(2-Ethylhexyl) adipate	ND	1.06	2.13	ug/L	4	12/10/19 12:39	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.13	4.26	ug/L	4	12/10/19 12:39	EPA 8270D	Q-42, Q-52
1,2-Dinitrobenzene	ND	1.06	2.13	ug/L	4	12/10/19 12:39	EPA 8270D	
1,3-Dinitrobenzene	ND	1.06	2.13	ug/L	4	12/10/19 12:39	EPA 8270D	
1,4-Dinitrobenzene	ND	1.06	2.13	ug/L	4	12/10/19 12:39	EPA 8270D	
Pyridine	ND	0.426	0.851	ug/L	4	12/10/19 12:39	EPA 8270D	Q-42
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery: 64 %*		*Limits: 44-120 %*	*4*	*12/10/19 12:39*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*66 %*	*44-120 %*	*4*	*12/10/19 12:39*	*EPA 8270D*	
Phenol-d6 (Surr)			*22 %*	*10-120 %*	*4*	*12/10/19 12:39*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*67 %*	*50-133 %*	*4*	*12/10/19 12:39*	*EPA 8270D*	
2-Fluorophenol (Surr)			*34 %*	*19-120 %*	*4*	*12/10/19 12:39*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*108 %*	*43-140 %*	*4*	*12/10/19 12:39*	*EPA 8270D*	
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**		**Batch: 9120708**		
Acenaphthene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Acenaphthylene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Anthracene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Benz(a)anthracene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Benzo(a)pyrene	ND	2.13	4.26	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Benzo(b)fluoranthene	ND	2.13	4.26	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Benzo(k)fluoranthene	ND	2.13	4.26	ug/kg dry	1	12/11/19 18:11	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**		**Batch: 9120708**		
Benzo(g,h,i)perylene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Chrysene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Fluoranthene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Fluorene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1-Methylnaphthalene	ND	2.84	5.67	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2-Methylnaphthalene	ND	2.84	5.67	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Naphthalene	**8.76**	2.84	5.67	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Phenanthrene	**2.11**	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	**J**
Pyrene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Carbazole	ND	2.13	4.26	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Dibenzofuran	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4-Chloro-3-methylphenol	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2-Chlorophenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,4-Dichlorophenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,4-Dimethylphenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,4-Dinitrophenol	ND	35.4	71.0	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	35.4	71.0	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2-Methylphenol	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
3+4-Methylphenol(s)	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2-Nitrophenol	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4-Nitrophenol	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Pentachlorophenol (PCP)	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Phenol	ND	2.84	5.67	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	21.3	42.6	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Butyl benzyl phthalate	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Diethylphthalate	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Dimethylphthalate	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**		**Batch: 9120708**		
Di-n-butylphthalate	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Di-n-octyl phthalate	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
N-Nitrosodimethylamine	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Hexachlorobenzene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Hexachlorobutadiene	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Hexachloroethane	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2-Chloronaphthalene	ND	1.42	2.84	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1,2-Dichlorobenzene	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1,3-Dichlorobenzene	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1,4-Dichlorobenzene	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Aniline	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4-Chloroaniline	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2-Nitroaniline	ND	28.4	56.7	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
3-Nitroaniline	ND	28.4	56.7	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
4-Nitroaniline	ND	28.4	56.7	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Nitrobenzene	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,4-Dinitrotoluene	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
2,6-Dinitrotoluene	ND	14.2	28.4	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Benzoic acid	ND	178	354	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Benzyl alcohol	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Isophorone	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.54	7.10	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	35.4	71.0	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
3,3'-Dichlorobenzidine	ND	28.4	56.7	ug/kg dry	1	12/11/19 18:11	EPA 8270D	Q-52

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**		**Batch: 9120708**		
1,2-Dinitrobenzene	ND	35.4	71.0	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1,3-Dinitrobenzene	ND	35.4	71.0	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
1,4-Dinitrobenzene	ND	35.4	71.0	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Pyridine	ND	7.10	14.2	ug/kg dry	1	12/11/19 18:11	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*89 %*	*Limits: 37-122 %*	*1*	*12/11/19 18:11*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*71 %*	*44-115 %*	*1*	*12/11/19 18:11*	*EPA 8270D*	
Phenol-d6 (Surr)			*85 %*	*33-122 %*	*1*	*12/11/19 18:11*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*90 %*	*54-127 %*	*1*	*12/11/19 18:11*	*EPA 8270D*	
2-Fluorophenol (Surr)			*79 %*	*35-115 %*	*1*	*12/11/19 18:11*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*90 %*	*39-132 %*	*1*	*12/11/19 18:11*	*EPA 8270D*	*Q-41*
RAU2-06-GW-6.5 (A9L0097-14RE3)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**0.0662**	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Acenaphthylene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Anthracene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Benz(a)anthracene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Benzo(a)pyrene	ND	0.0333	0.0333	ug/L	1	12/11/19 19:23	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0167	0.0333	ug/L	1	12/11/19 19:23	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0167	0.0333	ug/L	1	12/11/19 19:23	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Chrysene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Fluoranthene	**0.0131**	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	**J**
Fluorene	**0.0175**	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
1-Methylnaphthalene	ND	0.0222	0.0444	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0222	0.0444	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
Naphthalene	ND	0.0444	0.0444	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
Phenanthrene	**0.0299**	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Pyrene	**0.0142**	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	**J**
Carbazole	ND	0.0167	0.0333	ug/L	1	12/11/19 19:23	EPA 8270D	
Dibenzofuran	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.222	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
2-Chlorophenol	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-06-GW-6.5 (A9L0097-14RE3)				**Matrix: Water**		**Batch: 9120673**		
2,4-Dichlorophenol	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
2,4-Dimethylphenol	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
2,4-Dinitrophenol	ND	0.278	0.556	ug/L	1	12/11/19 19:23	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.278	0.556	ug/L	1	12/11/19 19:23	EPA 8270D	
2-Methylphenol	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
3+4-Methylphenol(s)	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
2-Nitrophenol	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
4-Nitrophenol	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
Pentachlorophenol (PCP)	**0.254**	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
Phenol	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
2,3,4,6-Tetrachlorophenol	**0.172**	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
2,3,5,6-Tetrachlorophenol	**0.0586**	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	**J**
2,4,5-Trichlorophenol	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
Butyl benzyl phthalate	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
Diethylphthalate	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
Dimethylphthalate	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
Di-n-butylphthalate	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
Di-n-octyl phthalate	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
N-Nitrosodimethylamine	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.0778	0.0778	ug/L	1	12/11/19 19:23	EPA 8270D	R-02
N-Nitrosodiphenylamine	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
Hexachlorobenzene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	
Hexachlorobutadiene	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
Hexachloroethane	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0111	0.0222	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-06-GW-6.5 (A9L0097-14RE3)				**Matrix: Water**		**Batch: 9120673**		
1,4-Dichlorobenzene	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
Aniline	ND	0.0556	0.111	ug/L	1	12/11/19 19:23	EPA 8270D	
4-Chloroaniline	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
2-Nitroaniline	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
3-Nitroaniline	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
4-Nitroaniline	ND	0.222	0.444	ug/L	1	12/11/19 19:23	EPA 8270D	
Nitrobenzene	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
2,4-Dinitrotoluene	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
2,6-Dinitrotoluene	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
Benzoic acid	ND	1.39	2.78	ug/L	1	12/11/19 19:23	EPA 8270D	
Benzyl alcohol	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
Isophorone	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.0278	0.0556	ug/L	1	12/11/19 19:23	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	0.278	0.556	ug/L	1	12/11/19 19:23	EPA 8270D	
3,3'-Dichlorobenzidine	ND	0.556	1.11	ug/L	1	12/11/19 19:23	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	0.278	0.556	ug/L	1	12/11/19 19:23	EPA 8270D	
1,3-Dinitrobenzene	ND	0.278	0.556	ug/L	1	12/11/19 19:23	EPA 8270D	
1,4-Dinitrobenzene	ND	0.278	0.556	ug/L	1	12/11/19 19:23	EPA 8270D	
Pyridine	ND	0.111	0.222	ug/L	1	12/11/19 19:23	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*56 %*	*Limits: 44-120 %*	*1*	*12/11/19 19:23*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*53 %*	*44-120 %*	*1*	*12/11/19 19:23*	*EPA 8270D*	
Phenol-d6 (Surr)			*18 %*	*10-120 %*	*1*	*12/11/19 19:23*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*50 %*	*50-133 %*	*1*	*12/11/19 19:23*	*EPA 8270D*	
2-Fluorophenol (Surr)			*30 %*	*19-120 %*	*1*	*12/11/19 19:23*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*71 %*	*43-140 %*	*1*	*12/11/19 19:23*	*EPA 8270D*	*Q-41*
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
Acenaphthene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Acenaphthylene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Anthracene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Benz(a)anthracene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
Benzo(a)pyrene	ND	233	466	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Benzo(b)fluoranthene	ND	233	466	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Benzo(k)fluoranthene	ND	233	466	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Benzo(g,h,i)perylene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Chrysene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Dibenz(a,h)anthracene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Fluoranthene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Fluorene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1-Methylnaphthalene	ND	311	621	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2-Methylnaphthalene	ND	311	621	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Naphthalene	ND	311	621	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Phenanthrene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Pyrene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Carbazole	ND	233	466	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Dibenzofuran	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4-Chloro-3-methylphenol	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2-Chlorophenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,4-Dichlorophenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,4-Dimethylphenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,4-Dinitrophenol	ND	3880	7770	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	3880	7770	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2-Methylphenol	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
3+4-Methylphenol(s)	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2-Nitrophenol	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4-Nitrophenol	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Pentachlorophenol (PCP)	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Phenol	ND	311	621	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,4,5-Trichlorophenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,4,6-Trichlorophenol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	2330	4660	ug/kg dry	100	12/10/19 17:45	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
Butyl benzyl phthalate	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Diethylphthalate	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Dimethylphthalate	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Di-n-butylphthalate	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Di-n-octyl phthalate	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
N-Nitrosodimethylamine	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
N-Nitrosodiphenylamine	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Hexachlorobenzene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Hexachlorobutadiene	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Hexachlorocyclopentadiene	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Hexachloroethane	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2-Chloronaphthalene	ND	155	311	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1,2-Dichlorobenzene	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1,3-Dichlorobenzene	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1,4-Dichlorobenzene	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1,2,4-Trichlorobenzene	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4-Bromophenyl phenyl ether	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Aniline	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4-Chloroaniline	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2-Nitroaniline	ND	3110	6210	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
3-Nitroaniline	ND	3110	6210	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
4-Nitroaniline	ND	3110	6210	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Nitrobenzene	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,4-Dinitrotoluene	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
2,6-Dinitrotoluene	ND	1550	3110	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Benzoic acid	ND	19500	38800	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Benzyl alcohol	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Isophorone	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120708**		**R-04**
Azobenzene (1,2-DPH)	ND	388	777	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	3880	7770	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
3,3'-Dichlorobenzidine	ND	3110	6210	ug/kg dry	100	12/10/19 17:45	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	3880	7770	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1,3-Dinitrobenzene	ND	3880	7770	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
1,4-Dinitrobenzene	ND	3880	7770	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Pyridine	ND	777	1550	ug/kg dry	100	12/10/19 17:45	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*90 %*	*Limits: 37-122 %*	*100*	*12/10/19 17:45*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*101 %*	*44-115 %*	*100*	*12/10/19 17:45*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*88 %*	*33-122 %*	*100*	*12/10/19 17:45*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*103 %*	*54-127 %*	*100*	*12/10/19 17:45*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*83 %*	*35-115 %*	*100*	*12/10/19 17:45*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*190 %*	*39-132 %*	*100*	*12/10/19 17:45*	*EPA 8270D*	*S-05*
RAU1-07-GW-7.5 (A9L0097-16RE3)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Acenaphthylene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Anthracene	**0.0104**	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	**J**
Benz(a)anthracene	**0.0115**	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	**J**
Benzo(a)pyrene	ND	0.0149	0.0297	ug/L	1	12/11/19 18:34	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0149	0.0297	ug/L	1	12/11/19 18:34	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0149	0.0297	ug/L	1	12/11/19 18:34	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Chrysene	**0.0100**	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Fluoranthene	**0.0104**	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	**J**
Fluorene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
1-Methylnaphthalene	ND	0.0198	0.0396	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0198	0.0396	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
Naphthalene	ND	0.0396	0.0396	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
Phenanthrene	**0.0268**	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Pyrene	**0.0140**	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	**J**
Carbazole	ND	0.0149	0.0297	ug/L	1	12/11/19 18:34	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-GW-7.5 (A9L0097-16RE3)				**Matrix: Water**		**Batch: 9120673**		
Dibenzofuran	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
2-Chlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
2,4-Dichlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
2,4-Dimethylphenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
2,4-Dinitrophenol	ND	0.248	0.495	ug/L	1	12/11/19 18:34	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.248	0.495	ug/L	1	12/11/19 18:34	EPA 8270D	
2-Methylphenol	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
3+4-Methylphenol(s)	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
2-Nitrophenol	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
4-Nitrophenol	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
Phenol	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
Butyl benzyl phthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
Diethylphthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
Dimethylphthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
Di-n-butylphthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
Di-n-octyl phthalate	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
N-Nitrosodimethylamine	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
Hexachlorobenzene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	
Hexachlorobutadiene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
Hexachloroethane	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-GW-7.5 (A9L0097-16RE3)				**Matrix: Water**		**Batch: 9120673**		
2-Chloronaphthalene	ND	0.00990	0.0198	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30, Q-42
1,3-Dichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
Aniline	ND	0.0495	0.0990	ug/L	1	12/11/19 18:34	EPA 8270D	
4-Chloroaniline	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	Q-42
2-Nitroaniline	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	
3-Nitroaniline	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	Q-42
4-Nitroaniline	ND	0.198	0.396	ug/L	1	12/11/19 18:34	EPA 8270D	Q-42
Nitrobenzene	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
2,4-Dinitrotoluene	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
2,6-Dinitrotoluene	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
Benzoic acid	ND	1.24	2.48	ug/L	1	12/11/19 18:34	EPA 8270D	
Benzyl alcohol	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
Isophorone	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.0248	0.0495	ug/L	1	12/11/19 18:34	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	0.248	0.495	ug/L	1	12/11/19 18:34	EPA 8270D	
3,3'-Dichlorobenzidine	ND	0.495	0.990	ug/L	1	12/11/19 18:34	EPA 8270D	Q-52, Q-42
1,2-Dinitrobenzene	ND	0.248	0.495	ug/L	1	12/11/19 18:34	EPA 8270D	
1,3-Dinitrobenzene	ND	0.248	0.495	ug/L	1	12/11/19 18:34	EPA 8270D	
1,4-Dinitrobenzene	ND	0.248	0.495	ug/L	1	12/11/19 18:34	EPA 8270D	
Pyridine	ND	0.0990	0.198	ug/L	1	12/11/19 18:34	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*41 %*	*Limits: 44-120 %*	*1*	*12/11/19 18:34*	*EPA 8270D*	*S-06*
2-Fluorobiphenyl (Surr)			*39 %*	*44-120 %*	*1*	*12/11/19 18:34*	*EPA 8270D*	*S-06*
Phenol-d6 (Surr)			*13 %*	*10-120 %*	*1*	*12/11/19 18:34*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*62 %*	*50-133 %*	*1*	*12/11/19 18:34*	*EPA 8270D*	
2-Fluorophenol (Surr)			*19 %*	*19-120 %*	*1*	*12/11/19 18:34*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*76 %*	*43-140 %*	*1*	*12/11/19 18:34*	*EPA 8270D*	
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	**1140**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**Q-42**

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthylene	ND	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Anthracene	**258**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J**
Benz(a)anthracene	**366**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J**
Benzo(a)pyrene	**451**	326	652	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J**
Benzo(b)fluoranthene	**729**	326	652	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Benzo(k)fluoranthene	**424**	326	652	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J, Q-42**
Benzo(g,h,i)perylene	ND	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Chrysene	**634**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Dibenz(a,h)anthracene	ND	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Fluoranthene	**787**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Fluorene	**850**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**Q-42**
Indeno(1,2,3-cd)pyrene	**217**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J, Q-42**
1-Methylnaphthalene	**501**	435	869	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J, Q-42**
2-Methylnaphthalene	**870**	435	869	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**Q-42**
Naphthalene	**720**	435	869	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**J, Q-42**
Phenanthrene	**716**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**Q-42**
Pyrene	**633**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Carbazole	ND	326	652	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Dibenzofuran	**575**	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	**Q-42**
4-Chloro-3-methylphenol	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2-Chlorophenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,4-Dichlorophenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,4-Dimethylphenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,4-Dinitrophenol	ND	5430	10900	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	5430	10900	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2-Methylphenol	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
3+4-Methylphenol(s)	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2-Nitrophenol	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
4-Nitrophenol	ND	4350	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Pentachlorophenol (PCP)	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Phenol	ND	435	869	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120852**		
2,4,5-Trichlorophenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,4,6-Trichlorophenol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	3260	6520	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Butyl benzyl phthalate	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Diethylphthalate	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Dimethylphthalate	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Di-n-butylphthalate	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Di-n-octyl phthalate	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
N-Nitrosodimethylamine	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
N-Nitrosodiphenylamine	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Hexachlorobenzene	ND	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Hexachlorobutadiene	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Hexachlorocyclopentadiene	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Hexachloroethane	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2-Chloronaphthalene	ND	217	435	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
1,2-Dichlorobenzene	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
1,3-Dichlorobenzene	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
1,4-Dichlorobenzene	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
1,2,4-Trichlorobenzene	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
4-Bromophenyl phenyl ether	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Aniline	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
4-Chloroaniline	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2-Nitroaniline	ND	4350	8690	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
3-Nitroaniline	ND	4350	8690	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
4-Nitroaniline	ND	4350	8690	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Nitrobenzene	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,4-Dinitrotoluene	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
2,6-Dinitrotoluene	ND	2170	4350	ug/kg dry	100	12/12/19 20:46	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120852**		
Benzoic acid	ND	27200	54300	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Benzyl alcohol	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Isophorone	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Azobenzene (1,2-DPH)	ND	543	1090	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	5430	10900	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
3,3'-Dichlorobenzidine	ND	4350	8690	ug/kg dry	100	12/12/19 20:46	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	5430	10900	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
1,3-Dinitrobenzene	ND	5430	10900	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
1,4-Dinitrobenzene	ND	5430	10900	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Pyridine	ND	1090	2170	ug/kg dry	100	12/12/19 20:46	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*73 %*	*Limits: 37-122 %*	*100*	*12/12/19 20:46*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*66 %*	*44-115 %*	*100*	*12/12/19 20:46*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*51 %*	*33-122 %*	*100*	*12/12/19 20:46*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*71 %*	*54-127 %*	*100*	*12/12/19 20:46*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*55 %*	*35-115 %*	*100*	*12/12/19 20:46*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*187 %*	*39-132 %*	*100*	*12/12/19 20:46*	*EPA 8270D*	*S-05*
RAU1-04-GW-7.5 (A9L0097-18RE2)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**0.121**	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Acenaphthylene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Anthracene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Benz(a)anthracene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Benzo(a)pyrene	ND	0.0645	0.129	ug/L	4	12/11/19 15:42	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0645	0.129	ug/L	4	12/11/19 15:42	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0645	0.129	ug/L	4	12/11/19 15:42	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Chrysene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Fluoranthene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Fluorene	**0.0935**	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
1-Methylnaphthalene	ND	0.0860	0.172	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0860	0.172	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
Naphthalene	ND	0.0860	0.172	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-GW-7.5 (A9L0097-18RE2)				**Matrix: Water**		**Batch: 9120673**		
Phenanthrene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Pyrene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
Carbazole	ND	0.0645	0.129	ug/L	4	12/11/19 15:42	EPA 8270D	
Dibenzofuran	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
2-Chlorophenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
2,4-Dichlorophenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
2,4-Dimethylphenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
2,4-Dinitrophenol	ND	1.08	2.15	ug/L	4	12/11/19 15:42	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.08	2.15	ug/L	4	12/11/19 15:42	EPA 8270D	
2-Methylphenol	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
3+4-Methylphenol(s)	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
2-Nitrophenol	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
4-Nitrophenol	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
Phenol	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
Butyl benzyl phthalate	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
Diethylphthalate	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
Dimethylphthalate	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
Di-n-butylphthalate	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
Di-n-octyl phthalate	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
N-Nitrosodimethylamine	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
Hexachlorobenzene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-GW-7.5 (A9L0097-18RE2)				**Matrix: Water**		**Batch: 9120673**		
Hexachlorobutadiene	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
Hexachloroethane	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0430	0.0860	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
Aniline	ND	0.215	0.430	ug/L	4	12/11/19 15:42	EPA 8270D	
4-Chloroaniline	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
2-Nitroaniline	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
3-Nitroaniline	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
4-Nitroaniline	ND	0.860	1.72	ug/L	4	12/11/19 15:42	EPA 8270D	
Nitrobenzene	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
2,4-Dinitrotoluene	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
2,6-Dinitrotoluene	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
Benzoic acid	ND	5.38	10.8	ug/L	4	12/11/19 15:42	EPA 8270D	
Benzyl alcohol	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	
Isophorone	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.108	0.215	ug/L	4	12/11/19 15:42	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.08	2.15	ug/L	4	12/11/19 15:42	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.15	4.30	ug/L	4	12/11/19 15:42	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/11/19 15:42	EPA 8270D	
1,3-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/11/19 15:42	EPA 8270D	
1,4-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/11/19 15:42	EPA 8270D	
Pyridine	ND	0.430	0.860	ug/L	4	12/11/19 15:42	EPA 8270D	

Surrogate: Nitrobenzene-d5 (Surr)	*Recovery: 64 %*	*Limits: 44-120 %*	*4*	*12/11/19 15:42*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)	*73 %*	*44-120 %*	*4*	*12/11/19 15:42*	*EPA 8270D*	
Phenol-d6 (Surr)	*21 %*	*10-120 %*	*4*	*12/11/19 15:42*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)	*93 %*	*50-133 %*	*4*	*12/11/19 15:42*	*EPA 8270D*	
2-Fluorophenol (Surr)	*29 %*	*19-120 %*	*4*	*12/11/19 15:42*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)	*115 %*	*43-140 %*	*4*	*12/11/19 15:42*	*EPA 8270D*	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-SO-2.4 (A9L0097-19RE2)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	**1.87**	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	**J**
Acenaphthylene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Anthracene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Benz(a)anthracene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Benzo(a)pyrene	ND	2.38	4.77	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Benzo(b)fluoranthene	**2.49**	2.38	4.77	ug/kg dry	1	12/17/19 15:13	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	2.38	4.77	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Chrysene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Fluoranthene	**1.87**	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	**J**
Fluorene	**1.75**	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1-Methylnaphthalene	ND	3.18	6.35	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2-Methylnaphthalene	ND	3.18	6.35	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Naphthalene	**6.51**	3.18	6.35	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Phenanthrene	**3.56**	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Pyrene	**1.62**	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	**J**
Carbazole	ND	2.38	4.77	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Dibenzofuran	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4-Chloro-3-methylphenol	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2-Chlorophenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,4-Dichlorophenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,4-Dimethylphenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,4-Dinitrophenol	ND	39.7	79.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	39.7	79.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2-Methylphenol	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
3+4-Methylphenol(s)	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2-Nitrophenol	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4-Nitrophenol	ND	31.8	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Pentachlorophenol (PCP)	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Phenol	ND	3.18	6.35	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-SO-2.4 (A9L0097-19RE2)				**Matrix: Soil**		**Batch: 9120852**		
2,3,5,6-Tetrachlorophenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	23.8	47.7	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Butyl benzyl phthalate	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Diethylphthalate	ND	31.8	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Dimethylphthalate	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Di-n-butylphthalate	ND	31.8	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Di-n-octyl phthalate	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
N-Nitrosodimethylamine	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Hexachlorobenzene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Hexachlorobutadiene	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Hexachloroethane	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2-Chloronaphthalene	ND	1.59	3.18	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1,2-Dichlorobenzene	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1,3-Dichlorobenzene	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1,4-Dichlorobenzene	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Aniline	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4-Chloroaniline	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2-Nitroaniline	ND	31.8	63.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
3-Nitroaniline	ND	31.8	63.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
4-Nitroaniline	ND	31.8	63.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Nitrobenzene	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
2,4-Dinitrotoluene	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-SO-2.4 (A9L0097-19RE2)				**Matrix: Soil**		**Batch: 9120852**		
2,6-Dinitrotoluene	ND	15.9	31.8	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Benzoic acid	ND	199	397	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Benzyl alcohol	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Isophorone	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.97	7.95	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	39.7	79.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
3,3'-Dichlorobenzidine	ND	31.8	63.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	39.7	79.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1,3-Dinitrobenzene	ND	39.7	79.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
1,4-Dinitrobenzene	ND	39.7	79.5	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Pyridine	ND	7.95	15.9	ug/kg dry	1	12/17/19 15:13	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*75 %*	*Limits: 37-122 %*	*1*	*12/17/19 15:13*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*70 %*	*44-115 %*	*1*	*12/17/19 15:13*	*EPA 8270D*	
Phenol-d6 (Surr)			*68 %*	*33-122 %*	*1*	*12/17/19 15:13*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*	*1*	*12/17/19 15:13*	*EPA 8270D*	
2-Fluorophenol (Surr)			*69 %*	*35-115 %*	*1*	*12/17/19 15:13*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*96 %*	*39-132 %*	*1*	*12/17/19 15:13*	*EPA 8270D*	
RAU1-01-GW-7.5 (A9L0097-20RE1)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**43.9**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Acenaphthylene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Anthracene	**1.44**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Benz(a)anthracene	**0.274**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	**J**
Benzo(a)pyrene	ND	0.353	0.706	ug/L	20	12/11/19 16:17	EPA 8270D	
Benzo(b)fluoranthene	ND	0.353	0.706	ug/L	20	12/11/19 16:17	EPA 8270D	
Benzo(k)fluoranthene	ND	0.353	0.706	ug/L	20	12/11/19 16:17	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Chrysene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Fluoranthene	**4.32**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Fluorene	**25.8**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
1-Methylnaphthalene	**0.688**	0.471	0.941	ug/L	20	12/11/19 16:17	EPA 8270D	**J, Q-30**
2-Methylnaphthalene	ND	0.471	0.941	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20RE1)				**Matrix: Water**		**Batch: 9120673**		
Naphthalene	**2.50**	0.471	0.941	ug/L	20	12/11/19 16:17	EPA 8270D	**B-02, Q-30**
Phenanthrene	**0.935**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Pyrene	**2.38**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Carbazole	**3.85**	0.353	0.706	ug/L	20	12/11/19 16:17	EPA 8270D	
Dibenzofuran	**16.4**	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
4-Chloro-3-methylphenol	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
2-Chlorophenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
2,4-Dichlorophenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
2,4-Dimethylphenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
2,4-Dinitrophenol	ND	5.88	11.8	ug/L	20	12/11/19 16:17	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	5.88	11.8	ug/L	20	12/11/19 16:17	EPA 8270D	
2-Methylphenol	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
3+4-Methylphenol(s)	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
2-Nitrophenol	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
4-Nitrophenol	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
Pentachlorophenol (PCP)	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
Phenol	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
2,4,5-Trichlorophenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
2,4,6-Trichlorophenol	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
Butyl benzyl phthalate	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
Diethylphthalate	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
Dimethylphthalate	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
Di-n-butylphthalate	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
Di-n-octyl phthalate	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
N-Nitrosodimethylamine	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20RE1)				**Matrix: Water**		**Batch: 9120673**		
Hexachlorobenzene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	
Hexachlorobutadiene	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
Hexachloroethane	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.235	0.471	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
Aniline	ND	1.18	2.35	ug/L	20	12/11/19 16:17	EPA 8270D	
4-Chloroaniline	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
2-Nitroaniline	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
3-Nitroaniline	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
4-Nitroaniline	ND	4.71	9.41	ug/L	20	12/11/19 16:17	EPA 8270D	
Nitrobenzene	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
2,4-Dinitrotoluene	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
2,6-Dinitrotoluene	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
Benzoic acid	ND	29.4	58.8	ug/L	20	12/11/19 16:17	EPA 8270D	
Benzyl alcohol	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
Isophorone	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.588	1.18	ug/L	20	12/11/19 16:17	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	5.88	11.8	ug/L	20	12/11/19 16:17	EPA 8270D	
3,3'-Dichlorobenzidine	ND	11.8	23.5	ug/L	20	12/11/19 16:17	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	5.88	11.8	ug/L	20	12/11/19 16:17	EPA 8270D	
1,3-Dinitrobenzene	ND	5.88	11.8	ug/L	20	12/11/19 16:17	EPA 8270D	
1,4-Dinitrobenzene	ND	5.88	11.8	ug/L	20	12/11/19 16:17	EPA 8270D	
Pyridine	ND	2.35	4.71	ug/L	20	12/11/19 16:17	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*66 %*	*Limits:*	*44-120 %*	*20*	*12/11/19 16:17*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*76 %*		*44-120 %*	*20*	*12/11/19 16:17*	*EPA 8270D*	
Phenol-d6 (Surr)			*17 %*		*10-120 %*	*20*	*12/11/19 16:17*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*88 %*		*50-133 %*	*20*	*12/11/19 16:17*	*EPA 8270D*	
2-Fluorophenol (Surr)			*26 %*		*19-120 %*	*20*	*12/11/19 16:17*	*EPA 8270D*	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20RE1)				**Matrix: Water**		**Batch: 9120673**		
Surrogate: 2,4,6-Tribromophenol (Surr)		*Recovery: 106 %*	*Limits: 43-140 %*		*20*	*12/11/19 16:17*	*EPA 8270D*	
RAU1-05-SO-1.5 (A9L0097-21RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Acenaphthylene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Anthracene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benz(a)anthracene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benzo(a)pyrene	ND	441	882	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benzo(b)fluoranthene	ND	441	882	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benzo(k)fluoranthene	ND	441	882	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benzo(g,h,i)perylene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Chrysene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Dibenz(a,h)anthracene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Fluoranthene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Fluorene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1-Methylnaphthalene	ND	589	1170	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2-Methylnaphthalene	ND	589	1170	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Naphthalene	ND	589	1170	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Phenanthrene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Pyrene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Carbazole	ND	441	882	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Dibenzofuran	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4-Chloro-3-methylphenol	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2-Chlorophenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,4-Dichlorophenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,4-Dimethylphenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,4-Dinitrophenol	ND	7340	14700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	7340	14700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2-Methylphenol	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
3+4-Methylphenol(s)	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2-Nitrophenol	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4-Nitrophenol	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Pentachlorophenol (PCP)	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-SO-1.5 (A9L0097-21RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Phenol	ND	589	1170	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,4,5-Trichlorophenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,4,6-Trichlorophenol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4410	8820	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Butyl benzyl phthalate	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Diethylphthalate	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Dimethylphthalate	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Di-n-butylphthalate	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Di-n-octyl phthalate	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
N-Nitrosodimethylamine	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
N-Nitrosodiphenylamine	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Hexachlorobenzene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Hexachlorobutadiene	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Hexachlorocyclopentadiene	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Hexachloroethane	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2-Chloronaphthalene	ND	293	589	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1,2-Dichlorobenzene	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1,3-Dichlorobenzene	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1,4-Dichlorobenzene	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1,2,4-Trichlorobenzene	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4-Bromophenyl phenyl ether	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Aniline	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4-Chloroaniline	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2-Nitroaniline	ND	5890	11700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
3-Nitroaniline	ND	5890	11700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
4-Nitroaniline	ND	5890	11700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-SO-1.5 (A9L0097-21RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Nitrobenzene	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,4-Dinitrotoluene	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
2,6-Dinitrotoluene	ND	2930	5890	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benzoic acid	ND	36800	73400	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Benzyl alcohol	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Isophorone	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Azobenzene (1,2-DPH)	ND	734	1470	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	7340	14700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
3,3'-Dichlorobenzidine	ND	5890	11700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	7340	14700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1,3-Dinitrobenzene	ND	7340	14700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
1,4-Dinitrobenzene	ND	7340	14700	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Pyridine	ND	1470	2930	ug/kg dry	200	12/16/19 18:07	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*89 %*	*Limits: 37-122 %*	*200*	*12/16/19 18:07*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*91 %*	*44-115 %*	*200*	*12/16/19 18:07*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*33 %*	*33-122 %*	*200*	*12/16/19 18:07*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*123 %*	*54-127 %*	*200*	*12/16/19 18:07*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*53 %*	*35-115 %*	*200*	*12/16/19 18:07*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*293 %*	*39-132 %*	*200*	*12/16/19 18:07*	*EPA 8270D*	*S-05*
RAU1-05-GW-6.5 (A9L0097-22RE1)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**4.47**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Acenaphthylene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Anthracene	**0.276**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	**J**
Benz(a)anthracene	**0.239**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	**J**
Benzo(a)pyrene	ND	0.326	0.652	ug/L	20	12/11/19 16:51	EPA 8270D	
Benzo(b)fluoranthene	ND	0.326	0.652	ug/L	20	12/11/19 16:51	EPA 8270D	
Benzo(k)fluoranthene	ND	0.326	0.652	ug/L	20	12/11/19 16:51	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Chrysene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Fluoranthene	**0.840**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Fluorene	**2.26**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-GW-6.5 (A9L0097-22RE1)				**Matrix: Water**		**Batch: 9120673**		
1-Methylnaphthalene	**2.12**	0.435	0.870	ug/L	20	12/11/19 16:51	EPA 8270D	**Q-30**
2-Methylnaphthalene	**1.75**	0.435	0.870	ug/L	20	12/11/19 16:51	EPA 8270D	**Q-30**
Naphthalene	ND	0.435	0.870	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
Phenanthrene	**2.21**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Pyrene	**0.650**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Carbazole	**0.328**	0.326	0.652	ug/L	20	12/11/19 16:51	EPA 8270D	**J**
Dibenzofuran	**1.81**	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
4-Chloro-3-methylphenol	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
2-Chlorophenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
2,4-Dichlorophenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
2,4-Dimethylphenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
2,4-Dinitrophenol	ND	5.43	10.9	ug/L	20	12/11/19 16:51	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	5.43	10.9	ug/L	20	12/11/19 16:51	EPA 8270D	
2-Methylphenol	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
3+4-Methylphenol(s)	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
2-Nitrophenol	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
4-Nitrophenol	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
Pentachlorophenol (PCP)	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
Phenol	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
2,4,5-Trichlorophenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
2,4,6-Trichlorophenol	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
Butyl benzyl phthalate	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
Diethylphthalate	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
Dimethylphthalate	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
Di-n-butylphthalate	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
Di-n-octyl phthalate	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
N-Nitrosodimethylamine	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-GW-6.5 (A9L0097-22RE1)				**Matrix: Water**		**Batch: 9120673**		
Bis(2-Chloroethyl) ether	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
Hexachlorobenzene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	
Hexachlorobutadiene	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
Hexachloroethane	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.217	0.435	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
Aniline	ND	1.09	2.17	ug/L	20	12/11/19 16:51	EPA 8270D	
4-Chloroaniline	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
2-Nitroaniline	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
3-Nitroaniline	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
4-Nitroaniline	ND	4.35	8.70	ug/L	20	12/11/19 16:51	EPA 8270D	
Nitrobenzene	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
2,4-Dinitrotoluene	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
2,6-Dinitrotoluene	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
Benzoic acid	ND	27.2	54.3	ug/L	20	12/11/19 16:51	EPA 8270D	
Benzyl alcohol	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
Isophorone	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.543	1.09	ug/L	20	12/11/19 16:51	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	5.43	10.9	ug/L	20	12/11/19 16:51	EPA 8270D	
3,3'-Dichlorobenzidine	ND	10.9	21.7	ug/L	20	12/11/19 16:51	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	5.43	10.9	ug/L	20	12/11/19 16:51	EPA 8270D	
1,3-Dinitrobenzene	ND	5.43	10.9	ug/L	20	12/11/19 16:51	EPA 8270D	
1,4-Dinitrobenzene	ND	5.43	10.9	ug/L	20	12/11/19 16:51	EPA 8270D	
Pyridine	ND	2.17	4.35	ug/L	20	12/11/19 16:51	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*69 %*	*Limits: 44-120 %*	*20*	*12/11/19 16:51*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*84 %*	*44-120 %*	*20*	*12/11/19 16:51*	*EPA 8270D*	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-GW-6.5 (A9L0097-22RE1)				**Matrix: Water**		**Batch: 9120673**		
Surrogate: Phenol-d6 (Surr)			*Recovery: 17 %*	*Limits: 10-120 %*	*20*	*12/11/19 16:51*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*69 %*	*50-133 %*	*20*	*12/11/19 16:51*	*EPA 8270D*	
2-Fluorophenol (Surr)			*33 %*	*19-120 %*	*20*	*12/11/19 16:51*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*121 %*	*43-140 %*	*20*	*12/11/19 16:51*	*EPA 8270D*	
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Acenaphthylene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Anthracene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benz(a)anthracene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benzo(a)pyrene	ND	180	180	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benzo(b)fluoranthene	ND	89.9	180	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benzo(k)fluoranthene	ND	89.9	180	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benzo(g,h,i)perylene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Chrysene	**62.3**	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Fluoranthene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Fluorene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1-Methylnaphthalene	ND	120	239	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2-Methylnaphthalene	ND	120	239	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Naphthalene	ND	120	239	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Phenanthrene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Pyrene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Carbazole	ND	89.9	180	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Dibenzofuran	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4-Chloro-3-methylphenol	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2-Chlorophenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,4-Dichlorophenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,4-Dimethylphenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,4-Dinitrophenol	ND	1500	3000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1500	3000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2-Methylphenol	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
3+4-Methylphenol(s)	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
2-Nitrophenol	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4-Nitrophenol	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Pentachlorophenol (PCP)	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Phenol	ND	120	239	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,4,5-Trichlorophenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,4,6-Trichlorophenol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	899	1800	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Butyl benzyl phthalate	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Diethylphthalate	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Dimethylphthalate	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Di-n-butylphthalate	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Di-n-octyl phthalate	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
N-Nitrosodimethylamine	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
N-Nitrosodiphenylamine	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Hexachlorobenzene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Hexachlorobutadiene	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Hexachlorocyclopentadiene	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Hexachloroethane	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2-Chloronaphthalene	ND	59.8	120	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1,2-Dichlorobenzene	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1,3-Dichlorobenzene	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1,4-Dichlorobenzene	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1,2,4-Trichlorobenzene	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4-Bromophenyl phenyl ether	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Aniline	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4-Chloroaniline	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
2-Nitroaniline	ND	1200	2390	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
3-Nitroaniline	ND	1200	2390	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
4-Nitroaniline	ND	1200	2390	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Nitrobenzene	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,4-Dinitrotoluene	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
2,6-Dinitrotoluene	ND	598	1200	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benzoic acid	ND	7500	15000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Benzyl alcohol	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Isophorone	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Azobenzene (1,2-DPH)	ND	150	300	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1500	3000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
3,3'-Dichlorobenzidine	ND	1200	2390	ug/kg dry	40	12/12/19 20:03	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1500	3000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1,3-Dinitrobenzene	ND	1500	3000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
1,4-Dinitrobenzene	ND	1500	3000	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Pyridine	ND	300	598	ug/kg dry	40	12/12/19 20:03	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*88 %*	*Limits: 37-122 %*	*40*	*12/12/19 20:03*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*79 %*	*44-115 %*	*40*	*12/12/19 20:03*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*87 %*	*33-122 %*	*40*	*12/12/19 20:03*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*85 %*	*54-127 %*	*40*	*12/12/19 20:03*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*80 %*	*35-115 %*	*40*	*12/12/19 20:03*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*112 %*	*39-132 %*	*40*	*12/12/19 20:03*	*EPA 8270D*	*S-05*
RAU1-02-GW-6 (A9L0097-24RE2)				**Matrix: Water**		**Batch: 9120673**		
Acenaphthene	**0.0499**	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	**J**
Acenaphthylene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Anthracene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Benz(a)anthracene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Benzo(a)pyrene	ND	0.0645	0.129	ug/L	4	12/12/19 13:58	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0645	0.129	ug/L	4	12/12/19 13:58	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0645	0.129	ug/L	4	12/12/19 13:58	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Chrysene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-GW-6 (A9L0097-24RE2)				**Matrix: Water**		**Batch: 9120673**		
Fluoranthene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Fluorene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
1-Methylnaphthalene	ND	0.0860	0.172	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0860	0.172	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
Naphthalene	ND	0.0860	0.172	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
Phenanthrene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Pyrene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Carbazole	ND	0.0645	0.129	ug/L	4	12/12/19 13:58	EPA 8270D	
Dibenzofuran	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
2-Chlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
2,4-Dichlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
2,4-Dimethylphenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
2,4-Dinitrophenol	ND	1.08	2.15	ug/L	4	12/12/19 13:58	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.08	2.15	ug/L	4	12/12/19 13:58	EPA 8270D	
2-Methylphenol	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
3+4-Methylphenol(s)	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
2-Nitrophenol	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
4-Nitrophenol	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
Phenol	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
Butyl benzyl phthalate	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
Diethylphthalate	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
Dimethylphthalate	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
Di-n-butylphthalate	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
Di-n-octyl phthalate	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
N-Nitrosodimethylamine	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-GW-6 (A9L0097-24RE2)				**Matrix: Water**		**Batch: 9120673**		
N-Nitroso-di-n-propylamine	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
Hexachlorobenzene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	
Hexachlorobutadiene	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
Hexachloroethane	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0430	0.0860	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
Aniline	ND	0.215	0.430	ug/L	4	12/12/19 13:58	EPA 8270D	
4-Chloroaniline	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
2-Nitroaniline	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
3-Nitroaniline	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
4-Nitroaniline	ND	0.860	1.72	ug/L	4	12/12/19 13:58	EPA 8270D	
Nitrobenzene	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
2,4-Dinitrotoluene	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
2,6-Dinitrotoluene	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
Benzoic acid	ND	5.38	10.8	ug/L	4	12/12/19 13:58	EPA 8270D	
Benzyl alcohol	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
Isophorone	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.108	0.215	ug/L	4	12/12/19 13:58	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.08	2.15	ug/L	4	12/12/19 13:58	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.15	4.30	ug/L	4	12/12/19 13:58	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/12/19 13:58	EPA 8270D	
1,3-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/12/19 13:58	EPA 8270D	
1,4-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/12/19 13:58	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-GW-6 (A9L0097-24RE2)				**Matrix: Water**		**Batch: 9120673**		
Pyridine	ND	0.430	0.860	ug/L	4	12/12/19 13:58	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*51 %*	*Limits: 44-120 %*	*4*	*12/12/19 13:58*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*54 %*	*44-120 %*	*4*	*12/12/19 13:58*	*EPA 8270D*	
Phenol-d6 (Surr)			*18 %*	*10-120 %*	*4*	*12/12/19 13:58*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*72 %*	*50-133 %*	*4*	*12/12/19 13:58*	*EPA 8270D*	
2-Fluorophenol (Surr)			*23 %*	*19-120 %*	*4*	*12/12/19 13:58*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*94 %*	*43-140 %*	*4*	*12/12/19 13:58*	*EPA 8270D*	
RAU2-02-GW-6 (A9L0097-25RE2)				**Matrix: Water**		**Batch: 9120673**		**R-04**
Acenaphthene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Acenaphthylene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Anthracene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Benz(a)anthracene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Benzo(a)pyrene	ND	0.606	1.21	ug/L	40	12/12/19 14:35	EPA 8270D	
Benzo(b)fluoranthene	ND	0.606	1.21	ug/L	40	12/12/19 14:35	EPA 8270D	
Benzo(k)fluoranthene	ND	0.606	1.21	ug/L	40	12/12/19 14:35	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Chrysene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Fluoranthene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Fluorene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
1-Methylnaphthalene	ND	0.808	1.62	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.808	1.62	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
Naphthalene	ND	0.808	1.62	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
Phenanthrene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Pyrene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Carbazole	ND	0.606	1.21	ug/L	40	12/12/19 14:35	EPA 8270D	
Dibenzofuran	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
4-Chloro-3-methylphenol	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
2-Chlorophenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
2,4-Dichlorophenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
2,4-Dimethylphenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
2,4-Dinitrophenol	ND	10.1	20.2	ug/L	40	12/12/19 14:35	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-GW-6 (A9L0097-25RE2)				**Matrix: Water**		**Batch: 9120673**		**R-04**
4,6-Dinitro-2-methylphenol	ND	10.1	20.2	ug/L	40	12/12/19 14:35	EPA 8270D	
2-Methylphenol	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
3+4-Methylphenol(s)	**1.43**	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	**J**
2-Nitrophenol	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
4-Nitrophenol	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
Pentachlorophenol (PCP)	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
Phenol	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
2,4,5-Trichlorophenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
2,4,6-Trichlorophenol	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Butyl benzyl phthalate	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Diethylphthalate	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Dimethylphthalate	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Di-n-butylphthalate	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Di-n-octyl phthalate	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
N-Nitrosodimethylamine	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
N-Nitrosodiphenylamine	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
Hexachlorobenzene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	
Hexachlorobutadiene	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
Hexachloroethane	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.404	0.808	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-GW-6 (A9L0097-25RE2)				**Matrix: Water**		**Batch: 9120673**		**R-04**
4-Chlorophenyl phenyl ether	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
Aniline	ND	2.02	4.04	ug/L	40	12/12/19 14:35	EPA 8270D	
4-Chloroaniline	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
2-Nitroaniline	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
3-Nitroaniline	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
4-Nitroaniline	ND	8.08	16.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Nitrobenzene	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
2,4-Dinitrotoluene	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
2,6-Dinitrotoluene	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
Benzoic acid	ND	50.5	101	ug/L	40	12/12/19 14:35	EPA 8270D	
Benzyl alcohol	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
Isophorone	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
Azobenzene (1,2-DPH)	ND	1.01	2.02	ug/L	40	12/12/19 14:35	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	10.1	20.2	ug/L	40	12/12/19 14:35	EPA 8270D	
3,3'-Dichlorobenzidine	ND	20.2	40.4	ug/L	40	12/12/19 14:35	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	10.1	20.2	ug/L	40	12/12/19 14:35	EPA 8270D	
1,3-Dinitrobenzene	ND	10.1	20.2	ug/L	40	12/12/19 14:35	EPA 8270D	
1,4-Dinitrobenzene	ND	10.1	20.2	ug/L	40	12/12/19 14:35	EPA 8270D	
Pyridine	ND	4.04	8.08	ug/L	40	12/12/19 14:35	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*87 %*	*Limits:*	*44-120 %*	*40*	*12/12/19 14:35*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*79 %*		*44-120 %*	*40*	*12/12/19 14:35*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*28 %*		*10-120 %*	*40*	*12/12/19 14:35*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*85 %*		*50-133 %*	*40*	*12/12/19 14:35*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*42 %*		*19-120 %*	*40*	*12/12/19 14:35*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*127 %*		*43-140 %*	*40*	*12/12/19 14:35*	*EPA 8270D*	*S-05*
RAU2-05-SO-2.5-DUP (A9L0097-29RE2)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Acenaphthylene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Anthracene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Benz(a)anthracene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Benzo(a)pyrene	**2.62**	2.32	4.65	ug/kg dry	1	12/16/19 19:00	EPA 8270D	**J**
Benzo(b)fluoranthene	ND	2.32	4.65	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Benzo(k)fluoranthene	ND	2.32	4.65	ug/kg dry	1	12/16/19 19:00	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-SO-2.5-DUP (A9L0097-29RE2)				**Matrix: Soil**		**Batch: 9120852**		
Benzo(g,h,i)perylene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Chrysene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Fluoranthene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Fluorene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1-Methylnaphthalene	ND	3.10	6.20	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2-Methylnaphthalene	ND	3.10	6.20	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Naphthalene	ND	3.10	6.20	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Phenanthrene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Pyrene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Carbazole	ND	2.32	4.65	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Dibenzofuran	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4-Chloro-3-methylphenol	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2-Chlorophenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,4-Dichlorophenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,4-Dimethylphenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,4-Dinitrophenol	ND	38.7	77.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	38.7	77.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2-Methylphenol	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
3+4-Methylphenol(s)	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2-Nitrophenol	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4-Nitrophenol	ND	31.0	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Pentachlorophenol (PCP)	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Phenol	ND	3.10	6.20	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	23.2	46.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Butyl benzyl phthalate	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Diethylphthalate	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Dimethylphthalate	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-SO-2.5-DUP (A9L0097-29RE2)				**Matrix: Soil**		**Batch: 9120852**		
Di-n-butylphthalate	ND	31.0	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Di-n-octyl phthalate	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
N-Nitrosodimethylamine	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Hexachlorobenzene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Hexachlorobutadiene	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Hexachloroethane	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2-Chloronaphthalene	ND	1.55	3.10	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1,2-Dichlorobenzene	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1,3-Dichlorobenzene	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1,4-Dichlorobenzene	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Aniline	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4-Chloroaniline	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2-Nitroaniline	ND	31.0	62.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
3-Nitroaniline	ND	31.0	62.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
4-Nitroaniline	ND	31.0	62.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Nitrobenzene	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,4-Dinitrotoluene	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
2,6-Dinitrotoluene	ND	15.5	31.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Benzoic acid	ND	194	387	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Benzyl alcohol	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Isophorone	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.87	7.75	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	38.7	77.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
3,3'-Dichlorobenzidine	ND	31.0	62.0	ug/kg dry	1	12/16/19 19:00	EPA 8270D	Q-52

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-SO-2.5-DUP (A9L0097-29RE2)				**Matrix: Soil**		**Batch: 9120852**		
1,2-Dinitrobenzene	ND	38.7	77.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1,3-Dinitrobenzene	ND	38.7	77.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
1,4-Dinitrobenzene	ND	38.7	77.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Pyridine	ND	7.75	15.5	ug/kg dry	1	12/16/19 19:00	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*77 %*	*Limits: 37-122 %*	*1*	*12/16/19 19:00*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*65 %*	*44-115 %*	*1*	*12/16/19 19:00*	*EPA 8270D*	
Phenol-d6 (Surr)			*75 %*	*33-122 %*	*1*	*12/16/19 19:00*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*77 %*	*54-127 %*	*1*	*12/16/19 19:00*	*EPA 8270D*	
2-Fluorophenol (Surr)			*64 %*	*35-115 %*	*1*	*12/16/19 19:00*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*76 %*	*39-132 %*	*1*	*12/16/19 19:00*	*EPA 8270D*	
RAU1-03-SO-2.2 (A9L0097-30RE2)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Acenaphthylene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Anthracene	ND	2.99	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benz(a)anthracene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benzo(a)pyrene	ND	2.24	4.48	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benzo(b)fluoranthene	ND	2.24	4.48	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benzo(k)fluoranthene	ND	2.24	4.48	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Chrysene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Fluoranthene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Fluorene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
1-Methylnaphthalene	ND	2.99	5.96	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2-Methylnaphthalene	ND	2.99	5.96	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Naphthalene	ND	2.99	5.96	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Phenanthrene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Pyrene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Carbazole	ND	2.24	4.48	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Dibenzofuran	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4-Chloro-3-methylphenol	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2-Chlorophenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-SO-2.2 (A9L0097-30RE2)				**Matrix: Soil**		**Batch: 9120852**		
2,4-Dichlorophenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,4-Dimethylphenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,4-Dinitrophenol	ND	37.3	74.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	37.3	74.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2-Methylphenol	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
3+4-Methylphenol(s)	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2-Nitrophenol	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4-Nitrophenol	ND	29.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Pentachlorophenol (PCP)	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Phenol	ND	5.96	5.96	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,4,5-Trichlorophenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,4,6-Trichlorophenol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	22.4	44.8	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Butyl benzyl phthalate	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Diethylphthalate	ND	29.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Dimethylphthalate	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Di-n-butylphthalate	ND	29.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Di-n-octyl phthalate	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
N-Nitrosodimethylamine	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
N-Nitrosodiphenylamine	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Hexachlorobenzene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Hexachlorobutadiene	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Hexachlorocyclopentadiene	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Hexachloroethane	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2-Chloronaphthalene	ND	1.49	2.99	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
1,2-Dichlorobenzene	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
1,3-Dichlorobenzene	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-SO-2.2 (A9L0097-30RE2)				**Matrix: Soil**		**Batch: 9120852**		
1,4-Dichlorobenzene	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
1,2,4-Trichlorobenzene	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4-Bromophenyl phenyl ether	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Aniline	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4-Chloroaniline	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2-Nitroaniline	ND	29.9	59.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
3-Nitroaniline	ND	29.9	59.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
4-Nitroaniline	ND	29.9	59.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Nitrobenzene	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,4-Dinitrotoluene	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
2,6-Dinitrotoluene	ND	14.9	29.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benzoic acid	ND	187	373	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Benzyl alcohol	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Isophorone	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Azobenzene (1,2-DPH)	ND	3.73	7.46	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	37.3	74.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
3,3'-Dichlorobenzidine	ND	29.9	59.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	37.3	74.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
1,3-Dinitrobenzene	ND	37.3	74.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
1,4-Dinitrobenzene	ND	37.3	74.6	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Pyridine	ND	7.46	14.9	ug/kg dry	1	12/17/19 15:47	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*84 %*	*Limits: 37-122 %*	*1*	*12/17/19 15:47*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*82 %*	*44-115 %*	*1*	*12/17/19 15:47*	*EPA 8270D*	
Phenol-d6 (Surr)			*76 %*	*33-122 %*	*1*	*12/17/19 15:47*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*	*1*	*12/17/19 15:47*	*EPA 8270D*	
2-Fluorophenol (Surr)			*79 %*	*35-115 %*	*1*	*12/17/19 15:47*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*107 %*	*39-132 %*	*1*	*12/17/19 15:47*	*EPA 8270D*	
RAU1-03-GW-7.5 (A9L0097-31RE1)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	**4.82**	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Acenaphthylene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Anthracene	**0.0500**	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	**J**
Benz(a)anthracene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5 (A9L0097-31RE1)				**Matrix: Water**		**Batch: 9120690**		
Benzo(a)pyrene	ND	0.0674	0.135	ug/L	4	12/10/19 16:40	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0674	0.135	ug/L	4	12/10/19 16:40	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0674	0.135	ug/L	4	12/10/19 16:40	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Chrysene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Fluoranthene	**0.0514**	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	**J**
Fluorene	**1.31**	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
1-Methylnaphthalene	ND	0.0899	0.180	ug/L	4	12/10/19 16:40	EPA 8270D	
2-Methylnaphthalene	ND	0.0899	0.180	ug/L	4	12/10/19 16:40	EPA 8270D	
Naphthalene	ND	0.0899	0.180	ug/L	4	12/10/19 16:40	EPA 8270D	
Phenanthrene	**0.611**	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Pyrene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Carbazole	ND	0.0674	0.135	ug/L	4	12/10/19 16:40	EPA 8270D	
Dibenzofuran	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
2-Chlorophenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
2,4-Dichlorophenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
2,4-Dimethylphenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
2,4-Dinitrophenol	ND	1.12	2.25	ug/L	4	12/10/19 16:40	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.12	2.25	ug/L	4	12/10/19 16:40	EPA 8270D	
2-Methylphenol	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
3+4-Methylphenol(s)	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
2-Nitrophenol	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
4-Nitrophenol	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
Phenol	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5 (A9L0097-31RE1)				**Matrix: Water**		**Batch: 9120690**		
Butyl benzyl phthalate	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
Diethylphthalate	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
Dimethylphthalate	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
Di-n-butylphthalate	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
Di-n-octyl phthalate	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
N-Nitrosodimethylamine	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
Hexachlorobenzene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
Hexachlorobutadiene	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
Hexachlorocyclopentadiene	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
Hexachloroethane	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
2-Chloronaphthalene	ND	0.0449	0.0899	ug/L	4	12/10/19 16:40	EPA 8270D	
1,2-Dichlorobenzene	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
1,3-Dichlorobenzene	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
1,4-Dichlorobenzene	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
1,2,4-Trichlorobenzene	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
Aniline	ND	0.225	0.449	ug/L	4	12/10/19 16:40	EPA 8270D	
4-Chloroaniline	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
2-Nitroaniline	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
3-Nitroaniline	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
4-Nitroaniline	ND	0.899	1.80	ug/L	4	12/10/19 16:40	EPA 8270D	
Nitrobenzene	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
2,4-Dinitrotoluene	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
2,6-Dinitrotoluene	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
Benzoic acid	ND	5.62	11.2	ug/L	4	12/10/19 16:40	EPA 8270D	
Benzyl alcohol	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
Isophorone	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5 (A9L0097-31RE1)				**Matrix: Water**		**Batch: 9120690**		
Azobenzene (1,2-DPH)	ND	0.112	0.225	ug/L	4	12/10/19 16:40	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.12	2.25	ug/L	4	12/10/19 16:40	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.25	4.49	ug/L	4	12/10/19 16:40	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.12	2.25	ug/L	4	12/10/19 16:40	EPA 8270D	
1,3-Dinitrobenzene	ND	1.12	2.25	ug/L	4	12/10/19 16:40	EPA 8270D	
1,4-Dinitrobenzene	ND	1.12	2.25	ug/L	4	12/10/19 16:40	EPA 8270D	
Pyridine	ND	0.449	0.899	ug/L	4	12/10/19 16:40	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*82 %*	*Limits: 44-120 %*	*4*	*12/10/19 16:40*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*89 %*	*44-120 %*	*4*	*12/10/19 16:40*	*EPA 8270D*	
Phenol-d6 (Surr)			*26 %*	*10-120 %*	*4*	*12/10/19 16:40*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*93 %*	*50-133 %*	*4*	*12/10/19 16:40*	*EPA 8270D*	
2-Fluorophenol (Surr)			*39 %*	*19-120 %*	*4*	*12/10/19 16:40*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*127 %*	*43-140 %*	*4*	*12/10/19 16:40*	*EPA 8270D*	
RAU1-06-SO-3.5 (A9L0097-33RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Acenaphthylene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Anthracene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benz(a)anthracene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benzo(a)pyrene	ND	51.6	103	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benzo(b)fluoranthene	ND	51.6	103	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benzo(k)fluoranthene	ND	51.6	103	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benzo(g,h,i)perylene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Chrysene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Dibenz(a,h)anthracene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Fluoranthene	**34.9**	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	**J**
Fluorene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1-Methylnaphthalene	ND	68.9	137	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2-Methylnaphthalene	ND	68.9	137	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Naphthalene	ND	68.9	137	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Phenanthrene	**53.6**	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	**J**
Pyrene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Carbazole	ND	51.6	103	ug/kg dry	20	12/16/19 16:59	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-SO-3.5 (A9L0097-33RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Dibenzofuran	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4-Chloro-3-methylphenol	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2-Chlorophenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,4-Dichlorophenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,4-Dimethylphenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,4-Dinitrophenol	ND	859	1720	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	859	1720	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2-Methylphenol	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
3+4-Methylphenol(s)	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2-Nitrophenol	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4-Nitrophenol	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Pentachlorophenol (PCP)	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Phenol	ND	68.9	137	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,4,5-Trichlorophenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,4,6-Trichlorophenol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	516	1030	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Butyl benzyl phthalate	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Diethylphthalate	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Dimethylphthalate	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Di-n-butylphthalate	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Di-n-octyl phthalate	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
N-Nitrosodimethylamine	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
N-Nitrosodiphenylamine	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Hexachlorobenzene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Hexachlorobutadiene	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Hexachlorocyclopentadiene	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Hexachloroethane	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-SO-3.5 (A9L0097-33RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
2-Chloronaphthalene	ND	34.3	68.9	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1,2-Dichlorobenzene	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1,3-Dichlorobenzene	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1,4-Dichlorobenzene	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1,2,4-Trichlorobenzene	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4-Bromophenyl phenyl ether	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Aniline	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4-Chloroaniline	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2-Nitroaniline	ND	689	1370	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
3-Nitroaniline	ND	689	1370	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
4-Nitroaniline	ND	689	1370	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Nitrobenzene	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,4-Dinitrotoluene	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
2,6-Dinitrotoluene	ND	343	689	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benzoic acid	ND	4310	8590	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Benzyl alcohol	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Isophorone	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Azobenzene (1,2-DPH)	ND	85.9	172	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	859	1720	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
3,3'-Dichlorobenzidine	ND	689	1370	ug/kg dry	20	12/16/19 16:59	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	859	1720	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1,3-Dinitrobenzene	ND	859	1720	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
1,4-Dinitrobenzene	ND	859	1720	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Pyridine	ND	172	343	ug/kg dry	20	12/16/19 16:59	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*68 %*	*Limits: 37-122 %*	*20*	*12/16/19 16:59*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*82 %*	*44-115 %*	*20*	*12/16/19 16:59*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*46 %*	*33-122 %*	*20*	*12/16/19 16:59*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*96 %*	*54-127 %*	*20*	*12/16/19 16:59*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*67 %*	*35-115 %*	*20*	*12/16/19 16:59*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*99 %*	*39-132 %*	*20*	*12/16/19 16:59*	*EPA 8270D*	*S-05*
RAU1-06-GW-7.5 (A9L0097-34RE1)				**Matrix: Water**		**Batch: 9120690**		**R-04**
Acenaphthene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	

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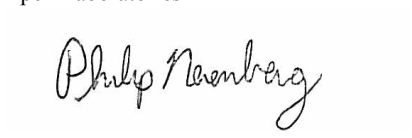

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-GW-7.5 (A9L0097-34RE1)				**Matrix: Water**		**Batch: 9120690**		**R-04**
Acenaphthylene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Anthracene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Benz(a)anthracene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Benzo(a)pyrene	ND	0.0625	0.125	ug/L	4	12/10/19 17:14	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0625	0.125	ug/L	4	12/10/19 17:14	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0625	0.125	ug/L	4	12/10/19 17:14	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Chrysene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Fluoranthene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Fluorene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
1-Methylnaphthalene	ND	0.0833	0.167	ug/L	4	12/10/19 17:14	EPA 8270D	
2-Methylnaphthalene	ND	0.0833	0.167	ug/L	4	12/10/19 17:14	EPA 8270D	
Naphthalene	ND	0.0833	0.167	ug/L	4	12/10/19 17:14	EPA 8270D	
Phenanthrene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Pyrene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Carbazole	ND	0.0625	0.125	ug/L	4	12/10/19 17:14	EPA 8270D	
Dibenzofuran	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
2-Chlorophenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
2,4-Dichlorophenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
2,4-Dimethylphenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
2,4-Dinitrophenol	ND	1.04	2.08	ug/L	4	12/10/19 17:14	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.04	2.08	ug/L	4	12/10/19 17:14	EPA 8270D	
2-Methylphenol	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
3+4-Methylphenol(s)	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
2-Nitrophenol	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
4-Nitrophenol	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
Phenol	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-GW-7.5 (A9L0097-34RE1)				**Matrix: Water**		**Batch: 9120690**		**R-04**
2,4,5-Trichlorophenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
Butyl benzyl phthalate	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
Diethylphthalate	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
Dimethylphthalate	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
Di-n-butylphthalate	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
Di-n-octyl phthalate	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
N-Nitrosodimethylamine	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Hexachlorobenzene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
Hexachlorobutadiene	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Hexachlorocyclopentadiene	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
Hexachloroethane	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
2-Chloronaphthalene	ND	0.0417	0.0833	ug/L	4	12/10/19 17:14	EPA 8270D	
1,2-Dichlorobenzene	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
1,3-Dichlorobenzene	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
1,4-Dichlorobenzene	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
1,2,4-Trichlorobenzene	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Aniline	ND	0.208	0.417	ug/L	4	12/10/19 17:14	EPA 8270D	
4-Chloroaniline	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
2-Nitroaniline	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
3-Nitroaniline	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
4-Nitroaniline	ND	0.833	1.67	ug/L	4	12/10/19 17:14	EPA 8270D	
Nitrobenzene	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
2,4-Dinitrotoluene	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
2,6-Dinitrotoluene	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-GW-7.5 (A9L0097-34RE1)				**Matrix: Water**		**Batch: 9120690**		**R-04**
Benzoic acid	ND	5.21	10.4	ug/L	4	12/10/19 17:14	EPA 8270D	
Benzyl alcohol	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
Isophorone	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.104	0.208	ug/L	4	12/10/19 17:14	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.04	2.08	ug/L	4	12/10/19 17:14	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.08	4.17	ug/L	4	12/10/19 17:14	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.04	2.08	ug/L	4	12/10/19 17:14	EPA 8270D	
1,3-Dinitrobenzene	ND	1.04	2.08	ug/L	4	12/10/19 17:14	EPA 8270D	
1,4-Dinitrobenzene	ND	1.04	2.08	ug/L	4	12/10/19 17:14	EPA 8270D	
Pyridine	ND	0.417	0.833	ug/L	4	12/10/19 17:14	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*63 %*	*Limits: 44-120 %*	*4*	*12/10/19 17:14*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*76 %*	*44-120 %*	*4*	*12/10/19 17:14*	*EPA 8270D*	
Phenol-d6 (Surr)			*20 %*	*10-120 %*	*4*	*12/10/19 17:14*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*92 %*	*50-133 %*	*4*	*12/10/19 17:14*	*EPA 8270D*	
2-Fluorophenol (Surr)			*33 %*	*19-120 %*	*4*	*12/10/19 17:14*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*120 %*	*43-140 %*	*4*	*12/10/19 17:14*	*EPA 8270D*	
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	**108**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	**J**
Acenaphthylene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Anthracene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Benz(a)anthracene	**67.7**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	**J**
Benzo(a)pyrene	ND	87.0	174	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Benzo(b)fluoranthene	ND	174	174	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Benzo(k)fluoranthene	ND	87.0	174	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Benzo(g,h,i)perylene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Chrysene	**169**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Dibenz(a,h)anthracene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Fluoranthene	**96.2**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	**J**
Fluorene	**82.2**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1-Methylnaphthalene	ND	116	232	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2-Methylnaphthalene	ND	116	232	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Naphthalene	ND	116	232	ug/kg dry	40	12/13/19 17:28	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120852**		
Phenanthrene	**261**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Pyrene	**114**	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	**J**
Carbazole	ND	87.0	174	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Dibenzofuran	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4-Chloro-3-methylphenol	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2-Chlorophenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,4-Dichlorophenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,4-Dimethylphenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,4-Dinitrophenol	ND	1450	2900	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1450	2900	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2-Methylphenol	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
3+4-Methylphenol(s)	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2-Nitrophenol	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4-Nitrophenol	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Pentachlorophenol (PCP)	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Phenol	ND	116	232	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,4,5-Trichlorophenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,4,6-Trichlorophenol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	870	1740	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Butyl benzyl phthalate	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Diethylphthalate	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Dimethylphthalate	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Di-n-butylphthalate	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Di-n-octyl phthalate	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
N-Nitrosodimethylamine	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
N-Nitrosodiphenylamine	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Hexachlorobenzene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120852**		
Hexachlorobutadiene	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Hexachlorocyclopentadiene	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Hexachloroethane	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2-Chloronaphthalene	ND	57.8	116	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1,2-Dichlorobenzene	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1,3-Dichlorobenzene	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1,4-Dichlorobenzene	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1,2,4-Trichlorobenzene	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4-Bromophenyl phenyl ether	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Aniline	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4-Chloroaniline	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2-Nitroaniline	ND	1160	2320	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
3-Nitroaniline	ND	1160	2320	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
4-Nitroaniline	ND	1160	2320	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Nitrobenzene	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,4-Dinitrotoluene	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
2,6-Dinitrotoluene	ND	578	1160	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Benzoic acid	ND	7260	14500	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Benzyl alcohol	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Isophorone	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Azobenzene (1,2-DPH)	ND	145	290	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1450	2900	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
3,3'-Dichlorobenzidine	ND	1160	2320	ug/kg dry	40	12/13/19 17:28	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1450	2900	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1,3-Dinitrobenzene	ND	1450	2900	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
1,4-Dinitrobenzene	ND	1450	2900	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Pyridine	ND	290	578	ug/kg dry	40	12/13/19 17:28	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*57 %*	*Limits: 37-122 %*	*40*	*12/13/19 17:28*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*69 %*	*44-115 %*	*40*	*12/13/19 17:28*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*37 %*	*33-122 %*	*40*	*12/13/19 17:28*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*	*40*	*12/13/19 17:28*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*42 %*	*35-115 %*	*40*	*12/13/19 17:28*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*74 %*	*39-132 %*	*40*	*12/13/19 17:28*	*EPA 8270D*	*S-05*

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	**0.607**	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Acenaphthylene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Anthracene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Benz(a)anthracene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Benzo(a)pyrene	ND	0.337	0.674	ug/L	20	12/10/19 17:48	EPA 8270D	
Benzo(b)fluoranthene	ND	0.337	0.674	ug/L	20	12/10/19 17:48	EPA 8270D	
Benzo(k)fluoranthene	ND	0.337	0.674	ug/L	20	12/10/19 17:48	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Chrysene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Fluoranthene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Fluorene	**0.556**	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
1-Methylnaphthalene	**0.609**	0.449	0.899	ug/L	20	12/10/19 17:48	EPA 8270D	**J**
2-Methylnaphthalene	**0.493**	0.449	0.899	ug/L	20	12/10/19 17:48	EPA 8270D	**J**
Naphthalene	ND	0.449	0.899	ug/L	20	12/10/19 17:48	EPA 8270D	
Phenanthrene	**0.541**	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Pyrene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Carbazole	ND	0.337	0.674	ug/L	20	12/10/19 17:48	EPA 8270D	
Dibenzofuran	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
4-Chloro-3-methylphenol	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
2-Chlorophenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
2,4-Dichlorophenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
2,4-Dimethylphenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
2,4-Dinitrophenol	ND	5.62	11.2	ug/L	20	12/10/19 17:48	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	5.62	11.2	ug/L	20	12/10/19 17:48	EPA 8270D	
2-Methylphenol	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
3+4-Methylphenol(s)	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
2-Nitrophenol	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
4-Nitrophenol	ND	7.64	7.64	ug/L	20	12/10/19 17:48	EPA 8270D	R-02
Pentachlorophenol (PCP)	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
Phenol	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**		**Batch: 9120690**		
2,3,5,6-Tetrachlorophenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
2,4,5-Trichlorophenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
2,4,6-Trichlorophenol	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
Butyl benzyl phthalate	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
Diethylphthalate	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
Dimethylphthalate	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
Di-n-butylphthalate	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
Di-n-octyl phthalate	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
N-Nitrosodimethylamine	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Hexachlorobenzene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
Hexachlorobutadiene	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Hexachlorocyclopentadiene	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
Hexachloroethane	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
2-Chloronaphthalene	ND	0.225	0.449	ug/L	20	12/10/19 17:48	EPA 8270D	
1,2-Dichlorobenzene	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
1,3-Dichlorobenzene	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
1,4-Dichlorobenzene	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
1,2,4-Trichlorobenzene	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Aniline	ND	1.12	2.25	ug/L	20	12/10/19 17:48	EPA 8270D	
4-Chloroaniline	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
2-Nitroaniline	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
3-Nitroaniline	ND	8.99	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
4-Nitroaniline	ND	4.49	8.99	ug/L	20	12/10/19 17:48	EPA 8270D	
Nitrobenzene	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
2,4-Dinitrotoluene	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**		**Batch: 9120690**		
2,6-Dinitrotoluene	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
Benzoic acid	ND	28.1	56.2	ug/L	20	12/10/19 17:48	EPA 8270D	
Benzyl alcohol	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
Isophorone	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.562	1.12	ug/L	20	12/10/19 17:48	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	5.62	11.2	ug/L	20	12/10/19 17:48	EPA 8270D	
3,3'-Dichlorobenzidine	ND	11.2	22.5	ug/L	20	12/10/19 17:48	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	5.62	11.2	ug/L	20	12/10/19 17:48	EPA 8270D	
1,3-Dinitrobenzene	ND	5.62	11.2	ug/L	20	12/10/19 17:48	EPA 8270D	
1,4-Dinitrobenzene	ND	5.62	11.2	ug/L	20	12/10/19 17:48	EPA 8270D	
Pyridine	ND	2.25	4.49	ug/L	20	12/10/19 17:48	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*77 %*	*Limits: 44-120 %*	*20*	*12/10/19 17:48*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*94 %*	*44-120 %*	*20*	*12/10/19 17:48*	*EPA 8270D*	
Phenol-d6 (Surr)			*22 %*	*10-120 %*	*20*	*12/10/19 17:48*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*83 %*	*50-133 %*	*20*	*12/10/19 17:48*	*EPA 8270D*	
2-Fluorophenol (Surr)			*33 %*	*19-120 %*	*20*	*12/10/19 17:48*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*132 %*	*43-140 %*	*20*	*12/10/19 17:48*	*EPA 8270D*	
RAU1-03-GW-7.5-DUP (A9L0097-37RE1)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	**4.78**	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Acenaphthylene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Anthracene	**0.0479**	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	**J**
Benz(a)anthracene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Benzo(a)pyrene	ND	0.0612	0.122	ug/L	4	12/10/19 18:23	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0612	0.122	ug/L	4	12/10/19 18:23	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0612	0.122	ug/L	4	12/10/19 18:23	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Chrysene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Fluoranthene	**0.0574**	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	**J**
Fluorene	**1.33**	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
1-Methylnaphthalene	ND	0.0816	0.163	ug/L	4	12/10/19 18:23	EPA 8270D	
2-Methylnaphthalene	ND	0.0816	0.163	ug/L	4	12/10/19 18:23	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5-DUP (A9L0097-37RE1)				**Matrix: Water**		**Batch: 9120690**		
Naphthalene	ND	0.0816	0.163	ug/L	4	12/10/19 18:23	EPA 8270D	
Phenanthrene	**0.618**	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Pyrene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Carbazole	ND	0.0612	0.122	ug/L	4	12/10/19 18:23	EPA 8270D	
Dibenzofuran	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
2-Chlorophenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
2,4-Dichlorophenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
2,4-Dimethylphenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
2,4-Dinitrophenol	ND	1.02	2.04	ug/L	4	12/10/19 18:23	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.02	2.04	ug/L	4	12/10/19 18:23	EPA 8270D	
2-Methylphenol	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
3+4-Methylphenol(s)	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
2-Nitrophenol	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
4-Nitrophenol	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
Phenol	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
Butyl benzyl phthalate	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
Diethylphthalate	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
Dimethylphthalate	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
Di-n-butylphthalate	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
Di-n-octyl phthalate	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
N-Nitrosodimethylamine	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5-DUP (A9L0097-37RE1)				**Matrix: Water**		**Batch: 9120690**		
Hexachlorobenzene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
Hexachlorobutadiene	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
Hexachlorocyclopentadiene	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
Hexachloroethane	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
2-Chloronaphthalene	ND	0.0408	0.0816	ug/L	4	12/10/19 18:23	EPA 8270D	
1,2-Dichlorobenzene	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
1,3-Dichlorobenzene	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
1,4-Dichlorobenzene	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
1,2,4-Trichlorobenzene	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
Aniline	ND	0.204	0.408	ug/L	4	12/10/19 18:23	EPA 8270D	
4-Chloroaniline	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
2-Nitroaniline	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
3-Nitroaniline	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
4-Nitroaniline	ND	0.816	1.63	ug/L	4	12/10/19 18:23	EPA 8270D	
Nitrobenzene	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
2,4-Dinitrotoluene	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
2,6-Dinitrotoluene	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
Benzoic acid	ND	5.10	10.2	ug/L	4	12/10/19 18:23	EPA 8270D	
Benzyl alcohol	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
Isophorone	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.102	0.204	ug/L	4	12/10/19 18:23	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.02	2.04	ug/L	4	12/10/19 18:23	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.04	4.08	ug/L	4	12/10/19 18:23	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.02	2.04	ug/L	4	12/10/19 18:23	EPA 8270D	
1,3-Dinitrobenzene	ND	1.02	2.04	ug/L	4	12/10/19 18:23	EPA 8270D	
1,4-Dinitrobenzene	ND	1.02	2.04	ug/L	4	12/10/19 18:23	EPA 8270D	
Pyridine	ND	0.408	0.816	ug/L	4	12/10/19 18:23	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*80 %*	*Limits: 44-120 %*	*4*	*12/10/19 18:23*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*86 %*	*44-120 %*	*4*	*12/10/19 18:23*	*EPA 8270D*	
Phenol-d6 (Surr)			*24 %*	*10-120 %*	*4*	*12/10/19 18:23*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*90 %*	*50-133 %*	*4*	*12/10/19 18:23*	*EPA 8270D*	
2-Fluorophenol (Surr)			*38 %*	*19-120 %*	*4*	*12/10/19 18:23*	*EPA 8270D*	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5-DUP (A9L0097-37RE1)				**Matrix: Water**		**Batch: 9120690**		
Surrogate: 2,4,6-Tribromophenol (Surr)		*Recovery: 124 %*		*Limits: 43-140 %*	*4*	*12/10/19 18:23*	*EPA 8270D*	
RAU1-12-SO-2.7 (A9L0097-38RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Acenaphthylene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Anthracene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benz(a)anthracene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benzo(a)pyrene	ND	43.3	86.6	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benzo(b)fluoranthene	ND	43.3	86.6	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benzo(k)fluoranthene	ND	43.3	86.6	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benzo(g,h,i)perylene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Chrysene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Dibenz(a,h)anthracene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Fluoranthene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Fluorene	**31.7**	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1-Methylnaphthalene	ND	57.8	115	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2-Methylnaphthalene	**66.2**	57.8	115	ug/kg dry	20	12/16/19 18:42	EPA 8270D	**J**
Naphthalene	ND	57.8	115	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Phenanthrene	**39.7**	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	**J**
Pyrene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Carbazole	ND	43.3	86.6	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Dibenzofuran	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4-Chloro-3-methylphenol	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2-Chlorophenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,4-Dichlorophenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,4-Dimethylphenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,4-Dinitrophenol	ND	721	1440	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	721	1440	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2-Methylphenol	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
3+4-Methylphenol(s)	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2-Nitrophenol	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4-Nitrophenol	ND	578	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Pentachlorophenol (PCP)	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-SO-2.7 (A9L0097-38RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Phenol	ND	57.8	115	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,4,5-Trichlorophenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,4,6-Trichlorophenol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	433	866	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Butyl benzyl phthalate	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Diethylphthalate	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Dimethylphthalate	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Di-n-butylphthalate	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Di-n-octyl phthalate	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
N-Nitrosodimethylamine	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
N-Nitrosodiphenylamine	ND	144	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Hexachlorobenzene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Hexachlorobutadiene	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Hexachlorocyclopentadiene	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Hexachloroethane	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2-Chloronaphthalene	ND	28.8	57.8	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1,2-Dichlorobenzene	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1,3-Dichlorobenzene	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1,4-Dichlorobenzene	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1,2,4-Trichlorobenzene	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4-Bromophenyl phenyl ether	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Aniline	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4-Chloroaniline	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2-Nitroaniline	ND	578	1150	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
3-Nitroaniline	ND	578	1150	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
4-Nitroaniline	ND	578	1150	ug/kg dry	20	12/16/19 18:42	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-SO-2.7 (A9L0097-38RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Nitrobenzene	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,4-Dinitrotoluene	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
2,6-Dinitrotoluene	ND	288	578	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benzoic acid	ND	3610	7210	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Benzyl alcohol	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Isophorone	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Azobenzene (1,2-DPH)	ND	72.1	144	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	721	1440	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
3,3'-Dichlorobenzidine	ND	578	1150	ug/kg dry	20	12/16/19 18:42	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	721	1440	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1,3-Dinitrobenzene	ND	721	1440	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
1,4-Dinitrobenzene	ND	721	1440	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Pyridine	ND	144	288	ug/kg dry	20	12/16/19 18:42	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*74 %*	*Limits: 37-122 %*	*20*	*12/16/19 18:42*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*82 %*	*44-115 %*	*20*	*12/16/19 18:42*	*EPA 8270D*	
Phenol-d6 (Surr)			*55 %*	*33-122 %*	*20*	*12/16/19 18:42*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*	*20*	*12/16/19 18:42*	*EPA 8270D*	
2-Fluorophenol (Surr)			*65 %*	*35-115 %*	*20*	*12/16/19 18:42*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*100 %*	*39-132 %*	*20*	*12/16/19 18:42*	*EPA 8270D*	
RAU1-12-GW-7.0 (A9L0097-39RE2)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	ND	1.29	1.29	ug/L	40	12/10/19 18:57	EPA 8270D	R-02
Acenaphthylene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Anthracene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Benz(a)anthracene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Benzo(a)pyrene	ND	0.645	1.29	ug/L	40	12/10/19 18:57	EPA 8270D	
Benzo(b)fluoranthene	ND	0.645	1.29	ug/L	40	12/10/19 18:57	EPA 8270D	
Benzo(k)fluoranthene	ND	0.645	1.29	ug/L	40	12/10/19 18:57	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Chrysene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Fluoranthene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Fluorene	**1.37**	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE2)				**Matrix: Water**		**Batch: 9120690**		
1-Methylnaphthalene	**8.42**	0.860	1.72	ug/L	40	12/10/19 18:57	EPA 8270D	
2-Methylnaphthalene	**8.60**	0.860	1.72	ug/L	40	12/10/19 18:57	EPA 8270D	
Naphthalene	**3.07**	0.860	1.72	ug/L	40	12/10/19 18:57	EPA 8270D	**B-02**
Phenanthrene	**1.19**	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Pyrene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Carbazole	ND	0.645	1.29	ug/L	40	12/10/19 18:57	EPA 8270D	
Dibenzofuran	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
4-Chloro-3-methylphenol	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
2-Chlorophenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
2,4-Dichlorophenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
2,4-Dimethylphenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
2,4-Dinitrophenol	ND	10.8	21.5	ug/L	40	12/10/19 18:57	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	10.8	21.5	ug/L	40	12/10/19 18:57	EPA 8270D	
2-Methylphenol	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
3+4-Methylphenol(s)	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
2-Nitrophenol	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
4-Nitrophenol	ND	8.60	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
Pentachlorophenol (PCP)	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
Phenol	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
2,4,5-Trichlorophenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
2,4,6-Trichlorophenol	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
Butyl benzyl phthalate	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
Diethylphthalate	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
Dimethylphthalate	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
Di-n-butylphthalate	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
Di-n-octyl phthalate	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
N-Nitrosodimethylamine	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
N-Nitrosodiphenylamine	ND	2.15	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE2)				**Matrix: Water**		**Batch: 9120690**		
Bis(2-Chloroethyl) ether	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
Hexachlorobenzene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
Hexachlorobutadiene	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
Hexachlorocyclopentadiene	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
Hexachloroethane	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
2-Chloronaphthalene	ND	0.430	0.860	ug/L	40	12/10/19 18:57	EPA 8270D	
1,2-Dichlorobenzene	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
1,3-Dichlorobenzene	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
1,4-Dichlorobenzene	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
1,2,4-Trichlorobenzene	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
4-Bromophenyl phenyl ether	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
Aniline	ND	2.15	4.30	ug/L	40	12/10/19 18:57	EPA 8270D	
4-Chloroaniline	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
2-Nitroaniline	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
3-Nitroaniline	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
4-Nitroaniline	ND	8.60	17.2	ug/L	40	12/10/19 18:57	EPA 8270D	
Nitrobenzene	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
2,4-Dinitrotoluene	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
2,6-Dinitrotoluene	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
Benzoic acid	ND	53.8	108	ug/L	40	12/10/19 18:57	EPA 8270D	
Benzyl alcohol	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
Isophorone	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
Azobenzene (1,2-DPH)	ND	1.08	2.15	ug/L	40	12/10/19 18:57	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	10.8	21.5	ug/L	40	12/10/19 18:57	EPA 8270D	
3,3'-Dichlorobenzidine	ND	21.5	43.0	ug/L	40	12/10/19 18:57	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	10.8	21.5	ug/L	40	12/10/19 18:57	EPA 8270D	
1,3-Dinitrobenzene	ND	10.8	21.5	ug/L	40	12/10/19 18:57	EPA 8270D	
1,4-Dinitrobenzene	ND	10.8	21.5	ug/L	40	12/10/19 18:57	EPA 8270D	
Pyridine	ND	4.30	8.60	ug/L	40	12/10/19 18:57	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*75 %*	*Limits:*	*44-120 %*	*40*	*12/10/19 18:57*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*89 %*		*44-120 %*	*40*	*12/10/19 18:57*	*EPA 8270D*	*S-05*

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Philip Nerenberg, Lab Director

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503-718-2323
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE2)				**Matrix: Water**		**Batch: 9120690**		
Surrogate: Phenol-d6 (Surr)			*Recovery: 22 %*	*Limits: 10-120 %*	*40*	*12/10/19 18:57*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*89 %*	*50-133 %*	*40*	*12/10/19 18:57*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*33 %*	*19-120 %*	*40*	*12/10/19 18:57*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*122 %*	*43-140 %*	*40*	*12/10/19 18:57*	*EPA 8270D*	*S-05*
RAU3-06-SO-3 (A9L0097-40RE1)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Acenaphthene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Acenaphthylene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Anthracene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Benz(a)anthracene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Benzo(a)pyrene	ND	408	408	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Benzo(b)fluoranthene	ND	204	408	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Benzo(k)fluoranthene	ND	204	408	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Benzo(g,h,i)perylene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Chrysene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Dibenz(a,h)anthracene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Fluoranthene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Fluorene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
1-Methylnaphthalene	ND	272	544	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
2-Methylnaphthalene	ND	272	544	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Naphthalene	ND	272	544	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Phenanthrene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Pyrene	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Carbazole	ND	204	408	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Dibenzofuran	ND	136	272	ug/kg dry	100	12/10/19 12:17	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 67 %*	*Limits: 37-122 %*	*100*	*12/10/19 12:17*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*75 %*	*44-115 %*	*100*	*12/10/19 12:17*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*66 %*	*33-122 %*	*100*	*12/10/19 12:17*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*	*100*	*12/10/19 12:17*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*60 %*	*35-115 %*	*100*	*12/10/19 12:17*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*168 %*	*39-132 %*	*100*	*12/10/19 12:17*	*EPA 8270D*	*S-05*
RAU5-02-SO-2 (A9L0097-45RE1)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	ND	28.5	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU5-02-SO-2 (A9L0097-45RE1)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthylene	**58.2**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Anthracene	**64.0**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Benz(a)anthracene	**64.2**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Benzo(a)pyrene	**66.2**	21.3	42.6	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Benzo(b)fluoranthene	**117**	21.3	42.6	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Benzo(k)fluoranthene	**45.9**	21.3	42.6	ug/kg dry	10	12/10/19 12:53	EPA 8270D	**M-05**
Benzo(g,h,i)perylene	**51.5**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Chrysene	**79.5**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Dibenz(a,h)anthracene	ND	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Fluoranthene	**157**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Fluorene	**14.2**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	**54.8**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
1-Methylnaphthalene	**77.6**	28.5	56.8	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
2-Methylnaphthalene	**118**	28.5	56.8	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Naphthalene	**111**	28.5	56.8	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Phenanthrene	**107**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Pyrene	**136**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Carbazole	**28.0**	21.3	42.6	ug/kg dry	10	12/10/19 12:53	EPA 8270D	**J**
Dibenzofuran	**44.9**	14.2	28.5	ug/kg dry	10	12/10/19 12:53	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*82 %*	*Limits: 37-122 %*	*10*	*12/10/19 12:53*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*78 %*	*44-115 %*	*10*	*12/10/19 12:53*	*EPA 8270D*	
Phenol-d6 (Surr)			*74 %*	*33-122 %*	*10*	*12/10/19 12:53*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*	*10*	*12/10/19 12:53*	*EPA 8270D*	
2-Fluorophenol (Surr)			*70 %*	*35-115 %*	*10*	*12/10/19 12:53*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*92 %*	*39-132 %*	*10*	*12/10/19 12:53*	*EPA 8270D*	*Q-41*
RAU3-02-SO-2.5 (A9L0097-47RE1)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	ND	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Acenaphthylene	ND	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Anthracene	ND	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Benz(a)anthracene	**98.4**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Benzo(a)pyrene	**128**	42.2	84.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Benzo(b)fluoranthene	**218**	42.2	84.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Benzo(k)fluoranthene	**114**	42.2	84.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	**M-05**

Apex Laboratories



Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-02-SO-2.5 (A9L0097-47RE1)				**Matrix: Soil**		**Batch: 9120660**		
Benzo(g,h,i)perylene	**124**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Chrysene	**121**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Dibenz(a,h)anthracene	**33.7**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	**J**
Fluoranthene	**126**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Fluorene	ND	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Indeno(1,2,3-cd)pyrene	**118**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
1-Methylnaphthalene	ND	56.3	112	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
2-Methylnaphthalene	ND	56.3	112	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Naphthalene	ND	56.3	112	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Phenanthrene	**48.0**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	**J**
Pyrene	**111**	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Carbazole	ND	42.2	84.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Dibenzofuran	ND	28.0	56.3	ug/kg dry	20	12/12/19 10:54	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*64 %*	*Limits: 37-122 %*	*20*	*12/12/19 10:54*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*74 %*	*44-115 %*	*20*	*12/12/19 10:54*	*EPA 8270D*	
Phenol-d6 (Surr)			*44 %*	*33-122 %*	*20*	*12/12/19 10:54*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*94 %*	*54-127 %*	*20*	*12/12/19 10:54*	*EPA 8270D*	
2-Fluorophenol (Surr)			*55 %*	*35-115 %*	*20*	*12/12/19 10:54*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*78 %*	*39-132 %*	*20*	*12/12/19 10:54*	*EPA 8270D*	
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Acenaphthylene	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Anthracene	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Benz(a)anthracene	**587**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Benzo(a)pyrene	**940**	212	423	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Benzo(b)fluoranthene	**1090**	212	423	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Benzo(k)fluoranthene	**457**	212	423	ug/kg dry	100	12/13/19 18:37	EPA 8270D	**M-05**
Benzo(g,h,i)perylene	**549**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Chrysene	**681**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Dibenz(a,h)anthracene	**155**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	**J**
Fluoranthene	**434**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Fluorene	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Indeno(1,2,3-cd)pyrene	**514**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120852**		
1-Methylnaphthalene	ND	282	564	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2-Methylnaphthalene	ND	282	564	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Naphthalene	ND	282	564	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Phenanthrene	**310**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Pyrene	**510**	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Carbazole	ND	212	423	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Dibenzofuran	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4-Chloro-3-methylphenol	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2-Chlorophenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,4-Dichlorophenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,4-Dimethylphenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,4-Dinitrophenol	ND	3520	7050	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	3520	7050	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2-Methylphenol	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
3+4-Methylphenol(s)	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2-Nitrophenol	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4-Nitrophenol	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Pentachlorophenol (PCP)	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Phenol	ND	282	564	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,4,5-Trichlorophenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,4,6-Trichlorophenol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	2120	4230	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Butyl benzyl phthalate	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Diethylphthalate	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Dimethylphthalate	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Di-n-butylphthalate	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Di-n-octyl phthalate	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
N-Nitrosodimethylamine	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
N-Nitrosodiphenylamine	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120852**		
Bis(2-Chloroethyl) ether	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Hexachlorobenzene	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Hexachlorobutadiene	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Hexachlorocyclopentadiene	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Hexachloroethane	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2-Chloronaphthalene	ND	141	282	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
1,2-Dichlorobenzene	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
1,3-Dichlorobenzene	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
1,4-Dichlorobenzene	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
1,2,4-Trichlorobenzene	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4-Bromophenyl phenyl ether	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Aniline	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4-Chloroaniline	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2-Nitroaniline	ND	2820	5640	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
3-Nitroaniline	ND	2820	5640	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
4-Nitroaniline	ND	2820	5640	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Nitrobenzene	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,4-Dinitrotoluene	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
2,6-Dinitrotoluene	ND	1410	2820	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Benzoic acid	ND	17700	35200	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Benzyl alcohol	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Isophorone	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Azobenzene (1,2-DPH)	ND	352	705	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	3520	7050	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2820	5640	ug/kg dry	100	12/13/19 18:37	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	3520	7050	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
1,3-Dinitrobenzene	ND	3520	7050	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
1,4-Dinitrobenzene	ND	3520	7050	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Pyridine	ND	705	1410	ug/kg dry	100	12/13/19 18:37	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*67 %*	*Limits: 37-122 %*	*100*	*12/13/19 18:37*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*79 %*	*44-115 %*	*100*	*12/13/19 18:37*	*EPA 8270D*	*S-05*

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120852**		
Surrogate: Phenol-d6 (Surr)		*Recovery: 33 %*	*Limits: 33-122 %*		*100*	*12/13/19 18:37*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)		*106 %*	*54-127 %*		*100*	*12/13/19 18:37*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)		*49 %*	*35-115 %*		*100*	*12/13/19 18:37*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)		*192 %*	*39-132 %*		*100*	*12/13/19 18:37*	*EPA 8270D*	*S-05*
RAU1-09-GW-7.0 (A9L0097-51RE1)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	**0.323**	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Acenaphthylene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Anthracene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Benz(a)anthracene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Benzo(a)pyrene	ND	0.0789	0.158	ug/L	4	12/10/19 19:32	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0789	0.158	ug/L	4	12/10/19 19:32	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0789	0.158	ug/L	4	12/10/19 19:32	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Chrysene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Fluoranthene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Fluorene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
1-Methylnaphthalene	ND	0.105	0.211	ug/L	4	12/10/19 19:32	EPA 8270D	
2-Methylnaphthalene	ND	0.105	0.211	ug/L	4	12/10/19 19:32	EPA 8270D	
Naphthalene	ND	0.105	0.211	ug/L	4	12/10/19 19:32	EPA 8270D	
Phenanthrene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Pyrene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Carbazole	ND	0.0789	0.158	ug/L	4	12/10/19 19:32	EPA 8270D	
Dibenzofuran	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
2-Chlorophenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
2,4-Dichlorophenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
2,4-Dimethylphenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
2,4-Dinitrophenol	ND	1.32	2.63	ug/L	4	12/10/19 19:32	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.32	2.63	ug/L	4	12/10/19 19:32	EPA 8270D	
2-Methylphenol	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
3+4-Methylphenol(s)	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-GW-7.0 (A9L0097-51RE1)				**Matrix: Water**		**Batch: 9120690**		
2-Nitrophenol	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
4-Nitrophenol	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
Phenol	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
Butyl benzyl phthalate	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
Diethylphthalate	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
Dimethylphthalate	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
Di-n-butylphthalate	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
Di-n-octyl phthalate	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
N-Nitrosodimethylamine	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Hexachlorobenzene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
Hexachlorobutadiene	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Hexachlorocyclopentadiene	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
Hexachloroethane	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
2-Chloronaphthalene	ND	0.0526	0.105	ug/L	4	12/10/19 19:32	EPA 8270D	
1,2-Dichlorobenzene	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
1,3-Dichlorobenzene	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
1,4-Dichlorobenzene	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
1,2,4-Trichlorobenzene	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Aniline	ND	0.263	0.526	ug/L	4	12/10/19 19:32	EPA 8270D	
4-Chloroaniline	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-GW-7.0 (A9L0097-51RE1)				**Matrix: Water**		**Batch: 9120690**		
2-Nitroaniline	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
3-Nitroaniline	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
4-Nitroaniline	ND	1.05	2.11	ug/L	4	12/10/19 19:32	EPA 8270D	
Nitrobenzene	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
2,4-Dinitrotoluene	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
2,6-Dinitrotoluene	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
Benzoic acid	ND	6.58	13.2	ug/L	4	12/10/19 19:32	EPA 8270D	
Benzyl alcohol	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
Isophorone	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.132	0.263	ug/L	4	12/10/19 19:32	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.32	2.63	ug/L	4	12/10/19 19:32	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.63	5.26	ug/L	4	12/10/19 19:32	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.32	2.63	ug/L	4	12/10/19 19:32	EPA 8270D	
1,3-Dinitrobenzene	ND	1.32	2.63	ug/L	4	12/10/19 19:32	EPA 8270D	
1,4-Dinitrobenzene	ND	1.32	2.63	ug/L	4	12/10/19 19:32	EPA 8270D	
Pyridine	ND	0.526	1.05	ug/L	4	12/10/19 19:32	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*83 %*	*Limits: 44-120 %*	*4*	*12/10/19 19:32*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*89 %*	*44-120 %*	*4*	*12/10/19 19:32*	*EPA 8270D*	
Phenol-d6 (Surr)			*30 %*	*10-120 %*	*4*	*12/10/19 19:32*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*98 %*	*50-133 %*	*4*	*12/10/19 19:32*	*EPA 8270D*	
2-Fluorophenol (Surr)			*44 %*	*19-120 %*	*4*	*12/10/19 19:32*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*126 %*	*43-140 %*	*4*	*12/10/19 19:32*	*EPA 8270D*	
RAU4-01-SO-2 (A9L0097-52RE2)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	**2.72**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	**J**
Acenaphthylene	**10.2**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Anthracene	**3.03**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Benz(a)anthracene	**3.57**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Benzo(a)pyrene	**7.07**	2.17	4.35	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Benzo(b)fluoranthene	**7.16**	2.17	4.35	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Benzo(k)fluoranthene	**3.13**	2.17	4.35	ug/kg dry	1	12/11/19 20:00	EPA 8270D	**J**
Benzo(g,h,i)perylene	**4.14**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Chrysene	**4.53**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-SO-2 (A9L0097-52RE2)				**Matrix: Soil**		**Batch: 9120660**		
Fluoranthene	**15.0**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Fluorene	**3.44**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Indeno(1,2,3-cd)pyrene	**3.72**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
1-Methylnaphthalene	**4.68**	2.90	5.80	ug/kg dry	1	12/11/19 20:00	EPA 8270D	J
2-Methylnaphthalene	**8.30**	2.90	5.80	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Naphthalene	**43.0**	2.90	5.80	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Phenanthrene	**23.1**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Pyrene	**14.5**	1.45	2.90	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Carbazole	ND	2.17	4.35	ug/kg dry	1	12/11/19 20:00	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*86 %*	*Limits: 37-122 %*	*1*	*12/11/19 20:00*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*68 %*	*44-115 %*	*1*	*12/11/19 20:00*	*EPA 8270D*	
Phenol-d6 (Surr)			*82 %*	*33-122 %*	*1*	*12/11/19 20:00*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*81 %*	*54-127 %*	*1*	*12/11/19 20:00*	*EPA 8270D*	
2-Fluorophenol (Surr)			*74 %*	*35-115 %*	*1*	*12/11/19 20:00*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*87 %*	*39-132 %*	*1*	*12/11/19 20:00*	*EPA 8270D*	*Q-41*
RAU4-02-SO-2.5 (A9L0097-54RE1)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Benzo(g,h,i)perylene	ND	14.6	29.3	ug/kg dry	10	12/10/19 14:06	EPA 8270D	
Dibenz(a,h)anthracene	ND	14.6	29.3	ug/kg dry	10	12/10/19 14:06	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	14.6	29.3	ug/kg dry	10	12/10/19 14:06	EPA 8270D	
RAU4-02-SO-2.5 (A9L0097-54RE2)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	ND	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Acenaphthylene	ND	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Anthracene	ND	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Benz(a)anthracene	**8.07**	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	J
Benzo(a)pyrene	**14.2**	11.0	22.0	ug/kg dry	5	12/11/19 21:49	EPA 8270D	J
Benzo(b)fluoranthene	**15.8**	11.0	22.0	ug/kg dry	5	12/11/19 21:49	EPA 8270D	J
Benzo(k)fluoranthene	ND	11.0	22.0	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Chrysene	**10.4**	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	J
Fluoranthene	**16.7**	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Fluorene	ND	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
1-Methylnaphthalene	ND	14.7	29.3	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
2-Methylnaphthalene	ND	14.7	29.3	ug/kg dry	5	12/11/19 21:49	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-SO-2.5 (A9L0097-54RE2)				**Matrix: Soil**		**Batch: 9120660**		
Naphthalene	**15.4**	14.7	29.3	ug/kg dry	5	12/11/19 21:49	EPA 8270D	**J**
Phenanthrene	**15.3**	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Pyrene	**20.4**	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Carbazole	ND	11.0	22.0	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Dibenzofuran	ND	7.31	14.7	ug/kg dry	5	12/11/19 21:49	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*75 %*	*Limits: 37-122 %*	*5*	*12/11/19 21:49*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*96 %*	*44-115 %*	*5*	*12/11/19 21:49*	*EPA 8270D*	
Phenol-d6 (Surr)			*77 %*	*33-122 %*	*5*	*12/11/19 21:49*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*86 %*	*54-127 %*	*5*	*12/11/19 21:49*	*EPA 8270D*	
2-Fluorophenol (Surr)			*72 %*	*35-115 %*	*5*	*12/11/19 21:49*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*93 %*	*39-132 %*	*5*	*12/11/19 21:49*	*EPA 8270D*	*Q-41*

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-SO-2.5 (A9L0097-01)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**1.05**	0.590	1.18	mg/kg dry	10	12/09/19 21:14	EPA 6020A	**J**
Cadmium	ND	0.118	0.236	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Chromium	**21.7**	0.590	1.18	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Copper	**32.1**	0.590	1.18	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Lead	**10.7**	0.118	0.236	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Manganese	**275**	0.590	1.18	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Mercury	ND	0.0472	0.0944	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Nickel	**19.6**	0.590	1.18	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
Zinc	**45.1**	2.36	4.72	mg/kg dry	10	12/09/19 21:14	EPA 6020A	
RAU2-03-GW-7.5 (A9L0097-02)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**5.92**	0.500	1.00	ug/L	1	12/13/19 16:18	EPA 6020A	
Cadmium	**0.365**	0.0400	0.200	ug/L	1	12/13/19 16:18	EPA 6020A	
Chromium	**46.8**	0.500	1.00	ug/L	1	12/13/19 16:18	EPA 6020A	
Copper	**150**	0.500	1.00	ug/L	1	12/13/19 16:18	EPA 6020A	
Lead	**34.0**	0.100	0.200	ug/L	1	12/13/19 16:18	EPA 6020A	
Nickel	**37.4**	0.500	1.00	ug/L	1	12/13/19 16:18	EPA 6020A	
Zinc	**125**	2.00	4.00	ug/L	1	12/13/19 16:18	EPA 6020A	
RAU2-03-GW-7.5 (A9L0097-02RE1)				**Matrix: Water**				
Batch: 9120851								
Manganese	**3650**	5.00	10.0	ug/L	10	12/16/19 22:00	EPA 6020A	
Mercury	**8.48**	0.400	0.800	ug/L	10	12/16/19 22:00	EPA 6020A	
RAU2-03-SO-3 (A9L0097-03)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**1.51**	0.617	1.23	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Cadmium	ND	0.123	0.247	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Chromium	**29.6**	0.617	1.23	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Copper	**80.2**	0.617	1.23	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Lead	**4.02**	0.123	0.247	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Manganese	**772**	0.617	1.23	mg/kg dry	10	12/09/19 21:19	EPA 6020A	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-03-SO-3 (A9L0097-03)				**Matrix: Soil**				
Mercury	**0.445**	0.0494	0.0988	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Nickel	**31.8**	0.617	1.23	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
Zinc	**49.7**	2.47	4.94	mg/kg dry	10	12/09/19 21:19	EPA 6020A	
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**1.77**	0.559	1.12	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Cadmium	ND	0.112	0.224	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Chromium	**36.8**	0.559	1.12	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Copper	**61.1**	0.559	1.12	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Lead	**3.32**	0.112	0.224	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Manganese	**545**	0.559	1.12	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Mercury	ND	0.0447	0.0895	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Nickel	**31.0**	0.559	1.12	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
Zinc	**47.4**	2.24	4.47	mg/kg dry	10	12/09/19 21:23	EPA 6020A	
RAU2-04-GW-7.5 (A9L0097-05)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.45**	0.500	1.00	ug/L	1	12/13/19 16:23	EPA 6020A	
Cadmium	**0.126**	0.0400	0.200	ug/L	1	12/13/19 16:23	EPA 6020A	**J**
Chromium	**17.1**	0.500	1.00	ug/L	1	12/13/19 16:23	EPA 6020A	
Copper	**34.4**	0.500	1.00	ug/L	1	12/13/19 16:23	EPA 6020A	
Lead	**5.78**	0.100	0.200	ug/L	1	12/13/19 16:23	EPA 6020A	
Manganese	**2400**	0.500	1.00	ug/L	1	12/13/19 16:23	EPA 6020A	
Nickel	**10.3**	0.500	1.00	ug/L	1	12/13/19 16:23	EPA 6020A	
Zinc	**52.5**	2.00	4.00	ug/L	1	12/13/19 16:23	EPA 6020A	
RAU2-04-GW-7.5 (A9L0097-05RE1)				**Matrix: Water**				
Batch: 9120851								
Mercury	**0.479**	0.0400	0.0800	ug/L	1	12/16/19 22:05	EPA 6020A	
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**2.01**	0.577	1.15	mg/kg dry	10	12/09/19 21:28	EPA 6020A	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**				
Cadmium	**0.135**	0.115	0.231	mg/kg dry	10	12/09/19 21:28	EPA 6020A	**J**
Chromium	**35.5**	0.577	1.15	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
Copper	**86.1**	0.577	1.15	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
Lead	**14.1**	0.115	0.231	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
Manganese	**566**	0.577	1.15	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
Mercury	**0.0956**	0.0462	0.0924	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
Nickel	**40.9**	0.577	1.15	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
Zinc	**65.9**	2.31	4.62	mg/kg dry	10	12/09/19 21:28	EPA 6020A	
RAU3-05-GW-8.0 (A9L0097-07)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.37**	0.500	1.00	ug/L	1	12/13/19 16:28	EPA 6020A	
Cadmium	**0.0560**	0.0400	0.200	ug/L	1	12/13/19 16:28	EPA 6020A	**J**
Chromium	**1.58**	0.500	1.00	ug/L	1	12/13/19 16:28	EPA 6020A	
Copper	**4.48**	0.500	1.00	ug/L	1	12/13/19 16:28	EPA 6020A	
Lead	**0.640**	0.100	0.200	ug/L	1	12/13/19 16:28	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 16:28	EPA 6020A	
Nickel	**2.11**	0.500	1.00	ug/L	1	12/13/19 16:28	EPA 6020A	
Zinc	**3.92**	2.00	4.00	ug/L	1	12/13/19 16:28	EPA 6020A	**J**
RAU3-05-GW-8.0 (A9L0097-07RE1)				**Matrix: Water**				
Batch: 9120851								
Manganese	**5160**	25.0	50.0	ug/L	50	12/16/19 22:09	EPA 6020A	
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**1.11**	0.659	1.32	mg/kg dry	10	12/09/19 21:33	EPA 6020A	**J**
Cadmium	**0.133**	0.132	0.264	mg/kg dry	10	12/09/19 21:33	EPA 6020A	**J**
Chromium	**44.8**	0.659	1.32	mg/kg dry	10	12/09/19 21:33	EPA 6020A	
Copper	**60.0**	0.659	1.32	mg/kg dry	10	12/09/19 21:33	EPA 6020A	
Lead	**2.99**	0.132	0.264	mg/kg dry	10	12/09/19 21:33	EPA 6020A	
Manganese	**707**	0.659	1.32	mg/kg dry	10	12/09/19 21:33	EPA 6020A	
Mercury	ND	0.0527	0.105	mg/kg dry	10	12/09/19 21:33	EPA 6020A	
Nickel	**31.5**	0.659	1.32	mg/kg dry	10	12/09/19 21:33	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**				
Zinc	**51.2**	2.64	5.27	mg/kg dry	10	12/09/19 21:33	EPA 6020A	
RAU2-01-GW-7.5 (A9L0097-09)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**2.96**	0.500	1.00	ug/L	1	12/13/19 16:32	EPA 6020A	
Cadmium	**0.273**	0.0400	0.200	ug/L	1	12/13/19 16:32	EPA 6020A	
Chromium	**41.8**	0.500	1.00	ug/L	1	12/13/19 16:32	EPA 6020A	
Copper	**118**	0.500	1.00	ug/L	1	12/13/19 16:32	EPA 6020A	
Lead	**7.73**	0.100	0.200	ug/L	1	12/13/19 16:32	EPA 6020A	
Manganese	**1750**	0.500	1.00	ug/L	1	12/13/19 16:32	EPA 6020A	
Mercury	**0.392**	0.0400	0.0800	ug/L	1	12/13/19 16:32	EPA 6020A	
Nickel	**25.0**	0.500	1.00	ug/L	1	12/13/19 16:32	EPA 6020A	
Zinc	**62.7**	2.00	4.00	ug/L	1	12/13/19 16:32	EPA 6020A	
RAU2-05-SO-2.5 (A9L0097-11)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**1.43**	0.600	1.20	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Cadmium	ND	0.120	0.240	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Chromium	**30.5**	0.600	1.20	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Copper	**51.9**	0.600	1.20	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Lead	**3.44**	0.120	0.240	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Manganese	**690**	0.600	1.20	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Mercury	ND	0.0480	0.0960	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Nickel	**29.3**	0.600	1.20	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
Zinc	**46.4**	2.40	4.80	mg/kg dry	10	12/09/19 21:37	EPA 6020A	
RAU2-05-GW-7.5 (A9L0097-12)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**0.896**	0.500	1.00	ug/L	1	12/13/19 16:46	EPA 6020A	**J**
Cadmium	**0.0777**	0.0400	0.200	ug/L	1	12/13/19 16:46	EPA 6020A	**J**
Chromium	**12.5**	0.500	1.00	ug/L	1	12/13/19 16:46	EPA 6020A	
Copper	**19.8**	0.500	1.00	ug/L	1	12/13/19 16:46	EPA 6020A	
Lead	**2.93**	0.100	0.200	ug/L	1	12/13/19 16:46	EPA 6020A	
Mercury	**0.0969**	0.0400	0.0800	ug/L	1	12/13/19 16:46	EPA 6020A	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-05-GW-7.5 (A9L0097-12)				**Matrix: Water**				
Nickel	**6.90**	0.500	1.00	ug/L	1	12/13/19 16:46	EPA 6020A	
Zinc	**51.1**	2.00	4.00	ug/L	1	12/13/19 16:46	EPA 6020A	
RAU2-05-GW-7.5 (A9L0097-12RE1)				**Matrix: Water**				
Batch: 9120851								
Manganese	**3390**	5.00	10.0	ug/L	10	12/16/19 22:14	EPA 6020A	**Q-42**
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**				
Batch: 9120657								
Arsenic	**2.15**	0.544	1.09	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Cadmium	**0.118**	0.109	0.218	mg/kg dry	10	12/09/19 21:42	EPA 6020A	**J**
Chromium	**25.6**	0.544	1.09	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Copper	**63.5**	0.544	1.09	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Lead	**4.01**	0.109	0.218	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Manganese	**826**	0.544	1.09	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Mercury	ND	0.0435	0.0870	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Nickel	**30.4**	0.544	1.09	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
Zinc	**50.6**	2.18	4.35	mg/kg dry	10	12/09/19 21:42	EPA 6020A	
RAU2-06-GW-6.5 (A9L0097-14)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.02**	0.500	1.00	ug/L	1	12/13/19 17:05	EPA 6020A	
Cadmium	**0.0612**	0.0400	0.200	ug/L	1	12/13/19 17:05	EPA 6020A	**J**
Chromium	**11.0**	0.500	1.00	ug/L	1	12/13/19 17:05	EPA 6020A	
Copper	**24.2**	0.500	1.00	ug/L	1	12/13/19 17:05	EPA 6020A	
Lead	**2.10**	0.100	0.200	ug/L	1	12/13/19 17:05	EPA 6020A	
Mercury	**0.0410**	0.0400	0.0800	ug/L	1	12/13/19 17:05	EPA 6020A	**J**
Nickel	**6.41**	0.500	1.00	ug/L	1	12/13/19 17:05	EPA 6020A	
Zinc	**22.0**	2.00	4.00	ug/L	1	12/13/19 17:05	EPA 6020A	
RAU2-06-GW-6.5 (A9L0097-14RE1)				**Matrix: Water**				
Batch: 9120851								
Manganese	**8090**	25.0	50.0	ug/L	50	12/16/19 22:29	EPA 6020A	
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**				

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**				
Batch: 9120880								
Arsenic	**2.48**	0.592	1.18	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Cadmium	ND	0.118	0.237	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Chromium	**25.1**	0.592	1.18	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Copper	**43.3**	0.592	1.18	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Lead	**6.87**	0.118	0.237	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Manganese	**351**	0.592	1.18	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Mercury	**0.261**	0.0474	0.0947	mg/kg dry	10	12/13/19 20:25	EPA 6020A	**Q-39, Q-42**
Nickel	**27.6**	0.592	1.18	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
Zinc	**52.9**	2.37	4.74	mg/kg dry	10	12/13/19 20:25	EPA 6020A	
RAU1-07-GW-7.5 (A9L0097-16)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**1.20**	0.500	1.00	ug/L	1	12/13/19 23:12	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 23:12	EPA 6020A	
Chromium	**2.49**	0.500	1.00	ug/L	1	12/13/19 23:12	EPA 6020A	
Copper	**4.54**	0.500	1.00	ug/L	1	12/13/19 23:12	EPA 6020A	
Manganese	**325**	0.500	1.00	ug/L	1	12/13/19 23:12	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 23:12	EPA 6020A	
Nickel	**1.35**	0.500	1.00	ug/L	1	12/13/19 23:12	EPA 6020A	
Zinc	**3.91**	2.00	4.00	ug/L	1	12/13/19 23:12	EPA 6020A	**J**
RAU1-07-GW-7.5 (A9L0097-16RE1)				**Matrix: Water**				
Batch: 9120878								
Lead	**0.843**	0.100	0.200	ug/L	1	12/17/19 00:06	EPA 6020A	
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**				
Batch: 9120880								
Arsenic	**5.79**	0.816	1.63	mg/kg dry	10	12/13/19 20:44	EPA 6020A	
Cadmium	**0.169**	0.163	0.326	mg/kg dry	10	12/13/19 20:44	EPA 6020A	**J**
Chromium	**11.2**	0.816	1.63	mg/kg dry	10	12/13/19 20:44	EPA 6020A	
Copper	**35.1**	0.816	1.63	mg/kg dry	10	12/13/19 20:44	EPA 6020A	
Lead	**16.8**	0.163	0.326	mg/kg dry	10	12/13/19 20:44	EPA 6020A	
Manganese	**140**	0.816	1.63	mg/kg dry	10	12/13/19 20:44	EPA 6020A	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**				
Mercury	**0.0855**	0.0653	0.131	mg/kg dry	10	12/13/19 20:44	EPA 6020A	**J**
Nickel	**11.6**	0.816	1.63	mg/kg dry	10	12/13/19 20:44	EPA 6020A	
Zinc	**185**	3.26	6.53	mg/kg dry	10	12/13/19 20:44	EPA 6020A	
RAU1-04-GW-7.5 (A9L0097-18)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.07**	0.500	1.00	ug/L	1	12/13/19 21:40	EPA 6020A	
Chromium	**0.967**	0.500	1.00	ug/L	1	12/13/19 21:40	EPA 6020A	**J**
Copper	**1.83**	0.500	1.00	ug/L	1	12/13/19 21:40	EPA 6020A	
Manganese	**2140**	0.500	1.00	ug/L	1	12/13/19 21:40	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 21:40	EPA 6020A	
Nickel	**2.26**	0.500	1.00	ug/L	1	12/13/19 21:40	EPA 6020A	
Zinc	**7.68**	2.00	4.00	ug/L	1	12/13/19 21:40	EPA 6020A	
RAU1-04-GW-7.5 (A9L0097-18RE1)				**Matrix: Water**				
Batch: 9120851								
Cadmium	ND	0.400	2.00	ug/L	10	12/16/19 22:33	EPA 6020A	R-04
Lead	ND	1.00	2.00	ug/L	10	12/16/19 22:33	EPA 6020A	R-04
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**				
Batch: 9120880								
Arsenic	**2.78**	0.596	1.19	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Cadmium	ND	0.119	0.239	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Chromium	**38.1**	0.596	1.19	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Copper	**20.8**	0.596	1.19	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Lead	**2.75**	0.119	0.239	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Manganese	**217**	0.596	1.19	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Mercury	ND	0.0477	0.0954	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Nickel	**22.5**	0.596	1.19	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
Zinc	**49.5**	2.39	4.77	mg/kg dry	10	12/13/19 20:48	EPA 6020A	
RAU1-01-GW-7.5 (A9L0097-20)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**5.21**	0.500	1.00	ug/L	1	12/13/19 21:44	EPA 6020A	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20)				**Matrix: Water**				
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 21:44	EPA 6020A	
Chromium	**14.9**	0.500	1.00	ug/L	1	12/13/19 21:44	EPA 6020A	
Copper	**13.6**	0.500	1.00	ug/L	1	12/13/19 21:44	EPA 6020A	
Manganese	**980**	0.500	1.00	ug/L	1	12/13/19 21:44	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 21:44	EPA 6020A	
Nickel	**7.03**	0.500	1.00	ug/L	1	12/13/19 21:44	EPA 6020A	
Zinc	**36.7**	2.00	4.00	ug/L	1	12/13/19 21:44	EPA 6020A	
RAU1-01-GW-7.5 (A9L0097-20RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**2.66**	0.100	0.200	ug/L	1	12/16/19 22:38	EPA 6020A	
RAU1-05-SO-1.5 (A9L0097-21)				**Matrix: Soil**				
Batch: 9120880								
Arsenic	**1.48**	0.544	1.09	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Cadmium	ND	0.109	0.217	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Chromium	**15.5**	0.544	1.09	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Copper	**60.3**	0.544	1.09	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Lead	**4.68**	0.109	0.217	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Manganese	**421**	0.544	1.09	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Mercury	ND	0.0435	0.0870	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Nickel	**23.7**	0.544	1.09	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
Zinc	**74.4**	2.17	4.35	mg/kg dry	10	12/13/19 20:53	EPA 6020A	
RAU1-05-GW-6.5 (A9L0097-22)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**2.14**	0.500	1.00	ug/L	1	12/13/19 21:49	EPA 6020A	
Cadmium	**0.111**	0.0400	0.200	ug/L	1	12/13/19 21:49	EPA 6020A	**J**
Chromium	**11.8**	0.500	1.00	ug/L	1	12/13/19 21:49	EPA 6020A	
Copper	**23.5**	0.500	1.00	ug/L	1	12/13/19 21:49	EPA 6020A	
Manganese	**2020**	0.500	1.00	ug/L	1	12/13/19 21:49	EPA 6020A	
Mercury	**0.0523**	0.0400	0.0800	ug/L	1	12/13/19 21:49	EPA 6020A	**J**
Nickel	**11.8**	0.500	1.00	ug/L	1	12/13/19 21:49	EPA 6020A	
Zinc	**46.5**	2.00	4.00	ug/L	1	12/13/19 21:49	EPA 6020A	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-05-GW-6.5 (A9L0097-22RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**8.22**	0.100	0.200	ug/L	1	12/16/19 22:52	EPA 6020A	
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**				
Batch: 9120880								
Arsenic	**1.05**	0.582	1.16	mg/kg dry	10	12/13/19 20:58	EPA 6020A	**J**
Cadmium	ND	0.116	0.233	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
Chromium	**8.45**	0.582	1.16	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
Copper	**30.9**	0.582	1.16	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
Lead	**2.76**	0.116	0.233	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
Manganese	**290**	0.582	1.16	mg/kg dry	10	12/13/19 20:58	EPA 6020A	**Q-42**
Mercury	ND	0.0466	0.0932	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
Nickel	**11.8**	0.582	1.16	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
Zinc	**36.3**	2.33	4.66	mg/kg dry	10	12/13/19 20:58	EPA 6020A	
RAU1-02-GW-6 (A9L0097-24RE1)				**Matrix: Water**				
Batch: 9120851								
Arsenic	ND	12.5	25.0	ug/L	25	12/16/19 22:56	EPA 6020A	R-04
Cadmium	ND	1.00	5.00	ug/L	25	12/16/19 22:56	EPA 6020A	R-04
Chromium	**13.4**	12.5	25.0	ug/L	25	12/16/19 22:56	EPA 6020A	**J, R-04**
Copper	**26.4**	12.5	25.0	ug/L	25	12/16/19 22:56	EPA 6020A	
Lead	**9.70**	2.50	5.00	ug/L	25	12/16/19 22:56	EPA 6020A	
Manganese	**831**	12.5	25.0	ug/L	25	12/16/19 22:56	EPA 6020A	
Mercury	ND	1.00	2.00	ug/L	25	12/16/19 22:56	EPA 6020A	R-04
Nickel	ND	12.5	25.0	ug/L	25	12/16/19 22:56	EPA 6020A	R-04
Zinc	**175**	50.0	100	ug/L	25	12/16/19 22:56	EPA 6020A	
RAU2-02-GW-6 (A9L0097-25)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**2.43**	0.500	1.00	ug/L	1	12/13/19 21:58	EPA 6020A	
Cadmium	**0.103**	0.0400	0.200	ug/L	1	12/13/19 21:58	EPA 6020A	**J**
Chromium	**7.70**	0.500	1.00	ug/L	1	12/13/19 21:58	EPA 6020A	
Copper	**27.1**	0.500	1.00	ug/L	1	12/13/19 21:58	EPA 6020A	
Nickel	**5.70**	0.500	1.00	ug/L	1	12/13/19 21:58	EPA 6020A	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-GW-6 (A9L0097-25)				**Matrix: Water**				
Zinc	**29.1**	2.00	4.00	ug/L	1	12/13/19 21:58	EPA 6020A	
RAU2-02-GW-6 (A9L0097-25RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**21.5**	1.00	2.00	ug/L	10	12/16/19 23:01	EPA 6020A	
Manganese	**3030**	5.00	10.0	ug/L	10	12/16/19 23:01	EPA 6020A	
Mercury	**11.4**	0.400	0.800	ug/L	10	12/16/19 23:01	EPA 6020A	
RAU2-05-SO-2.5-DUP (A9L0097-29)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.47**	0.646	1.29	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Cadmium	ND	0.129	0.258	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Chromium	**33.2**	0.646	1.29	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Copper	**52.7**	0.646	1.29	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Lead	**16.0**	0.129	0.258	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Manganese	**764**	0.646	1.29	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Mercury	**0.0604**	0.0517	0.103	mg/kg dry	10	12/13/19 18:00	EPA 6020A	**J**
Nickel	**28.8**	0.646	1.29	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
Zinc	**47.9**	2.58	5.17	mg/kg dry	10	12/13/19 18:00	EPA 6020A	
RAU1-03-SO-2.2 (A9L0097-30)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**0.998**	0.604	1.21	mg/kg dry	10	12/13/19 18:05	EPA 6020A	**J**
Cadmium	ND	0.121	0.242	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Chromium	**5.50**	0.604	1.21	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Copper	**12.4**	0.604	1.21	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Lead	**2.30**	0.121	0.242	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Manganese	**219**	0.604	1.21	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Mercury	ND	0.0483	0.0966	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Nickel	**4.51**	0.604	1.21	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
Zinc	**39.1**	2.42	4.83	mg/kg dry	10	12/13/19 18:05	EPA 6020A	
RAU1-03-GW-7.5 (A9L0097-31)				**Matrix: Water**				
Batch: 9120851								

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5 (A9L0097-31)				**Matrix: Water**				
Arsenic	ND	0.500	1.00	ug/L	1	12/13/19 22:03	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:03	EPA 6020A	
Chromium	**2.25**	0.500	1.00	ug/L	1	12/13/19 22:03	EPA 6020A	
Copper	**4.58**	0.500	1.00	ug/L	1	12/13/19 22:03	EPA 6020A	
Mercury	ND	0.0800	0.0800	ug/L	1	12/13/19 22:03	EPA 6020A	A-01a
Nickel	**1.62**	0.500	1.00	ug/L	1	12/13/19 22:03	EPA 6020A	
Zinc	**15.2**	2.00	4.00	ug/L	1	12/13/19 22:03	EPA 6020A	
RAU1-03-GW-7.5 (A9L0097-31RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**2.22**	0.500	1.00	ug/L	5	12/16/19 23:06	EPA 6020A	
Manganese	**2650**	2.50	5.00	ug/L	5	12/16/19 23:06	EPA 6020A	
RAU1-06-SO-3.5 (A9L0097-33)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.07**	0.648	1.30	mg/kg dry	10	12/13/19 18:10	EPA 6020A	**J**
Cadmium	ND	0.130	0.259	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Chromium	**11.8**	0.648	1.30	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Copper	**11.4**	0.648	1.30	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Lead	**3.65**	0.130	0.259	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Manganese	**291**	0.648	1.30	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Mercury	ND	0.0518	0.104	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Nickel	**6.12**	0.648	1.30	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
Zinc	**52.1**	2.59	5.18	mg/kg dry	10	12/13/19 18:10	EPA 6020A	
RAU1-06-GW-7.5 (A9L0097-34)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.68**	0.500	1.00	ug/L	1	12/13/19 22:07	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:07	EPA 6020A	
Chromium	**5.12**	0.500	1.00	ug/L	1	12/13/19 22:07	EPA 6020A	
Copper	**8.06**	0.500	1.00	ug/L	1	12/13/19 22:07	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 22:07	EPA 6020A	
Nickel	**2.94**	0.500	1.00	ug/L	1	12/13/19 22:07	EPA 6020A	
Zinc	**9.06**	2.00	4.00	ug/L	1	12/13/19 22:07	EPA 6020A	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.
2001 NW 19th Ave, STE 200
Portland, OR 97209

Project: **Seaport Upland**
Project Number: **1044.02.13**
Project Manager: **Emily Hess**

Report ID:
A9L0097 - 02 13 20 1501

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-06-GW-7.5 (A9L0097-34RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**1.50**	0.500	1.00	ug/L	5	12/16/19 23:10	EPA 6020A	
Manganese	**2830**	2.50	5.00	ug/L	5	12/16/19 23:10	EPA 6020A	
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**6.21**	0.616	1.23	mg/kg dry	10	12/13/19 18:14	EPA 6020A	
Cadmium	ND	0.123	0.247	mg/kg dry	10	12/13/19 18:14	EPA 6020A	Q-42
Chromium	**23.8**	0.616	1.23	mg/kg dry	10	12/13/19 18:14	EPA 6020A	
Copper	**42.9**	0.616	1.23	mg/kg dry	10	12/13/19 18:14	EPA 6020A	**Q-42**
Lead	**12.4**	0.123	0.247	mg/kg dry	10	12/13/19 18:14	EPA 6020A	
Manganese	**258**	0.616	1.23	mg/kg dry	10	12/13/19 18:14	EPA 6020A	**Q-42**
Mercury	ND	0.0493	0.0986	mg/kg dry	10	12/13/19 18:14	EPA 6020A	
Nickel	**24.9**	0.616	1.23	mg/kg dry	10	12/13/19 18:14	EPA 6020A	
Zinc	**61.1**	2.47	4.93	mg/kg dry	10	12/13/19 18:14	EPA 6020A	
RAU1-11-GW-7.0 (A9L0097-36)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.47**	0.500	1.00	ug/L	1	12/13/19 22:12	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:12	EPA 6020A	
Chromium	**10.1**	0.500	1.00	ug/L	1	12/13/19 22:12	EPA 6020A	
Copper	**15.9**	0.500	1.00	ug/L	1	12/13/19 22:12	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 22:12	EPA 6020A	
Nickel	**5.54**	0.500	1.00	ug/L	1	12/13/19 22:12	EPA 6020A	
Zinc	**12.3**	2.00	4.00	ug/L	1	12/13/19 22:12	EPA 6020A	
RAU1-11-GW-7.0 (A9L0097-36RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**3.63**	1.00	2.00	ug/L	10	12/16/19 23:15	EPA 6020A	
Manganese	**5050**	5.00	10.0	ug/L	10	12/16/19 23:15	EPA 6020A	
RAU1-03-GW-7.5-DUP (A9L0097-37)				**Matrix: Water**				
Batch: 9120851								
Arsenic	ND	0.500	1.00	ug/L	1	12/13/19 22:17	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:17	EPA 6020A	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-03-GW-7.5-DUP (A9L0097-37)				**Matrix: Water**				
Chromium	**2.44**	0.500	1.00	ug/L	1	12/13/19 22:17	EPA 6020A	
Copper	**5.79**	0.500	1.00	ug/L	1	12/13/19 22:17	EPA 6020A	
Mercury	**0.0443**	0.0400	0.0800	ug/L	1	12/13/19 22:17	EPA 6020A	**J**
Nickel	**1.84**	0.500	1.00	ug/L	1	12/13/19 22:17	EPA 6020A	
Zinc	**17.6**	2.00	4.00	ug/L	1	12/13/19 22:17	EPA 6020A	
RAU1-03-GW-7.5-DUP (A9L0097-37RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**2.53**	1.00	2.00	ug/L	10	12/16/19 23:20	EPA 6020A	
Manganese	**2640**	5.00	10.0	ug/L	10	12/16/19 23:20	EPA 6020A	
RAU1-12-SO-2.7 (A9L0097-38)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**0.998**	0.557	1.11	mg/kg dry	10	12/13/19 18:33	EPA 6020A	**J**
Cadmium	ND	0.111	0.223	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Chromium	**14.7**	0.557	1.11	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Copper	**30.4**	0.557	1.11	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Lead	**3.29**	0.111	0.223	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Manganese	**323**	0.557	1.11	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Mercury	ND	0.0446	0.0891	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Nickel	**13.5**	0.557	1.11	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
Zinc	**42.2**	2.23	4.46	mg/kg dry	10	12/13/19 18:33	EPA 6020A	
RAU1-12-GW-7.0 (A9L0097-39)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**1.86**	0.500	1.00	ug/L	1	12/13/19 22:21	EPA 6020A	
Cadmium	**0.634**	0.0400	0.200	ug/L	1	12/13/19 22:21	EPA 6020A	
Chromium	**8.88**	0.500	1.00	ug/L	1	12/13/19 22:21	EPA 6020A	
Copper	**17.8**	0.500	1.00	ug/L	1	12/13/19 22:21	EPA 6020A	
Manganese	**1390**	0.500	1.00	ug/L	1	12/13/19 22:21	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 22:21	EPA 6020A	
Nickel	**5.12**	0.500	1.00	ug/L	1	12/13/19 22:21	EPA 6020A	
Zinc	**1190**	2.00	4.00	ug/L	1	12/13/19 22:21	EPA 6020A	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-12-GW-7.0 (A9L0097-39RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**9.06**	0.100	0.200	ug/L	1	12/16/19 23:24	EPA 6020A	
RAU3-06-SO-3 (A9L0097-40)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.57**	0.544	1.09	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Cadmium	ND	0.109	0.218	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Chromium	**32.5**	0.544	1.09	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Copper	**37.9**	0.544	1.09	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Lead	**3.74**	0.109	0.218	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Manganese	**255**	0.544	1.09	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Mercury	ND	0.0436	0.0871	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Nickel	**24.3**	0.544	1.09	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
Zinc	**37.0**	2.18	4.36	mg/kg dry	10	12/13/19 18:37	EPA 6020A	
RAU3-06-GW-6.5 (A9L0097-41)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**0.889**	0.500	1.00	ug/L	1	12/13/19 22:35	EPA 6020A	**J**
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:35	EPA 6020A	
Chromium	**1.31**	0.500	1.00	ug/L	1	12/13/19 22:35	EPA 6020A	
Copper	**5.14**	0.500	1.00	ug/L	1	12/13/19 22:35	EPA 6020A	
Manganese	**1550**	0.500	1.00	ug/L	1	12/13/19 22:35	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 22:35	EPA 6020A	
Nickel	**1.06**	0.500	1.00	ug/L	1	12/13/19 22:35	EPA 6020A	
Zinc	**3.63**	2.00	4.00	ug/L	1	12/13/19 22:35	EPA 6020A	**J**
RAU3-06-GW-6.5 (A9L0097-41RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**1.56**	0.100	0.200	ug/L	1	12/16/19 23:29	EPA 6020A	
RAU3-04-SO-2.5 (A9L0097-42)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**5.87**	0.594	1.19	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Cadmium	ND	0.119	0.238	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Chromium	**18.0**	0.594	1.19	mg/kg dry	10	12/13/19 18:51	EPA 6020A	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-04-SO-2.5 (A9L0097-42)				**Matrix: Soil**				
Copper	**41.3**	0.594	1.19	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Lead	**36.0**	0.119	0.238	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Manganese	**394**	0.594	1.19	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Mercury	ND	0.0475	0.0951	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Nickel	**21.6**	0.594	1.19	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
Zinc	**34.0**	2.38	4.75	mg/kg dry	10	12/13/19 18:51	EPA 6020A	
RAU3-04-SO-6.5 (A9L0097-43)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**6.60**	1.09	2.17	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Cadmium	ND	0.217	0.435	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Chromium	**36.2**	1.09	2.17	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Copper	**44.5**	1.09	2.17	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Lead	**7.37**	0.217	0.435	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Manganese	**273**	1.09	2.17	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Mercury	ND	0.0870	0.174	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Nickel	**22.7**	1.09	2.17	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
Zinc	**70.0**	4.35	8.70	mg/kg dry	10	12/13/19 18:56	EPA 6020A	
RAU3-03-SO-2.5 (A9L0097-44)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**0.998**	0.566	1.13	mg/kg dry	10	12/13/19 19:01	EPA 6020A	**J**
Cadmium	ND	0.113	0.227	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Chromium	**31.8**	0.566	1.13	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Copper	**58.5**	0.566	1.13	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Lead	**3.31**	0.113	0.227	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Manganese	**370**	0.566	1.13	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Mercury	ND	0.0453	0.0906	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Nickel	**24.6**	0.566	1.13	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
Zinc	**37.6**	2.27	4.53	mg/kg dry	10	12/13/19 19:01	EPA 6020A	
RAU5-02-SO-2 (A9L0097-45)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.98**	0.601	1.20	mg/kg dry	10	12/13/19 19:05	EPA 6020A	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU5-02-SO-2 (A9L0097-45)				**Matrix: Soil**				
Cadmium	ND	0.120	0.240	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Chromium	**30.9**	0.601	1.20	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Copper	**29.1**	0.601	1.20	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Lead	**4.63**	0.120	0.240	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Manganese	**226**	0.601	1.20	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Mercury	ND	0.0481	0.0961	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Nickel	**24.5**	0.601	1.20	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
Zinc	**39.3**	2.40	4.81	mg/kg dry	10	12/13/19 19:05	EPA 6020A	
RAU5-02-SO-7.5 (A9L0097-46)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**8.71**	0.927	1.85	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Cadmium	ND	0.185	0.371	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Chromium	**38.5**	0.927	1.85	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Copper	**52.2**	0.927	1.85	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Lead	**7.05**	0.185	0.371	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Manganese	**293**	0.927	1.85	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Mercury	ND	0.0742	0.148	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Nickel	**28.6**	0.927	1.85	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
Zinc	**77.9**	3.71	7.42	mg/kg dry	10	12/13/19 19:10	EPA 6020A	
RAU3-02-SO-2.5 (A9L0097-47)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**3.29**	0.552	1.10	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Cadmium	**0.206**	0.110	0.221	mg/kg dry	10	12/13/19 19:15	EPA 6020A	**J**
Chromium	**21.3**	0.552	1.10	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Copper	**55.8**	0.552	1.10	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Lead	**5.37**	0.110	0.221	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Manganese	**534**	0.552	1.10	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Mercury	ND	0.0442	0.0883	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Nickel	**32.8**	0.552	1.10	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
Zinc	**86.0**	2.21	4.42	mg/kg dry	10	12/13/19 19:15	EPA 6020A	
RAU5-01-SO-4.5 (A9L0097-48)				**Matrix: Soil**				

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU5-01-SO-4.5 (A9L0097-48)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**4.30**	0.613	1.23	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Cadmium	**0.127**	0.123	0.245	mg/kg dry	10	12/13/19 19:19	EPA 6020A	**J**
Chromium	**28.6**	0.613	1.23	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Copper	**37.8**	0.613	1.23	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Lead	**12.4**	0.123	0.245	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Manganese	**267**	0.613	1.23	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Mercury	ND	0.0490	0.0980	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Nickel	**18.9**	0.613	1.23	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
Zinc	**58.4**	2.45	4.90	mg/kg dry	10	12/13/19 19:19	EPA 6020A	
RAU5-01-GW-7.0 (A9L0097-49)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**5.82**	0.500	1.00	ug/L	1	12/13/19 22:40	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:40	EPA 6020A	
Chromium	**4.13**	0.500	1.00	ug/L	1	12/13/19 22:40	EPA 6020A	
Copper	**3.97**	0.500	1.00	ug/L	1	12/13/19 22:40	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 22:40	EPA 6020A	
Nickel	**3.96**	0.500	1.00	ug/L	1	12/13/19 22:40	EPA 6020A	
Zinc	**15.1**	2.00	4.00	ug/L	1	12/13/19 22:40	EPA 6020A	
RAU5-01-GW-7.0 (A9L0097-49RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**0.738**	0.500	1.00	ug/L	5	12/16/19 23:34	EPA 6020A	**J, R-04**
Manganese	**7410**	2.50	5.00	ug/L	5	12/16/19 23:34	EPA 6020A	
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**2.29**	0.608	1.22	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
Cadmium	**0.167**	0.122	0.243	mg/kg dry	10	12/13/19 19:24	EPA 6020A	**J**
Chromium	**24.1**	0.608	1.22	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
Copper	**51.2**	0.608	1.22	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
Lead	**26.5**	0.122	0.243	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
Manganese	**358**	0.608	1.22	mg/kg dry	10	12/13/19 19:24	EPA 6020A	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**				
Mercury	**0.299**	0.0487	0.0973	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
Nickel	**29.1**	0.608	1.22	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
Zinc	**166**	2.43	4.87	mg/kg dry	10	12/13/19 19:24	EPA 6020A	
RAU1-09-GW-7.0 (A9L0097-51)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**5.30**	0.500	1.00	ug/L	1	12/13/19 22:44	EPA 6020A	
Cadmium	**0.270**	0.0400	0.200	ug/L	1	12/13/19 22:44	EPA 6020A	
Chromium	**38.6**	0.500	1.00	ug/L	1	12/13/19 22:44	EPA 6020A	
Copper	**59.8**	0.500	1.00	ug/L	1	12/13/19 22:44	EPA 6020A	
Mercury	**0.116**	0.0400	0.0800	ug/L	1	12/13/19 22:44	EPA 6020A	
Nickel	**24.1**	0.500	1.00	ug/L	1	12/13/19 22:44	EPA 6020A	
Zinc	**101**	2.00	4.00	ug/L	1	12/13/19 22:44	EPA 6020A	
RAU1-09-GW-7.0 (A9L0097-51RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	**29.6**	5.00	10.0	ug/L	50	12/16/19 23:47	EPA 6020A	
Manganese	**12600**	25.0	50.0	ug/L	50	12/16/19 23:47	EPA 6020A	
RAU4-01-SO-2 (A9L0097-52)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.78**	0.559	1.12	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Cadmium	ND	0.112	0.224	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Chromium	**32.1**	0.559	1.12	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Copper	**67.1**	0.559	1.12	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Lead	**4.57**	0.112	0.224	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Manganese	**715**	0.559	1.12	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Mercury	ND	0.0447	0.0895	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Nickel	**34.8**	0.559	1.12	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
Zinc	**52.4**	2.24	4.47	mg/kg dry	10	12/13/19 19:29	EPA 6020A	
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**				
Batch: 9120851								
Arsenic	**0.739**	0.500	1.00	ug/L	1	12/13/19 22:49	EPA 6020A	**J**

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-01-GW-6.5 (A9L0097-53)				**Matrix: Water**				
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 22:49	EPA 6020A	
Chromium	**1.86**	0.500	1.00	ug/L	1	12/13/19 22:49	EPA 6020A	
Copper	**3.12**	0.500	1.00	ug/L	1	12/13/19 22:49	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 22:49	EPA 6020A	
Nickel	**1.13**	0.500	1.00	ug/L	1	12/13/19 22:49	EPA 6020A	
Zinc	**2.04**	2.00	4.00	ug/L	1	12/13/19 22:49	EPA 6020A	**J**
RAU4-01-GW-6.5 (A9L0097-53RE1)				**Matrix: Water**				
Batch: 9120851								
Lead	ND	0.500	1.00	ug/L	5	12/16/19 23:52	EPA 6020A	R-04
Manganese	**3800**	2.50	5.00	ug/L	5	12/16/19 23:52	EPA 6020A	
RAU4-02-SO-2.5 (A9L0097-54)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.24**	0.615	1.23	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Cadmium	ND	0.123	0.246	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Chromium	**10.7**	0.615	1.23	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Copper	**18.2**	0.615	1.23	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Lead	**3.70**	0.123	0.246	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Manganese	**326**	0.615	1.23	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Mercury	ND	0.0492	0.0984	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Nickel	**7.28**	0.615	1.23	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
Zinc	**45.9**	2.46	4.92	mg/kg dry	10	12/13/19 19:33	EPA 6020A	
RAU4-02-GW-7 (A9L0097-55)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**3.61**	0.500	1.00	ug/L	1	12/13/19 23:36	EPA 6020A	
Cadmium	**0.103**	0.0400	0.200	ug/L	1	12/13/19 23:36	EPA 6020A	**J**
Chromium	**16.2**	0.500	1.00	ug/L	1	12/13/19 23:36	EPA 6020A	
Copper	**32.1**	0.500	1.00	ug/L	1	12/13/19 23:36	EPA 6020A	
Lead	**3.84**	0.100	0.200	ug/L	1	12/13/19 23:36	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 23:36	EPA 6020A	
Nickel	**7.33**	0.500	1.00	ug/L	1	12/13/19 23:36	EPA 6020A	
Zinc	**18.2**	2.00	4.00	ug/L	1	12/13/19 23:36	EPA 6020A	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7 (A9L0097-55RE1)				**Matrix: Water**				
Batch: 9120878								
Manganese	**4860**	25.0	50.0	ug/L	50	12/17/19 00:20	EPA 6020A	
RAU4-07-SO-3.5 (A9L0097-56)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**1.94**	0.687	1.37	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Cadmium	**0.228**	0.137	0.275	mg/kg dry	10	12/13/19 19:47	EPA 6020A	**J**
Chromium	**93.2**	0.687	1.37	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Copper	**78.3**	0.687	1.37	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Lead	**2.42**	0.137	0.275	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Manganese	**1210**	0.687	1.37	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Mercury	ND	0.0550	0.110	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Nickel	**51.2**	0.687	1.37	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
Zinc	**82.1**	2.75	5.50	mg/kg dry	10	12/13/19 19:47	EPA 6020A	
RAU4-07-GW-7.0 (A9L0097-57)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**1.25**	0.500	1.00	ug/L	1	12/13/19 23:40	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 23:40	EPA 6020A	
Chromium	**2.87**	0.500	1.00	ug/L	1	12/13/19 23:40	EPA 6020A	
Copper	**10.6**	0.500	1.00	ug/L	1	12/13/19 23:40	EPA 6020A	
Lead	**0.899**	0.100	0.200	ug/L	1	12/13/19 23:40	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 23:40	EPA 6020A	
Nickel	**3.02**	0.500	1.00	ug/L	1	12/13/19 23:40	EPA 6020A	
Zinc	**6.62**	2.00	4.00	ug/L	1	12/13/19 23:40	EPA 6020A	
RAU4-07-GW-7.0 (A9L0097-57RE1)				**Matrix: Water**				
Batch: 9120878								
Manganese	**10000**	25.0	50.0	ug/L	50	12/17/19 00:25	EPA 6020A	
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**3.23**	0.500	1.00	ug/L	1	12/13/19 23:45	EPA 6020A	
Cadmium	**0.122**	0.0400	0.200	ug/L	1	12/13/19 23:45	EPA 6020A	**J**
Chromium	**16.9**	0.500	1.00	ug/L	1	12/13/19 23:45	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-02-GW-7-DUP (A9L0097-58)				**Matrix: Water**				
Copper	**33.1**	0.500	1.00	ug/L	1	12/13/19 23:45	EPA 6020A	
Lead	**3.84**	0.100	0.200	ug/L	1	12/13/19 23:45	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 23:45	EPA 6020A	
Nickel	**9.11**	0.500	1.00	ug/L	1	12/13/19 23:45	EPA 6020A	
Zinc	**19.4**	2.00	4.00	ug/L	1	12/13/19 23:45	EPA 6020A	
RAU4-02-GW-7-DUP (A9L0097-58RE1)				**Matrix: Water**				
Batch: 9120878								
Manganese	**4720**	25.0	50.0	ug/L	50	12/17/19 00:29	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**0.578**	0.224	0.449	mg/kg	1	12/31/19 15:20	EPA 7196A	
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**0.293**	0.223	0.447	mg/kg	1	12/31/19 15:21	EPA 7196A	**J**
RAU5-02-SO-7.5 (A9L0097-46)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**6.62**	2.21	4.43	mg/kg	10	12/31/19 15:25	EPA 7196A	
RAU4-07-SO-3.5 (A9L0097-56)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**0.731**	0.220	0.440	mg/kg	1	12/31/19 15:26	EPA 7196A	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-02-SO-2.5 (A9L0097-01)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**85.9**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU2-03-SO-3 (A9L0097-03)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**88.2**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU2-04-SO-4.5 (A9L0097-04)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**86.0**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU3-05-SO-1.6 (A9L0097-06)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**94.7**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU2-01-SO-3.5 (A9L0097-08)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**84.1**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU3-05-SO-3 (A9L0097-10)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**84.2**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU2-05-SO-2.5 (A9L0097-11)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**83.6**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU2-06-SO-1.3 (A9L0097-13)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**89.6**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-07-SO-1.8 (A9L0097-15)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**85.5**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU1-04-SO-1.3 (A9L0097-17)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**60.0**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-01-SO-2.4 (A9L0097-19)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**83.5**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-05-SO-1.5 (A9L0097-21)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**89.7**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120602**		

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-02-SO-1 (A9L0097-23)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**84.8**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU2-05-SO-2.5-DUP (A9L0097-29)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**85.1**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-03-SO-2.2 (A9L0097-30)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**86.0**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-06-SO-3.5 (A9L0097-33)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**76.1**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-11-SO-3.5 (A9L0097-35)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**88.9**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU1-12-SO-2.7 (A9L0097-38)				**Matrix: Soil**		**Batch: 9120602**		
% Solids	**91.0**	1.00	1.00	%	1	12/09/19 07:51	EPA 8000C	
RAU3-06-SO-3 (A9L0097-40)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**93.9**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU3-04-SO-2.5 (A9L0097-42)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**83.8**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU3-04-SO-6.5 (A9L0097-43)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**48.6**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU3-03-SO-2.5 (A9L0097-44)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**89.7**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU5-02-SO-2 (A9L0097-45)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**89.3**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU5-02-SO-7.5 (A9L0097-46)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**53.5**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU3-02-SO-2.5 (A9L0097-47)				**Matrix: Soil**		**Batch: 9120545**		

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ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-02-SO-2.5 (A9L0097-47)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**93.8**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU5-01-SO-4.5 (A9L0097-48)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**85.4**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU1-09-SO-1.5 (A9L0097-50)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**90.3**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU4-01-SO-2 (A9L0097-52)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**88.0**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU4-02-SO-2.5 (A9L0097-54)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**87.3**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	
RAU4-07-SO-3.5 (A9L0097-56)				**Matrix: Soil**		**Batch: 9120545**		
% Solids	**78.7**	1.00	1.00	%	1	12/06/19 08:40	EPA 8000C	

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ANALYTICAL SAMPLE RESULTS (Subcontracted)

Wet Chemistry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-01-GW-7.5 (A9L0097-20RE1)				**Matrix: Water**			**Batch: BHL0233**	
Batch: BHL0233								
Sulfide	ND	0.050	0.050	mg/L	1	12/09/19 17:39	SM 4500-S2 D-00	U
RAU1-02-GW-6 (A9L0097-24RE1)				**Matrix: Water**			**Batch: BHL0233**	
Batch: BHL0233								
Sulfide	ND	0.050	0.050	mg/L	1	12/09/19 17:40	SM 4500-S2 D-00	U

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120563 - EPA 3510C (Fuels/Acid Ext.)												**Water**
Blank (9120563-BLK1)			Prepared: 12/05/19 11:08 Analyzed: 12/05/19 22:23									
NWTPH-HCID												
Gasoline Range Organics	ND	0.0909	0.0909	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	0.227	0.227	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	0.227	0.227	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*50 %*	*10-120 %*			*"*					
Batch 9120583 - NWTPH-HCID (Soil)												**Soil**
Blank (9120583-BLK1)			Prepared: 12/05/19 15:46 Analyzed: 12/05/19 22:23									
NWTPH-HCID												
Gasoline Range Organics	ND	18.2	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	45.5	45.5	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	90.9	90.9	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*104 %*	*50-150 %*			*"*					
Duplicate (9120583-DUP1)			Prepared: 12/05/19 15:46 Analyzed: 12/05/19 23:05									
QC Source Sample: Non-SDG (A9L0055-06)												
Gasoline Range Organics	ND	30.4	30.4	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	75.9	75.9	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	152	152	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 75 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*78 %*	*50-150 %*			*"*					
Duplicate (9120583-DUP2)			Prepared: 12/05/19 15:46 Analyzed: 12/06/19 04:33									
QC Source Sample: RAU4-07-SO-3.5 (A9L0097-56)												
NWTPH-HCID												
Gasoline Range Organics	ND	23.8	23.8	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	59.6	59.6	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	119	119	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 88 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*91 %*	*50-150 %*			*"*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120583 - NWTPH-HCID (Soil)							**Soil**					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120727 - NWTPH-HCID (Soil)							Soil					
Blank (9120727-BLK1)			Prepared: 12/10/19 14:41		Analyzed: 12/10/19 21:34							
NWTPH-HCID												
Gasoline Range Organics	ND	18.2	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	45.5	45.5	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	90.9	90.9	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 91 %*		*Limits: 50-150 %*		*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*85 %*		*50-150 %*		*"*					
Duplicate (9120727-DUP1)			Prepared: 12/10/19 14:41		Analyzed: 12/10/19 22:15							
QC Source Sample: RAU3-05-SO-3 (A9L0097-10)												
NWTPH-HCID												
Gasoline Range Organics	ND	23.2	23.2	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	58.1	58.1	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	116	116	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*		*Limits: 50-150 %*		*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*97 %*		*50-150 %*		*"*					
Duplicate (9120727-DUP2)			Prepared: 12/10/19 14:41		Analyzed: 12/11/19 03:03							
QC Source Sample: Non-SDG (A9L0232-03)												
Gasoline Range Organics	ND	21.2	21.2	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	52.9	52.9	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	106	106	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 108 %*		*Limits: 50-150 %*		*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*81 %*		*50-150 %*		*"*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120563 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9120563-BLK1)			Prepared: 12/05/19 11:08		Analyzed: 12/05/19 22:23							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 102 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS (9120563-BS1)			Prepared: 12/05/19 11:08		Analyzed: 12/05/19 22:44							
NWTPH-Dx												
Diesel	0.971	0.100	0.200	mg/L	1	1.25	---	78	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 108 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS Dup (9120563-BSD1)			Prepared: 12/05/19 11:08		Analyzed: 12/05/19 23:05							Q-19
NWTPH-Dx												
Diesel	1.03	0.100	0.200	mg/L	1	1.25	---	82	58-115%	6	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 105 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Matrix Spike (9120563-MS1)			Prepared: 12/05/19 13:03		Analyzed: 12/06/19 02:10							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12)												
NWTPH-Dx												
Diesel	1.10	0.109	0.217	mg/L	1	1.36	ND	81	50-150%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 108 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Matrix Spike (9120563-MS2)			Prepared: 12/05/19 13:03		Analyzed: 12/06/19 03:11							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
NWTPH-Dx												
Diesel	0.862	0.111	0.222	mg/L	1	1.39	ND	62	50-150%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 103 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Matrix Spike Dup (9120563-MSD1)			Prepared: 12/05/19 13:03		Analyzed: 12/06/19 02:30							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12)												
NWTPH-Dx												
Diesel	0.899	0.0990	0.198	mg/L	1	1.24	ND	73	50-150%	20	50%	
Surr: o-Terphenyl (Surr)			*Recovery: 108 %*		*Limits: 50-150 %*		*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120563 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Matrix Spike Dup (9120563-MSD2)				Prepared: 12/05/19 13:03		Analyzed: 12/06/19 04:54						
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
NWTPH-Dx												
Diesel	1.25	0.116	0.233	mg/L	1	1.45	ND	86	50-150%	37	50%	
Surr: o-Terphenyl (Surr)			*Recovery: 114 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120667 - EPA 3546 (Fuels)							Soil					
Blank (9120667-BLK1)			Prepared: 12/09/19 12:50 Analyzed: 12/09/19 21:56									
NWTPH-Dx												
Diesel	ND	9.09	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	18.2	50.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	18.2	36.4	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (9120667-BS1)			Prepared: 12/09/19 12:50 Analyzed: 12/09/19 22:17									
NWTPH-Dx												
Diesel	116	10.0	25.0	mg/kg wet	1	125	---	93	76-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (9120667-DUP1)			Prepared: 12/09/19 12:50 Analyzed: 12/10/19 00:04									
QC Source Sample: Non-SDG (A9L0093-02)												
Diesel	**9.73**	9.29	25.0	mg/kg dry	1	---	ND	---	---		**30%**	Q-05, J
Oil	ND	18.6	50.0	mg/kg dry	1	---	ND	---	---	---	30%	
Mineral Oil	ND	18.6	37.2	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (9120667-DUP2)			Prepared: 12/09/19 12:50 Analyzed: 12/10/19 01:52									
QC Source Sample: Non-SDG (A9L0155-02)												
Diesel	ND	9.51	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**392**	19.0	50.0	mg/kg dry	1	---	392	---	---	0.07	30%	
Mineral Oil	ND	19.0	38.1	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 104 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120671 - EPA 3510C (Fuels/Acid Ext.)									Water			
Blank (9120671-BLK1)			Prepared: 12/09/19 13:46		Analyzed: 12/10/19 00:37							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (9120671-BS1)			Prepared: 12/09/19 13:46		Analyzed: 12/10/19 00:58							
NWTPH-Dx												
Diesel	1.03	0.100	0.200	mg/L	1	1.25	---	82	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 110 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (9120671-BSD1)			Prepared: 12/09/19 13:46		Analyzed: 12/10/19 01:18							**Q-19**
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115%	2	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 108 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120721 - EPA 3546 (Fuels)							**Soil**					
Blank (9120721-BLK1)			Prepared: 12/10/19 12:58		Analyzed: 12/10/19 20:13							
NWTPH-Dx												
Diesel	ND	9.09	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	18.2	50.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (9120721-BS1)			Prepared: 12/10/19 12:58		Analyzed: 12/10/19 20:33							
NWTPH-Dx												
Diesel	104	10.0	20.0	mg/kg wet	1	125	---	83	76-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (9120721-DUP1)			Prepared: 12/10/19 12:58		Analyzed: 12/10/19 21:36							
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15RE1)												
NWTPH-Dx												
Diesel	ND	11.2	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**2530**	22.3	50.0	mg/kg dry	1	---	3270	---	---	26	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (9120721-DUP2)			Prepared: 12/10/19 12:58		Analyzed: 12/11/19 00:00							
QC Source Sample: Non-SDG (A9L0228-04)												
Diesel	ND	12.6	25.1	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**183**	25.1	50.3	mg/kg dry	1	---	114	---	---	**46**	**30%**	F-03, Q-05
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120726 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9120726-BLK1)			Prepared: 12/10/19 13:45		Analyzed: 12/10/19 20:13							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (9120726-BS1)			Prepared: 12/10/19 13:45		Analyzed: 12/10/19 20:36							
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (9120726-BSD1)			Prepared: 12/10/19 13:45		Analyzed: 12/10/19 20:58							**Q-19**
NWTPH-Dx												
Diesel	1.07	0.100	0.200	mg/L	1	1.25	---	85	58-115%	2	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120906 - EPA 3546 (Fuels)							Soil					
Blank (9120906-BLK1)			Prepared: 12/13/19 14:20		Analyzed: 12/13/19 18:49							
NWTPH-Dx												
Diesel	ND	9.09	18.2	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	18.2	36.4	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (9120906-BS1)			Prepared: 12/13/19 14:20		Analyzed: 12/13/19 19:09							
NWTPH-Dx												
Diesel	129	10.0	20.0	mg/kg wet	1	125	---	103	76-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 104 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (9120906-DUP1)			Prepared: 12/13/19 14:20		Analyzed: 12/13/19 19:49							
QC Source Sample: RAU3-05-SO-1.6 (A9L0097-06)												
NWTPH-Dx												
Diesel	ND	9.96	19.9	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**1150**	19.9	39.8	mg/kg dry	1	---	949	---	---	20	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (9120906-DUP2)			Prepared: 12/13/19 14:20		Analyzed: 12/14/19 05:07							
QC Source Sample: Non-SDG (A9L0356-05)												
Diesel	ND	11.4	22.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**72.4**	22.8	45.6	mg/kg dry	1	---	116	---	---	**46**	**30%**	Q-05
Surr: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Blank (9120608-BLK1)			Prepared: 12/06/19 10:45 Analyzed: 12/06/19 12:39									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	1.67	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 103 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*112 %*	*50-150 %*			*"*					
LCS (9120608-BS2)			Prepared: 12/06/19 10:45 Analyzed: 12/06/19 12:12									
NWTPH-Gx (MS)												
Gasoline Range Organics	27.9	2.50	5.00	mg/kg wet	50	25.0	---	112	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*107 %*	*50-150 %*			*"*					
Duplicate (9120608-DUP1)			Prepared: 12/03/19 09:50 Analyzed: 12/06/19 19:22									
QC Source Sample: RAU1-12-SO-2.7 (A9L0097-38)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**41.3**	2.64	5.29	mg/kg dry	50	---	118	---	---	**96**	**30%**	Q-04
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 114 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*105 %*	*50-150 %*			*"*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B									Water			
Blank (9120635-BLK1)			Prepared: 12/07/19 08:30		Analyzed: 12/07/19 10:51							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*108 %*		*50-150 %*				*"*			
LCS (9120635-BS2)			Prepared: 12/07/19 08:30		Analyzed: 12/07/19 10:24							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.429	0.0500	0.100	mg/L	1	0.500	---	86	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 99 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*105 %*		*50-150 %*				*"*			
Duplicate (9120635-DUP1)			Prepared: 12/07/19 11:00		Analyzed: 12/07/19 17:06							
QC Source Sample: RAU1-12-GW-7.0 (A9L0097-39)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.500	1.00	mg/L	10	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*110 %*		*50-150 %*				*"*			

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B									Water			
Blank (9120654-BLK1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:56							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*106 %*		*50-150 %*				*"*			
LCS (9120654-BS2)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:29							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.403	0.0500	0.100	mg/L	1	0.500	---	81	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 95 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*102 %*		*50-150 %*				*"*			
Duplicate (9120654-DUP1)			Prepared: 12/09/19 12:34		Analyzed: 12/09/19 15:10							
QC Source Sample: Non-SDG (A9L0215-01)												
Gasoline Range Organics	ND	100	200	mg/L	2000	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*107 %*		*50-150 %*				*"*			

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QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B												**Water**
Blank (9120635-BLK1)			Prepared: 12/07/19 08:30 Analyzed: 12/07/19 10:51									
EPA 8260C												
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	0.750	1.50	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 111 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*101 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*			*"*				
LCS (9120635-BS1)			Prepared: 12/07/19 08:30 Analyzed: 12/07/19 09:57									
EPA 8260C												
Benzene	20.9	0.100	0.200	ug/L	1	20.0	---	104	80-120%	---	---	
Toluene	19.2	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
Ethylbenzene	18.9	0.250	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Xylenes, total	55.5	0.750	1.50	ug/L	1	60.0	---	92	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*			*"*				
Duplicate (9120635-DUP1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 17:06									
QC Source Sample: RAU1-12-GW-7.0 (A9L0097-39)												
EPA 8260C												
Benzene	ND	1.00	2.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Ethylbenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Xylenes, total	ND	7.50	15.0	ug/L	10	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 114 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*101 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*			*"*				
Matrix Spike (9120635-MS1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 15:18									
QC Source Sample: Non-SDG (A9L0144-01)												
EPA 8260C												

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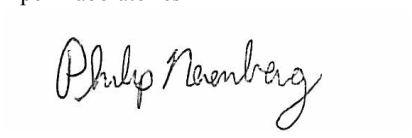

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QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Matrix Spike (9120635-MS1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 15:18									
QC Source Sample: Non-SDG (A9L0144-01)												
Benzene	22.4	0.100	0.200	ug/L	1	20.0	ND	112	79-120%	---	---	
Toluene	20.4	0.500	1.00	ug/L	1	20.0	ND	102	80-121%	---	---	
Ethylbenzene	20.2	0.250	0.500	ug/L	1	20.0	ND	101	79-121%	---	---	
Xylenes, total	59.3	0.750	1.50	ug/L	1	60.0	ND	99	79-121%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*94 %*		*80-120 %*			*"*				

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QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Blank (9120751-BLK1)			Prepared: 12/11/19 09:00 Analyzed: 12/11/19 11:34									
5035A/8260C												
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				
LCS (9120751-BS1)			Prepared: 12/11/19 09:00 Analyzed: 12/11/19 10:39									
5035A/8260C												
Benzene	977	5.00	10.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Toluene	931	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Ethylbenzene	987	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Xylenes, total	2980	37.5	75.0	ug/kg wet	50	3000	---	99	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				
Duplicate (9120751-DUP1)			Prepared: 12/02/19 12:15 Analyzed: 12/11/19 16:35									
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
5035A/8260C												
Benzene	ND	5.95	11.9	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	44.6	89.3	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*			*"*				
Matrix Spike (9120751-MS1)			Prepared: 12/02/19 15:35 Analyzed: 12/11/19 19:18									
QC Source Sample: RAU1-02-SO-1 (A9L0097-23)												
5035A/8260C												

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Matrix Spike (9120751-MS1)			Prepared: 12/02/19 15:35 Analyzed: 12/11/19 19:18									
QC Source Sample: RAU1-02-SO-1 (A9L0097-23)												
Benzene	1220	5.88	11.8	ug/kg dry	50	1180	ND	103	77-121%	---	---	
Toluene	1120	29.4	58.8	ug/kg dry	50	1180	ND	95	77-121%	---	---	
Ethylbenzene	1190	14.7	29.4	ug/kg dry	50	1180	ND	101	76-122%	---	---	
Xylenes, total	3600	44.1	88.2	ug/kg dry	50	3530	ND	102	78-124%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*97 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*			*"*				

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Blank (9120813-BLK1)			Prepared: 12/12/19 09:00 Analyzed: 12/12/19 11:36									
5035A/8260C												
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*102 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				
LCS (9120813-BS1)			Prepared: 12/12/19 09:00 Analyzed: 12/12/19 10:42									
5035A/8260C												
Benzene	970	5.00	10.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Toluene	934	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Ethylbenzene	984	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Xylenes, total	2940	37.5	75.0	ug/kg wet	50	3000	---	98	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*97 %*		*80-120 %*			*"*				
Duplicate (9120813-DUP1)			Prepared: 12/03/19 15:00 Analyzed: 12/12/19 18:54									
QC Source Sample: RAU4-01-SO-2 (A9L0097-52)												
5035A/8260C												
Benzene	ND	5.78	11.6	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	43.4	86.8	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*			*"*				
Matrix Spike (9120813-MS1)			Prepared: 12/03/19 14:45 Analyzed: 12/12/19 20:16									
QC Source Sample: RAU1-09-SO-1.5 (A9L0097-50)												
5035A/8260C												

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Matrix Spike (9120813-MS1)			Prepared: 12/03/19 14:45 Analyzed: 12/12/19 20:16									
QC Source Sample: RAU1-09-SO-1.5 (A9L0097-50)												
Benzene	1080	5.22	10.4	ug/kg dry	50	1050	47.4	99	77-121%	---	---	
Toluene	1080	26.1	52.2	ug/kg dry	50	1050	154	89	77-121%	---	---	
Ethylbenzene	1000	13.0	26.1	ug/kg dry	50	1050	ND	96	76-122%	---	---	
Xylenes, total	3380	39.1	78.3	ug/kg dry	50	3140	311	98	78-124%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*95 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*			*"*				

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							Soil					
Blank (9120603-BLK1)			Prepared: 12/06/19 13:30 Analyzed: 12/06/19 16:17									
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	167	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	66.7	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
Blank (9120603-BLK1)			Prepared: 12/06/19 13:30 Analyzed: 12/06/19 16:17									
1,2-Dichloropropane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*	*Limits: 80-120 %*				*Dilution: 1x*				

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
Blank (9120603-BLK1)				Prepared: 12/06/19 13:30 Analyzed: 12/06/19 16:17								
Surr: Toluene-d8 (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*			*"*					
LCS (9120603-BS1)				Prepared: 12/06/19 13:30 Analyzed: 12/06/19 15:23								
5035A/8260C												
Acetone	1630	500	1000	ug/kg wet	50	2000	---	81	80-120%	---	---	
Acrylonitrile	924	50.0	100	ug/kg wet	50	1000	---	92	80-120%	---	---	
Benzene	1000	5.00	10.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Bromobenzene	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Bromochloromethane	957	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Bromodichloromethane	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Bromoform	1060	50.0	100	ug/kg wet	50	1000	---	106	80-120%	---	---	
Bromomethane	940	500	500	ug/kg wet	50	1000	---	94	80-120%	---	---	
2-Butanone (MEK)	1790	250	500	ug/kg wet	50	2000	---	89	80-120%	---	---	
n-Butylbenzene	1160	25.0	50.0	ug/kg wet	50	1000	---	116	80-120%	---	---	
sec-Butylbenzene	1160	25.0	50.0	ug/kg wet	50	1000	---	116	80-120%	---	---	
tert-Butylbenzene	1140	25.0	50.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
Carbon disulfide	879	250	500	ug/kg wet	50	1000	---	88	80-120%	---	---	
Carbon tetrachloride	985	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Chlorobenzene	998	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Chloroethane	1260	250	500	ug/kg wet	50	1000	---	**126**	**80-120%**	---	---	Q-56
Chloroform	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Chloromethane	738	250	250	ug/kg wet	50	1000	---	**74**	**80-120%**	---	---	Q-55
2-Chlorotoluene	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
4-Chlorotoluene	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Dibromochloromethane	1100	50.0	100	ug/kg wet	50	1000	---	110	80-120%	---	---	
1,2-Dibromo-3-chloropropane	934	125	250	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,2-Dibromoethane (EDB)	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Dibromomethane	990	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,2-Dichlorobenzene	1090	12.5	25.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,3-Dichlorobenzene	1060	12.5	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
1,4-Dichlorobenzene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Dichlorodifluoromethane	727	100	100	ug/kg wet	50	1000	---	**73**	**80-120%**	---	---	Q-55
1,1-Dichloroethane	929	12.5	25.0	ug/kg wet	50	1000	---	93	80-120%	---	---	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
LCS (9120603-BS1)			Prepared: 12/06/19 13:30 Analyzed: 12/06/19 15:23									
1,2-Dichloroethane (EDC)	1000	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,1-Dichloroethene	966	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
cis-1,2-Dichloroethene	984	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
trans-1,2-Dichloroethene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,2-Dichloropropane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,3-Dichloropropane	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
2,2-Dichloropropane	1180	25.0	50.0	ug/kg wet	50	1000	---	118	80-120%	---	---	
1,1-Dichloropropene	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
cis-1,3-Dichloropropene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
trans-1,3-Dichloropropene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Ethylbenzene	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Hexachlorobutadiene	1130	50.0	100	ug/kg wet	50	1000	---	113	80-120%	---	---	
2-Hexanone	1810	250	500	ug/kg wet	50	2000	---	91	80-120%	---	---	
Isopropylbenzene	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
4-Isopropyltoluene	1140	25.0	50.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
Methylene chloride	882	125	250	ug/kg wet	50	1000	---	88	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2030	250	500	ug/kg wet	50	2000	---	101	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Naphthalene	988	50.0	100	ug/kg wet	50	1000	---	99	80-120%	---	---	
n-Propylbenzene	1110	12.5	25.0	ug/kg wet	50	1000	---	111	80-120%	---	---	
Styrene	968	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1070	12.5	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Tetrachloroethene (PCE)	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Toluene	991	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,2,3-Trichlorobenzene	998	125	250	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2,4-Trichlorobenzene	1020	125	250	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,1,1-Trichloroethane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,1,2-Trichloroethane	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Trichloroethene (TCE)	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Trichlorofluoromethane	1110	50.0	100	ug/kg wet	50	1000	---	111	80-120%	---	---	
1,2,3-Trichloropropane	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
1,2,4-Trimethylbenzene	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,3,5-Trimethylbenzene	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
LCS (9120603-BS1)			Prepared: 12/06/19 13:30 Analyzed: 12/06/19 15:23									
Vinyl chloride	880	12.5	25.0	ug/kg wet	50	1000	---	88	80-120%	---	---	
m,p-Xylene	2130	25.0	50.0	ug/kg wet	50	2000	---	106	80-120%	---	---	
o-Xylene	1080	12.5	25.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*		*"*					
Duplicate (9120603-DUP1)			Prepared: 12/02/19 14:25 Analyzed: 12/06/19 19:01									
QC Source Sample: RAU1-04-SO-1.3 (A9L0097-17)												
5035A/8260C												
Acetone	ND	1230	2460	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	123	246	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	12.3	24.6	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	123	246	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	1230	1230	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	616	1230	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	616	1230	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	616	1230	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	616	616	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	123	246	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	308	616	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Batch 9120603 - EPA 5035A — **Soil**

Duplicate (9120603-DUP1) Prepared: 12/02/19 14:25 Analyzed: 12/06/19 19:01

QC Source Sample: RAU1-04-SO-1.3 (A9L0097-17)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
1,2-Dichlorobenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	246	246	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	123	246	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	616	1230	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	308	616	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	616	1230	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	123	246	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	308	616	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	308	616	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
Duplicate (9120603-DUP1)				Prepared: 12/02/19 14:25		Analyzed: 12/06/19 19:01						
QC Source Sample: RAU1-04-SO-1.3 (A9L0097-17)												
1,1,2-Trichloroethane	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	123	246	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	61.6	123	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	30.8	61.6	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*98 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*		*"*					
Matrix Spike (9120603-MS1)				Prepared: 12/06/19 10:00		Analyzed: 12/06/19 19:55						**V-15**
QC Source Sample: Non-SDG (A9L0179-05)												
5035A/8260C												
Acetone	1810	533	1070	ug/kg dry	50	2130	ND	85	36-164%	---	---	
Acrylonitrile	1080	53.3	107	ug/kg dry	50	1070	ND	102	65-134%	---	---	
Benzene	1090	5.33	10.7	ug/kg dry	50	1070	ND	102	77-121%	---	---	
Bromobenzene	1100	13.3	26.7	ug/kg dry	50	1070	ND	103	78-121%	---	---	
Bromochloromethane	1100	26.7	53.3	ug/kg dry	50	1070	ND	103	78-125%	---	---	
Bromodichloromethane	1210	26.7	53.3	ug/kg dry	50	1070	ND	113	75-127%	---	---	
Bromoform	1170	53.3	107	ug/kg dry	50	1070	ND	110	67-132%	---	---	
Bromomethane	1130	533	533	ug/kg dry	50	1070	ND	106	53-143%	---	---	
2-Butanone (MEK)	2000	267	533	ug/kg dry	50	2130	ND	94	51-148%	---	---	
n-Butylbenzene	1070	26.7	53.3	ug/kg dry	50	1070	ND	100	70-128%	---	---	
sec-Butylbenzene	1080	26.7	53.3	ug/kg dry	50	1070	ND	102	73-126%	---	---	
tert-Butylbenzene	1060	26.7	53.3	ug/kg dry	50	1070	ND	99	73-125%	---	---	
Carbon disulfide	891	267	533	ug/kg dry	50	1070	ND	84	63-132%	---	---	
Carbon tetrachloride	1030	26.7	53.3	ug/kg dry	50	1070	ND	97	70-135%	---	---	
Chlorobenzene	1050	13.3	26.7	ug/kg dry	50	1070	ND	99	79-120%	---	---	
Chloroethane	1670	267	533	ug/kg dry	50	1070	ND	**157**	**59-139%**	---	---	Q-54g
Chloroform	1180	26.7	53.3	ug/kg dry	50	1070	ND	111	78-123%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
Matrix Spike (9120603-MS1)			Prepared: 12/06/19 10:00		Analyzed: 12/06/19 19:55							**V-15**
QC Source Sample: Non-SDG (A9L0179-05)												
Chloromethane	778	267	267	ug/kg dry	50	1070	ND	73	50-136%	---	---	Q-54v
2-Chlorotoluene	1110	26.7	53.3	ug/kg dry	50	1070	ND	104	75-122%	---	---	
4-Chlorotoluene	1110	26.7	53.3	ug/kg dry	50	1070	ND	104	72-124%	---	---	
Dibromochloromethane	1180	53.3	107	ug/kg dry	50	1070	ND	111	74-126%	---	---	
1,2-Dibromo-3-chloropropane	885	133	267	ug/kg dry	50	1070	ND	83	61-132%	---	---	
1,2-Dibromoethane (EDB)	1150	26.7	53.3	ug/kg dry	50	1070	ND	107	78-122%	---	---	
Dibromomethane	1160	26.7	53.3	ug/kg dry	50	1070	ND	109	78-125%	---	---	
1,2-Dichlorobenzene	1130	13.3	26.7	ug/kg dry	50	1070	ND	106	78-121%	---	---	
1,3-Dichlorobenzene	1100	13.3	26.7	ug/kg dry	50	1070	ND	103	77-121%	---	---	
1,4-Dichlorobenzene	1050	13.3	26.7	ug/kg dry	50	1070	ND	98	75-120%	---	---	
Dichlorodifluoromethane	771	107	107	ug/kg dry	50	1070	ND	72	29-149%	---	---	Q-54x
1,1-Dichloroethane	1140	13.3	26.7	ug/kg dry	50	1070	ND	107	76-125%	---	---	
1,2-Dichloroethane (EDC)	1140	13.3	26.7	ug/kg dry	50	1070	ND	107	73-128%	---	---	
1,1-Dichloroethene	983	13.3	26.7	ug/kg dry	50	1070	ND	92	70-131%	---	---	
cis-1,2-Dichloroethene	1090	13.3	26.7	ug/kg dry	50	1070	ND	102	77-123%	---	---	
trans-1,2-Dichloroethene	1030	13.3	26.7	ug/kg dry	50	1070	ND	96	74-125%	---	---	
1,2-Dichloropropane	1140	13.3	26.7	ug/kg dry	50	1070	ND	107	76-123%	---	---	
1,3-Dichloropropane	1100	26.7	53.3	ug/kg dry	50	1070	ND	103	77-121%	---	---	
2,2-Dichloropropane	1090	26.7	53.3	ug/kg dry	50	1070	ND	102	67-133%	---	---	
1,1-Dichloropropene	1050	26.7	53.3	ug/kg dry	50	1070	ND	98	76-125%	---	---	
cis-1,3-Dichloropropene	1090	26.7	53.3	ug/kg dry	50	1070	ND	102	74-126%	---	---	
trans-1,3-Dichloropropene	1120	26.7	53.3	ug/kg dry	50	1070	ND	105	71-130%	---	---	
Ethylbenzene	1060	13.3	26.7	ug/kg dry	50	1070	ND	100	76-122%	---	---	
Hexachlorobutadiene	1000	53.3	107	ug/kg dry	50	1070	ND	94	61-135%	---	---	
2-Hexanone	1870	267	533	ug/kg dry	50	2130	ND	88	53-145%	---	---	
Isopropylbenzene	1050	26.7	53.3	ug/kg dry	50	1070	ND	99	68-134%	---	---	
4-Isopropyltoluene	1070	26.7	53.3	ug/kg dry	50	1070	ND	101	73-127%	---	---	
Methylene chloride	973	133	267	ug/kg dry	50	1070	ND	91	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2250	267	533	ug/kg dry	50	2130	ND	106	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1140	26.7	53.3	ug/kg dry	50	1070	ND	106	73-125%	---	---	
Naphthalene	903	53.3	107	ug/kg dry	50	1070	ND	85	62-129%	---	---	
n-Propylbenzene	1050	13.3	26.7	ug/kg dry	50	1070	ND	98	73-125%	---	---	
Styrene	1000	26.7	53.3	ug/kg dry	50	1070	ND	94	76-124%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120603 - EPA 5035A							**Soil**					
Matrix Spike (9120603-MS1)			Prepared: 12/06/19 10:00		Analyzed: 12/06/19 19:55							**V-15**
QC Source Sample: Non-SDG (A9L0179-05)												
1,1,1,2-Tetrachloroethane	1140	13.3	26.7	ug/kg dry	50	1070	ND	107	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1100	26.7	53.3	ug/kg dry	50	1070	ND	103	70-124%	---	---	
Tetrachloroethene (PCE)	1010	13.3	26.7	ug/kg dry	50	1070	ND	94	73-128%	---	---	
Toluene	998	26.7	53.3	ug/kg dry	50	1070	ND	94	77-121%	---	---	
1,2,3-Trichlorobenzene	931	133	267	ug/kg dry	50	1070	ND	87	66-130%	---	---	
1,2,4-Trichlorobenzene	928	133	267	ug/kg dry	50	1070	ND	87	67-129%	---	---	
1,1,1-Trichloroethane	1070	13.3	26.7	ug/kg dry	50	1070	ND	101	73-130%	---	---	
1,1,2-Trichloroethane	1170	13.3	26.7	ug/kg dry	50	1070	ND	110	78-121%	---	---	
Trichloroethene (TCE)	1060	13.3	26.7	ug/kg dry	50	1070	ND	99	77-123%	---	---	
Trichlorofluoromethane	1430	53.3	107	ug/kg dry	50	1070	ND	134	62-140%	---	---	
1,2,3-Trichloropropane	1080	26.7	53.3	ug/kg dry	50	1070	ND	101	73-125%	---	---	
1,2,4-Trimethylbenzene	986	26.7	53.3	ug/kg dry	50	1070	ND	92	75-123%	---	---	
1,3,5-Trimethylbenzene	1060	26.7	53.3	ug/kg dry	50	1070	ND	99	73-124%	---	---	
Vinyl chloride	946	13.3	26.7	ug/kg dry	50	1070	ND	89	56-135%	---	---	
m,p-Xylene	2130	26.7	53.3	ug/kg dry	50	2130	ND	100	77-124%	---	---	
o-Xylene	1100	13.3	26.7	ug/kg dry	50	1070	ND	103	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*95 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*			*"*				

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							Soil					
Blank (9120608-BLK1)			Prepared: 12/06/19 10:45 Analyzed: 12/06/19 12:39									
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Blank (9120608-BLK1)			Prepared: 12/06/19 10:45 Analyzed: 12/06/19 12:39									
1,2-Dichloropropane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 94 %*	*Limits: 80-120 %*			*Dilution: 1x*					

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Blank (9120608-BLK1)				Prepared: 12/06/19 10:45 Analyzed: 12/06/19 12:39								
Surr: Toluene-d8 (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*				*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*97 %*	*80-120 %*				*"*				
LCS (9120608-BS1)				Prepared: 12/06/19 10:45 Analyzed: 12/06/19 11:45								
5035A/8260C												
Acetone	1670	500	1000	ug/kg wet	50	2000	---	84	80-120%	---	---	
Acrylonitrile	812	50.0	100	ug/kg wet	50	1000	---	81	80-120%	---	---	
Benzene	891	5.00	10.0	ug/kg wet	50	1000	---	89	80-120%	---	---	
Bromobenzene	915	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
Bromochloromethane	1120	25.0	50.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
Bromodichloromethane	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
Bromoform	901	50.0	100	ug/kg wet	50	1000	---	90	80-120%	---	---	
Bromomethane	1220	500	500	ug/kg wet	50	1000	---	**122**	**80-120%**	---	---	Q-56
2-Butanone (MEK)	1770	250	500	ug/kg wet	50	2000	---	89	80-120%	---	---	
n-Butylbenzene	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
sec-Butylbenzene	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
tert-Butylbenzene	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Carbon disulfide	891	250	500	ug/kg wet	50	1000	---	89	80-120%	---	---	
Carbon tetrachloride	1110	25.0	50.0	ug/kg wet	50	1000	---	111	80-120%	---	---	
Chlorobenzene	952	12.5	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Chloroethane	1470	250	500	ug/kg wet	50	1000	---	**147**	**80-120%**	---	---	Q-56
Chloroform	1120	25.0	50.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
Chloromethane	967	125	250	ug/kg wet	50	1000	---	97	80-120%	---	---	
2-Chlorotoluene	948	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
4-Chlorotoluene	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Dibromochloromethane	1020	50.0	100	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,2-Dibromo-3-chloropropane	841	125	250	ug/kg wet	50	1000	---	84	80-120%	---	---	
1,2-Dibromoethane (EDB)	973	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Dibromomethane	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,2-Dichlorobenzene	946	12.5	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
1,3-Dichlorobenzene	967	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,4-Dichlorobenzene	921	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
Dichlorodifluoromethane	851	50.0	100	ug/kg wet	50	1000	---	85	80-120%	---	---	
1,1-Dichloroethane	1200	12.5	25.0	ug/kg wet	50	1000	---	120	80-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
LCS (9120608-BS1)			Prepared: 12/06/19 10:45 Analyzed: 12/06/19 11:45									
1,2-Dichloroethane (EDC)	1120	12.5	25.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
1,1-Dichloroethene	963	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
cis-1,2-Dichloroethene	960	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
trans-1,2-Dichloroethene	1000	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dichloropropane	925	50.0	100	ug/kg wet	50	1000	---	92	80-120%	---	---	
1,3-Dichloropropane	972	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
2,2-Dichloropropane	1110	25.0	50.0	ug/kg wet	50	1000	---	111	80-120%	---	---	
1,1-Dichloropropene	921	25.0	50.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
cis-1,3-Dichloropropene	935	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
trans-1,3-Dichloropropene	1160	25.0	50.0	ug/kg wet	50	1000	---	116	80-120%	---	---	
Ethylbenzene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Hexachlorobutadiene	993	50.0	100	ug/kg wet	50	1000	---	99	80-120%	---	---	
2-Hexanone	1770	250	500	ug/kg wet	50	2000	---	89	80-120%	---	---	
Isopropylbenzene	976	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
4-Isopropyltoluene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Methylene chloride	1010	125	250	ug/kg wet	50	1000	---	101	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1900	250	500	ug/kg wet	50	2000	---	95	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	927	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Naphthalene	867	50.0	100	ug/kg wet	50	1000	---	87	80-120%	---	---	
n-Propylbenzene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Styrene	890	25.0	50.0	ug/kg wet	50	1000	---	89	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1070	12.5	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,1,2,2-Tetrachloroethane	934	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Tetrachloroethene (PCE)	963	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Toluene	935	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
1,2,3-Trichlorobenzene	905	125	250	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,2,4-Trichlorobenzene	796	125	250	ug/kg wet	50	1000	---	80	80-120%	---	---	
1,1,1-Trichloroethane	1090	12.5	25.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,1,2-Trichloroethane	978	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Trichloroethene (TCE)	888	12.5	25.0	ug/kg wet	50	1000	---	89	80-120%	---	---	
Trichlorofluoromethane	1220	50.0	100	ug/kg wet	50	1000	---	**122**	**80-120%**	---	---	Q-56
1,2,3-Trichloropropane	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2,4-Trimethylbenzene	1150	25.0	50.0	ug/kg wet	50	1000	---	115	80-120%	---	---	
1,3,5-Trimethylbenzene	1160	25.0	50.0	ug/kg wet	50	1000	---	116	80-120%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
LCS (9120608-BS1)			Prepared: 12/06/19 10:45 Analyzed: 12/06/19 11:45									
Vinyl chloride	983	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
m,p-Xylene	2130	25.0	50.0	ug/kg wet	50	2000	---	107	80-120%	---	---	
o-Xylene	960	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 92 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*93 %*		*80-120 %*		*"*					
Duplicate (9120608-DUP1)			Prepared: 12/03/19 09:50 Analyzed: 12/06/19 19:22									
QC Source Sample: RAU1-12-SO-2.7 (A9L0097-38)												
5035A/8260C												
Acetone	ND	529	1060	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	**13.1**	5.29	10.6	ug/kg dry	50	---	11.1	---	---	16	30%	
Bromobenzene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	529	529	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	264	529	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	**36.7**	26.4	52.9	ug/kg dry	50	---	113	---	---	**102**	**30%**	Q-05, J
sec-Butylbenzene	ND	26.4	52.9	ug/kg dry	50	---	50.7	---	---	***	**30%**	Q-05
tert-Butylbenzene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	264	529	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	264	529	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	132	264	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	132	264	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Duplicate (9120608-DUP1)				Prepared: 12/03/19 09:50 Analyzed: 12/06/19 19:22								
QC Source Sample: RAU1-12-SO-2.7 (A9L0097-38)												
1,2-Dichlorobenzene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	264	529	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	26.4	52.9	ug/kg dry	50	---	73.4	---	---	***	**30%**	Q-05
Methylene chloride	ND	132	264	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	264	529	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	**66.8**	52.9	106	ug/kg dry	50	---	204	---	---	**102**	**30%**	Q-05, M-04, J
n-Propylbenzene	**19.0**	13.2	26.4	ug/kg dry	50	---	58.6	---	---	**102**	**30%**	Q-05, J
Styrene	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	**36.3**	26.4	52.9	ug/kg dry	50	---	49.6	---	---	**31**	**30%**	Q-05, J
1,2,3-Trichlorobenzene	ND	132	264	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	132	264	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Duplicate (9120608-DUP1)			Prepared: 12/03/19 09:50 Analyzed: 12/06/19 19:22									
QC Source Sample: RAU1-12-SO-2.7 (A9L0097-38)												
1,1,2-Trichloroethane	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	52.9	106	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	26.4	52.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	**256**	26.4	52.9	ug/kg dry	50	---	855	---	---	**108**	**30%**	Q-05
1,3,5-Trimethylbenzene	**45.5**	26.4	52.9	ug/kg dry	50	---	145	---	---	**105**	**30%**	Q-05, J
Vinyl chloride	ND	13.2	26.4	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	**31.2**	26.4	52.9	ug/kg dry	50	---	53.1	---	---	**52**	**30%**	Q-05, J
o-Xylene	ND	26.4	26.4	ug/kg dry	50	---	58.0	---	---	***	**30%**	Q-05
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 97 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*98 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*		*"*					
Matrix Spike (9120608-MS1)			Prepared: 12/05/19 15:51 Analyzed: 12/06/19 20:16									**V-16**
QC Source Sample: Non-SDG (A9L0158-01)												
5035A/8260C												
Acetone	2880	628	1260	ug/kg dry	50	2510	ND	115	36-164%	---	---	
Acrylonitrile	1450	62.8	126	ug/kg dry	50	1260	ND	115	65-134%	---	---	
Benzene	1250	6.28	12.6	ug/kg dry	50	1260	ND	99	77-121%	---	---	
Bromobenzene	1220	15.7	31.4	ug/kg dry	50	1260	ND	97	78-121%	---	---	
Bromochloromethane	1470	31.4	62.8	ug/kg dry	50	1260	ND	117	78-125%	---	---	
Bromodichloromethane	1410	31.4	62.8	ug/kg dry	50	1260	ND	112	75-127%	---	---	
Bromoform	1170	62.8	126	ug/kg dry	50	1260	ND	93	67-132%	---	---	
Bromomethane	1640	628	628	ug/kg dry	50	1260	ND	130	53-143%	---	---	Q-54b
2-Butanone (MEK)	2430	314	628	ug/kg dry	50	2510	ND	97	51-148%	---	---	
n-Butylbenzene	1410	31.4	62.8	ug/kg dry	50	1260	ND	112	70-128%	---	---	
sec-Butylbenzene	1380	31.4	62.8	ug/kg dry	50	1260	ND	110	73-126%	---	---	
tert-Butylbenzene	1350	31.4	62.8	ug/kg dry	50	1260	ND	107	73-125%	---	---	
Carbon disulfide	1180	314	628	ug/kg dry	50	1260	ND	94	63-132%	---	---	
Carbon tetrachloride	1460	31.4	62.8	ug/kg dry	50	1260	ND	117	70-135%	---	---	
Chlorobenzene	1260	15.7	31.4	ug/kg dry	50	1260	ND	101	79-120%	---	---	
Chloroethane	1690	314	628	ug/kg dry	50	1260	ND	134	59-139%	---	---	Q-54d
Chloroform	1500	31.4	62.8	ug/kg dry	50	1260	ND	119	78-123%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Matrix Spike (9120608-MS1)			Prepared: 12/05/19 15:51		Analyzed: 12/06/19 20:16							**V-16**
QC Source Sample: Non-SDG (A9L0158-01)												
Chloromethane	1190	157	314	ug/kg dry	50	1260	ND	95	50-136%	---	---	
2-Chlorotoluene	1280	31.4	62.8	ug/kg dry	50	1260	ND	102	75-122%	---	---	
4-Chlorotoluene	1350	31.4	62.8	ug/kg dry	50	1260	ND	107	72-124%	---	---	
Dibromochloromethane	1300	62.8	126	ug/kg dry	50	1260	ND	104	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1130	157	314	ug/kg dry	50	1260	ND	90	61-132%	---	---	
1,2-Dibromoethane (EDB)	1300	31.4	62.8	ug/kg dry	50	1260	ND	103	78-122%	---	---	
Dibromomethane	1380	31.4	62.8	ug/kg dry	50	1260	ND	110	78-125%	---	---	
1,2-Dichlorobenzene	1240	15.7	31.4	ug/kg dry	50	1260	ND	99	78-121%	---	---	
1,3-Dichlorobenzene	1260	15.7	31.4	ug/kg dry	50	1260	ND	100	77-121%	---	---	
1,4-Dichlorobenzene	1210	15.7	31.4	ug/kg dry	50	1260	ND	96	75-120%	---	---	
Dichlorodifluoromethane	1090	62.8	126	ug/kg dry	50	1260	ND	87	29-149%	---	---	
1,1-Dichloroethane	1610	15.7	31.4	ug/kg dry	50	1260	ND	**128**	**76-125%**	---	---	Q-01
1,2-Dichloroethane (EDC)	1340	15.7	31.4	ug/kg dry	50	1260	ND	107	73-128%	---	---	
1,1-Dichloroethene	1200	15.7	31.4	ug/kg dry	50	1260	ND	96	70-131%	---	---	
cis-1,2-Dichloroethene	1310	15.7	31.4	ug/kg dry	50	1260	ND	105	77-123%	---	---	
trans-1,2-Dichloroethene	1350	15.7	31.4	ug/kg dry	50	1260	ND	108	74-125%	---	---	
1,2-Dichloropropane	1280	62.8	126	ug/kg dry	50	1260	ND	102	76-123%	---	---	
1,3-Dichloropropane	1250	31.4	62.8	ug/kg dry	50	1260	ND	100	77-121%	---	---	
2,2-Dichloropropane	1280	31.4	62.8	ug/kg dry	50	1260	ND	102	67-133%	---	---	
1,1-Dichloropropene	1290	31.4	62.8	ug/kg dry	50	1260	ND	102	76-125%	---	---	
cis-1,3-Dichloropropene	1260	31.4	62.8	ug/kg dry	50	1260	ND	101	74-126%	---	---	
trans-1,3-Dichloropropene	1400	31.4	62.8	ug/kg dry	50	1260	ND	112	71-130%	---	---	
Ethylbenzene	1330	15.7	31.4	ug/kg dry	50	1260	ND	106	76-122%	---	---	
Hexachlorobutadiene	1410	62.8	126	ug/kg dry	50	1260	ND	112	61-135%	---	---	
2-Hexanone	2310	314	628	ug/kg dry	50	2510	ND	92	53-145%	---	---	
Isopropylbenzene	1330	31.4	62.8	ug/kg dry	50	1260	ND	106	68-134%	---	---	
4-Isopropyltoluene	1440	31.4	62.8	ug/kg dry	50	1260	ND	115	73-127%	---	---	
Methylene chloride	1410	157	314	ug/kg dry	50	1260	ND	113	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2460	314	628	ug/kg dry	50	2510	ND	98	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1280	31.4	62.8	ug/kg dry	50	1260	ND	102	73-125%	---	---	
Naphthalene	1220	62.8	126	ug/kg dry	50	1260	ND	97	62-129%	---	---	
n-Propylbenzene	1330	15.7	31.4	ug/kg dry	50	1260	ND	106	73-125%	---	---	
Styrene	1270	31.4	62.8	ug/kg dry	50	1260	53.7	97	76-124%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120608 - EPA 5035A							**Soil**					
Matrix Spike (9120608-MS1)			Prepared: 12/05/19 15:51		Analyzed: 12/06/19 20:16							**V-16**
QC Source Sample: Non-SDG (A9L0158-01)												
1,1,1,2-Tetrachloroethane	1360	15.7	31.4	ug/kg dry	50	1260	ND	108	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1160	31.4	62.8	ug/kg dry	50	1260	ND	92	70-124%	---	---	
Tetrachloroethene (PCE)	1330	15.7	31.4	ug/kg dry	50	1260	ND	106	73-128%	---	---	
Toluene	1270	31.4	62.8	ug/kg dry	50	1260	43.7	98	77-121%	---	---	
1,2,3-Trichlorobenzene	1210	157	314	ug/kg dry	50	1260	ND	96	66-130%	---	---	
1,2,4-Trichlorobenzene	1140	157	314	ug/kg dry	50	1260	ND	90	67-129%	---	---	
1,1,1-Trichloroethane	1410	15.7	31.4	ug/kg dry	50	1260	ND	112	73-130%	---	---	
1,1,2-Trichloroethane	1290	15.7	31.4	ug/kg dry	50	1260	ND	102	78-121%	---	---	
Trichloroethene (TCE)	1310	15.7	31.4	ug/kg dry	50	1260	ND	104	77-123%	---	---	
Trichlorofluoromethane	1240	62.8	126	ug/kg dry	50	1260	ND	99	62-140%	---	---	Q-54b
1,2,3-Trichloropropane	1220	31.4	62.8	ug/kg dry	50	1260	ND	97	73-125%	---	---	
1,2,4-Trimethylbenzene	1500	31.4	62.8	ug/kg dry	50	1260	ND	119	75-123%	---	---	
1,3,5-Trimethylbenzene	1510	31.4	62.8	ug/kg dry	50	1260	ND	120	73-124%	---	---	
Vinyl chloride	1340	15.7	31.4	ug/kg dry	50	1260	ND	107	56-135%	---	---	
m,p-Xylene	2760	31.4	62.8	ug/kg dry	50	2510	ND	110	77-124%	---	---	
o-Xylene	1300	15.7	31.4	ug/kg dry	50	1260	ND	103	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*			*"*				

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Blank (9120751-BLK1)			Prepared: 12/11/19 09:00 Analyzed: 12/11/19 11:34									
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	167	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Blank (9120751-BLK1)			Prepared: 12/11/19 09:00 Analyzed: 12/11/19 11:34									
1,2-Dichloropropane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	66.7	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*	*Limits: 80-120 %*			*Dilution: 1x*					

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Blank (9120751-BLK1)				Prepared: 12/11/19 09:00 Analyzed: 12/11/19 11:34								
Surr: Toluene-d8 (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*				*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*				*"*				
LCS (9120751-BS1)				Prepared: 12/11/19 09:00 Analyzed: 12/11/19 10:39								
5035A/8260C												
Acetone	1750	500	1000	ug/kg wet	50	2000	---	87	80-120%	---	---	
Acrylonitrile	1020	50.0	100	ug/kg wet	50	1000	---	102	80-120%	---	---	
Benzene	977	5.00	10.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Bromobenzene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Bromochloromethane	954	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Bromodichloromethane	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Bromoform	1000	50.0	100	ug/kg wet	50	1000	---	100	80-120%	---	---	
Bromomethane	934	500	500	ug/kg wet	50	1000	---	93	80-120%	---	---	
2-Butanone (MEK)	1940	250	500	ug/kg wet	50	2000	---	97	80-120%	---	---	
n-Butylbenzene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
sec-Butylbenzene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
tert-Butylbenzene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Carbon disulfide	879	250	500	ug/kg wet	50	1000	---	88	80-120%	---	---	
Carbon tetrachloride	936	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Chlorobenzene	948	12.5	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Chloroethane	717	500	500	ug/kg wet	50	1000	---	**72**	**80-120%**	---	---	Q-55
Chloroform	998	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Chloromethane	732	250	250	ug/kg wet	50	1000	---	**73**	**80-120%**	---	---	Q-55
2-Chlorotoluene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
4-Chlorotoluene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Dibromochloromethane	1050	50.0	100	ug/kg wet	50	1000	---	105	80-120%	---	---	
1,2-Dibromo-3-chloropropane	967	125	250	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,2-Dibromoethane (EDB)	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Dibromomethane	984	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,2-Dichlorobenzene	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,3-Dichlorobenzene	991	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,4-Dichlorobenzene	942	12.5	25.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Dichlorodifluoromethane	799	50.0	100	ug/kg wet	50	1000	---	80	80-120%	---	---	
1,1-Dichloroethane	884	12.5	25.0	ug/kg wet	50	1000	---	88	80-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
LCS (9120751-BS1)			Prepared: 12/11/19 09:00		Analyzed: 12/11/19 10:39							
1,2-Dichloroethane (EDC)	972	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,1-Dichloroethene	917	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
cis-1,2-Dichloroethene	931	12.5	25.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
trans-1,2-Dichloroethene	949	12.5	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
1,2-Dichloropropane	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,3-Dichloropropane	977	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
2,2-Dichloropropane	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,1-Dichloropropene	960	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
cis-1,3-Dichloropropene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
trans-1,3-Dichloropropene	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Ethylbenzene	987	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Hexachlorobutadiene	949	50.0	100	ug/kg wet	50	1000	---	95	80-120%	---	---	
2-Hexanone	1960	250	500	ug/kg wet	50	2000	---	98	80-120%	---	---	
Isopropylbenzene	983	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
4-Isopropyltoluene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Methylene chloride	906	125	250	ug/kg wet	50	1000	---	91	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2120	250	500	ug/kg wet	50	2000	---	106	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Naphthalene	986	50.0	100	ug/kg wet	50	1000	---	99	80-120%	---	---	
n-Propylbenzene	992	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Styrene	907	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Tetrachloroethene (PCE)	963	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Toluene	931	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,2,3-Trichlorobenzene	966	125	250	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,2,4-Trichlorobenzene	939	125	250	ug/kg wet	50	1000	---	94	80-120%	---	---	
1,1,1-Trichloroethane	979	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,1,2-Trichloroethane	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Trichloroethene (TCE)	956	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Trichlorofluoromethane	745	100	100	ug/kg wet	50	1000	---	**75**	**80-120%**	---	---	Q-55
1,2,3-Trichloropropane	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,2,4-Trimethylbenzene	910	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,3,5-Trimethylbenzene	979	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
LCS (9120751-BS1)			Prepared: 12/11/19 09:00 Analyzed: 12/11/19 10:39									
Vinyl chloride	832	12.5	25.0	ug/kg wet	50	1000	---	83	80-120%	---	---	
m,p-Xylene	1970	25.0	50.0	ug/kg wet	50	2000	---	98	80-120%	---	---	
o-Xylene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*99 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*		*"*					
Duplicate (9120751-DUP1)			Prepared: 12/02/19 12:15 Analyzed: 12/11/19 16:35									
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
5035A/8260C												
Acetone	ND	595	1190	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	59.5	119	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	5.95	11.9	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	59.5	119	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	595	595	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	298	595	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	298	595	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	595	595	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	298	298	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	59.5	119	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	149	298	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Duplicate (9120751-DUP1)			Prepared: 12/02/19 12:15 Analyzed: 12/11/19 16:35									
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
1,2-Dichlorobenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	59.5	119	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	59.5	119	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	298	595	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	298	298	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	298	595	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	59.5	119	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	149	298	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	149	298	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Duplicate (9120751-DUP1)			Prepared: 12/02/19 12:15 Analyzed: 12/11/19 16:35									
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
1,1,2-Trichloroethane	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	119	119	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	29.8	59.5	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	14.9	29.8	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*99 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*			*"*					
Matrix Spike (9120751-MS1)			Prepared: 12/02/19 15:35 Analyzed: 12/11/19 19:18									
QC Source Sample: RAU1-02-SO-1 (A9L0097-23)												
5035A/8260C												
Acetone	2470	588	1180	ug/kg dry	50	2350	ND	105	36-164%	---	---	
Acrylonitrile	1320	58.8	118	ug/kg dry	50	1180	ND	112	65-134%	---	---	
Benzene	1220	5.88	11.8	ug/kg dry	50	1180	ND	103	77-121%	---	---	
Bromobenzene	1210	14.7	29.4	ug/kg dry	50	1180	ND	103	78-121%	---	---	
Bromochloromethane	1230	29.4	58.8	ug/kg dry	50	1180	ND	104	78-125%	---	---	
Bromodichloromethane	1290	29.4	58.8	ug/kg dry	50	1180	ND	109	75-127%	---	---	
Bromoform	1190	58.8	118	ug/kg dry	50	1180	ND	101	67-132%	---	---	
Bromomethane	1280	588	588	ug/kg dry	50	1180	ND	109	53-143%	---	---	
2-Butanone (MEK)	2440	294	588	ug/kg dry	50	2350	ND	104	51-148%	---	---	
n-Butylbenzene	1180	29.4	58.8	ug/kg dry	50	1180	ND	100	70-128%	---	---	
sec-Butylbenzene	1210	29.4	58.8	ug/kg dry	50	1180	ND	103	73-126%	---	---	
tert-Butylbenzene	1210	29.4	58.8	ug/kg dry	50	1180	ND	102	73-125%	---	---	
Carbon disulfide	1070	294	588	ug/kg dry	50	1180	ND	91	63-132%	---	---	
Carbon tetrachloride	1120	29.4	58.8	ug/kg dry	50	1180	ND	95	70-135%	---	---	
Chlorobenzene	1150	14.7	29.4	ug/kg dry	50	1180	ND	98	79-120%	---	---	
Chloroethane	1100	588	588	ug/kg dry	50	1180	ND	93	59-139%	---	---	Q-54y
Chloroform	1290	29.4	58.8	ug/kg dry	50	1180	ND	110	78-123%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Matrix Spike (9120751-MS1)			Prepared: 12/02/19 15:35		Analyzed: 12/11/19 19:18							
QC Source Sample: RAU1-02-SO-1 (A9L0097-23)												
Chloromethane	964	294	294	ug/kg dry	50	1180	ND	82	50-136%	---	---	Q-54w
2-Chlorotoluene	1230	29.4	58.8	ug/kg dry	50	1180	ND	104	75-122%	---	---	
4-Chlorotoluene	1230	29.4	58.8	ug/kg dry	50	1180	ND	105	72-124%	---	---	
Dibromochloromethane	1240	58.8	118	ug/kg dry	50	1180	ND	106	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1060	147	294	ug/kg dry	50	1180	ND	90	61-132%	---	---	
1,2-Dibromoethane (EDB)	1250	29.4	58.8	ug/kg dry	50	1180	ND	106	78-122%	---	---	
Dibromomethane	1260	29.4	58.8	ug/kg dry	50	1180	ND	107	78-125%	---	---	
1,2-Dichlorobenzene	1230	14.7	29.4	ug/kg dry	50	1180	ND	104	78-121%	---	---	
1,3-Dichlorobenzene	1200	14.7	29.4	ug/kg dry	50	1180	ND	102	77-121%	---	---	
1,4-Dichlorobenzene	1140	14.7	29.4	ug/kg dry	50	1180	ND	97	75-120%	---	---	
Dichlorodifluoromethane	1030	58.8	118	ug/kg dry	50	1180	ND	87	29-149%	---	---	
1,1-Dichloroethane	1170	14.7	29.4	ug/kg dry	50	1180	ND	99	76-125%	---	---	
1,2-Dichloroethane (EDC)	1250	14.7	29.4	ug/kg dry	50	1180	ND	106	73-128%	---	---	
1,1-Dichloroethene	1160	14.7	29.4	ug/kg dry	50	1180	ND	98	70-131%	---	---	
cis-1,2-Dichloroethene	1180	14.7	29.4	ug/kg dry	50	1180	ND	100	77-123%	---	---	
trans-1,2-Dichloroethene	1170	14.7	29.4	ug/kg dry	50	1180	ND	100	74-125%	---	---	
1,2-Dichloropropane	1250	14.7	29.4	ug/kg dry	50	1180	ND	106	76-123%	---	---	
1,3-Dichloropropane	1190	29.4	58.8	ug/kg dry	50	1180	ND	101	77-121%	---	---	
2,2-Dichloropropane	1050	29.4	58.8	ug/kg dry	50	1180	ND	89	67-133%	---	---	
1,1-Dichloropropene	1180	29.4	58.8	ug/kg dry	50	1180	ND	100	76-125%	---	---	
cis-1,3-Dichloropropene	1160	29.4	58.8	ug/kg dry	50	1180	ND	98	74-126%	---	---	
trans-1,3-Dichloropropene	1190	29.4	58.8	ug/kg dry	50	1180	ND	101	71-130%	---	---	
Ethylbenzene	1190	14.7	29.4	ug/kg dry	50	1180	ND	101	76-122%	---	---	
Hexachlorobutadiene	1130	58.8	118	ug/kg dry	50	1180	ND	96	61-135%	---	---	
2-Hexanone	2300	294	588	ug/kg dry	50	2350	ND	98	53-145%	---	---	
Isopropylbenzene	1170	29.4	58.8	ug/kg dry	50	1180	ND	99	68-134%	---	---	
4-Isopropyltoluene	1190	29.4	58.8	ug/kg dry	50	1180	ND	101	73-127%	---	---	
Methylene chloride	1140	147	294	ug/kg dry	50	1180	ND	97	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2590	294	588	ug/kg dry	50	2350	ND	110	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1260	29.4	58.8	ug/kg dry	50	1180	ND	107	73-125%	---	---	
Naphthalene	1070	58.8	118	ug/kg dry	50	1180	ND	91	62-129%	---	---	
n-Propylbenzene	1190	14.7	29.4	ug/kg dry	50	1180	ND	101	73-125%	---	---	
Styrene	1110	29.4	58.8	ug/kg dry	50	1180	ND	94	76-124%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120751 - EPA 5035A							**Soil**					
Matrix Spike (9120751-MS1)			Prepared: 12/02/19 15:35		Analyzed: 12/11/19 19:18							
QC Source Sample: RAU1-02-SO-1 (A9L0097-23)												
1,1,1,2-Tetrachloroethane	1200	14.7	29.4	ug/kg dry	50	1180	ND	102	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1220	29.4	58.8	ug/kg dry	50	1180	ND	104	70-124%	---	---	
Tetrachloroethene (PCE)	1120	14.7	29.4	ug/kg dry	50	1180	ND	95	73-128%	---	---	
Toluene	1120	29.4	58.8	ug/kg dry	50	1180	ND	95	77-121%	---	---	
1,2,3-Trichlorobenzene	1080	147	294	ug/kg dry	50	1180	ND	92	66-130%	---	---	
1,2,4-Trichlorobenzene	1060	147	294	ug/kg dry	50	1180	ND	90	67-129%	---	---	
1,1,1-Trichloroethane	1190	14.7	29.4	ug/kg dry	50	1180	ND	101	73-130%	---	---	
1,1,2-Trichloroethane	1270	14.7	29.4	ug/kg dry	50	1180	ND	108	78-121%	---	---	
Trichloroethene (TCE)	1150	14.7	29.4	ug/kg dry	50	1180	ND	98	77-123%	---	---	
Trichlorofluoromethane	1030	118	118	ug/kg dry	50	1180	ND	88	62-140%	---	---	Q-54u
1,2,3-Trichloropropane	1230	29.4	58.8	ug/kg dry	50	1180	ND	105	73-125%	---	---	
1,2,4-Trimethylbenzene	1090	29.4	58.8	ug/kg dry	50	1180	ND	93	75-123%	---	---	
1,3,5-Trimethylbenzene	1170	29.4	58.8	ug/kg dry	50	1180	ND	100	73-124%	---	---	
Vinyl chloride	1080	14.7	29.4	ug/kg dry	50	1180	ND	92	56-135%	---	---	
m,p-Xylene	2380	29.4	58.8	ug/kg dry	50	2350	ND	101	77-124%	---	---	
o-Xylene	1220	14.7	29.4	ug/kg dry	50	1180	ND	104	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*97 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*			*"*				

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Blank (9120813-BLK1)			Prepared: 12/12/19 09:00 Analyzed: 12/12/19 11:36									
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Blank (9120813-BLK1)			Prepared: 12/12/19 09:00 Analyzed: 12/12/19 11:36									
1,2-Dichloropropane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	**94.9**	83.3	167	ug/kg wet	50	---	---	---	---	---	---	B-02, J
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*				*Dilution: 1x*				

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Blank (9120813-BLK1)				Prepared: 12/12/19 09:00 Analyzed: 12/12/19 11:36								
Surr: Toluene-d8 (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*				*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*				*"*				
LCS (9120813-BS1)				Prepared: 12/12/19 09:00 Analyzed: 12/12/19 10:42								
5035A/8260C												
Acetone	1830	500	1000	ug/kg wet	50	2000	---	92	80-120%	---	---	
Acrylonitrile	1040	50.0	100	ug/kg wet	50	1000	---	104	80-120%	---	---	
Benzene	970	5.00	10.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Bromobenzene	980	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Bromochloromethane	971	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Bromodichloromethane	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Bromoform	996	50.0	100	ug/kg wet	50	1000	---	100	80-120%	---	---	
Bromomethane	993	500	500	ug/kg wet	50	1000	---	99	80-120%	---	---	
2-Butanone (MEK)	2010	250	500	ug/kg wet	50	2000	---	100	80-120%	---	---	
n-Butylbenzene	975	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
sec-Butylbenzene	986	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
tert-Butylbenzene	978	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Carbon disulfide	928	250	500	ug/kg wet	50	1000	---	93	80-120%	---	---	
Carbon tetrachloride	915	25.0	50.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
Chlorobenzene	950	12.5	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Chloroethane	774	250	500	ug/kg wet	50	1000	---	**77**	**80-120%**	---	---	Q-55
Chloroform	976	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Chloromethane	759	125	250	ug/kg wet	50	1000	---	**76**	**80-120%**	---	---	Q-55
2-Chlorotoluene	987	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
4-Chlorotoluene	990	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Dibromochloromethane	1030	50.0	100	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,2-Dibromo-3-chloropropane	946	125	250	ug/kg wet	50	1000	---	95	80-120%	---	---	
1,2-Dibromoethane (EDB)	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Dibromomethane	980	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,2-Dichlorobenzene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,3-Dichlorobenzene	989	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,4-Dichlorobenzene	940	12.5	25.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Dichlorodifluoromethane	778	50.0	100	ug/kg wet	50	1000	---	**78**	**80-120%**	---	---	Q-55
1,1-Dichloroethane	867	12.5	25.0	ug/kg wet	50	1000	---	87	80-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
LCS (9120813-BS1)			Prepared: 12/12/19 09:00 Analyzed: 12/12/19 10:42									
1,2-Dichloroethane (EDC)	969	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,1-Dichloroethene	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
cis-1,2-Dichloroethene	904	12.5	25.0	ug/kg wet	50	1000	---	90	80-120%	---	---	
trans-1,2-Dichloroethene	937	12.5	25.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
1,2-Dichloropropane	986	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,3-Dichloropropane	962	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
2,2-Dichloropropane	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,1-Dichloropropene	942	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
cis-1,3-Dichloropropene	969	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
trans-1,3-Dichloropropene	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Ethylbenzene	984	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Hexachlorobutadiene	928	50.0	100	ug/kg wet	50	1000	---	93	80-120%	---	---	
2-Hexanone	1920	250	500	ug/kg wet	50	2000	---	96	80-120%	---	---	
Isopropylbenzene	958	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
4-Isopropyltoluene	959	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Methylene chloride	964	125	250	ug/kg wet	50	1000	---	96	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2130	250	500	ug/kg wet	50	2000	---	107	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	969	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Naphthalene	944	50.0	100	ug/kg wet	50	1000	---	94	80-120%	---	---	
n-Propylbenzene	966	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Styrene	898	25.0	50.0	ug/kg wet	50	1000	---	90	80-120%	---	---	
1,1,1,2-Tetrachloroethane	999	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Tetrachloroethene (PCE)	955	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Toluene	934	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,2,3-Trichlorobenzene	931	125	250	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,2,4-Trichlorobenzene	919	125	250	ug/kg wet	50	1000	---	92	80-120%	---	---	
1,1,1-Trichloroethane	963	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,1,2-Trichloroethane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Trichloroethene (TCE)	924	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
Trichlorofluoromethane	816	50.0	100	ug/kg wet	50	1000	---	82	80-120%	---	---	
1,2,3-Trichloropropane	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
1,2,4-Trimethylbenzene	879	25.0	50.0	ug/kg wet	50	1000	---	88	80-120%	---	---	
1,3,5-Trimethylbenzene	952	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	

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Tigard, OR 97223
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
LCS (9120813-BS1)			Prepared: 12/12/19 09:00 Analyzed: 12/12/19 10:42									
Vinyl chloride	835	12.5	25.0	ug/kg wet	50	1000	---	84	80-120%	---	---	
m,p-Xylene	1960	25.0	50.0	ug/kg wet	50	2000	---	98	80-120%	---	---	
o-Xylene	977	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*97 %*		*80-120 %*			*"*				
Duplicate (9120813-DUP1)			Prepared: 12/03/19 15:00 Analyzed: 12/12/19 18:54									
QC Source Sample: RAU4-01-SO-2 (A9L0097-52)												
5035A/8260C												
Acetone	ND	578	1160	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	5.78	11.6	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	578	578	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	289	578	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	289	578	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	289	578	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	145	289	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	145	289	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Duplicate (9120813-DUP1)			Prepared: 12/03/19 15:00 Analyzed: 12/12/19 18:54									
QC Source Sample: RAU4-01-SO-2 (A9L0097-52)												
1,2-Dichlorobenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	289	578	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	145	289	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	289	578	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	145	289	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	145	289	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	

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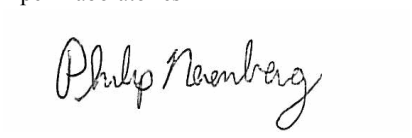

Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Duplicate (9120813-DUP1)			Prepared: 12/03/19 15:00 Analyzed: 12/12/19 18:54									
QC Source Sample: RAU4-01-SO-2 (A9L0097-52)												
1,1,2-Trichloroethane	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	57.8	116	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	28.9	57.8	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	14.5	28.9	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*		*"*					
Matrix Spike (9120813-MS1)			Prepared: 12/03/19 14:45 Analyzed: 12/12/19 20:16									
QC Source Sample: RAU1-09-SO-1.5 (A9L0097-50)												
5035A/8260C												
Acetone	2080	522	1040	ug/kg dry	50	2090	ND	100	36-164%	---	---	
Acrylonitrile	1090	52.2	104	ug/kg dry	50	1050	ND	104	65-134%	---	---	
Benzene	1080	5.22	10.4	ug/kg dry	50	1050	47.4	99	77-121%	---	---	
Bromobenzene	1050	13.0	26.1	ug/kg dry	50	1050	ND	100	78-121%	---	---	
Bromochloromethane	1030	26.1	52.2	ug/kg dry	50	1050	ND	98	78-125%	---	---	
Bromodichloromethane	1140	26.1	52.2	ug/kg dry	50	1050	ND	109	75-127%	---	---	
Bromoform	1060	52.2	104	ug/kg dry	50	1050	ND	101	67-132%	---	---	
Bromomethane	1080	522	522	ug/kg dry	50	1050	ND	103	53-143%	---	---	
2-Butanone (MEK)	2050	261	522	ug/kg dry	50	2090	ND	98	51-148%	---	---	
n-Butylbenzene	1040	26.1	52.2	ug/kg dry	50	1050	ND	99	70-128%	---	---	
sec-Butylbenzene	1040	26.1	52.2	ug/kg dry	50	1050	ND	99	73-126%	---	---	
tert-Butylbenzene	1050	26.1	52.2	ug/kg dry	50	1050	ND	100	73-125%	---	---	
Carbon disulfide	873	261	522	ug/kg dry	50	1050	ND	84	63-132%	---	---	
Carbon tetrachloride	966	26.1	52.2	ug/kg dry	50	1050	ND	92	70-135%	---	---	
Chlorobenzene	972	13.0	26.1	ug/kg dry	50	1050	ND	93	79-120%	---	---	
Chloroethane	950	261	522	ug/kg dry	50	1050	ND	91	59-139%	---	---	Q-54s
Chloroform	1100	26.1	52.2	ug/kg dry	50	1050	ND	105	78-123%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Matrix Spike (9120813-MS1)			Prepared: 12/03/19 14:45		Analyzed: 12/12/19 20:16							
QC Source Sample: RAU1-09-SO-1.5 (A9L0097-50)												
Chloromethane	794	130	261	ug/kg dry	50	1050	ND	76	50-136%	---	---	Q-54t
2-Chlorotoluene	1070	26.1	52.2	ug/kg dry	50	1050	ND	102	75-122%	---	---	
4-Chlorotoluene	1040	26.1	52.2	ug/kg dry	50	1050	ND	99	72-124%	---	---	
Dibromochloromethane	1090	52.2	104	ug/kg dry	50	1050	ND	105	74-126%	---	---	
1,2-Dibromo-3-chloropropane	912	130	261	ug/kg dry	50	1050	ND	87	61-132%	---	---	
1,2-Dibromoethane (EDB)	1080	26.1	52.2	ug/kg dry	50	1050	ND	103	78-122%	---	---	
Dibromomethane	1090	26.1	52.2	ug/kg dry	50	1050	ND	104	78-125%	---	---	
1,2-Dichlorobenzene	1060	13.0	26.1	ug/kg dry	50	1050	ND	101	78-121%	---	---	
1,3-Dichlorobenzene	1030	13.0	26.1	ug/kg dry	50	1050	ND	98	77-121%	---	---	
1,4-Dichlorobenzene	989	13.0	26.1	ug/kg dry	50	1050	ND	95	75-120%	---	---	
Dichlorodifluoromethane	847	52.2	104	ug/kg dry	50	1050	ND	81	29-149%	---	---	Q-54q
1,1-Dichloroethane	988	13.0	26.1	ug/kg dry	50	1050	ND	95	76-125%	---	---	
1,2-Dichloroethane (EDC)	1080	13.0	26.1	ug/kg dry	50	1050	ND	103	73-128%	---	---	
1,1-Dichloroethene	953	13.0	26.1	ug/kg dry	50	1050	ND	91	70-131%	---	---	
cis-1,2-Dichloroethene	1010	13.0	26.1	ug/kg dry	50	1050	ND	97	77-123%	---	---	
trans-1,2-Dichloroethene	996	13.0	26.1	ug/kg dry	50	1050	ND	95	74-125%	---	---	
1,2-Dichloropropane	1080	13.0	26.1	ug/kg dry	50	1050	ND	103	76-123%	---	---	
1,3-Dichloropropane	1030	26.1	52.2	ug/kg dry	50	1050	ND	98	77-121%	---	---	
2,2-Dichloropropane	838	26.1	52.2	ug/kg dry	50	1050	ND	80	67-133%	---	---	
1,1-Dichloropropene	998	26.1	52.2	ug/kg dry	50	1050	ND	96	76-125%	---	---	
cis-1,3-Dichloropropene	1010	26.1	52.2	ug/kg dry	50	1050	ND	96	74-126%	---	---	
trans-1,3-Dichloropropene	1030	26.1	52.2	ug/kg dry	50	1050	ND	98	71-130%	---	---	
Ethylbenzene	1000	13.0	26.1	ug/kg dry	50	1050	ND	96	76-122%	---	---	
Hexachlorobutadiene	1140	52.2	104	ug/kg dry	50	1050	ND	109	61-135%	---	---	
2-Hexanone	1980	261	522	ug/kg dry	50	2090	ND	95	53-145%	---	---	
Isopropylbenzene	990	26.1	52.2	ug/kg dry	50	1050	ND	95	68-134%	---	---	
4-Isopropyltoluene	1020	26.1	52.2	ug/kg dry	50	1050	ND	98	73-127%	---	---	
Methylene chloride	960	130	261	ug/kg dry	50	1050	ND	92	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2200	261	522	ug/kg dry	50	2090	ND	105	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1100	26.1	52.2	ug/kg dry	50	1050	ND	105	73-125%	---	---	
Naphthalene	984	52.2	104	ug/kg dry	50	1050	ND	94	62-129%	---	---	
n-Propylbenzene	1010	13.0	26.1	ug/kg dry	50	1050	ND	97	73-125%	---	---	
Styrene	940	26.1	52.2	ug/kg dry	50	1050	ND	90	76-124%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120813 - EPA 5035A							**Soil**					
Matrix Spike (9120813-MS1)			Prepared: 12/03/19 14:45		Analyzed: 12/12/19 20:16							
QC Source Sample: RAU1-09-SO-1.5 (A9L0097-50)												
1,1,1,2-Tetrachloroethane	1040	13.0	26.1	ug/kg dry	50	1050	ND	100	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1080	26.1	52.2	ug/kg dry	50	1050	ND	104	70-124%	---	---	
Tetrachloroethene (PCE)	924	13.0	26.1	ug/kg dry	50	1050	ND	88	73-128%	---	---	
Toluene	1080	26.1	52.2	ug/kg dry	50	1050	154	89	77-121%	---	---	
1,2,3-Trichlorobenzene	908	130	261	ug/kg dry	50	1050	ND	87	66-130%	---	---	
1,2,4-Trichlorobenzene	940	130	261	ug/kg dry	50	1050	ND	90	67-129%	---	---	
1,1,1-Trichloroethane	1010	13.0	26.1	ug/kg dry	50	1050	ND	97	73-130%	---	---	
1,1,2-Trichloroethane	1100	13.0	26.1	ug/kg dry	50	1050	ND	105	78-121%	---	---	
Trichloroethene (TCE)	979	13.0	26.1	ug/kg dry	50	1050	ND	94	77-123%	---	---	
Trichlorofluoromethane	935	52.2	104	ug/kg dry	50	1050	ND	89	62-140%	---	---	
1,2,3-Trichloropropane	1040	26.1	52.2	ug/kg dry	50	1050	ND	100	73-125%	---	---	
1,2,4-Trimethylbenzene	990	26.1	52.2	ug/kg dry	50	1050	51.2	90	75-123%	---	---	
1,3,5-Trimethylbenzene	1020	26.1	52.2	ug/kg dry	50	1050	ND	98	73-124%	---	---	
Vinyl chloride	928	13.0	26.1	ug/kg dry	50	1050	ND	89	56-135%	---	---	
m,p-Xylene	2260	26.1	52.2	ug/kg dry	50	2090	244	97	77-124%	---	---	
o-Xylene	1120	13.0	26.1	ug/kg dry	50	1050	66.7	101	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*95 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*		*"*					

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Batch 9120593 - EPA 5030B — **Water**

Blank (9120593-BLK1) Prepared: 12/06/19 09:00 Analyzed: 12/06/19 11:16

EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Blank (9120593-BLK1)			Prepared: 12/06/19 09:00		Analyzed: 12/06/19 11:16							
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	10.0	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 113 %* *Limits: 80-120 %* *Dilution: 1x*

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B									**Water**			
Blank (9120593-BLK1)				Prepared: 12/06/19 09:00		Analyzed: 12/06/19 11:16						
Surr: Toluene-d8 (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*			*"*					
LCS (9120593-BS1)				Prepared: 12/06/19 09:00		Analyzed: 12/06/19 10:23						
EPA 8260C												
Acetone	32.6	10.0	20.0	ug/L	1	40.0	---	81	80-120%	---	---	
Acrylonitrile	21.0	1.00	2.00	ug/L	1	20.0	---	105	80-120%	---	---	
Benzene	20.9	0.100	0.200	ug/L	1	20.0	---	105	80-120%	---	---	
Bromobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Bromochloromethane	25.3	0.500	1.00	ug/L	1	20.0	---	**127**	**80-120%**	---	---	Q-56
Bromodichloromethane	22.4	0.500	1.00	ug/L	1	20.0	---	112	80-120%	---	---	
Bromoform	26.1	0.500	1.00	ug/L	1	20.0	---	**130**	**80-120%**	---	---	Q-56
Bromomethane	24.6	5.00	5.00	ug/L	1	20.0	---	**123**	**80-120%**	---	---	Q-56
2-Butanone (MEK)	36.5	5.00	10.0	ug/L	1	40.0	---	91	80-120%	---	---	
n-Butylbenzene	18.6	0.500	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
sec-Butylbenzene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
tert-Butylbenzene	16.4	0.500	1.00	ug/L	1	20.0	---	82	80-120%	---	---	
Carbon disulfide	19.7	5.00	10.0	ug/L	1	20.0	---	98	80-120%	---	---	
Carbon tetrachloride	23.0	0.500	1.00	ug/L	1	20.0	---	115	80-120%	---	---	
Chlorobenzene	19.9	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Chloroethane	17.0	5.00	5.00	ug/L	1	20.0	---	85	80-120%	---	---	
Chloroform	21.1	0.500	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
Chloromethane	18.0	2.50	5.00	ug/L	1	20.0	---	90	80-120%	---	---	
2-Chlorotoluene	18.7	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
4-Chlorotoluene	17.9	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Dibromochloromethane	26.0	0.500	1.00	ug/L	1	20.0	---	**130**	**80-120%**	---	---	Q-56
1,2-Dibromo-3-chloropropane	19.5	2.50	5.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,2-Dibromoethane (EDB)	19.7	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Dibromomethane	22.8	0.500	1.00	ug/L	1	20.0	---	114	80-120%	---	---	
1,2-Dichlorobenzene	19.4	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
1,3-Dichlorobenzene	19.4	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
1,4-Dichlorobenzene	19.2	0.250	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
Dichlorodifluoromethane	20.9	0.500	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
1,1-Dichloroethane	19.8	0.200	0.400	ug/L	1	20.0	---	99	80-120%	---	---	

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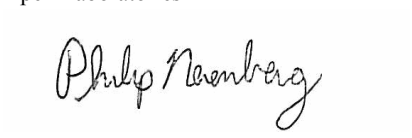

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
LCS (9120593-BS1)			Prepared: 12/06/19 09:00		Analyzed: 12/06/19 10:23							
1,2-Dichloroethane (EDC)	18.8	0.200	0.400	ug/L	1	20.0	---	94	80-120%	---	---	
1,1-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
cis-1,2-Dichloroethene	19.4	0.200	0.400	ug/L	1	20.0	---	97	80-120%	---	---	
trans-1,2-Dichloroethene	20.0	0.200	0.400	ug/L	1	20.0	---	100	80-120%	---	---	
1,2-Dichloropropane	20.5	0.250	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
1,3-Dichloropropane	19.1	0.500	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
2,2-Dichloropropane	17.7	0.500	1.00	ug/L	1	20.0	---	89	80-120%	---	---	
1,1-Dichloropropene	19.5	0.500	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
cis-1,3-Dichloropropene	18.2	0.500	1.00	ug/L	1	20.0	---	91	80-120%	---	---	
trans-1,3-Dichloropropene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Ethylbenzene	18.3	0.250	0.500	ug/L	1	20.0	---	92	80-120%	---	---	
Hexachlorobutadiene	17.8	2.50	5.00	ug/L	1	20.0	---	89	80-120%	---	---	
2-Hexanone	31.7	10.0	10.0	ug/L	1	40.0	---	**79**	**80-120%**	---	---	Q-55
Isopropylbenzene	18.3	0.500	1.00	ug/L	1	20.0	---	91	80-120%	---	---	
4-Isopropyltoluene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
Methylene chloride	22.5	2.50	5.00	ug/L	1	20.0	---	112	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	32.9	5.00	10.0	ug/L	1	40.0	---	82	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.7	0.500	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
Naphthalene	16.2	1.00	2.00	ug/L	1	20.0	---	81	80-120%	---	---	
n-Propylbenzene	18.1	0.250	0.500	ug/L	1	20.0	---	91	80-120%	---	---	
Styrene	19.0	0.500	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
1,1,1,2-Tetrachloroethane	22.2	0.200	0.400	ug/L	1	20.0	---	111	80-120%	---	---	
1,1,2,2-Tetrachloroethane	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Tetrachloroethene (PCE)	20.4	0.200	0.400	ug/L	1	20.0	---	102	80-120%	---	---	
Toluene	18.6	0.500	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
1,2,3-Trichlorobenzene	18.6	1.00	2.00	ug/L	1	20.0	---	93	80-120%	---	---	
1,2,4-Trichlorobenzene	17.3	1.00	2.00	ug/L	1	20.0	---	86	80-120%	---	---	
1,1,1-Trichloroethane	19.5	0.200	0.400	ug/L	1	20.0	---	97	80-120%	---	---	
1,1,2-Trichloroethane	20.6	0.250	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Trichloroethene (TCE)	22.9	0.200	0.400	ug/L	1	20.0	---	114	80-120%	---	---	
Trichlorofluoromethane	21.6	1.00	2.00	ug/L	1	20.0	---	108	80-120%	---	---	
1,2,3-Trichloropropane	19.3	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,2,4-Trimethylbenzene	18.7	0.500	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
1,3,5-Trimethylbenzene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
LCS (9120593-BS1)			Prepared: 12/06/19 09:00		Analyzed: 12/06/19 10:23							
Vinyl chloride	20.1	0.200	0.400	ug/L	1	20.0	---	101	80-120%	---	---	
m,p-Xylene	36.5	0.500	1.00	ug/L	1	40.0	---	91	80-120%	---	---	
o-Xylene	17.9	0.250	0.500	ug/L	1	20.0	---	89	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 111 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*98 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*				*"*			
Duplicate (9120593-DUP1)			Prepared: 12/06/19 10:54		Analyzed: 12/06/19 13:31							
QC Source Sample: Non-SDG (A9L0122-23)												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	ug/L	1	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	ug/L	1	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Duplicate (9120593-DUP1)			Prepared: 12/06/19 10:54		Analyzed: 12/06/19 13:31							
QC Source Sample: Non-SDG (A9L0122-23)												
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	**3.07**	0.200	0.400	ug/L	1	---	3.09	---	---	0.8	30%	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Hexanone	ND	10.0	10.0	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Methylene chloride	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	**5.78**	0.200	0.400	ug/L	1	---	5.61	---	---	3	30%	
Toluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Duplicate (9120593-DUP1)			Prepared: 12/06/19 10:54 Analyzed: 12/06/19 13:31									
QC Source Sample: Non-SDG (A9L0122-23)												
Trichloroethene (TCE)	**2.74**	0.200	0.400	ug/L	1	---	2.79	---	---	2	30%	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 115 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*99 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*				*"*			
Matrix Spike (9120593-MS1)			Prepared: 12/06/19 10:54 Analyzed: 12/06/19 14:24									
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
EPA 8260C												
Acetone	38.3	10.0	20.0	ug/L	1	40.0	ND	96	39-160%	---	---	
Acrylonitrile	22.5	1.00	2.00	ug/L	1	20.0	ND	112	63-135%	---	---	
Benzene	22.3	0.100	0.200	ug/L	1	20.0	ND	112	79-120%	---	---	
Bromobenzene	20.0	0.250	0.500	ug/L	1	20.0	ND	100	80-120%	---	---	
Bromochloromethane	26.3	0.500	1.00	ug/L	1	20.0	ND	**132**	**78-123%**	---	---	Q-54i
Bromodichloromethane	23.2	0.500	1.00	ug/L	1	20.0	ND	116	79-125%	---	---	
Bromoform	25.7	0.500	1.00	ug/L	1	20.0	ND	129	66-130%	---	---	Q-54a
Bromomethane	28.3	5.00	5.00	ug/L	1	20.0	ND	141	53-141%	---	---	Q-54e
2-Butanone (MEK)	39.4	5.00	10.0	ug/L	1	40.0	ND	99	56-143%	---	---	
n-Butylbenzene	18.5	0.500	1.00	ug/L	1	20.0	ND	92	75-128%	---	---	
sec-Butylbenzene	18.0	0.500	1.00	ug/L	1	20.0	ND	90	77-126%	---	---	
tert-Butylbenzene	16.6	0.500	1.00	ug/L	1	20.0	ND	83	78-124%	---	---	
Carbon disulfide	21.6	5.00	10.0	ug/L	1	20.0	ND	108	64-133%	---	---	
Carbon tetrachloride	25.0	0.500	1.00	ug/L	1	20.0	ND	125	72-136%	---	---	
Chlorobenzene	20.7	0.250	0.500	ug/L	1	20.0	ND	103	80-120%	---	---	
Chloroethane	17.8	5.00	5.00	ug/L	1	20.0	ND	89	60-138%	---	---	
Chloroform	22.8	0.500	1.00	ug/L	1	20.0	ND	114	79-124%	---	---	
Chloromethane	20.2	2.50	5.00	ug/L	1	20.0	ND	101	50-139%	---	---	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Matrix Spike (9120593-MS1)			Prepared: 12/06/19 10:54		Analyzed: 12/06/19 14:24							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
2-Chlorotoluene	18.8	0.500	1.00	ug/L	1	20.0	ND	94	79-122%	---	---	
4-Chlorotoluene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	78-122%	---	---	
Dibromochloromethane	26.2	0.500	1.00	ug/L	1	20.0	ND	**131**	**74-126%**	---	---	Q-54a
1,2-Dibromo-3-chloropropane	19.7	2.50	5.00	ug/L	1	20.0	ND	99	62-128%	---	---	
1,2-Dibromoethane (EDB)	20.2	0.250	0.500	ug/L	1	20.0	ND	101	77-121%	---	---	
Dibromomethane	23.5	0.500	1.00	ug/L	1	20.0	ND	118	79-123%	---	---	
1,2-Dichlorobenzene	19.4	0.250	0.500	ug/L	1	20.0	ND	97	80-120%	---	---	
1,3-Dichlorobenzene	19.8	0.250	0.500	ug/L	1	20.0	ND	99	80-120%	---	---	
1,4-Dichlorobenzene	19.5	0.250	0.500	ug/L	1	20.0	ND	98	79-120%	---	---	
Dichlorodifluoromethane	23.7	0.500	1.00	ug/L	1	20.0	ND	119	32-152%	---	---	
1,1-Dichloroethane	21.3	0.200	0.400	ug/L	1	20.0	ND	106	77-125%	---	---	
1,2-Dichloroethane (EDC)	19.5	0.200	0.400	ug/L	1	20.0	ND	98	73-128%	---	---	
1,1-Dichloroethene	21.3	0.200	0.400	ug/L	1	20.0	ND	107	71-131%	---	---	
cis-1,2-Dichloroethene	20.7	0.200	0.400	ug/L	1	20.0	ND	103	78-123%	---	---	
trans-1,2-Dichloroethene	21.9	0.200	0.400	ug/L	1	20.0	ND	110	75-124%	---	---	
1,2-Dichloropropane	21.8	0.250	0.500	ug/L	1	20.0	ND	109	78-122%	---	---	
1,3-Dichloropropane	19.8	0.500	1.00	ug/L	1	20.0	ND	99	80-120%	---	---	
2,2-Dichloropropane	19.7	0.500	1.00	ug/L	1	20.0	ND	99	60-139%	---	---	
1,1-Dichloropropene	21.3	0.500	1.00	ug/L	1	20.0	ND	107	79-125%	---	---	
cis-1,3-Dichloropropene	17.6	0.500	1.00	ug/L	1	20.0	ND	88	75-124%	---	---	
trans-1,3-Dichloropropene	18.6	0.500	1.00	ug/L	1	20.0	ND	93	73-127%	---	---	
Ethylbenzene	19.2	0.250	0.500	ug/L	1	20.0	ND	96	79-121%	---	---	
Hexachlorobutadiene	16.0	2.50	5.00	ug/L	1	20.0	ND	80	66-134%	---	---	
2-Hexanone	34.3	10.0	10.0	ug/L	1	40.0	ND	86	57-139%	---	---	Q-54n
Isopropylbenzene	18.9	0.500	1.00	ug/L	1	20.0	ND	95	72-131%	---	---	
4-Isopropyltoluene	18.6	0.500	1.00	ug/L	1	20.0	ND	93	77-127%	---	---	
Methylene chloride	23.0	2.50	5.00	ug/L	1	20.0	ND	115	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	35.2	5.00	10.0	ug/L	1	40.0	ND	88	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	18.2	0.500	1.00	ug/L	1	20.0	ND	91	71-124%	---	---	
Naphthalene	16.2	1.00	2.00	ug/L	1	20.0	ND	81	61-128%	---	---	
n-Propylbenzene	18.5	0.250	0.500	ug/L	1	20.0	ND	92	76-126%	---	---	
Styrene	19.4	0.500	1.00	ug/L	1	20.0	ND	97	78-123%	---	---	
1,1,1,2-Tetrachloroethane	23.1	0.200	0.400	ug/L	1	20.0	ND	115	78-124%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Matrix Spike (9120593-MS1)			Prepared: 12/06/19 10:54		Analyzed: 12/06/19 14:24							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
1,1,2,2-Tetrachloroethane	20.6	0.250	0.500	ug/L	1	20.0	ND	103	71-121%	---	---	
Tetrachloroethene (PCE)	21.8	0.200	0.400	ug/L	1	20.0	ND	109	74-129%	---	---	
Toluene	19.6	0.500	1.00	ug/L	1	20.0	ND	98	80-121%	---	---	
1,2,3-Trichlorobenzene	17.8	1.00	2.00	ug/L	1	20.0	ND	89	69-129%	---	---	
1,2,4-Trichlorobenzene	16.7	1.00	2.00	ug/L	1	20.0	ND	83	69-130%	---	---	
1,1,1-Trichloroethane	21.6	0.200	0.400	ug/L	1	20.0	ND	108	74-131%	---	---	
1,1,2-Trichloroethane	21.2	0.250	0.500	ug/L	1	20.0	ND	106	80-120%	---	---	
Trichloroethene (TCE)	23.7	0.200	0.400	ug/L	1	20.0	ND	118	79-123%	---	---	
Trichlorofluoromethane	24.3	1.00	2.00	ug/L	1	20.0	ND	122	65-141%	---	---	
1,2,3-Trichloropropane	20.0	0.500	1.00	ug/L	1	20.0	ND	100	73-122%	---	---	
1,2,4-Trimethylbenzene	18.9	0.500	1.00	ug/L	1	20.0	ND	95	76-124%	---	---	
1,3,5-Trimethylbenzene	18.9	0.500	1.00	ug/L	1	20.0	ND	94	75-124%	---	---	
Vinyl chloride	22.9	0.200	0.400	ug/L	1	20.0	ND	114	58-137%	---	---	
m,p-Xylene	38.4	0.500	1.00	ug/L	1	40.0	ND	96	80-121%	---	---	
o-Xylene	18.3	0.250	0.500	ug/L	1	20.0	ND	92	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 111 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*97 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*94 %*		*80-120 %*				*"*			
Matrix Spike Dup (9120593-MSD1)			Prepared: 12/06/19 10:54		Analyzed: 12/06/19 14:51							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
EPA 8260C												
Acetone	38.9	10.0	20.0	ug/L	1	40.0	ND	97	39-160%	2	30%	
Acrylonitrile	23.6	1.00	2.00	ug/L	1	20.0	ND	118	63-135%	5	30%	
Benzene	22.3	0.100	0.200	ug/L	1	20.0	ND	112	79-120%	0.04	30%	
Bromobenzene	20.3	0.250	0.500	ug/L	1	20.0	ND	102	80-120%	2	30%	
Bromochloromethane	26.4	0.500	1.00	ug/L	1	20.0	ND	**132**	**78-123%**	0.5	30%	Q-54i
Bromodichloromethane	23.1	0.500	1.00	ug/L	1	20.0	ND	116	79-125%	0.3	30%	
Bromoform	25.7	0.500	1.00	ug/L	1	20.0	ND	128	66-130%	0.3	30%	Q-54a
Bromomethane	26.7	5.00	5.00	ug/L	1	20.0	ND	134	53-141%	6	30%	Q-54e
2-Butanone (MEK)	40.3	5.00	10.0	ug/L	1	40.0	ND	101	56-143%	2	30%	
n-Butylbenzene	19.4	0.500	1.00	ug/L	1	20.0	ND	97	75-128%	5	30%	
sec-Butylbenzene	18.8	0.500	1.00	ug/L	1	20.0	ND	94	77-126%	4	30%	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Matrix Spike Dup (9120593-MSD1)			Prepared: 12/06/19 10:54		Analyzed: 12/06/19 14:51							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
tert-Butylbenzene	17.6	0.500	1.00	ug/L	1	20.0	ND	88	78-124%	6	30%	
Carbon disulfide	22.0	5.00	10.0	ug/L	1	20.0	ND	110	64-133%	2	30%	
Carbon tetrachloride	25.3	0.500	1.00	ug/L	1	20.0	ND	126	72-136%	0.9	30%	
Chlorobenzene	20.8	0.250	0.500	ug/L	1	20.0	ND	104	80-120%	0.5	30%	
Chloroethane	17.8	5.00	5.00	ug/L	1	20.0	ND	89	60-138%	0.1	30%	
Chloroform	22.6	0.500	1.00	ug/L	1	20.0	ND	113	79-124%	1	30%	
Chloromethane	20.4	2.50	5.00	ug/L	1	20.0	ND	102	50-139%	1	30%	
2-Chlorotoluene	19.5	0.500	1.00	ug/L	1	20.0	ND	97	79-122%	3	30%	
4-Chlorotoluene	19.2	0.500	1.00	ug/L	1	20.0	ND	96	78-122%	5	30%	
Dibromochloromethane	26.3	0.500	1.00	ug/L	1	20.0	ND	**131**	**74-126%**	0.3	30%	Q-54a
1,2-Dibromo-3-chloropropane	20.1	2.50	5.00	ug/L	1	20.0	ND	100	62-128%	2	30%	
1,2-Dibromoethane (EDB)	20.2	0.250	0.500	ug/L	1	20.0	ND	101	77-121%	0.02	30%	
Dibromomethane	23.9	0.500	1.00	ug/L	1	20.0	ND	119	79-123%	1	30%	
1,2-Dichlorobenzene	20.1	0.250	0.500	ug/L	1	20.0	ND	101	80-120%	4	30%	
1,3-Dichlorobenzene	20.3	0.250	0.500	ug/L	1	20.0	ND	102	80-120%	3	30%	
1,4-Dichlorobenzene	20.1	0.250	0.500	ug/L	1	20.0	ND	100	79-120%	3	30%	
Dichlorodifluoromethane	24.1	0.500	1.00	ug/L	1	20.0	ND	121	32-152%	2	30%	
1,1-Dichloroethane	21.4	0.200	0.400	ug/L	1	20.0	ND	107	77-125%	0.3	30%	
1,2-Dichloroethane (EDC)	19.6	0.200	0.400	ug/L	1	20.0	ND	98	73-128%	0.4	30%	
1,1-Dichloroethene	21.5	0.200	0.400	ug/L	1	20.0	ND	108	71-131%	0.9	30%	
cis-1,2-Dichloroethene	21.1	0.200	0.400	ug/L	1	20.0	ND	105	78-123%	2	30%	
trans-1,2-Dichloroethene	22.0	0.200	0.400	ug/L	1	20.0	ND	110	75-124%	0.3	30%	
1,2-Dichloropropane	21.8	0.250	0.500	ug/L	1	20.0	ND	109	78-122%	0.009	30%	
1,3-Dichloropropane	20.0	0.500	1.00	ug/L	1	20.0	ND	100	80-120%	1	30%	
2,2-Dichloropropane	19.9	0.500	1.00	ug/L	1	20.0	ND	100	60-139%	0.9	30%	
1,1-Dichloropropene	21.5	0.500	1.00	ug/L	1	20.0	ND	108	79-125%	0.8	30%	
cis-1,3-Dichloropropene	17.8	0.500	1.00	ug/L	1	20.0	ND	89	75-124%	1	30%	
trans-1,3-Dichloropropene	18.3	0.500	1.00	ug/L	1	20.0	ND	92	73-127%	2	30%	
Ethylbenzene	19.6	0.250	0.500	ug/L	1	20.0	ND	98	79-121%	2	30%	
Hexachlorobutadiene	16.2	2.50	5.00	ug/L	1	20.0	ND	81	66-134%	2	30%	
2-Hexanone	34.8	10.0	10.0	ug/L	1	40.0	ND	87	57-139%	1	30%	Q-54n
Isopropylbenzene	19.1	0.500	1.00	ug/L	1	20.0	ND	96	72-131%	1	30%	
4-Isopropyltoluene	19.3	0.500	1.00	ug/L	1	20.0	ND	96	77-127%	3	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120593 - EPA 5030B							**Water**					
Matrix Spike Dup (9120593-MSD1)			Prepared: 12/06/19 10:54 Analyzed: 12/06/19 14:51									
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
Methylene chloride	23.0	2.50	5.00	ug/L	1	20.0	ND	115	74-124%	0.2	30%	
4-Methyl-2-pentanone (MiBK)	35.5	5.00	10.0	ug/L	1	40.0	ND	89	67-130%	0.7	30%	
Methyl tert-butyl ether (MTBE)	18.5	0.500	1.00	ug/L	1	20.0	ND	92	71-124%	1	30%	
Naphthalene	17.2	1.00	2.00	ug/L	1	20.0	ND	86	61-128%	6	30%	
n-Propylbenzene	19.2	0.250	0.500	ug/L	1	20.0	ND	96	76-126%	4	30%	
Styrene	19.2	0.500	1.00	ug/L	1	20.0	ND	96	78-123%	1	30%	
1,1,1,2-Tetrachloroethane	23.0	0.200	0.400	ug/L	1	20.0	ND	115	78-124%	0.1	30%	
1,1,2,2-Tetrachloroethane	21.0	0.250	0.500	ug/L	1	20.0	ND	105	71-121%	2	30%	
Tetrachloroethene (PCE)	21.7	0.200	0.400	ug/L	1	20.0	ND	108	74-129%	0.7	30%	
Toluene	19.7	0.500	1.00	ug/L	1	20.0	ND	99	80-121%	0.4	30%	
1,2,3-Trichlorobenzene	18.9	1.00	2.00	ug/L	1	20.0	ND	94	69-129%	6	30%	
1,2,4-Trichlorobenzene	17.7	1.00	2.00	ug/L	1	20.0	ND	88	69-130%	6	30%	
1,1,1-Trichloroethane	21.6	0.200	0.400	ug/L	1	20.0	ND	108	74-131%	0.09	30%	
1,1,2-Trichloroethane	21.3	0.250	0.500	ug/L	1	20.0	ND	107	80-120%	0.7	30%	
Trichloroethene (TCE)	24.1	0.200	0.400	ug/L	1	20.0	ND	121	79-123%	2	30%	
Trichlorofluoromethane	23.9	1.00	2.00	ug/L	1	20.0	ND	120	65-141%	2	30%	
1,2,3-Trichloropropane	20.2	0.500	1.00	ug/L	1	20.0	ND	101	73-122%	0.7	30%	
1,2,4-Trimethylbenzene	19.7	0.500	1.00	ug/L	1	20.0	ND	98	76-124%	4	30%	
1,3,5-Trimethylbenzene	19.4	0.500	1.00	ug/L	1	20.0	ND	97	75-124%	3	30%	
Vinyl chloride	22.9	0.200	0.400	ug/L	1	20.0	ND	115	58-137%	0.04	30%	
m,p-Xylene	38.7	0.500	1.00	ug/L	1	40.0	ND	97	80-121%	0.7	30%	
o-Xylene	18.4	0.250	0.500	ug/L	1	20.0	ND	92	78-122%	0.4	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 111 %*			*Limits: 80-120 %*			*Dilution: 1x*			
Toluene-d8 (Surr)			*97 %*			*80-120 %*			*"*			
4-Bromofluorobenzene (Surr)			*96 %*			*80-120 %*			*"*			

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Blank (9120635-BLK1)			Prepared: 12/07/19 08:30 Analyzed: 12/07/19 10:51									
EPA 8260C												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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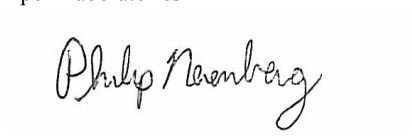

Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Blank (9120635-BLK1)			Prepared: 12/07/19 08:30		Analyzed: 12/07/19 10:51							
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	2.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 111 %* *Limits: 80-120 %* *Dilution: 1x*

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B									**Water**			
Blank (9120635-BLK1)				Prepared: 12/07/19 08:30 Analyzed: 12/07/19 10:51								
Surr: Toluene-d8 (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*			*"*					
LCS (9120635-BS1)				Prepared: 12/07/19 08:30 Analyzed: 12/07/19 09:57								
EPA 8260C												
Acetone	33.9	10.0	20.0	ug/L	1	40.0	---	85	80-120%	---	---	
Acrylonitrile	21.0	1.00	2.00	ug/L	1	20.0	---	105	80-120%	---	---	
Benzene	20.9	0.100	0.200	ug/L	1	20.0	---	104	80-120%	---	---	
Bromobenzene	20.2	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Bromochloromethane	24.6	0.500	1.00	ug/L	1	20.0	---	**123**	**80-120%**	---	---	Q-56
Bromodichloromethane	22.1	0.500	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
Bromoform	25.3	0.500	1.00	ug/L	1	20.0	---	**126**	**80-120%**	---	---	Q-56
Bromomethane	24.0	5.00	5.00	ug/L	1	20.0	---	120	80-120%	---	---	
2-Butanone (MEK)	36.6	5.00	10.0	ug/L	1	40.0	---	91	80-120%	---	---	
n-Butylbenzene	19.4	0.500	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
sec-Butylbenzene	18.7	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
tert-Butylbenzene	17.2	0.500	1.00	ug/L	1	20.0	---	86	80-120%	---	---	
Carbon disulfide	20.1	5.00	10.0	ug/L	1	20.0	---	100	80-120%	---	---	
Carbon tetrachloride	23.1	0.500	1.00	ug/L	1	20.0	---	115	80-120%	---	---	
Chlorobenzene	20.3	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Chloroethane	17.5	5.00	5.00	ug/L	1	20.0	---	87	80-120%	---	---	
Chloroform	21.4	0.500	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
Chloromethane	18.3	2.50	5.00	ug/L	1	20.0	---	92	80-120%	---	---	
2-Chlorotoluene	19.1	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
4-Chlorotoluene	18.6	0.500	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
Dibromochloromethane	25.6	0.500	1.00	ug/L	1	20.0	---	**128**	**80-120%**	---	---	Q-56
1,2-Dibromo-3-chloropropane	18.5	2.50	5.00	ug/L	1	20.0	---	92	80-120%	---	---	
1,2-Dibromoethane (EDB)	20.0	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Dibromomethane	22.5	0.500	1.00	ug/L	1	20.0	---	112	80-120%	---	---	
1,2-Dichlorobenzene	19.7	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
1,3-Dichlorobenzene	19.8	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
1,4-Dichlorobenzene	19.8	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Dichlorodifluoromethane	20.9	0.500	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
1,1-Dichloroethane	20.1	0.200	0.400	ug/L	1	20.0	---	100	80-120%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
LCS (9120635-BS1)			Prepared: 12/07/19 08:30		Analyzed: 12/07/19 09:57							
1,2-Dichloroethane (EDC)	19.2	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
1,1-Dichloroethene	19.7	0.200	0.400	ug/L	1	20.0	---	98	80-120%	---	---	
cis-1,2-Dichloroethene	19.6	0.200	0.400	ug/L	1	20.0	---	98	80-120%	---	---	
trans-1,2-Dichloroethene	20.5	0.200	0.400	ug/L	1	20.0	---	102	80-120%	---	---	
1,2-Dichloropropane	20.3	0.250	0.500	ug/L	1	20.0	---	102	80-120%	---	---	
1,3-Dichloropropane	19.5	0.500	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
2,2-Dichloropropane	19.3	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,1-Dichloropropene	19.8	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
cis-1,3-Dichloropropene	18.7	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
trans-1,3-Dichloropropene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
Ethylbenzene	18.9	0.250	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Hexachlorobutadiene	17.5	2.50	5.00	ug/L	1	20.0	---	87	80-120%	---	---	
2-Hexanone	32.8	5.00	10.0	ug/L	1	40.0	---	82	80-120%	---	---	
Isopropylbenzene	18.4	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
4-Isopropyltoluene	19.2	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
Methylene chloride	22.0	2.50	5.00	ug/L	1	20.0	---	110	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	34.3	5.00	10.0	ug/L	1	40.0	---	86	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.5	0.500	1.00	ug/L	1	20.0	---	87	80-120%	---	---	
Naphthalene	15.6	2.00	2.00	ug/L	1	20.0	---	**78**	**80-120%**	---	---	Q-55
n-Propylbenzene	19.0	0.250	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Styrene	19.1	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,1,1,2-Tetrachloroethane	22.5	0.200	0.400	ug/L	1	20.0	---	112	80-120%	---	---	
1,1,2,2-Tetrachloroethane	20.9	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
Tetrachloroethene (PCE)	20.7	0.200	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
Toluene	19.2	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,2,3-Trichlorobenzene	18.3	1.00	2.00	ug/L	1	20.0	---	91	80-120%	---	---	
1,2,4-Trichlorobenzene	17.0	1.00	2.00	ug/L	1	20.0	---	85	80-120%	---	---	
1,1,1-Trichloroethane	19.8	0.200	0.400	ug/L	1	20.0	---	99	80-120%	---	---	
1,1,2-Trichloroethane	21.2	0.250	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Trichloroethene (TCE)	22.4	0.200	0.400	ug/L	1	20.0	---	112	80-120%	---	---	
Trichlorofluoromethane	21.4	1.00	2.00	ug/L	1	20.0	---	107	80-120%	---	---	
1,2,3-Trichloropropane	20.3	0.500	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
1,2,4-Trimethylbenzene	19.4	0.500	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,3,5-Trimethylbenzene	19.5	0.500	1.00	ug/L	1	20.0	---	97	80-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
LCS (9120635-BS1)			Prepared: 12/07/19 08:30 Analyzed: 12/07/19 09:57									
Vinyl chloride	20.3	0.200	0.400	ug/L	1	20.0	---	102	80-120%	---	---	
m,p-Xylene	37.8	0.500	1.00	ug/L	1	40.0	---	95	80-120%	---	---	
o-Xylene	17.6	0.250	0.500	ug/L	1	20.0	---	88	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*			*"*				
Duplicate (9120635-DUP1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 17:06									
QC Source Sample: RAU1-12-GW-7.0 (A9L0097-39)												
EPA 8260C												
Acetone	ND	100	200	ug/L	10	---	ND	---	---	---	30%	
Acrylonitrile	ND	10.0	20.0	ug/L	10	---	ND	---	---	---	30%	
Benzene	ND	1.00	2.00	ug/L	10	---	ND	---	---	---	30%	
Bromobenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Bromochloromethane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Bromodichloromethane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Bromoform	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Bromomethane	ND	50.0	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	50.0	100	ug/L	10	---	ND	---	---	---	30%	
n-Butylbenzene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Carbon disulfide	ND	50.0	100	ug/L	10	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Chlorobenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Chloroethane	ND	50.0	50.0	ug/L	10	---	ND	---	---	---	30%	
Chloroform	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Chloromethane	ND	25.0	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Dibromochloromethane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	25.0	50.0	ug/L	10	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Dibromomethane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	

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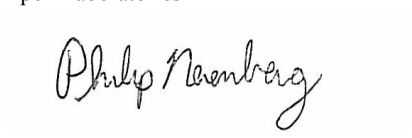

Philip Nerenberg, Lab Director

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Duplicate (9120635-DUP1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 17:06									
QC Source Sample: RAU1-12-GW-7.0 (A9L0097-39)												
1,2-Dichlorobenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Ethylbenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	25.0	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Hexanone	ND	50.0	100	ug/L	10	---	ND	---	---	---	30%	
Isopropylbenzene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Methylene chloride	ND	25.0	50.0	ug/L	10	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	50.0	100	ug/L	10	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Naphthalene	ND	20.0	20.0	ug/L	10	---	ND	---	---	---	30%	
n-Propylbenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Styrene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	10.0	20.0	ug/L	10	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/L	10	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Duplicate (9120635-DUP1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 17:06									
QC Source Sample: RAU1-12-GW-7.0 (A9L0097-39)												
1,1,2-Trichloroethane	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	10.0	20.0	ug/L	10	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	**8.10**	5.00	10.0	ug/L	10	---	7.63	---	---	6	30%	J
1,3,5-Trimethylbenzene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
Vinyl chloride	ND	2.00	4.00	ug/L	10	---	ND	---	---	---	30%	
m,p-Xylene	ND	5.00	10.0	ug/L	10	---	ND	---	---	---	30%	
o-Xylene	**2.61**	2.50	5.00	ug/L	10	---	2.70	---	---	3	30%	J
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 114 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*101 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*			*"*				
Matrix Spike (9120635-MS1)			Prepared: 12/07/19 11:00 Analyzed: 12/07/19 15:18									
QC Source Sample: Non-SDG (A9L0144-01)												
EPA 8260C												
Acetone	45.4	10.0	20.0	ug/L	1	40.0	ND	114	39-160%	---	---	
Acrylonitrile	22.8	1.00	2.00	ug/L	1	20.0	ND	114	63-135%	---	---	
Benzene	22.4	0.100	0.200	ug/L	1	20.0	ND	112	79-120%	---	---	
Bromobenzene	20.5	0.250	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
Bromochloromethane	26.2	0.500	1.00	ug/L	1	20.0	ND	**131**	**78-123%**	---	---	Q-54e
Bromodichloromethane	23.5	0.500	1.00	ug/L	1	20.0	ND	118	79-125%	---	---	
Bromoform	25.9	0.500	1.00	ug/L	1	20.0	ND	129	66-130%	---	---	Q-54h
Bromomethane	19.4	5.00	5.00	ug/L	1	20.0	ND	97	53-141%	---	---	
2-Butanone (MEK)	41.3	5.00	10.0	ug/L	1	40.0	ND	103	56-143%	---	---	
n-Butylbenzene	20.4	0.500	1.00	ug/L	1	20.0	ND	102	75-128%	---	---	
sec-Butylbenzene	19.9	0.500	1.00	ug/L	1	20.0	ND	100	77-126%	---	---	
tert-Butylbenzene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	78-124%	---	---	
Carbon disulfide	22.1	5.00	10.0	ug/L	1	20.0	ND	110	64-133%	---	---	
Carbon tetrachloride	25.0	0.500	1.00	ug/L	1	20.0	ND	125	72-136%	---	---	
Chlorobenzene	21.6	0.250	0.500	ug/L	1	20.0	ND	108	80-120%	---	---	
Chloroethane	18.9	5.00	5.00	ug/L	1	20.0	ND	94	60-138%	---	---	
Chloroform	23.1	0.500	1.00	ug/L	1	20.0	ND	116	79-124%	---	---	

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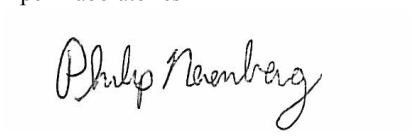

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Matrix Spike (9120635-MS1)			Prepared: 12/07/19 11:00		Analyzed: 12/07/19 15:18							
QC Source Sample: Non-SDG (A9L0144-01)												
Chloromethane	18.6	2.50	5.00	ug/L	1	20.0	ND	93	50-139%	---	---	
2-Chlorotoluene	19.5	0.500	1.00	ug/L	1	20.0	ND	97	79-122%	---	---	
4-Chlorotoluene	19.8	0.500	1.00	ug/L	1	20.0	ND	99	78-122%	---	---	
Dibromochloromethane	26.9	0.500	1.00	ug/L	1	20.0	ND	**134**	**74-126%**	---	---	Q-54j
1,2-Dibromo-3-chloropropane	19.4	2.50	5.00	ug/L	1	20.0	ND	97	62-128%	---	---	
1,2-Dibromoethane (EDB)	20.9	0.250	0.500	ug/L	1	20.0	ND	105	77-121%	---	---	
Dibromomethane	23.8	0.500	1.00	ug/L	1	20.0	ND	119	79-123%	---	---	
1,2-Dichlorobenzene	20.2	0.250	0.500	ug/L	1	20.0	ND	101	80-120%	---	---	
1,3-Dichlorobenzene	20.7	0.250	0.500	ug/L	1	20.0	ND	104	80-120%	---	---	
1,4-Dichlorobenzene	20.6	0.250	0.500	ug/L	1	20.0	ND	103	79-120%	---	---	
Dichlorodifluoromethane	23.6	0.500	1.00	ug/L	1	20.0	ND	118	32-152%	---	---	
1,1-Dichloroethane	21.7	0.200	0.400	ug/L	1	20.0	ND	109	77-125%	---	---	
1,2-Dichloroethane (EDC)	20.5	0.200	0.400	ug/L	1	20.0	ND	103	73-128%	---	---	
1,1-Dichloroethene	22.1	0.200	0.400	ug/L	1	20.0	ND	111	71-131%	---	---	
cis-1,2-Dichloroethene	21.3	0.200	0.400	ug/L	1	20.0	ND	106	78-123%	---	---	
trans-1,2-Dichloroethene	22.4	0.200	0.400	ug/L	1	20.0	ND	112	75-124%	---	---	
1,2-Dichloropropane	22.0	0.250	0.500	ug/L	1	20.0	ND	110	78-122%	---	---	
1,3-Dichloropropane	20.7	0.500	1.00	ug/L	1	20.0	ND	104	80-120%	---	---	
2,2-Dichloropropane	20.4	0.500	1.00	ug/L	1	20.0	ND	102	60-139%	---	---	
1,1-Dichloropropene	22.0	0.500	1.00	ug/L	1	20.0	ND	110	79-125%	---	---	
cis-1,3-Dichloropropene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	75-124%	---	---	
trans-1,3-Dichloropropene	19.3	0.500	1.00	ug/L	1	20.0	ND	96	73-127%	---	---	
Ethylbenzene	20.2	0.250	0.500	ug/L	1	20.0	ND	101	79-121%	---	---	
Hexachlorobutadiene	18.2	2.50	5.00	ug/L	1	20.0	ND	91	66-134%	---	---	
2-Hexanone	35.7	5.00	10.0	ug/L	1	40.0	ND	89	57-139%	---	---	
Isopropylbenzene	19.8	0.500	1.00	ug/L	1	20.0	ND	99	72-131%	---	---	
4-Isopropyltoluene	19.9	0.500	1.00	ug/L	1	20.0	ND	100	77-127%	---	---	
Methylene chloride	23.3	2.50	5.00	ug/L	1	20.0	ND	117	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	37.3	5.00	10.0	ug/L	1	40.0	ND	93	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	18.4	0.500	1.00	ug/L	1	20.0	ND	92	71-124%	---	---	
Naphthalene	16.5	2.00	2.00	ug/L	1	20.0	ND	82	61-128%	---	---	Q-54q
n-Propylbenzene	20.2	0.250	0.500	ug/L	1	20.0	ND	101	76-126%	---	---	
Styrene	20.0	0.500	1.00	ug/L	1	20.0	ND	100	78-123%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120635 - EPA 5030B							**Water**					
Matrix Spike (9120635-MS1)			Prepared: 12/07/19 11:00			Analyzed: 12/07/19 15:18						
QC Source Sample: Non-SDG (A9L0144-01)												
1,1,1,2-Tetrachloroethane	23.4	0.200	0.400	ug/L	1	20.0	ND	117	78-124%	---	---	
1,1,2,2-Tetrachloroethane	21.8	0.250	0.500	ug/L	1	20.0	ND	109	71-121%	---	---	
Tetrachloroethene (PCE)	22.4	0.200	0.400	ug/L	1	20.0	ND	112	74-129%	---	---	
Toluene	20.4	0.500	1.00	ug/L	1	20.0	ND	102	80-121%	---	---	
1,2,3-Trichlorobenzene	18.8	1.00	2.00	ug/L	1	20.0	ND	94	69-129%	---	---	
1,2,4-Trichlorobenzene	17.7	1.00	2.00	ug/L	1	20.0	ND	88	69-130%	---	---	
1,1,1-Trichloroethane	21.7	0.200	0.400	ug/L	1	20.0	ND	108	74-131%	---	---	
1,1,2-Trichloroethane	22.2	0.250	0.500	ug/L	1	20.0	ND	111	80-120%	---	---	
Trichloroethene (TCE)	23.6	0.200	0.400	ug/L	1	20.0	ND	118	79-123%	---	---	
Trichlorofluoromethane	24.2	1.00	2.00	ug/L	1	20.0	ND	121	65-141%	---	---	
1,2,3-Trichloropropane	20.5	0.500	1.00	ug/L	1	20.0	ND	103	73-122%	---	---	
1,2,4-Trimethylbenzene	20.1	0.500	1.00	ug/L	1	20.0	ND	100	76-124%	---	---	
1,3,5-Trimethylbenzene	20.4	0.500	1.00	ug/L	1	20.0	ND	102	75-124%	---	---	
Vinyl chloride	22.5	0.200	0.400	ug/L	1	20.0	ND	113	58-137%	---	---	
m,p-Xylene	40.3	0.500	1.00	ug/L	1	40.0	ND	101	80-121%	---	---	
o-Xylene	19.0	0.250	0.500	ug/L	1	20.0	ND	95	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*			*Limits: 80-120 %*			*Dilution: 1x*			
Toluene-d8 (Surr)			*98 %*			*80-120 %*			*"*			
4-Bromofluorobenzene (Surr)			*94 %*			*80-120 %*			*"*			

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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Blank (9120654-BLK1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:56							
EPA 8260C												
Acetone	ND	20.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Blank (9120654-BLK1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:56							
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	10.0	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	2.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 112 %* *Limits: 80-120 %* *Dilution: 1x*

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B									**Water**			
Blank (9120654-BLK1)				Prepared: 12/09/19 11:00 Analyzed: 12/09/19 12:56								
Surr: Toluene-d8 (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*			*"*					
LCS (9120654-BS1)				Prepared: 12/09/19 11:00 Analyzed: 12/09/19 12:03								
EPA 8260C												
Acetone	31.4	20.0	20.0	ug/L	1	40.0	---	**78**	**80-120%**	---	---	Q-55
Acrylonitrile	20.2	1.00	2.00	ug/L	1	20.0	---	101	80-120%	---	---	
Benzene	20.3	0.100	0.200	ug/L	1	20.0	---	101	80-120%	---	---	
Bromobenzene	20.0	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Bromochloromethane	24.5	0.500	1.00	ug/L	1	20.0	---	**122**	**80-120%**	---	---	Q-56
Bromodichloromethane	21.8	0.500	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
Bromoform	25.6	0.500	1.00	ug/L	1	20.0	---	**128**	**80-120%**	---	---	Q-56
Bromomethane	21.2	5.00	5.00	ug/L	1	20.0	---	106	80-120%	---	---	
2-Butanone (MEK)	34.9	5.00	10.0	ug/L	1	40.0	---	87	80-120%	---	---	
n-Butylbenzene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
sec-Butylbenzene	17.8	0.500	1.00	ug/L	1	20.0	---	89	80-120%	---	---	
tert-Butylbenzene	16.3	0.500	1.00	ug/L	1	20.0	---	82	80-120%	---	---	
Carbon disulfide	19.4	5.00	10.0	ug/L	1	20.0	---	97	80-120%	---	---	
Carbon tetrachloride	22.5	0.500	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
Chlorobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Chloroethane	16.6	5.00	5.00	ug/L	1	20.0	---	83	80-120%	---	---	
Chloroform	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Chloromethane	16.9	2.50	5.00	ug/L	1	20.0	---	84	80-120%	---	---	
2-Chlorotoluene	18.4	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
4-Chlorotoluene	17.8	0.500	1.00	ug/L	1	20.0	---	89	80-120%	---	---	
Dibromochloromethane	25.9	0.500	1.00	ug/L	1	20.0	---	**130**	**80-120%**	---	---	Q-56
1,2-Dibromo-3-chloropropane	19.3	2.50	5.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,2-Dibromoethane (EDB)	19.9	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Dibromomethane	22.6	0.500	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,2-Dichlorobenzene	19.2	0.250	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
1,3-Dichlorobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
1,4-Dichlorobenzene	19.3	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Dichlorodifluoromethane	19.7	0.500	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
1,1-Dichloroethane	19.0	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
LCS (9120654-BS1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:03							
1,2-Dichloroethane (EDC)	18.0	0.200	0.400	ug/L	1	20.0	---	90	80-120%	---	---	
1,1-Dichloroethene	18.5	0.200	0.400	ug/L	1	20.0	---	92	80-120%	---	---	
cis-1,2-Dichloroethene	18.6	0.200	0.400	ug/L	1	20.0	---	93	80-120%	---	---	
trans-1,2-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
1,2-Dichloropropane	20.2	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
1,3-Dichloropropane	18.9	0.500	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
2,2-Dichloropropane	17.9	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
1,1-Dichloropropene	18.9	0.500	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
cis-1,3-Dichloropropene	18.4	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
trans-1,3-Dichloropropene	18.1	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Ethylbenzene	18.1	0.250	0.500	ug/L	1	20.0	---	91	80-120%	---	---	
Hexachlorobutadiene	16.8	2.50	5.00	ug/L	1	20.0	---	84	80-120%	---	---	
2-Hexanone	31.0	10.0	10.0	ug/L	1	40.0	---	**77**	**80-120%**	---	---	Q-55
Isopropylbenzene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
4-Isopropyltoluene	18.1	0.500	1.00	ug/L	1	20.0	---	91	80-120%	---	---	
Methylene chloride	21.0	1.50	3.00	ug/L	1	20.0	---	105	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	32.2	5.00	10.0	ug/L	1	40.0	---	81	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.5	0.500	1.00	ug/L	1	20.0	---	87	80-120%	---	---	
Naphthalene	15.9	2.00	2.00	ug/L	1	20.0	---	**79**	**80-120%**	---	---	Q-55
n-Propylbenzene	18.0	0.250	0.500	ug/L	1	20.0	---	90	80-120%	---	---	
Styrene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
1,1,1,2-Tetrachloroethane	21.9	0.200	0.400	ug/L	1	20.0	---	110	80-120%	---	---	
1,1,2,2-Tetrachloroethane	20.0	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Tetrachloroethene (PCE)	19.8	0.200	0.400	ug/L	1	20.0	---	99	80-120%	---	---	
Toluene	18.3	0.500	1.00	ug/L	1	20.0	---	91	80-120%	---	---	
1,2,3-Trichlorobenzene	18.0	1.00	2.00	ug/L	1	20.0	---	90	80-120%	---	---	
1,2,4-Trichlorobenzene	16.9	1.00	2.00	ug/L	1	20.0	---	84	80-120%	---	---	
1,1,1-Trichloroethane	19.0	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	
1,1,2-Trichloroethane	20.5	0.250	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Trichloroethene (TCE)	21.5	0.200	0.400	ug/L	1	20.0	---	108	80-120%	---	---	
Trichlorofluoromethane	20.7	1.00	2.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,2,3-Trichloropropane	19.8	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,2,4-Trimethylbenzene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
1,3,5-Trimethylbenzene	18.3	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
LCS (9120654-BS1)			Prepared: 12/09/19 11:00 Analyzed: 12/09/19 12:03									
Vinyl chloride	19.3	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
m,p-Xylene	35.8	0.500	1.00	ug/L	1	40.0	---	89	80-120%	---	---	
o-Xylene	17.5	0.250	0.500	ug/L	1	20.0	---	87	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 111 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*99 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*				*"*			
Duplicate (9120654-DUP1)			Prepared: 12/09/19 12:34 Analyzed: 12/09/19 15:10									
QC Source Sample: Non-SDG (A9L0215-01)												
Acetone	ND	40000	40000	ug/L	2000	---	ND	---	---	---	30%	
Acrylonitrile	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
Benzene	ND	200	400	ug/L	2000	---	ND	---	---	---	30%	
Bromobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Bromochloromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Bromodichloromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Bromoform	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Bromomethane	ND	10000	10000	ug/L	2000	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	10000	20000	ug/L	2000	---	ND	---	---	---	30%	
n-Butylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Carbon disulfide	ND	10000	20000	ug/L	2000	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Chlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Chloroethane	ND	10000	10000	ug/L	2000	---	ND	---	---	---	30%	
Chloroform	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Chloromethane	ND	5000	10000	ug/L	2000	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Dibromochloromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	5000	10000	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Dibromomethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Duplicate (9120654-DUP1)			Prepared: 12/09/19 12:34 Analyzed: 12/09/19 15:10									
QC Source Sample: Non-SDG (A9L0215-01)												
1,3-Dichlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	**236000**	400	800	ug/L	2000	---	229000	---	---	3	30%	
trans-1,2-Dichloroethene	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Ethylbenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	5000	10000	ug/L	2000	---	ND	---	---	---	30%	
2-Hexanone	ND	20000	20000	ug/L	2000	---	ND	---	---	---	30%	
Isopropylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Methylene chloride	ND	3000	6000	ug/L	2000	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	10000	20000	ug/L	2000	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Naphthalene	ND	4000	4000	ug/L	2000	---	ND	---	---	---	30%	
n-Propylbenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Styrene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
Toluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	

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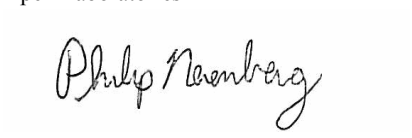

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Duplicate (9120654-DUP1)			Prepared: 12/09/19 12:34 Analyzed: 12/09/19 15:10									
QC Source Sample: Non-SDG (A9L0215-01)												
Trichloroethene (TCE)	**8370**	400	800	ug/L	2000	---	8350	---	---	0.2	30%	
Trichlorofluoromethane	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Vinyl chloride	**5020**	400	800	ug/L	2000	---	4540	---	---	10	30%	
m,p-Xylene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
o-Xylene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*112 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*			*"*				
Matrix Spike (9120654-MS1)			Prepared: 12/09/19 12:34 Analyzed: 12/09/19 23:13									
QC Source Sample: Non-SDG (A9L0244-01)												
EPA 8260C												
Acetone	41.4	20.0	20.0	ug/L	1	40.0	ND	104	39-160%	---	---	Q-54o
Acrylonitrile	21.1	1.00	2.00	ug/L	1	20.0	ND	105	63-135%	---	---	
Benzene	21.3	0.100	0.200	ug/L	1	20.0	ND	106	79-120%	---	---	
Bromobenzene	19.5	0.250	0.500	ug/L	1	20.0	ND	98	80-120%	---	---	
Bromochloromethane	25.2	0.500	1.00	ug/L	1	20.0	ND	**126**	**78-123%**	---	---	Q-54c
Bromodichloromethane	22.4	0.500	1.00	ug/L	1	20.0	ND	112	79-125%	---	---	
Bromoform	24.9	0.500	1.00	ug/L	1	20.0	ND	125	66-130%	---	---	Q-54k
Bromomethane	20.8	5.00	5.00	ug/L	1	20.0	ND	104	53-141%	---	---	
2-Butanone (MEK)	36.2	5.00	10.0	ug/L	1	40.0	ND	90	56-143%	---	---	
n-Butylbenzene	18.4	0.500	1.00	ug/L	1	20.0	ND	92	75-128%	---	---	
sec-Butylbenzene	18.0	0.500	1.00	ug/L	1	20.0	ND	90	77-126%	---	---	
tert-Butylbenzene	16.8	0.500	1.00	ug/L	1	20.0	ND	84	78-124%	---	---	
Carbon disulfide	20.6	5.00	10.0	ug/L	1	20.0	ND	103	64-133%	---	---	
Carbon tetrachloride	23.7	0.500	1.00	ug/L	1	20.0	ND	119	72-136%	---	---	
Chlorobenzene	20.5	0.250	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
Chloroethane	18.7	5.00	5.00	ug/L	1	20.0	ND	94	60-138%	---	---	
Chloroform	21.8	0.500	1.00	ug/L	1	20.0	ND	109	79-124%	---	---	
Chloromethane	17.5	2.50	5.00	ug/L	1	20.0	ND	88	50-139%	---	---	

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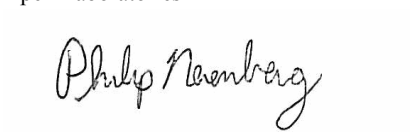

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Matrix Spike (9120654-MS1)			Prepared: 12/09/19 12:34		Analyzed: 12/09/19 23:13							
QC Source Sample: Non-SDG (A9L0244-01)												
2-Chlorotoluene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	79-122%	---	---	
4-Chlorotoluene	17.9	0.500	1.00	ug/L	1	20.0	ND	89	78-122%	---	---	
Dibromochloromethane	25.6	0.500	1.00	ug/L	1	20.0	ND	**128**	**74-126%**	---	---	Q-54l
1,2-Dibromo-3-chloropropane	17.9	2.50	5.00	ug/L	1	20.0	ND	89	62-128%	---	---	
1,2-Dibromoethane (EDB)	19.8	0.250	0.500	ug/L	1	20.0	ND	99	77-121%	---	---	
Dibromomethane	22.5	0.500	1.00	ug/L	1	20.0	ND	112	79-123%	---	---	
1,2-Dichlorobenzene	19.1	0.250	0.500	ug/L	1	20.0	ND	96	80-120%	---	---	
1,3-Dichlorobenzene	19.5	0.250	0.500	ug/L	1	20.0	ND	98	80-120%	---	---	
1,4-Dichlorobenzene	19.4	0.250	0.500	ug/L	1	20.0	ND	97	79-120%	---	---	
Dichlorodifluoromethane	20.5	0.500	1.00	ug/L	1	20.0	ND	103	32-152%	---	---	
1,1-Dichloroethane	20.4	0.200	0.400	ug/L	1	20.0	ND	102	77-125%	---	---	
1,2-Dichloroethane (EDC)	18.8	0.200	0.400	ug/L	1	20.0	ND	94	73-128%	---	---	
1,1-Dichloroethene	20.4	0.200	0.400	ug/L	1	20.0	ND	102	71-131%	---	---	
cis-1,2-Dichloroethene	19.7	0.200	0.400	ug/L	1	20.0	ND	98	78-123%	---	---	
trans-1,2-Dichloroethene	21.1	0.200	0.400	ug/L	1	20.0	ND	105	75-124%	---	---	
1,2-Dichloropropane	20.8	0.250	0.500	ug/L	1	20.0	ND	104	78-122%	---	---	
1,3-Dichloropropane	19.6	0.500	1.00	ug/L	1	20.0	ND	98	80-120%	---	---	
2,2-Dichloropropane	18.1	0.500	1.00	ug/L	1	20.0	ND	90	60-139%	---	---	
1,1-Dichloropropene	20.5	0.500	1.00	ug/L	1	20.0	ND	103	79-125%	---	---	
cis-1,3-Dichloropropene	16.6	0.500	1.00	ug/L	1	20.0	ND	83	75-124%	---	---	
trans-1,3-Dichloropropene	18.0	0.500	1.00	ug/L	1	20.0	ND	90	73-127%	---	---	
Ethylbenzene	19.1	0.250	0.500	ug/L	1	20.0	ND	95	79-121%	---	---	
Hexachlorobutadiene	17.0	2.50	5.00	ug/L	1	20.0	ND	85	66-134%	---	---	
2-Hexanone	31.9	10.0	10.0	ug/L	1	40.0	ND	80	57-139%	---	---	Q-54r
Isopropylbenzene	18.8	0.500	1.00	ug/L	1	20.0	ND	94	72-131%	---	---	
4-Isopropyltoluene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	77-127%	---	---	
Methylene chloride	21.9	1.50	3.00	ug/L	1	20.0	ND	109	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	33.6	5.00	10.0	ug/L	1	40.0	ND	84	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	17.4	0.500	1.00	ug/L	1	20.0	ND	87	71-124%	---	---	
Naphthalene	15.1	2.00	2.00	ug/L	1	20.0	ND	75	61-128%	---	---	Q-54m
n-Propylbenzene	18.5	0.250	0.500	ug/L	1	20.0	ND	93	76-126%	---	---	
Styrene	19.0	0.500	1.00	ug/L	1	20.0	ND	95	78-123%	---	---	
1,1,1,2-Tetrachloroethane	22.3	0.200	0.400	ug/L	1	20.0	ND	112	78-124%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Matrix Spike (9120654-MS1)			Prepared: 12/09/19 12:34		Analyzed: 12/09/19 23:13							
QC Source Sample: Non-SDG (A9L0244-01)												
1,1,2,2-Tetrachloroethane	20.0	0.250	0.500	ug/L	1	20.0	ND	100	71-121%	---	---	
Tetrachloroethene (PCE)	21.1	0.200	0.400	ug/L	1	20.0	ND	105	74-129%	---	---	
Toluene	19.4	0.500	1.00	ug/L	1	20.0	ND	97	80-121%	---	---	
1,2,3-Trichlorobenzene	17.1	1.00	2.00	ug/L	1	20.0	ND	85	69-129%	---	---	
1,2,4-Trichlorobenzene	15.9	1.00	2.00	ug/L	1	20.0	ND	80	69-130%	---	---	
1,1,1-Trichloroethane	20.7	0.200	0.400	ug/L	1	20.0	ND	103	74-131%	---	---	
1,1,2-Trichloroethane	21.0	0.250	0.500	ug/L	1	20.0	ND	105	80-120%	---	---	
Trichloroethene (TCE)	22.6	0.200	0.400	ug/L	1	20.0	ND	113	79-123%	---	---	
Trichlorofluoromethane	22.6	1.00	2.00	ug/L	1	20.0	ND	113	65-141%	---	---	
1,2,3-Trichloropropane	19.0	0.500	1.00	ug/L	1	20.0	ND	95	73-122%	---	---	
1,2,4-Trimethylbenzene	18.6	0.500	1.00	ug/L	1	20.0	ND	93	76-124%	---	---	
1,3,5-Trimethylbenzene	18.6	0.500	1.00	ug/L	1	20.0	ND	93	75-124%	---	---	
Vinyl chloride	20.9	0.200	0.400	ug/L	1	20.0	ND	105	58-137%	---	---	
m,p-Xylene	38.1	0.500	1.00	ug/L	1	40.0	ND	95	80-121%	---	---	
o-Xylene	17.8	0.250	0.500	ug/L	1	20.0	ND	89	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 109 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*97 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*93 %*		*80-120 %*			*"*				

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Blank (9120700-BLK1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 12:06									
EPA 8260C												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Blank (9120700-BLK1)			Prepared: 12/10/19 09:30		Analyzed: 12/10/19 12:06							
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 106 %* *Limits: 80-120 %* *Dilution: 1x*

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Blank (9120700-BLK1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 12:06									
Surr: Toluene-d8 (Surr)			*Recovery: 97 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*			*"*					
LCS (9120700-BS1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 11:09									
EPA 8260C												
Acetone	35.8	10.0	20.0	ug/L	1	40.0	---	89	80-120%	---	---	
Acrylonitrile	19.4	1.00	2.00	ug/L	1	20.0	---	97	80-120%	---	---	
Benzene	19.7	0.100	0.200	ug/L	1	20.0	---	98	80-120%	---	---	
Bromobenzene	20.6	0.250	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Bromochloromethane	18.8	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
Bromodichloromethane	20.4	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Bromoform	19.4	0.500	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
Bromomethane	16.2	5.00	5.00	ug/L	1	20.0	---	81	80-120%	---	---	
2-Butanone (MEK)	38.9	5.00	10.0	ug/L	1	40.0	---	97	80-120%	---	---	
n-Butylbenzene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
sec-Butylbenzene	20.3	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
tert-Butylbenzene	20.5	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Carbon disulfide	18.9	5.00	10.0	ug/L	1	20.0	---	94	80-120%	---	---	
Carbon tetrachloride	23.6	0.500	1.00	ug/L	1	20.0	---	118	80-120%	---	---	
Chlorobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Chloroethane	24.1	5.00	5.00	ug/L	1	20.0	---	**121**	**80-120%**	---	---	Q-56
Chloroform	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Chloromethane	13.8	5.00	5.00	ug/L	1	20.0	---	**69**	**80-120%**	---	---	Q-55
2-Chlorotoluene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
4-Chlorotoluene	20.7	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Dibromochloromethane	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,2-Dibromo-3-chloropropane	20.2	2.50	5.00	ug/L	1	20.0	---	101	80-120%	---	---	
1,2-Dibromoethane (EDB)	20.9	0.250	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Dibromomethane	21.0	0.500	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
1,2-Dichlorobenzene	20.9	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,3-Dichlorobenzene	20.8	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,4-Dichlorobenzene	19.0	0.250	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Dichlorodifluoromethane	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,1-Dichloroethane	19.2	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
LCS (9120700-BS1)			Prepared: 12/10/19 09:30		Analyzed: 12/10/19 11:09							
1,2-Dichloroethane (EDC)	20.5	0.200	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
1,1-Dichloroethene	20.6	0.200	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
cis-1,2-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
trans-1,2-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	
1,2-Dichloropropane	18.7	0.250	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
1,3-Dichloropropane	19.7	0.500	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
2,2-Dichloropropane	24.4	0.500	1.00	ug/L	1	20.0	---	**122**	**80-120%**	---	---	Q-56
1,1-Dichloropropene	21.4	0.500	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
cis-1,3-Dichloropropene	17.6	0.500	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
trans-1,3-Dichloropropene	22.0	0.500	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
Ethylbenzene	19.9	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Hexachlorobutadiene	22.5	2.50	5.00	ug/L	1	20.0	---	113	80-120%	---	---	
2-Hexanone	39.9	5.00	10.0	ug/L	1	40.0	---	100	80-120%	---	---	
Isopropylbenzene	20.7	0.500	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
4-Isopropyltoluene	20.4	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Methylene chloride	20.8	5.00	10.0	ug/L	1	20.0	---	104	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	39.2	5.00	10.0	ug/L	1	40.0	---	98	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	21.7	0.500	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
Naphthalene	20.8	1.00	2.00	ug/L	1	20.0	---	104	80-120%	---	---	
n-Propylbenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Styrene	19.9	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,1,1,2-Tetrachloroethane	21.8	0.200	0.400	ug/L	1	20.0	---	109	80-120%	---	---	
1,1,2,2-Tetrachloroethane	19.4	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Tetrachloroethene (PCE)	20.9	0.200	0.400	ug/L	1	20.0	---	104	80-120%	---	---	
Toluene	18.7	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,2,3-Trichlorobenzene	24.9	1.00	2.00	ug/L	1	20.0	---	**125**	**80-120%**	---	---	Q-56
1,2,4-Trichlorobenzene	22.6	1.00	2.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,1,1-Trichloroethane	21.9	0.200	0.400	ug/L	1	20.0	---	110	80-120%	---	---	
1,1,2-Trichloroethane	20.3	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Trichloroethene (TCE)	19.8	0.200	0.400	ug/L	1	20.0	---	99	80-120%	---	---	
Trichlorofluoromethane	21.3	1.00	2.00	ug/L	1	20.0	---	106	80-120%	---	---	
1,2,3-Trichloropropane	19.7	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,2,4-Trimethylbenzene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,3,5-Trimethylbenzene	21.1	0.500	1.00	ug/L	1	20.0	---	106	80-120%	---	---	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
LCS (9120700-BS1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 11:09									
Vinyl chloride	18.4	0.200	0.400	ug/L	1	20.0	---	92	80-120%	---	---	
m,p-Xylene	42.0	0.500	1.00	ug/L	1	40.0	---	105	80-120%	---	---	
o-Xylene	20.9	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*96 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*102 %*		*80-120 %*			*"*				
Duplicate (9120700-DUP1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 17:33									
QC Source Sample: Non-SDG (A9L0215-13)												
Acetone	ND	10000	20000	ug/L	1000	---	ND	---	---	---	30%	
Acrylonitrile	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
Benzene	ND	100	200	ug/L	1000	---	ND	---	---	---	30%	
Bromobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Bromochloromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Bromodichloromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Bromoform	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Bromomethane	ND	5000	5000	ug/L	1000	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
n-Butylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Carbon disulfide	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Chlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Chloroethane	ND	5000	5000	ug/L	1000	---	ND	---	---	---	30%	
Chloroform	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Chloromethane	ND	5000	5000	ug/L	1000	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Dibromochloromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2500	5000	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Dibromomethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Duplicate (9120700-DUP1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 17:33									
QC Source Sample: Non-SDG (A9L0215-13)												
1,3-Dichlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,1-Dichloroethene	**250**	200	400	ug/L	1000	---	250	---	---	0	30%	J
cis-1,2-Dichloroethene	**119000**	200	400	ug/L	1000	---	120000	---	---	0.8	30%	
trans-1,2-Dichloroethene	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Ethylbenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2500	5000	ug/L	1000	---	ND	---	---	---	30%	
2-Hexanone	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
Isopropylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Methylene chloride	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Naphthalene	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
n-Propylbenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Styrene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
Toluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	**250**	250	500	ug/L	1000	---	260	---	---	4	30%	J

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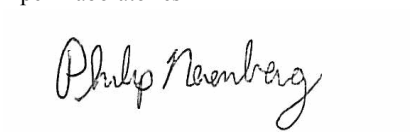

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Duplicate (9120700-DUP1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 17:33									
QC Source Sample: Non-SDG (A9L0215-13)												
Trichloroethene (TCE)	**28900**	200	400	ug/L	1000	---	28600	---	---	0.9	30%	
Trichlorofluoromethane	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Vinyl chloride	**2510**	200	400	ug/L	1000	---	2660	---	---	6	30%	
m,p-Xylene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
o-Xylene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*104 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*			*"*				
Matrix Spike (9120700-MS1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 21:38									
QC Source Sample: Non-SDG (A9L0215-19)												
EPA 8260C												
Acetone	1970	500	1000	ug/L	50	2000	ND	99	39-160%	---	---	
Acrylonitrile	978	50.0	100	ug/L	50	1000	ND	98	63-135%	---	---	
Benzene	1040	5.00	10.0	ug/L	50	1000	ND	104	79-120%	---	---	
Bromobenzene	1080	12.5	25.0	ug/L	50	1000	ND	108	80-120%	---	---	
Bromochloromethane	980	25.0	50.0	ug/L	50	1000	ND	98	78-123%	---	---	
Bromodichloromethane	1080	25.0	50.0	ug/L	50	1000	ND	108	79-125%	---	---	
Bromoform	992	25.0	50.0	ug/L	50	1000	ND	99	66-130%	---	---	
Bromomethane	998	250	250	ug/L	50	1000	ND	100	53-141%	---	---	
2-Butanone (MEK)	2030	250	500	ug/L	50	2000	ND	101	56-143%	---	---	
n-Butylbenzene	1080	25.0	50.0	ug/L	50	1000	ND	108	75-128%	---	---	
sec-Butylbenzene	1090	25.0	50.0	ug/L	50	1000	ND	109	77-126%	---	---	
tert-Butylbenzene	1100	25.0	50.0	ug/L	50	1000	ND	110	78-124%	---	---	
Carbon disulfide	733	250	500	ug/L	50	1000	ND	73	64-133%	---	---	
Carbon tetrachloride	1290	25.0	50.0	ug/L	50	1000	ND	129	72-136%	---	---	
Chlorobenzene	1030	12.5	25.0	ug/L	50	1000	ND	103	80-120%	---	---	
Chloroethane	1310	250	250	ug/L	50	1000	ND	131	60-138%	---	---	Q-54
Chloroform	1090	25.0	50.0	ug/L	50	1000	ND	109	79-124%	---	---	
Chloromethane	707	250	250	ug/L	50	1000	ND	71	50-139%	---	---	Q-54p

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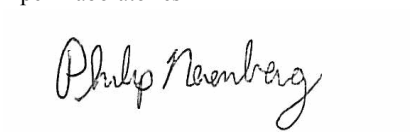

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Matrix Spike (9120700-MS1)			Prepared: 12/10/19 12:32		Analyzed: 12/10/19 21:38							
QC Source Sample: Non-SDG (A9L0215-19)												
2-Chlorotoluene	1100	25.0	50.0	ug/L	50	1000	ND	110	79-122%	---	---	
4-Chlorotoluene	1100	25.0	50.0	ug/L	50	1000	ND	110	78-122%	---	---	
Dibromochloromethane	1040	25.0	50.0	ug/L	50	1000	ND	104	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1030	125	250	ug/L	50	1000	ND	103	62-128%	---	---	
1,2-Dibromoethane (EDB)	1090	12.5	25.0	ug/L	50	1000	ND	109	77-121%	---	---	
Dibromomethane	1080	25.0	50.0	ug/L	50	1000	ND	108	79-123%	---	---	
1,2-Dichlorobenzene	1090	12.5	25.0	ug/L	50	1000	ND	109	80-120%	---	---	
1,3-Dichlorobenzene	1100	12.5	25.0	ug/L	50	1000	ND	110	80-120%	---	---	
1,4-Dichlorobenzene	1000	12.5	25.0	ug/L	50	1000	ND	100	79-120%	---	---	
Dichlorodifluoromethane	974	25.0	50.0	ug/L	50	1000	ND	97	32-152%	---	---	
1,1-Dichloroethane	1010	10.0	20.0	ug/L	50	1000	ND	101	77-125%	---	---	
1,2-Dichloroethane (EDC)	1070	10.0	20.0	ug/L	50	1000	ND	107	73-128%	---	---	
1,1-Dichloroethene	896	10.0	20.0	ug/L	50	1000	ND	90	71-131%	---	---	
cis-1,2-Dichloroethene	1080	10.0	20.0	ug/L	50	1000	33.0	105	78-123%	---	---	
trans-1,2-Dichloroethene	1030	10.0	20.0	ug/L	50	1000	ND	103	75-124%	---	---	
1,2-Dichloropropane	974	12.5	25.0	ug/L	50	1000	ND	97	78-122%	---	---	
1,3-Dichloropropane	1010	25.0	50.0	ug/L	50	1000	ND	101	80-120%	---	---	
2,2-Dichloropropane	926	25.0	50.0	ug/L	50	1000	ND	93	60-139%	---	---	Q-54b
1,1-Dichloropropene	1160	25.0	50.0	ug/L	50	1000	ND	116	79-125%	---	---	
cis-1,3-Dichloropropene	872	25.0	50.0	ug/L	50	1000	ND	87	75-124%	---	---	
trans-1,3-Dichloropropene	1070	25.0	50.0	ug/L	50	1000	ND	107	73-127%	---	---	
Ethylbenzene	1060	12.5	25.0	ug/L	50	1000	ND	106	79-121%	---	---	
Hexachlorobutadiene	1170	125	250	ug/L	50	1000	ND	117	66-134%	---	---	
2-Hexanone	2080	250	500	ug/L	50	2000	ND	104	57-139%	---	---	
Isopropylbenzene	1120	25.0	50.0	ug/L	50	1000	ND	112	72-131%	---	---	
4-Isopropyltoluene	1080	25.0	50.0	ug/L	50	1000	ND	108	77-127%	---	---	
Methylene chloride	1120	250	500	ug/L	50	1000	ND	112	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	2000	250	500	ug/L	50	2000	ND	100	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	1100	25.0	50.0	ug/L	50	1000	ND	110	71-124%	---	---	
Naphthalene	1060	50.0	100	ug/L	50	1000	ND	106	61-128%	---	---	
n-Propylbenzene	1040	12.5	25.0	ug/L	50	1000	ND	104	76-126%	---	---	
Styrene	1060	25.0	50.0	ug/L	50	1000	ND	106	78-123%	---	---	
1,1,1,2-Tetrachloroethane	1160	10.0	20.0	ug/L	50	1000	ND	116	78-124%	---	---	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Matrix Spike (9120700-MS1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 21:38									
QC Source Sample: Non-SDG (A9L0215-19)												
1,1,2,2-Tetrachloroethane	986	12.5	25.0	ug/L	50	1000	ND	99	71-121%	---	---	
Tetrachloroethene (PCE)	1130	10.0	20.0	ug/L	50	1000	ND	113	74-129%	---	---	
Toluene	999	25.0	50.0	ug/L	50	1000	ND	100	80-121%	---	---	
1,2,3-Trichlorobenzene	1260	50.0	100	ug/L	50	1000	ND	126	69-129%	---	---	Q-54f
1,2,4-Trichlorobenzene	1140	50.0	100	ug/L	50	1000	ND	114	69-130%	---	---	
1,1,1-Trichloroethane	1180	10.0	20.0	ug/L	50	1000	ND	118	74-131%	---	---	
1,1,2-Trichloroethane	1050	12.5	25.0	ug/L	50	1000	ND	105	80-120%	---	---	
Trichloroethene (TCE)	1060	10.0	20.0	ug/L	50	1000	ND	106	79-123%	---	---	
Trichlorofluoromethane	1210	50.0	100	ug/L	50	1000	ND	121	65-141%	---	---	
1,2,3-Trichloropropane	1030	25.0	50.0	ug/L	50	1000	ND	103	73-122%	---	---	
1,2,4-Trimethylbenzene	1080	25.0	50.0	ug/L	50	1000	ND	108	76-124%	---	---	
1,3,5-Trimethylbenzene	1120	25.0	50.0	ug/L	50	1000	ND	112	75-124%	---	---	
Vinyl chloride	972	10.0	20.0	ug/L	50	1000	ND	97	58-137%	---	---	
m,p-Xylene	2270	25.0	50.0	ug/L	50	2000	ND	113	80-121%	---	---	
o-Xylene	1120	12.5	25.0	ug/L	50	1000	ND	112	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*95 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*			*"*				

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120759 - EPA 3546							**Soil**					
Blank (9120759-BLK1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 08:56							**C-07**
EPA 8082A												
Aroclor 1016	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 95 %*		*Limits: 60-125 %*			*Dilution: 1x*				
LCS (9120759-BS1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 09:14							**C-07**
EPA 8082A												
Aroclor 1016	183	2.00	4.00	ug/kg wet	1	250	---	73	47-134%	---	---	
Aroclor 1260	226	2.00	4.00	ug/kg wet	1	250	---	90	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 97 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Duplicate (9120759-DUP1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 10:07							**C-07**
QC Source Sample: RAU3-05-SO-1.6 (A9L0097-06)												
EPA 8082A												
Aroclor 1016	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1232	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1242	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1248	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1254	**29.0**	2.08	4.17	ug/kg dry	1	---	32.7	---	---	12	30%	P-10
Aroclor 1260	**7.46**	2.08	4.17	ug/kg dry	1	---	8.87	---	---	17	30%	P-10
Surr: Decachlorobiphenyl (Surr)			*Recovery: 79 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Matrix Spike (9120759-MS1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 11:36							**C-07, TEMP**
QC Source Sample: Non-SDG (A9L0279-02)												
EPA 8082A												
Aroclor 1016	290	8.28	16.6	ug/kg dry	1	414	ND	70	47-134%	---	---	
Aroclor 1260	344	8.28	16.6	ug/kg dry	1	414	ND	83	53-140%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120759 - EPA 3546							**Soil**					
Matrix Spike (9120759-MS1)			Prepared: 12/11/19 10:16 Analyzed: 12/12/19 11:36									**C-07, TEMP**
QC Source Sample: Non-SDG (A9L0279-02)												
Surr: Decachlorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 60-125 %*		*Dilution: 1x*						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120841 - EPA 3510C (Neutral pH)							**Water**					
Blank (9120841-BLK1)			Prepared: 12/12/19 12:55		Analyzed: 12/16/19 14:49							**C-07**
EPA 8082A												
Aroclor 1016	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 74 %*		*Limits: 40-135 %*			*Dilution: 1x*				
LCS (9120841-BS1)			Prepared: 12/12/19 12:55		Analyzed: 12/16/19 15:08							**C-07**
EPA 8082A												
Aroclor 1016	1.69	0.0200	0.0400	ug/L	1	2.50	---	67	46-129%	---	---	
Aroclor 1260	1.90	0.0200	0.0400	ug/L	1	2.50	---	76	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 83 %*		*Limits: 40-135 %*			*Dilution: 1x*				
LCS Dup (9120841-BSD1)			Prepared: 12/12/19 12:55		Analyzed: 12/16/19 15:26							**C-07, Q-19**
EPA 8082A												
Aroclor 1016	1.63	0.0200	0.0400	ug/L	1	2.50	---	65	46-129%	4	30%	
Aroclor 1260	1.84	0.0200	0.0400	ug/L	1	2.50	---	74	45-134%	3	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 87 %*		*Limits: 40-135 %*			*Dilution: 1x*				

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120718 - EPA 3511 (Bottle Extraction)							**Water**					
Blank (9120718-BLK1)			Prepared: 12/10/19 12:29 Analyzed: 12/10/19 20:28									
EPA 8270D LVI												
Acenaphthene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*103 %*		*80-143 %*				*"*			
LCS (9120718-BS1)			Prepared: 12/10/19 12:29 Analyzed: 12/10/19 21:00									
EPA 8270D LVI												
Acenaphthene	1.50	0.0160	0.0320	ug/L	1	1.60	---	94	78-135%	---	---	
Acenaphthylene	1.65	0.0160	0.0320	ug/L	1	1.60	---	103	80-126%	---	---	
Anthracene	1.56	0.0160	0.0320	ug/L	1	1.60	---	97	80-120%	---	---	
Benz(a)anthracene	1.67	0.00800	0.0160	ug/L	1	1.60	---	105	76-124%	---	---	
Benzo(a)pyrene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	71-127%	---	---	
Benzo(b)fluoranthene	1.62	0.00800	0.0160	ug/L	1	1.60	---	101	68-120%	---	---	
Benzo(k)fluoranthene	1.68	0.00800	0.0160	ug/L	1	1.60	---	105	72-120%	---	---	
Benzo(g,h,i)perylene	1.69	0.0160	0.0320	ug/L	1	1.60	---	105	71-120%	---	---	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120718 - EPA 3511 (Bottle Extraction)							**Water**					
LCS (9120718-BS1)			Prepared: 12/10/19 12:29		Analyzed: 12/10/19 21:00							
Chrysene	1.54	0.00800	0.0160	ug/L	1	1.60	---	97	71-121%	---	---	
Dibenz(a,h)anthracene	1.52	0.00800	0.0160	ug/L	1	1.60	---	95	69-122%	---	---	
Fluoranthene	1.59	0.0160	0.0320	ug/L	1	1.60	---	99	80-120%	---	---	
Fluorene	1.44	0.0160	0.0320	ug/L	1	1.60	---	90	78-129%	---	---	
Indeno(1,2,3-cd)pyrene	1.53	0.00800	0.0160	ug/L	1	1.60	---	96	72-132%	---	---	
1-Methylnaphthalene	1.46	0.0320	0.0640	ug/L	1	1.60	---	91	76-150%	---	---	
2-Methylnaphthalene	1.41	0.0320	0.0640	ug/L	1	1.60	---	88	80-158%	---	---	
Naphthalene	1.49	0.0320	0.0640	ug/L	1	1.60	---	93	80-132%	---	---	
Phenanthrene	1.46	0.0320	0.0640	ug/L	1	1.60	---	91	80-120%	---	---	
Pyrene	1.54	0.0160	0.0320	ug/L	1	1.60	---	96	73-127%	---	---	
Carbazole	1.52	0.0160	0.0320	ug/L	1	1.60	---	95	80-122%	---	---	
Dibenzofuran	1.43	0.0160	0.0320	ug/L	1	1.60	---	89	75-122%	---	---	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*107 %*		*80-143 %*				*"*			
LCS Dup (9120718-BSD1)			Prepared: 12/10/19 12:29		Analyzed: 12/10/19 21:33							**Q-19**
EPA 8270D LVI												
Acenaphthene	1.51	0.0160	0.0320	ug/L	1	1.60	---	95	78-135%	0.9	30%	
Acenaphthylene	1.68	0.0160	0.0320	ug/L	1	1.60	---	105	80-126%	2	30%	
Anthracene	1.58	0.0160	0.0320	ug/L	1	1.60	---	99	80-120%	2	30%	
Benz(a)anthracene	1.67	0.00800	0.0160	ug/L	1	1.60	---	104	76-124%	0.4	30%	
Benzo(a)pyrene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	71-127%	0.3	30%	
Benzo(b)fluoranthene	1.70	0.00800	0.0160	ug/L	1	1.60	---	106	68-120%	5	30%	
Benzo(k)fluoranthene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	72-120%	3	30%	
Benzo(g,h,i)perylene	1.74	0.0160	0.0320	ug/L	1	1.60	---	109	71-120%	3	30%	
Chrysene	1.56	0.00800	0.0160	ug/L	1	1.60	---	97	71-121%	0.9	30%	
Dibenz(a,h)anthracene	1.53	0.00800	0.0160	ug/L	1	1.60	---	96	69-122%	1	30%	
Fluoranthene	1.54	0.0160	0.0320	ug/L	1	1.60	---	96	80-120%	3	30%	
Fluorene	1.44	0.0160	0.0320	ug/L	1	1.60	---	90	78-129%	0.1	30%	
Indeno(1,2,3-cd)pyrene	1.56	0.00800	0.0160	ug/L	1	1.60	---	98	72-132%	2	30%	
1-Methylnaphthalene	1.47	0.0320	0.0640	ug/L	1	1.60	---	92	76-150%	0.6	30%	
2-Methylnaphthalene	1.41	0.0320	0.0640	ug/L	1	1.60	---	88	80-158%	0.1	30%	
Naphthalene	1.51	0.0320	0.0640	ug/L	1	1.60	---	94	80-132%	1	30%	
Phenanthrene	1.47	0.0320	0.0640	ug/L	1	1.60	---	92	80-120%	0.5	30%	

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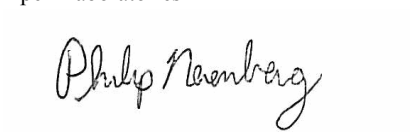

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120718 - EPA 3511 (Bottle Extraction)							**Water**					
LCS Dup (9120718-BSD1)			Prepared: 12/10/19 12:29		Analyzed: 12/10/19 21:33							**Q-19**
Pyrene	1.48	0.0160	0.0320	ug/L	1	1.60	---	93	73-127%	4	30%	
Carbazole	1.42	0.0160	0.0320	ug/L	1	1.60	---	89	80-122%	7	30%	
Dibenzofuran	1.43	0.0160	0.0320	ug/L	1	1.60	---	89	75-122%	0.08	30%	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*106 %*		*80-143 %*				*"*			

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
Blank (9120660-BLK1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 16:08									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 62 %*	*Limits: 37-122 %*			*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*76 %*	*44-115 %*			*"*					
Phenol-d6 (Surr)			*60 %*	*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*			*"*					
2-Fluorophenol (Surr)			*65 %*	*35-115 %*			*"*					
2,4,6-Tribromophenol (Surr)			*81 %*	*39-132 %*			*"*					
LCS (9120660-BS1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 16:43									
EPA 8270D												
Acenaphthene	475	5.32	10.7	ug/kg wet	4	533	---	89	40-122%	---	---	
Acenaphthylene	497	5.32	10.7	ug/kg wet	4	533	---	93	32-132%	---	---	
Anthracene	529	5.32	10.7	ug/kg wet	4	533	---	99	47-123%	---	---	
Benz(a)anthracene	522	5.32	10.7	ug/kg wet	4	533	---	98	49-126%	---	---	

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Philip Nerenberg

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
LCS (9120660-BS1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 16:43									
Benzo(a)pyrene	524	8.00	16.0	ug/kg wet	4	533	---	98	45-129%	---	---	
Benzo(b)fluoranthene	522	8.00	16.0	ug/kg wet	4	533	---	98	45-132%	---	---	
Benzo(k)fluoranthene	509	8.00	16.0	ug/kg wet	4	533	---	95	47-132%	---	---	
Benzo(g,h,i)perylene	537	5.32	10.7	ug/kg wet	4	533	---	101	43-134%	---	---	
Chrysene	522	5.32	10.7	ug/kg wet	4	533	---	98	50-124%	---	---	
Dibenz(a,h)anthracene	520	5.32	10.7	ug/kg wet	4	533	---	98	45-134%	---	---	
Fluoranthene	555	5.32	10.7	ug/kg wet	4	533	---	104	50-127%	---	---	
Fluorene	499	5.32	10.7	ug/kg wet	4	533	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	491	5.32	10.7	ug/kg wet	4	533	---	92	45-133%	---	---	
1-Methylnaphthalene	492	10.7	21.3	ug/kg wet	4	533	---	92	40-120%	---	---	
2-Methylnaphthalene	505	10.7	21.3	ug/kg wet	4	533	---	95	38-122%	---	---	
Naphthalene	478	10.7	21.3	ug/kg wet	4	533	---	90	35-123%	---	---	
Phenanthrene	497	5.32	10.7	ug/kg wet	4	533	---	93	50-121%	---	---	
Pyrene	561	5.32	10.7	ug/kg wet	4	533	---	105	47-127%	---	---	
Carbazole	618	8.00	16.0	ug/kg wet	4	533	---	116	50-122%	---	---	Q-41
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 71 %*	*Limits: 37-122 %*			*Dilution: 4x*					
2-Fluorobiphenyl (Surr)			*91 %*	*44-115 %*			*"*					
Phenol-d6 (Surr)			*71 %*	*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)			*96 %*	*54-127 %*			*"*					
2-Fluorophenol (Surr)			*74 %*	*35-115 %*			*"*					
2,4,6-Tribromophenol (Surr)			*92 %*	*39-132 %*			*"*					
Duplicate (9120660-DUP1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 19:45									
QC Source Sample: Non-SDG (A9L0084-04RE2)												
Acenaphthene	ND	1.31	2.63	ug/kg wet	1	---	1.50	---	---	***	**30%**	Q-05
Acenaphthylene	**2.43**	1.31	2.63	ug/kg wet	1	---	3.20	---	---	28	30%	J
Anthracene	**2.13**	1.31	2.63	ug/kg wet	1	---	2.83	---	---	28	30%	J
Benz(a)anthracene	**5.61**	1.31	2.63	ug/kg wet	1	---	4.88	---	---	14	30%	
Benzo(a)pyrene	**10.2**	1.97	3.94	ug/kg wet	1	---	7.58	---	---	29	30%	
Benzo(b)fluoranthene	**11.1**	1.97	3.94	ug/kg wet	1	---	10.6	---	---	5	30%	
Benzo(k)fluoranthene	**5.07**	1.97	3.94	ug/kg wet	1	---	4.14	---	---	20	30%	M-05
Benzo(g,h,i)perylene	**5.52**	1.31	2.63	ug/kg wet	1	---	5.52	---	---	0.03	30%	
Chrysene	**7.38**	1.31	2.63	ug/kg wet	1	---	8.31	---	---	12	30%	
Dibenz(a,h)anthracene	ND	1.31	2.63	ug/kg wet	1	---	ND	---	---	---	30%	

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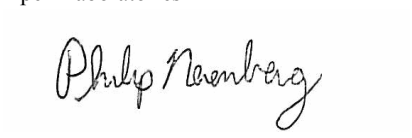

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
Duplicate (9120660-DUP1)			Prepared: 12/09/19 11:20		Analyzed: 12/09/19 19:45							
QC Source Sample: Non-SDG (A9L0084-04RE2)												
Fluoranthene	**10.6**	1.31	2.63	ug/kg wet	1	---	15.1	---	---	**35**	**30%**	Q-05
Fluorene	**1.84**	1.31	2.63	ug/kg wet	1	---	2.50	---	---	**31**	**30%**	Q-05, J
Indeno(1,2,3-cd)pyrene	**5.90**	1.31	2.63	ug/kg wet	1	---	5.21	---	---	12	30%	
1-Methylnaphthalene	ND	2.63	5.25	ug/kg wet	1	---	2.68	---	---	***	**30%**	Q-05
2-Methylnaphthalene	**3.33**	2.63	5.25	ug/kg wet	1	---	4.43	---	---	28	30%	J
Naphthalene	**14.0**	2.63	5.25	ug/kg wet	1	---	19.8	---	---	**35**	**30%**	Q-05
Phenanthrene	**12.1**	1.31	2.63	ug/kg wet	1	---	16.6	---	---	**31**	**30%**	Q-05
Pyrene	**11.3**	1.31	2.63	ug/kg wet	1	---	16.3	---	---	**36**	**30%**	Q-05
Carbazole	ND	1.97	3.94	ug/kg wet	1	---	ND	---	---	---	30%	
Dibenzofuran	**2.06**	1.31	2.63	ug/kg wet	1	---	3.02	---	---	**38**	**30%**	Q-05, J
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 61 %*		*Limits: 37-122 %*		*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*64 %*		*44-115 %*		*"*					
Phenol-d6 (Surr)			*69 %*		*33-122 %*		*"*					
p-Terphenyl-d14 (Surr)			*71 %*		*54-127 %*		*"*					
2-Fluorophenol (Surr)			*68 %*		*35-115 %*		*"*					
2,4,6-Tribromophenol (Surr)			*80 %*		*39-132 %*		*"*					Q-41
Matrix Spike (9120660-MS2)			Prepared: 12/09/19 11:20		Analyzed: 12/10/19 22:35							
QC Source Sample: Non-SDG (A9L0191-57RE2)												
EPA 8270D												
Acenaphthene	452	5.17	10.4	ug/kg wet	4	518	ND	87	40-122%	---	---	
Acenaphthylene	472	5.17	10.4	ug/kg wet	4	518	ND	91	32-132%	---	---	
Anthracene	489	5.17	10.4	ug/kg wet	4	518	ND	94	47-123%	---	---	
Benz(a)anthracene	488	5.17	10.4	ug/kg wet	4	518	ND	94	49-126%	---	---	
Benzo(a)pyrene	484	7.77	15.5	ug/kg wet	4	518	ND	93	45-129%	---	---	
Benzo(b)fluoranthene	478	7.77	15.5	ug/kg wet	4	518	ND	92	45-132%	---	---	
Benzo(k)fluoranthene	481	7.77	15.5	ug/kg wet	4	518	ND	93	47-132%	---	---	
Benzo(g,h,i)perylene	373	5.17	10.4	ug/kg wet	4	518	ND	72	43-134%	---	---	
Chrysene	466	5.17	10.4	ug/kg wet	4	518	ND	90	50-124%	---	---	
Dibenz(a,h)anthracene	445	5.17	10.4	ug/kg wet	4	518	ND	86	45-134%	---	---	
Fluoranthene	515	5.17	10.4	ug/kg wet	4	518	ND	99	50-127%	---	---	
Fluorene	486	5.17	10.4	ug/kg wet	4	518	ND	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	405	5.17	10.4	ug/kg wet	4	518	ND	78	45-133%	---	---	

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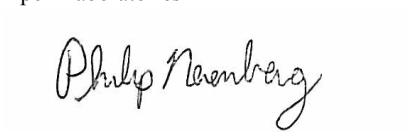

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
Matrix Spike (9120660-MS2)			Prepared: 12/09/19 11:20 Analyzed: 12/10/19 22:35									
QC Source Sample: Non-SDG (A9L0191-57RE2)												
1-Methylnaphthalene	490	10.4	20.7	ug/kg wet	4	518	ND	95	40-120%	---	---	
2-Methylnaphthalene	486	10.4	20.7	ug/kg wet	4	518	ND	94	38-122%	---	---	
Naphthalene	429	10.4	20.7	ug/kg wet	4	518	ND	83	35-123%	---	---	
Phenanthrene	450	5.17	10.4	ug/kg wet	4	518	ND	87	50-121%	---	---	
Pyrene	506	5.17	10.4	ug/kg wet	4	518	ND	98	47-127%	---	---	
Carbazole	533	7.77	15.5	ug/kg wet	4	518	ND	103	50-122%	---	---	
Dibenzofuran	467	5.17	10.4	ug/kg wet	4	518	ND	90	44-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 96 %*		*Limits: 37-122 %*		*Dilution: 4x*					
2-Fluorobiphenyl (Surr)			*83 %*		*44-115 %*		*"*					
Phenol-d6 (Surr)			*91 %*		*33-122 %*		*"*					
p-Terphenyl-d14 (Surr)			*95 %*		*54-127 %*		*"*					
2-Fluorophenol (Surr)			*95 %*		*35-115 %*		*"*					
2,4,6-Tribromophenol (Surr)			*111 %*		*39-132 %*		*"*					

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120673-BLK1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 09:48									
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	Q-30
2-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	Q-30
Naphthalene	**0.0183**	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	B-02, Q-30, J
Phenanthrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120673-BLK1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 09:48									
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
Hexachlorocyclopentadiene	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Hexachloroethane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
2-Chloronaphthalene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	Q-30
1,2-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
1,3-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
1,4-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
1,2,4-Trichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
4-Bromophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Aniline	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
4-Chloroaniline	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
3-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
4-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Nitrobenzene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120673-BLK1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 09:48									
Benzoic acid	ND	1.14	2.27	ug/L	1	---	---	---	---	---	---	
Benzyl alcohol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Isophorone	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	0.455	0.909	ug/L	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
Pyridine	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 72 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*58 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*22 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*83 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*35 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*83 %*		*43-140 %*			*"*				
LCS (9120673-BS1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 10:22									
EPA 8270D												
Acenaphthene	1.89	0.0100	0.0200	ug/L	1	4.00	---	47	47-122%	---	---	
Acenaphthylene	2.14	0.0100	0.0200	ug/L	1	4.00	---	53	41-130%	---	---	
Anthracene	3.03	0.0100	0.0200	ug/L	1	4.00	---	76	57-123%	---	---	
Benz(a)anthracene	3.64	0.0100	0.0200	ug/L	1	4.00	---	91	58-125%	---	---	
Benzo(a)pyrene	3.53	0.0150	0.0300	ug/L	1	4.00	---	88	54-128%	---	---	
Benzo(b)fluoranthene	3.46	0.0150	0.0300	ug/L	1	4.00	---	86	53-131%	---	---	
Benzo(k)fluoranthene	3.41	0.0150	0.0300	ug/L	1	4.00	---	85	57-129%	---	---	
Benzo(g,h,i)perylene	3.61	0.0100	0.0200	ug/L	1	4.00	---	90	50-134%	---	---	
Chrysene	3.36	0.0100	0.0200	ug/L	1	4.00	---	84	59-123%	---	---	
Dibenz(a,h)anthracene	3.33	0.0100	0.0200	ug/L	1	4.00	---	83	51-134%	---	---	
Fluoranthene	3.58	0.0100	0.0200	ug/L	1	4.00	---	90	57-128%	---	---	
Fluorene	2.40	0.0100	0.0200	ug/L	1	4.00	---	60	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.42	0.0100	0.0200	ug/L	1	4.00	---	85	52-133%	---	---	
1-Methylnaphthalene	1.40	0.0200	0.0400	ug/L	1	4.00	---	**35**	**41-120%**	---	---	Q-30
2-Methylnaphthalene	1.35	0.0200	0.0400	ug/L	1	4.00	---	**34**	**40-121%**	---	---	Q-30

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120673-BS1)			Prepared: 12/09/19 13:57		Analyzed: 12/10/19 10:22							
Naphthalene	1.40	0.0200	0.0400	ug/L	1	4.00	---	**35**	**40-121%**	---	---	Q-30, B-02
Phenanthrene	2.74	0.0100	0.0200	ug/L	1	4.00	---	69	59-120%	---	---	
Pyrene	3.56	0.0100	0.0200	ug/L	1	4.00	---	89	57-126%	---	---	
Carbazole	3.49	0.0150	0.0300	ug/L	1	4.00	---	87	60-122%	---	---	
Dibenzofuran	2.16	0.0100	0.0200	ug/L	1	4.00	---	54	53-120%	---	---	
4-Chloro-3-methylphenol	2.91	0.100	0.200	ug/L	1	4.00	---	73	52-120%	---	---	
2-Chlorophenol	2.51	0.0500	0.100	ug/L	1	4.00	---	63	38-120%	---	---	
2,4-Dichlorophenol	3.02	0.0500	0.100	ug/L	1	4.00	---	75	47-121%	---	---	
2,4-Dimethylphenol	2.74	0.0500	0.100	ug/L	1	4.00	---	68	31-124%	---	---	
2,4-Dinitrophenol	3.52	0.250	0.500	ug/L	1	4.00	---	88	23-143%	---	---	
4,6-Dinitro-2-methylphenol	3.99	0.250	0.500	ug/L	1	4.00	---	100	44-137%	---	---	
2-Methylphenol	2.28	0.0250	0.0500	ug/L	1	4.00	---	57	30-120%	---	---	
3+4-Methylphenol(s)	2.06	0.0250	0.0500	ug/L	1	4.00	---	52	29-120%	---	---	
2-Nitrophenol	2.73	0.100	0.200	ug/L	1	4.00	---	68	47-123%	---	---	Q-41
4-Nitrophenol	1.30	0.100	0.200	ug/L	1	4.00	---	32	5-120%	---	---	
Pentachlorophenol (PCP)	3.65	0.100	0.200	ug/L	1	4.00	---	91	35-138%	---	---	
Phenol	1.08	0.200	0.400	ug/L	1	4.00	---	27	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	3.27	0.0500	0.100	ug/L	1	4.00	---	82	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	3.50	0.0500	0.100	ug/L	1	4.00	---	87	50-121%	---	---	Q-41
2,4,5-Trichlorophenol	3.35	0.0500	0.100	ug/L	1	4.00	---	84	53-123%	---	---	
2,4,6-Trichlorophenol	3.23	0.0500	0.100	ug/L	1	4.00	---	81	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	3.38	0.200	0.400	ug/L	1	4.00	---	84	55-135%	---	---	
Butyl benzyl phthalate	3.43	0.200	0.400	ug/L	1	4.00	---	86	53-134%	---	---	
Diethylphthalate	3.43	0.200	0.400	ug/L	1	4.00	---	86	55-125%	---	---	
Dimethylphthalate	3.29	0.200	0.400	ug/L	1	4.00	---	82	45-127%	---	---	
Di-n-butylphthalate	3.61	0.200	0.400	ug/L	1	4.00	---	90	59-127%	---	---	
Di-n-octyl phthalate	3.53	0.200	0.400	ug/L	1	4.00	---	88	51-140%	---	---	Q-41
N-Nitrosodimethylamine	1.47	0.0250	0.0500	ug/L	1	4.00	---	37	6-120%	---	---	
N-Nitroso-di-n-propylamine	2.51	0.0250	0.0500	ug/L	1	4.00	---	63	49-120%	---	---	
N-Nitrosodiphenylamine	3.06	0.0250	0.0500	ug/L	1	4.00	---	77	51-123%	---	---	
Bis(2-Chloroethoxy) methane	2.63	0.0250	0.0500	ug/L	1	4.00	---	66	48-120%	---	---	
Bis(2-Chloroethyl) ether	2.35	0.0250	0.0500	ug/L	1	4.00	---	59	43-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	1.57	0.0250	0.0500	ug/L	1	4.00	---	39	37-130%	---	---	Q-31
Hexachlorobenzene	2.93	0.0100	0.0200	ug/L	1	4.00	---	73	52-125%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120673-BS1)			Prepared: 12/09/19 13:57		Analyzed: 12/10/19 10:22							
Hexachlorobutadiene	0.790	0.0250	0.0500	ug/L	1	4.00	---	**20**	**22-124%**	---	---	Q-30
Hexachlorocyclopentadiene	0.791	0.0500	0.100	ug/L	1	4.00	---	20	5-127%	---	---	
Hexachloroethane	0.774	0.0250	0.0500	ug/L	1	4.00	---	**19**	**21-120%**	---	---	Q-30
2-Chloronaphthalene	1.56	0.0100	0.0200	ug/L	1	4.00	---	**39**	**40-120%**	---	---	Q-30
1,2-Dichlorobenzene	0.906	0.0250	0.0500	ug/L	1	4.00	---	**23**	**32-120%**	---	---	Q-30
1,3-Dichlorobenzene	0.851	0.0250	0.0500	ug/L	1	4.00	---	**21**	**28-120%**	---	---	Q-30
1,4-Dichlorobenzene	0.897	0.0250	0.0500	ug/L	1	4.00	---	**22**	**29-120%**	---	---	Q-30
1,2,4-Trichlorobenzene	0.995	0.0250	0.0500	ug/L	1	4.00	---	**25**	**29-120%**	---	---	Q-30
4-Bromophenyl phenyl ether	2.82	0.0250	0.0500	ug/L	1	4.00	---	70	54-124%	---	---	
4-Chlorophenyl phenyl ether	2.19	0.0250	0.0500	ug/L	1	4.00	---	55	53-121%	---	---	
Aniline	1.93	0.0500	0.100	ug/L	1	4.00	---	48	6-120%	---	---	
4-Chloroaniline	2.71	0.0250	0.0500	ug/L	1	4.00	---	68	33-120%	---	---	
2-Nitroaniline	3.49	0.200	0.400	ug/L	1	4.00	---	87	54-127%	---	---	
3-Nitroaniline	3.33	0.200	0.400	ug/L	1	4.00	---	83	41-128%	---	---	
4-Nitroaniline	3.16	0.200	0.400	ug/L	1	4.00	---	79	35-120%	---	---	
Nitrobenzene	2.32	0.100	0.200	ug/L	1	4.00	---	58	45-121%	---	---	
2,4-Dinitrotoluene	3.32	0.100	0.200	ug/L	1	4.00	---	83	57-128%	---	---	
2,6-Dinitrotoluene	3.41	0.100	0.200	ug/L	1	4.00	---	85	57-124%	---	---	
Benzoic acid	2.40	1.25	1.25	ug/L	1	8.00	---	30	5-120%	---	---	
Benzyl alcohol	2.25	0.100	0.200	ug/L	1	4.00	---	56	31-120%	---	---	
Isophorone	2.75	0.0250	0.0500	ug/L	1	4.00	---	69	42-124%	---	---	
Azobenzene (1,2-DPH)	2.42	0.0250	0.0500	ug/L	1	4.00	---	61	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	3.43	0.250	0.500	ug/L	1	4.00	---	86	40-125%	---	---	
1,2-Dinitrobenzene	3.30	0.250	0.500	ug/L	1	4.00	---	83	59-120%	---	---	
1,3-Dinitrobenzene	3.60	0.250	0.500	ug/L	1	4.00	---	90	49-128%	---	---	
1,4-Dinitrobenzene	3.56	0.250	0.500	ug/L	1	4.00	---	89	40-120%	---	---	
Pyridine	0.883	0.100	0.200	ug/L	1	4.00	---	22	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 64 %*		*Limits: 44-120 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*57 %*		*44-120 %*				*"*			
Phenol-d6 (Surr)			*23 %*		*10-120 %*				*"*			
p-Terphenyl-d14 (Surr)			*87 %*		*50-133 %*				*"*			
2-Fluorophenol (Surr)			*35 %*		*19-120 %*				*"*			
2,4,6-Tribromophenol (Surr)			*88 %*		*43-140 %*				*"*			

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120673-BS2)			Prepared: 12/09/19 13:57 Analyzed: 12/11/19 13:25									
EPA 8270D												
3,3'-Dichlorobenzidine	10.7	1.00	2.00	ug/L	2	8.00	---	**134**	**27-129%**	---	---	Q-29, Q-52
Matrix Spike (9120673-MS1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 13:48									
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE2)												
EPA 8270D												
Acenaphthene	2.39	0.0400	0.0800	ug/L	4	4.00	0.117	57	47-122%	---	---	
Acenaphthylene	2.45	0.0400	0.0800	ug/L	4	4.00	ND	61	41-130%	---	---	
Anthracene	3.06	0.0400	0.0800	ug/L	4	4.00	ND	76	57-123%	---	---	
Benz(a)anthracene	3.17	0.0400	0.0800	ug/L	4	4.00	0.0441	78	58-125%	---	---	
Benzo(a)pyrene	3.27	0.0600	0.120	ug/L	4	4.00	ND	82	54-128%	---	---	
Benzo(b)fluoranthene	3.27	0.0600	0.120	ug/L	4	4.00	ND	80	53-131%	---	---	
Benzo(k)fluoranthene	3.11	0.0600	0.120	ug/L	4	4.00	0.0667	76	57-129%	---	---	
Benzo(g,h,i)perylene	3.12	0.0400	0.0800	ug/L	4	4.00	ND	78	50-134%	---	---	
Chrysene	2.96	0.0400	0.0800	ug/L	4	4.00	ND	74	59-123%	---	---	
Dibenz(a,h)anthracene	3.05	0.0400	0.0800	ug/L	4	4.00	ND	76	51-134%	---	---	
Fluoranthene	3.18	0.0400	0.0800	ug/L	4	4.00	0.0577	78	57-128%	---	---	
Fluorene	2.57	0.0400	0.0800	ug/L	4	4.00	ND	64	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	2.92	0.0400	0.0800	ug/L	4	4.00	ND	73	52-133%	---	---	
1-Methylnaphthalene	2.09	0.0800	0.160	ug/L	4	4.00	ND	52	41-120%	---	---	
2-Methylnaphthalene	2.03	0.0800	0.160	ug/L	4	4.00	ND	51	40-121%	---	---	
Naphthalene	2.02	0.0800	0.160	ug/L	4	4.00	ND	50	40-121%	---	---	B-02
Phenanthrene	2.76	0.0400	0.0800	ug/L	4	4.00	0.0662	67	59-120%	---	---	
Pyrene	3.25	0.0400	0.0800	ug/L	4	4.00	0.0550	80	57-126%	---	---	
Carbazole	3.04	0.0600	0.120	ug/L	4	4.00	ND	76	60-122%	---	---	
Dibenzofuran	2.37	0.0400	0.0800	ug/L	4	4.00	ND	59	53-120%	---	---	
4-Chloro-3-methylphenol	2.55	0.400	0.800	ug/L	4	4.00	ND	64	52-120%	---	---	
2-Chlorophenol	2.10	0.200	0.400	ug/L	4	4.00	ND	52	38-120%	---	---	
2,4-Dichlorophenol	2.60	0.200	0.400	ug/L	4	4.00	ND	65	47-121%	---	---	
2,4-Dimethylphenol	2.46	0.200	0.400	ug/L	4	4.00	ND	62	31-124%	---	---	
2,4-Dinitrophenol	4.18	1.00	2.00	ug/L	4	4.00	ND	105	23-143%	---	---	
4,6-Dinitro-2-methylphenol	4.08	1.00	2.00	ug/L	4	4.00	ND	102	44-137%	---	---	
2-Methylphenol	1.94	0.100	0.200	ug/L	4	4.00	ND	49	30-120%	---	---	
3+4-Methylphenol(s)	2.86	0.100	0.200	ug/L	4	4.00	2.78	**2**	**29-120%**	---	---	Q-01

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (9120673-MS1)			Prepared: 12/09/19 13:57		Analyzed: 12/10/19 13:48							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE2)												
2-Nitrophenol	2.97	0.400	0.800	ug/L	4	4.00	ND	74	47-123%	---	---	Q-41
4-Nitrophenol	1.55	0.400	0.800	ug/L	4	4.00	ND	39	5-120%	---	---	
Pentachlorophenol (PCP)	4.33	0.400	0.800	ug/L	4	4.00	ND	98	35-138%	---	---	
Phenol	ND	0.800	1.60	ug/L	4	4.00	ND		**5-120%**	---	---	Q-01
2,3,4,6-Tetrachlorophenol	3.07	0.200	0.400	ug/L	4	4.00	ND	77	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	3.45	0.200	0.400	ug/L	4	4.00	ND	86	50-121%	---	---	Q-41
2,4,5-Trichlorophenol	2.89	0.200	0.400	ug/L	4	4.00	ND	72	53-123%	---	---	
2,4,6-Trichlorophenol	2.69	0.200	0.400	ug/L	4	4.00	ND	67	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	3.35	0.800	1.60	ug/L	4	4.00	ND	84	55-135%	---	---	
Butyl benzyl phthalate	3.39	0.800	1.60	ug/L	4	4.00	ND	85	53-134%	---	---	
Diethylphthalate	3.14	0.800	1.60	ug/L	4	4.00	ND	78	55-125%	---	---	
Dimethylphthalate	2.85	0.800	1.60	ug/L	4	4.00	ND	71	45-127%	---	---	
Di-n-butylphthalate	3.48	0.800	1.60	ug/L	4	4.00	ND	87	59-127%	---	---	
Di-n-octyl phthalate	4.09	0.800	1.60	ug/L	4	4.00	ND	102	50-140%	---	---	Q-41
N-Nitrosodimethylamine	1.06	0.100	0.200	ug/L	4	4.00	ND	26	6-120%	---	---	
N-Nitroso-di-n-propylamine	2.30	0.100	0.200	ug/L	4	4.00	ND	58	49-120%	---	---	
N-Nitrosodiphenylamine	2.95	0.100	0.200	ug/L	4	4.00	ND	74	51-123%	---	---	
Bis(2-Chloroethoxy) methane	2.35	0.280	0.280	ug/L	4	4.00	ND	59	48-120%	---	---	
Bis(2-Chloroethyl) ether	1.92	0.100	0.200	ug/L	4	4.00	ND	48	43-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	1.68	0.100	0.200	ug/L	4	4.00	ND	42	37-130%	---	---	Q-31
Hexachlorobenzene	2.65	0.0400	0.0800	ug/L	4	4.00	ND	66	52-125%	---	---	
Hexachlorobutadiene	1.57	0.100	0.200	ug/L	4	4.00	ND	39	22-124%	---	---	
Hexachlorocyclopentadiene	1.62	0.200	0.400	ug/L	4	4.00	ND	40	5-127%	---	---	
Hexachloroethane	1.59	0.100	0.200	ug/L	4	4.00	ND	40	21-120%	---	---	
2-Chloronaphthalene	2.20	0.0400	0.0800	ug/L	4	4.00	ND	55	40-120%	---	---	
1,2-Dichlorobenzene	1.67	0.100	0.200	ug/L	4	4.00	ND	42	32-120%	---	---	
1,3-Dichlorobenzene	1.63	0.100	0.200	ug/L	4	4.00	ND	41	28-120%	---	---	
1,4-Dichlorobenzene	1.65	0.100	0.200	ug/L	4	4.00	ND	41	29-120%	---	---	
1,2,4-Trichlorobenzene	1.77	0.100	0.200	ug/L	4	4.00	ND	44	29-120%	---	---	
4-Bromophenyl phenyl ether	2.80	0.100	0.200	ug/L	4	4.00	ND	70	54-124%	---	---	
4-Chlorophenyl phenyl ether	2.55	0.100	0.200	ug/L	4	4.00	ND	64	53-121%	---	---	
Aniline	0.956	0.200	0.400	ug/L	4	4.00	ND	24	6-120%	---	---	
4-Chloroaniline	1.49	0.100	0.200	ug/L	4	4.00	ND	37	33-120%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (9120673-MS1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 13:48									
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE2)												
2-Nitroaniline	2.79	0.800	1.60	ug/L	4	4.00	ND	70	54-127%	---	---	
3-Nitroaniline	2.16	0.800	1.60	ug/L	4	4.00	ND	54	41-128%	---	---	
4-Nitroaniline	1.57	0.800	1.60	ug/L	4	4.00	ND	39	35-120%	---	---	J
Nitrobenzene	2.31	0.400	0.800	ug/L	4	4.00	ND	58	45-121%	---	---	
2,4-Dinitrotoluene	2.85	0.400	0.800	ug/L	4	4.00	ND	71	57-128%	---	---	
2,6-Dinitrotoluene	2.77	0.400	0.800	ug/L	4	4.00	ND	69	57-124%	---	---	
Benzoic acid	5.75	5.00	10.0	ug/L	4	8.00	ND	72	5-120%	---	---	J
Benzyl alcohol	1.70	0.400	0.800	ug/L	4	4.00	ND	43	31-120%	---	---	
Isophorone	2.34	0.100	0.200	ug/L	4	4.00	ND	59	42-124%	---	---	
Azobenzene (1,2-DPH)	2.45	0.100	0.200	ug/L	4	4.00	ND	61	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	3.50	1.00	2.00	ug/L	4	4.00	ND	87	40-125%	---	---	
3,3'-Dichlorobenzidine	ND	2.00	4.00	ug/L	4	8.00	ND		**27-129%**	---	---	Q-01, Q-52
1,2-Dinitrobenzene	2.69	1.00	2.00	ug/L	4	4.00	ND	67	59-120%	---	---	
1,3-Dinitrobenzene	2.87	1.00	2.00	ug/L	4	4.00	ND	72	49-128%	---	---	
1,4-Dinitrobenzene	2.86	1.00	2.00	ug/L	4	4.00	ND	71	40-120%	---	---	
Pyridine	ND	0.400	0.800	ug/L	4	4.00	ND		**5-120%**	---	---	Q-01
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 57 %*		*Limits: 44-120 %*		*Dilution: 4x*					
2-Fluorobiphenyl (Surr)			*54 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*17 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*56 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*25 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*88 %*		*43-140 %*		*"*					
Matrix Spike (9120673-MS3)			Prepared: 12/09/19 13:57 Analyzed: 12/11/19 19:09									
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
EPA 8270D												
Acenaphthene	2.19	0.0200	0.0400	ug/L	2	4.00	ND	55	47-122%	---	---	
Acenaphthylene	2.37	0.0200	0.0400	ug/L	2	4.00	ND	59	41-130%	---	---	
Anthracene	3.10	0.0200	0.0400	ug/L	2	4.00	ND	78	57-123%	---	---	
Benz(a)anthracene	3.42	0.0200	0.0400	ug/L	2	4.00	ND	86	58-125%	---	---	
Benzo(a)pyrene	3.41	0.0300	0.0600	ug/L	2	4.00	ND	85	54-128%	---	---	
Benzo(b)fluoranthene	3.41	0.0300	0.0600	ug/L	2	4.00	ND	85	53-131%	---	---	
Benzo(k)fluoranthene	3.26	0.0300	0.0600	ug/L	2	4.00	ND	82	57-129%	---	---	

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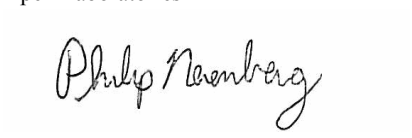

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (9120673-MS3)			Prepared: 12/09/19 13:57		Analyzed: 12/11/19 19:09							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
Benzo(g,h,i)perylene	3.34	0.0200	0.0400	ug/L	2	4.00	ND	84	50-134%	---	---	
Chrysene	3.15	0.0200	0.0400	ug/L	2	4.00	ND	79	59-123%	---	---	
Dibenz(a,h)anthracene	3.27	0.0200	0.0400	ug/L	2	4.00	ND	82	51-134%	---	---	
Fluoranthene	3.35	0.0200	0.0400	ug/L	2	4.00	ND	84	57-128%	---	---	
Fluorene	2.57	0.0200	0.0400	ug/L	2	4.00	ND	64	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.10	0.0200	0.0400	ug/L	2	4.00	ND	77	52-133%	---	---	
1-Methylnaphthalene	1.76	0.0400	0.0800	ug/L	2	4.00	ND	44	41-120%	---	---	
2-Methylnaphthalene	1.71	0.0400	0.0800	ug/L	2	4.00	ND	43	40-121%	---	---	
Naphthalene	1.75	0.0800	0.0800	ug/L	2	4.00	ND	44	40-121%	---	---	B-02
Phenanthrene	2.86	0.0200	0.0400	ug/L	2	4.00	0.0268	71	59-120%	---	---	
Pyrene	3.34	0.0200	0.0400	ug/L	2	4.00	ND	84	57-126%	---	---	
Carbazole	2.95	0.0300	0.0600	ug/L	2	4.00	ND	74	60-122%	---	---	
Dibenzofuran	2.38	0.0200	0.0400	ug/L	2	4.00	ND	60	53-120%	---	---	
4-Chloro-3-methylphenol	2.62	0.200	0.400	ug/L	2	4.00	ND	65	52-120%	---	---	
2-Chlorophenol	2.23	0.100	0.200	ug/L	2	4.00	ND	56	38-120%	---	---	
2,4-Dichlorophenol	2.71	0.100	0.200	ug/L	2	4.00	ND	68	47-121%	---	---	
2,4-Dimethylphenol	1.80	0.100	0.200	ug/L	2	4.00	ND	45	31-124%	---	---	
2,4-Dinitrophenol	4.78	0.500	1.00	ug/L	2	4.00	ND	119	23-143%	---	---	
4,6-Dinitro-2-methylphenol	4.41	0.500	1.00	ug/L	2	4.00	ND	110	44-137%	---	---	
2-Methylphenol	2.01	0.0500	0.100	ug/L	2	4.00	ND	50	30-120%	---	---	
3+4-Methylphenol(s)	1.89	0.0500	0.100	ug/L	2	4.00	ND	47	29-120%	---	---	
2-Nitrophenol	2.58	0.200	0.400	ug/L	2	4.00	ND	65	47-123%	---	---	Q-41
4-Nitrophenol	1.44	0.200	0.400	ug/L	2	4.00	ND	36	5-120%	---	---	
Pentachlorophenol (PCP)	4.59	0.200	0.400	ug/L	2	4.00	ND	115	35-138%	---	---	
Phenol	0.879	0.400	0.800	ug/L	2	4.00	ND	22	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	3.24	0.100	0.200	ug/L	2	4.00	ND	81	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	3.60	0.100	0.200	ug/L	2	4.00	ND	90	50-121%	---	---	Q-41
2,4,5-Trichlorophenol	3.13	0.100	0.200	ug/L	2	4.00	ND	78	53-123%	---	---	
2,4,6-Trichlorophenol	2.96	0.100	0.200	ug/L	2	4.00	ND	74	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	3.41	0.400	0.800	ug/L	2	4.00	ND	85	55-135%	---	---	
Butyl benzyl phthalate	3.43	0.400	0.800	ug/L	2	4.00	ND	86	53-134%	---	---	
Diethylphthalate	3.22	0.400	0.800	ug/L	2	4.00	ND	81	55-125%	---	---	
Dimethylphthalate	2.95	0.400	0.800	ug/L	2	4.00	ND	74	45-127%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (9120673-MS3)			Prepared: 12/09/19 13:57		Analyzed: 12/11/19 19:09							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
Di-n-butylphthalate	3.60	0.400	0.800	ug/L	2	4.00	ND	90	59-127%	---	---	
Di-n-octyl phthalate	4.14	0.400	0.800	ug/L	2	4.00	ND	104	50-140%	---	---	Q-41
N-Nitrosodimethylamine	1.01	0.0500	0.100	ug/L	2	4.00	ND	25	6-120%	---	---	
N-Nitroso-di-n-propylamine	2.32	0.0500	0.100	ug/L	2	4.00	ND	58	49-120%	---	---	
N-Nitrosodiphenylamine	3.10	0.0500	0.100	ug/L	2	4.00	ND	78	51-123%	---	---	
Bis(2-Chloroethoxy) methane	2.29	0.0500	0.100	ug/L	2	4.00	ND	57	48-120%	---	---	
Bis(2-Chloroethyl) ether	2.15	0.0500	0.100	ug/L	2	4.00	ND	54	43-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	1.58	0.0500	0.100	ug/L	2	4.00	ND	39	37-130%	---	---	Q-31
Hexachlorobenzene	2.92	0.0200	0.0400	ug/L	2	4.00	ND	73	52-125%	---	---	
Hexachlorobutadiene	1.07	0.0500	0.100	ug/L	2	4.00	ND	27	22-124%	---	---	
Hexachlorocyclopentadiene	0.918	0.100	0.200	ug/L	2	4.00	ND	23	5-127%	---	---	
Hexachloroethane	1.04	0.0500	0.100	ug/L	2	4.00	ND	26	21-120%	---	---	
2-Chloronaphthalene	1.99	0.0200	0.0400	ug/L	2	4.00	ND	50	40-120%	---	---	
1,2-Dichlorobenzene	1.24	0.0500	0.100	ug/L	2	4.00	ND	**31**	**32-120%**	---	---	Q-01
1,3-Dichlorobenzene	1.15	0.0500	0.100	ug/L	2	4.00	ND	29	28-120%	---	---	
1,4-Dichlorobenzene	1.19	0.0500	0.100	ug/L	2	4.00	ND	30	29-120%	---	---	
1,2,4-Trichlorobenzene	1.37	0.0500	0.100	ug/L	2	4.00	ND	34	29-120%	---	---	
4-Bromophenyl phenyl ether	2.93	0.0500	0.100	ug/L	2	4.00	ND	73	54-124%	---	---	
4-Chlorophenyl phenyl ether	2.50	0.0500	0.100	ug/L	2	4.00	ND	62	53-121%	---	---	
Aniline	1.01	0.100	0.200	ug/L	2	4.00	ND	25	6-120%	---	---	
4-Chloroaniline	1.26	0.0500	0.100	ug/L	2	4.00	ND	**31**	**33-120%**	---	---	Q-01
2-Nitroaniline	3.07	0.400	0.800	ug/L	2	4.00	ND	77	54-127%	---	---	
3-Nitroaniline	1.37	0.400	0.800	ug/L	2	4.00	ND	**34**	**41-128%**	---	---	Q-01
4-Nitroaniline	1.06	0.400	0.800	ug/L	2	4.00	ND	**27**	**35-120%**	---	---	Q-01
Nitrobenzene	2.25	0.200	0.400	ug/L	2	4.00	ND	56	45-121%	---	---	
2,4-Dinitrotoluene	2.94	0.200	0.400	ug/L	2	4.00	ND	74	57-128%	---	---	
2,6-Dinitrotoluene	3.06	0.200	0.400	ug/L	2	4.00	ND	76	57-124%	---	---	
Benzoic acid	4.62	2.50	5.00	ug/L	2	8.00	ND	58	5-120%	---	---	J
Benzyl alcohol	1.80	0.200	0.400	ug/L	2	4.00	ND	45	31-120%	---	---	
Isophorone	2.38	0.0500	0.100	ug/L	2	4.00	ND	60	42-124%	---	---	
Azobenzene (1,2-DPH)	2.56	0.0500	0.100	ug/L	2	4.00	ND	64	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	3.60	0.500	1.00	ug/L	2	4.00	ND	90	40-125%	---	---	
3,3'-Dichlorobenzidine	ND	1.00	2.00	ug/L	2	8.00	ND		**27-129%**	---	---	Q-01, Q-52

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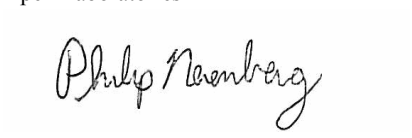

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (9120673-MS3)			Prepared: 12/09/19 13:57 Analyzed: 12/11/19 19:09									
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
1,2-Dinitrobenzene	2.91	0.500	1.00	ug/L	2	4.00	ND	73	59-120%	---	---	
1,3-Dinitrobenzene	3.01	0.500	1.00	ug/L	2	4.00	ND	75	49-128%	---	---	
1,4-Dinitrobenzene	3.16	0.500	1.00	ug/L	2	4.00	ND	79	40-120%	---	---	
Pyridine	0.871	0.200	0.400	ug/L	2	4.00	ND	22	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 57 %*		*Limits: 44-120 %*		*Dilution: 2x*					
2-Fluorobiphenyl (Surr)			*55 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*20 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*79 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*28 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*92 %*		*43-140 %*		*"*					
Matrix Spike Dup (9120673-MSD1)			Prepared: 12/09/19 13:57 Analyzed: 12/10/19 14:23									
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE2)												
EPA 8270D												
Acenaphthene	2.21	0.0412	0.0825	ug/L	4	4.12	0.117	51	47-122%	8	30%	
Acenaphthylene	2.29	0.0412	0.0825	ug/L	4	4.12	ND	55	41-130%	7	30%	
Anthracene	2.94	0.0412	0.0825	ug/L	4	4.12	ND	71	57-123%	4	30%	
Benz(a)anthracene	3.24	0.0412	0.0825	ug/L	4	4.12	0.0441	77	58-125%	2	30%	
Benzo(a)pyrene	3.24	0.0619	0.124	ug/L	4	4.12	ND	78	54-128%	1	30%	
Benzo(b)fluoranthene	3.22	0.0619	0.124	ug/L	4	4.12	ND	78	53-131%	2	30%	
Benzo(k)fluoranthene	3.14	0.0619	0.124	ug/L	4	4.12	0.0667	75	57-129%	1	30%	
Benzo(g,h,i)perylene	3.11	0.0412	0.0825	ug/L	4	4.12	ND	75	50-134%	0.4	30%	
Chrysene	2.96	0.0412	0.0825	ug/L	4	4.12	ND	72	59-123%	0.2	30%	
Dibenz(a,h)anthracene	2.98	0.0412	0.0825	ug/L	4	4.12	ND	72	51-134%	2	30%	
Fluoranthene	3.27	0.0412	0.0825	ug/L	4	4.12	0.0577	78	57-128%	3	30%	
Fluorene	2.47	0.0412	0.0825	ug/L	4	4.12	ND	60	52-124%	4	30%	
Indeno(1,2,3-cd)pyrene	2.87	0.0412	0.0825	ug/L	4	4.12	ND	70	52-133%	1	30%	
1-Methylnaphthalene	1.86	0.0825	0.165	ug/L	4	4.12	ND	45	41-120%	12	30%	
2-Methylnaphthalene	1.85	0.0825	0.165	ug/L	4	4.12	ND	45	40-121%	9	30%	
Naphthalene	1.77	0.0825	0.165	ug/L	4	4.12	ND	43	40-121%	13	30%	B-02
Phenanthrene	2.66	0.0412	0.0825	ug/L	4	4.12	0.0662	63	59-120%	4	30%	
Pyrene	3.29	0.0412	0.0825	ug/L	4	4.12	0.0550	79	57-126%	1	30%	
Carbazole	3.09	0.0619	0.124	ug/L	4	4.12	ND	75	60-122%	1	30%	

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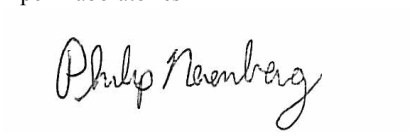

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (9120673-MSD1)			Prepared: 12/09/19 13:57		Analyzed: 12/10/19 14:23							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE2)												
Dibenzofuran	2.26	0.0412	0.0825	ug/L	4	4.12	ND	55	53-120%	5	30%	
4-Chloro-3-methylphenol	2.50	0.412	0.825	ug/L	4	4.12	ND	61	52-120%	2	30%	
2-Chlorophenol	1.93	0.206	0.412	ug/L	4	4.12	ND	47	38-120%	8	30%	
2,4-Dichlorophenol	2.41	0.206	0.412	ug/L	4	4.12	ND	59	47-121%	7	30%	
2,4-Dimethylphenol	2.22	0.206	0.412	ug/L	4	4.12	ND	54	31-124%	10	30%	
2,4-Dinitrophenol	4.05	1.03	2.06	ug/L	4	4.12	ND	98	23-143%	3	30%	
4,6-Dinitro-2-methylphenol	4.03	1.03	2.06	ug/L	4	4.12	ND	98	44-137%	1	30%	
2-Methylphenol	1.87	0.103	0.206	ug/L	4	4.12	ND	45	30-120%	4	30%	
3+4-Methylphenol(s)	2.50	0.103	0.206	ug/L	4	4.12	2.78	**-7**	**29-120%**	13	30%	Q-01
2-Nitrophenol	2.67	0.412	0.825	ug/L	4	4.12	ND	65	47-123%	11	30%	
4-Nitrophenol	1.55	0.412	0.825	ug/L	4	4.12	ND	38	5-120%	0.07	30%	
Pentachlorophenol (PCP)	4.36	0.412	0.825	ug/L	4	4.12	ND	106	35-138%	0.6	30%	
Phenol	ND	0.825	1.65	ug/L	4	4.12	ND		**5-120%**		30%	Q-01
2,3,4,6-Tetrachlorophenol	3.00	0.206	0.412	ug/L	4	4.12	ND	73	50-128%	2	30%	
2,3,5,6-Tetrachlorophenol	3.34	0.206	0.412	ug/L	4	4.12	ND	81	50-121%	3	30%	
2,4,5-Trichlorophenol	2.71	0.206	0.412	ug/L	4	4.12	ND	66	53-123%	6	30%	
2,4,6-Trichlorophenol	2.57	0.206	0.412	ug/L	4	4.12	ND	62	50-125%	5	30%	
Bis(2-ethylhexyl)phthalate	3.25	0.825	1.65	ug/L	4	4.12	ND	79	55-135%	3	30%	
Butyl benzyl phthalate	3.39	0.825	1.65	ug/L	4	4.12	ND	82	53-134%	0.09	30%	
Diethylphthalate	2.95	0.825	1.65	ug/L	4	4.12	ND	72	55-125%	6	30%	
Dimethylphthalate	2.64	0.825	1.65	ug/L	4	4.12	ND	64	45-127%	8	30%	
Di-n-butylphthalate	3.50	0.825	1.65	ug/L	4	4.12	ND	85	59-127%	0.5	30%	
Di-n-octyl phthalate	4.00	0.825	1.65	ug/L	4	4.12	ND	97	50-140%	2	30%	
N-Nitrosodimethylamine	0.955	0.103	0.206	ug/L	4	4.12	ND	23	6-120%	10	30%	
N-Nitroso-di-n-propylamine	2.20	0.103	0.206	ug/L	4	4.12	ND	53	49-120%	4	30%	
N-Nitrosodiphenylamine	2.87	0.103	0.206	ug/L	4	4.12	ND	70	51-123%	3	30%	
Bis(2-Chloroethoxy) methane	2.09	0.289	0.289	ug/L	4	4.12	ND	51	48-120%	12	30%	
Bis(2-Chloroethyl) ether	1.69	0.103	0.206	ug/L	4	4.12	ND	**41**	**43-120%**	13	30%	Q-01
2,2'-Oxybis(1-Chloropropane)	1.51	0.103	0.206	ug/L	4	4.12	ND	37	37-130%	11	30%	Q-31
Hexachlorobenzene	2.51	0.0412	0.0825	ug/L	4	4.12	ND	61	52-125%	5	30%	
Hexachlorobutadiene	1.25	0.103	0.206	ug/L	4	4.12	ND	30	22-124%	23	30%	
Hexachlorocyclopentadiene	1.31	0.206	0.412	ug/L	4	4.12	ND	32	5-127%	21	30%	
Hexachloroethane	1.25	0.103	0.206	ug/L	4	4.12	ND	30	21-120%	25	30%	

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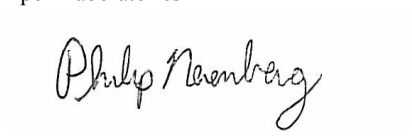

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (9120673-MSD1)			Prepared: 12/09/19 13:57		Analyzed: 12/10/19 14:23							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE2)												
2-Chloronaphthalene	2.05	0.0412	0.0825	ug/L	4	4.12	ND	50	40-120%	7	30%	
1,2-Dichlorobenzene	1.35	0.103	0.206	ug/L	4	4.12	ND	33	32-120%	21	30%	
1,3-Dichlorobenzene	1.27	0.103	0.206	ug/L	4	4.12	ND	31	28-120%	25	30%	
1,4-Dichlorobenzene	1.30	0.103	0.206	ug/L	4	4.12	ND	32	29-120%	23	30%	
1,2,4-Trichlorobenzene	1.47	0.103	0.206	ug/L	4	4.12	ND	36	29-120%	18	30%	
4-Bromophenyl phenyl ether	2.63	0.103	0.206	ug/L	4	4.12	ND	64	54-124%	6	30%	
4-Chlorophenyl phenyl ether	2.35	0.103	0.206	ug/L	4	4.12	ND	57	53-121%	8	30%	
Aniline	1.26	0.206	0.412	ug/L	4	4.12	ND	30	6-120%	27	30%	
4-Chloroaniline	1.52	0.103	0.206	ug/L	4	4.12	ND	37	33-120%	2	30%	
2-Nitroaniline	2.63	0.825	1.65	ug/L	4	4.12	ND	64	54-127%	6	30%	
3-Nitroaniline	2.49	0.825	1.65	ug/L	4	4.12	ND	60	41-128%	14	30%	
4-Nitroaniline	2.08	0.825	1.65	ug/L	4	4.12	ND	50	35-120%	28	30%	
Nitrobenzene	2.11	0.412	0.825	ug/L	4	4.12	ND	51	45-121%	9	30%	
2,4-Dinitrotoluene	2.73	0.412	0.825	ug/L	4	4.12	ND	66	57-128%	4	30%	
2,6-Dinitrotoluene	2.71	0.412	0.825	ug/L	4	4.12	ND	66	57-124%	2	30%	
Benzoic acid	5.59	5.15	10.3	ug/L	4	8.25	ND	68	5-120%	3	30%	J
Benzyl alcohol	1.60	0.412	0.825	ug/L	4	4.12	ND	39	31-120%	6	30%	
Isophorone	2.08	0.103	0.206	ug/L	4	4.12	ND	51	42-124%	12	30%	
Azobenzene (1,2-DPH)	2.32	0.103	0.206	ug/L	4	4.12	ND	**56**	**61-120%**	6	30%	Q-01
Bis(2-Ethylhexyl) adipate	3.44	1.03	2.06	ug/L	4	4.12	ND	83	40-125%	2	30%	
3,3'-Dichlorobenzidine	ND	2.06	4.12	ug/L	4	8.25	ND		**27-129%**		30%	Q-01
1,2-Dinitrobenzene	2.55	1.03	2.06	ug/L	4	4.12	ND	62	59-120%	5	30%	
1,3-Dinitrobenzene	2.56	1.03	2.06	ug/L	4	4.12	ND	62	49-128%	11	30%	
1,4-Dinitrobenzene	2.78	1.03	2.06	ug/L	4	4.12	ND	67	40-120%	3	30%	
Pyridine	0.672	0.412	0.825	ug/L	4	4.12	ND	16	5-120%	**200**	**30%**	Q-01, J
Surr: Nitrobenzene-d5 (Surr)		*Recovery:*	*50 %*	*Limits:*	*44-120 %*		*Dilution:*	*4x*				
2-Fluorobiphenyl (Surr)			*49 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*16 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*62 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*22 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*82 %*		*43-140 %*			*"*				
Matrix Spike Dup (9120673-MSD3)			Prepared: 12/12/19 12:03		Analyzed: 12/12/19 13:07							

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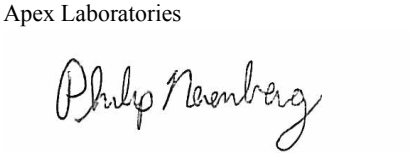

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (9120673-MSD3)			Prepared: 12/12/19 12:03		Analyzed: 12/12/19 13:07							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
EPA 8270D												
Acenaphthene	2.71	0.0200	0.0400	ug/L	2	4.00	ND	68	47-122%	21	30%	
Acenaphthylene	2.78	0.0200	0.0400	ug/L	2	4.00	ND	70	41-130%	16	30%	
Anthracene	3.66	0.0200	0.0400	ug/L	2	4.00	ND	91	57-123%	16	30%	
Benz(a)anthracene	4.02	0.0200	0.0400	ug/L	2	4.00	ND	101	58-125%	16	30%	
Benzo(a)pyrene	4.02	0.0300	0.0600	ug/L	2	4.00	ND	101	54-128%	17	30%	
Benzo(b)fluoranthene	4.01	0.0300	0.0600	ug/L	2	4.00	ND	100	53-131%	16	30%	
Benzo(k)fluoranthene	3.87	0.0300	0.0600	ug/L	2	4.00	ND	97	57-129%	17	30%	
Benzo(g,h,i)perylene	3.88	0.0200	0.0400	ug/L	2	4.00	ND	97	50-134%	15	30%	
Chrysene	3.71	0.0200	0.0400	ug/L	2	4.00	ND	93	59-123%	16	30%	
Dibenz(a,h)anthracene	3.86	0.0200	0.0400	ug/L	2	4.00	ND	96	51-134%	17	30%	
Fluoranthene	3.81	0.0200	0.0400	ug/L	2	4.00	ND	95	57-128%	13	30%	
Fluorene	3.19	0.0200	0.0400	ug/L	2	4.00	ND	80	52-124%	22	30%	
Indeno(1,2,3-cd)pyrene	3.70	0.0200	0.0400	ug/L	2	4.00	ND	93	52-133%	18	30%	
1-Methylnaphthalene	2.11	0.0400	0.0800	ug/L	2	4.00	ND	53	41-120%	18	30%	
2-Methylnaphthalene	2.08	0.0400	0.0800	ug/L	2	4.00	ND	52	40-121%	20	30%	
Naphthalene	2.05	0.0400	0.0800	ug/L	2	4.00	ND	51	40-121%	16	30%	B-02
Phenanthrene	3.40	0.0200	0.0400	ug/L	2	4.00	0.0268	84	59-120%	17	30%	
Pyrene	3.76	0.0200	0.0400	ug/L	2	4.00	ND	94	57-126%	12	30%	
Carbazole	3.61	0.0300	0.0600	ug/L	2	4.00	ND	90	60-122%	20	30%	
Dibenzofuran	2.93	0.0200	0.0400	ug/L	2	4.00	ND	73	53-120%	20	30%	
4-Chloro-3-methylphenol	3.18	0.200	0.400	ug/L	2	4.00	ND	79	52-120%	19	30%	
2-Chlorophenol	2.22	0.100	0.200	ug/L	2	4.00	ND	56	38-120%	0.09	30%	
2,4-Dichlorophenol	3.04	0.100	0.200	ug/L	2	4.00	ND	76	47-121%	11	30%	
2,4-Dimethylphenol	2.64	0.100	0.200	ug/L	2	4.00	ND	66	31-124%	**38**	**30%**	Q-24
2,4-Dinitrophenol	5.05	0.500	1.00	ug/L	2	4.00	ND	126	23-143%	6	30%	
4,6-Dinitro-2-methylphenol	4.74	0.500	1.00	ug/L	2	4.00	ND	119	44-137%	7	30%	
2-Methylphenol	2.08	0.0500	0.100	ug/L	2	4.00	ND	52	30-120%	3	30%	
3+4-Methylphenol(s)	2.00	0.0500	0.100	ug/L	2	4.00	ND	50	29-120%	5	30%	
2-Nitrophenol	2.50	0.200	0.400	ug/L	2	4.00	ND	63	47-123%	3	30%	Q-41
4-Nitrophenol	1.70	0.200	0.400	ug/L	2	4.00	ND	42	5-120%	16	30%	
Pentachlorophenol (PCP)	5.04	0.200	0.400	ug/L	2	4.00	ND	126	35-138%	9	30%	
Phenol	0.872	0.400	0.800	ug/L	2	4.00	ND	22	5-120%	0.8	30%	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (9120673-MSD3)			Prepared: 12/12/19 12:03		Analyzed: 12/12/19 13:07							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
2,3,4,6-Tetrachlorophenol	3.79	0.100	0.200	ug/L	2	4.00	ND	95	50-128%	16	30%	
2,3,5,6-Tetrachlorophenol	4.22	0.100	0.200	ug/L	2	4.00	ND	105	50-121%	16	30%	Q-41
2,4,5-Trichlorophenol	3.79	0.100	0.200	ug/L	2	4.00	ND	95	53-123%	19	30%	
2,4,6-Trichlorophenol	3.45	0.100	0.200	ug/L	2	4.00	ND	86	50-125%	15	30%	
Bis(2-ethylhexyl)phthalate	4.16	0.400	0.800	ug/L	2	4.00	ND	104	55-135%	20	30%	
Butyl benzyl phthalate	4.09	0.400	0.800	ug/L	2	4.00	ND	102	53-134%	18	30%	
Diethylphthalate	3.79	0.400	0.800	ug/L	2	4.00	ND	95	55-125%	16	30%	
Dimethylphthalate	3.40	0.400	0.800	ug/L	2	4.00	ND	85	45-127%	14	30%	
Di-n-butylphthalate	4.26	0.400	0.800	ug/L	2	4.00	ND	106	59-127%	17	30%	
Di-n-octyl phthalate	4.90	0.400	0.800	ug/L	2	4.00	ND	122	50-140%	17	30%	Q-41
N-Nitrosodimethylamine	1.11	0.0500	0.100	ug/L	2	4.00	ND	28	6-120%	9	30%	
N-Nitroso-di-n-propylamine	2.32	0.0500	0.100	ug/L	2	4.00	ND	58	49-120%	0.1	30%	
N-Nitrosodiphenylamine	3.59	0.0500	0.100	ug/L	2	4.00	ND	90	51-123%	15	30%	
Bis(2-Chloroethoxy) methane	2.38	0.0500	0.100	ug/L	2	4.00	ND	59	48-120%	4	30%	
Bis(2-Chloroethyl) ether	2.02	0.0500	0.100	ug/L	2	4.00	ND	50	43-120%	6	30%	
2,2'-Oxybis(1-Chloropropane)	1.64	0.0500	0.100	ug/L	2	4.00	ND	41	37-130%	4	30%	
Hexachlorobenzene	3.45	0.0200	0.0400	ug/L	2	4.00	ND	86	52-125%	17	30%	
Hexachlorobutadiene	1.71	0.0500	0.100	ug/L	2	4.00	ND	43	22-124%	**46**	**30%**	Q-24
Hexachlorocyclopentadiene	1.26	0.100	0.200	ug/L	2	4.00	ND	32	5-127%	**32**	**30%**	Q-24
Hexachloroethane	1.65	0.0500	0.100	ug/L	2	4.00	ND	41	21-120%	**46**	**30%**	Q-24
2-Chloronaphthalene	2.42	0.0200	0.0400	ug/L	2	4.00	ND	61	40-120%	20	30%	
1,2-Dichlorobenzene	1.65	0.0500	0.100	ug/L	2	4.00	ND	41	32-120%	29	30%	
1,3-Dichlorobenzene	1.62	0.0500	0.100	ug/L	2	4.00	ND	40	28-120%	**34**	**30%**	Q-24
1,4-Dichlorobenzene	1.65	0.0500	0.100	ug/L	2	4.00	ND	41	29-120%	**32**	**30%**	Q-24
1,2,4-Trichlorobenzene	1.86	0.0500	0.100	ug/L	2	4.00	ND	47	29-120%	**31**	**30%**	Q-24
4-Bromophenyl phenyl ether	3.69	0.0500	0.100	ug/L	2	4.00	ND	92	54-124%	23	30%	
4-Chlorophenyl phenyl ether	3.17	0.0500	0.100	ug/L	2	4.00	ND	79	53-121%	24	30%	
Aniline	0.617	0.100	0.200	ug/L	2	4.00	ND	15	6-120%	**48**	**30%**	Q-24
4-Chloroaniline	0.875	0.0500	0.100	ug/L	2	4.00	ND	**22**	**33-120%**	**36**	**30%**	Q-01
2-Nitroaniline	3.47	0.400	0.800	ug/L	2	4.00	ND	87	54-127%	12	30%	
3-Nitroaniline	1.55	0.400	0.800	ug/L	2	4.00	ND	**39**	**41-128%**	13	30%	Q-01
4-Nitroaniline	1.58	0.400	0.800	ug/L	2	4.00	ND	40	35-120%	**39**	**30%**	Q-01
Nitrobenzene	2.24	0.200	0.400	ug/L	2	4.00	ND	56	45-121%	0.4	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120673 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (9120673-MSD3)			Prepared: 12/12/19 12:03		Analyzed: 12/12/19 13:07							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE3)												
2,4-Dinitrotoluene	3.51	0.200	0.400	ug/L	2	4.00	ND	88	57-128%	18	30%	
2,6-Dinitrotoluene	3.57	0.200	0.400	ug/L	2	4.00	ND	89	57-124%	16	30%	
Benzoic acid	4.78	2.50	5.00	ug/L	2	8.00	ND	60	5-120%	3	30%	J
Benzyl alcohol	1.79	0.200	0.400	ug/L	2	4.00	ND	45	31-120%	0.1	30%	
Isophorone	2.52	0.0500	0.100	ug/L	2	4.00	ND	63	42-124%	6	30%	
Azobenzene (1,2-DPH)	3.07	0.0500	0.100	ug/L	2	4.00	ND	77	61-120%	18	30%	
Bis(2-Ethylhexyl) adipate	4.34	0.500	1.00	ug/L	2	4.00	ND	109	40-125%	19	30%	
3,3'-Dichlorobenzidine	ND	1.00	2.00	ug/L	2	8.00	ND		**27-129%**		30%	Q-01
1,2-Dinitrobenzene	3.37	0.500	1.00	ug/L	2	4.00	ND	84	59-120%	15	30%	
1,3-Dinitrobenzene	3.65	0.500	1.00	ug/L	2	4.00	ND	91	49-128%	19	30%	
1,4-Dinitrobenzene	3.67	0.500	1.00	ug/L	2	4.00	ND	92	40-120%	15	30%	
Pyridine	0.547	0.200	0.400	ug/L	2	4.00	ND	14	5-120%	**46**	**30%**	Q-24
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 56 %*		*Limits: 44-120 %*			*Dilution: 2x*				
2-Fluorobiphenyl (Surr)			*60 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*20 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*91 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*28 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*104 %*		*43-140 %*			*"*				

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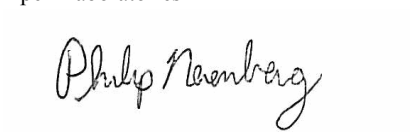

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120690-BLK1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 14:57							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Naphthalene	**0.0237**	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	B-02, J
Phenanthrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120690-BLK1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 14:57							
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Hexachloroethane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Aniline	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
4-Chloroaniline	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
3-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
4-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Nitrobenzene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120690-BLK1)			Prepared: 12/10/19 07:10 Analyzed: 12/10/19 14:57									
Benzoic acid	ND	1.14	2.27	ug/L	1	---	---	---	---	---	---	
Benzyl alcohol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Isophorone	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	0.455	0.909	ug/L	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
Pyridine	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*77 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*25 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*94 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*40 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*104 %*		*43-140 %*			*"*				
LCS (9120690-BS1)			Prepared: 12/10/19 07:10 Analyzed: 12/10/19 15:31									
EPA 8270D												
Acenaphthene	3.31	0.0100	0.0200	ug/L	1	4.00	---	83	47-122%	---	---	
Acenaphthylene	3.47	0.0100	0.0200	ug/L	1	4.00	---	87	41-130%	---	---	
Anthracene	3.76	0.0100	0.0200	ug/L	1	4.00	---	94	57-123%	---	---	
Benz(a)anthracene	4.41	0.0100	0.0200	ug/L	1	4.00	---	110	58-125%	---	---	
Benzo(a)pyrene	4.23	0.0150	0.0300	ug/L	1	4.00	---	106	54-128%	---	---	
Benzo(b)fluoranthene	4.15	0.0150	0.0300	ug/L	1	4.00	---	104	53-131%	---	---	
Benzo(k)fluoranthene	4.06	0.0150	0.0300	ug/L	1	4.00	---	102	57-129%	---	---	
Benzo(g,h,i)perylene	4.23	0.0100	0.0200	ug/L	1	4.00	---	106	50-134%	---	---	
Chrysene	4.05	0.0100	0.0200	ug/L	1	4.00	---	101	59-123%	---	---	
Dibenz(a,h)anthracene	4.05	0.0100	0.0200	ug/L	1	4.00	---	101	51-134%	---	---	
Fluoranthene	4.29	0.0100	0.0200	ug/L	1	4.00	---	107	57-128%	---	---	
Fluorene	3.41	0.0100	0.0200	ug/L	1	4.00	---	85	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	4.15	0.0100	0.0200	ug/L	1	4.00	---	104	52-133%	---	---	
1-Methylnaphthalene	3.15	0.0200	0.0400	ug/L	1	4.00	---	79	41-120%	---	---	
2-Methylnaphthalene	3.20	0.0200	0.0400	ug/L	1	4.00	---	80	40-121%	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120690-BS1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 15:31							
Naphthalene	3.10	0.0200	0.0400	ug/L	1	4.00	---	78	40-121%	---	---	B-02
Phenanthrene	3.47	0.0100	0.0200	ug/L	1	4.00	---	87	59-120%	---	---	
Pyrene	4.23	0.0100	0.0200	ug/L	1	4.00	---	106	57-126%	---	---	
Carbazole	4.51	0.0150	0.0300	ug/L	1	4.00	---	113	60-122%	---	---	
Dibenzofuran	3.39	0.0100	0.0200	ug/L	1	4.00	---	85	53-120%	---	---	
4-Chloro-3-methylphenol	3.49	0.100	0.200	ug/L	1	4.00	---	87	52-120%	---	---	
2-Chlorophenol	3.24	0.0500	0.100	ug/L	1	4.00	---	81	38-120%	---	---	
2,4-Dichlorophenol	3.84	0.0500	0.100	ug/L	1	4.00	---	96	47-121%	---	---	
2,4-Dimethylphenol	3.26	0.0500	0.100	ug/L	1	4.00	---	82	31-124%	---	---	
2,4-Dinitrophenol	4.45	0.250	0.500	ug/L	1	4.00	---	111	23-143%	---	---	
4,6-Dinitro-2-methylphenol	4.73	0.250	0.500	ug/L	1	4.00	---	118	44-137%	---	---	
2-Methylphenol	2.77	0.0250	0.0500	ug/L	1	4.00	---	69	30-120%	---	---	
3+4-Methylphenol(s)	2.48	0.0250	0.0500	ug/L	1	4.00	---	62	29-120%	---	---	
2-Nitrophenol	3.69	0.100	0.200	ug/L	1	4.00	---	92	47-123%	---	---	Q-41
4-Nitrophenol	1.64	0.100	0.200	ug/L	1	4.00	---	41	5-120%	---	---	
Pentachlorophenol (PCP)	4.73	0.100	0.200	ug/L	1	4.00	---	118	35-138%	---	---	
Phenol	1.37	0.200	0.400	ug/L	1	4.00	---	34	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	4.01	0.0500	0.100	ug/L	1	4.00	---	100	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	4.28	0.0500	0.100	ug/L	1	4.00	---	107	50-121%	---	---	Q-41
2,4,5-Trichlorophenol	4.05	0.0500	0.100	ug/L	1	4.00	---	101	53-123%	---	---	
2,4,6-Trichlorophenol	4.08	0.0500	0.100	ug/L	1	4.00	---	102	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	4.15	0.200	0.400	ug/L	1	4.00	---	104	55-135%	---	---	
Butyl benzyl phthalate	4.16	0.200	0.400	ug/L	1	4.00	---	104	53-134%	---	---	
Diethylphthalate	4.09	0.200	0.400	ug/L	1	4.00	---	102	55-125%	---	---	
Dimethylphthalate	3.91	0.200	0.400	ug/L	1	4.00	---	98	45-127%	---	---	
Di-n-butylphthalate	4.38	0.200	0.400	ug/L	1	4.00	---	110	59-127%	---	---	
Di-n-octyl phthalate	4.44	0.200	0.400	ug/L	1	4.00	---	111	51-140%	---	---	Q-41
N-Nitrosodimethylamine	1.97	0.0250	0.0500	ug/L	1	4.00	---	49	6-120%	---	---	
N-Nitroso-di-n-propylamine	3.03	0.0250	0.0500	ug/L	1	4.00	---	76	49-120%	---	---	
N-Nitrosodiphenylamine	3.65	0.0250	0.0500	ug/L	1	4.00	---	91	51-123%	---	---	
Bis(2-Chloroethoxy) methane	3.26	0.0250	0.0500	ug/L	1	4.00	---	82	48-120%	---	---	
Bis(2-Chloroethyl) ether	3.01	0.0250	0.0500	ug/L	1	4.00	---	75	43-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	2.24	0.0250	0.0500	ug/L	1	4.00	---	56	37-130%	---	---	Q-31
Hexachlorobenzene	3.68	0.0100	0.0200	ug/L	1	4.00	---	92	52-125%	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120690-BS1)			Prepared: 12/10/19 07:10 Analyzed: 12/10/19 15:31									
Hexachlorobutadiene	3.36	0.0250	0.0500	ug/L	1	4.00	---	84	22-124%	---	---	
Hexachlorocyclopentadiene	3.79	0.0500	0.100	ug/L	1	4.00	---	95	5-127%	---	---	
Hexachloroethane	3.26	0.0250	0.0500	ug/L	1	4.00	---	81	21-120%	---	---	
2-Chloronaphthalene	3.35	0.0100	0.0200	ug/L	1	4.00	---	84	40-120%	---	---	
1,2-Dichlorobenzene	2.84	0.0250	0.0500	ug/L	1	4.00	---	71	32-120%	---	---	
1,3-Dichlorobenzene	2.89	0.0250	0.0500	ug/L	1	4.00	---	72	28-120%	---	---	
1,4-Dichlorobenzene	2.88	0.0250	0.0500	ug/L	1	4.00	---	72	29-120%	---	---	
1,2,4-Trichlorobenzene	3.17	0.0250	0.0500	ug/L	1	4.00	---	79	29-120%	---	---	
4-Bromophenyl phenyl ether	4.02	0.0250	0.0500	ug/L	1	4.00	---	101	54-124%	---	---	
4-Chlorophenyl phenyl ether	3.57	0.0250	0.0500	ug/L	1	4.00	---	89	53-121%	---	---	
Aniline	2.62	0.0500	0.100	ug/L	1	4.00	---	66	6-120%	---	---	
4-Chloroaniline	2.84	0.0250	0.0500	ug/L	1	4.00	---	71	33-120%	---	---	
2-Nitroaniline	4.07	0.200	0.400	ug/L	1	4.00	---	102	54-127%	---	---	
3-Nitroaniline	2.86	0.200	0.400	ug/L	1	4.00	---	72	41-128%	---	---	
4-Nitroaniline	2.85	0.200	0.400	ug/L	1	4.00	---	71	35-120%	---	---	
Nitrobenzene	3.00	0.100	0.200	ug/L	1	4.00	---	75	45-121%	---	---	
2,4-Dinitrotoluene	3.94	0.100	0.200	ug/L	1	4.00	---	99	57-128%	---	---	
2,6-Dinitrotoluene	4.13	0.100	0.200	ug/L	1	4.00	---	103	57-124%	---	---	
Benzoic acid	3.24	1.25	2.50	ug/L	1	8.00	---	40	5-120%	---	---	
Benzyl alcohol	2.69	0.100	0.200	ug/L	1	4.00	---	67	31-120%	---	---	
Isophorone	3.40	0.0250	0.0500	ug/L	1	4.00	---	85	42-124%	---	---	
Azobenzene (1,2-DPH)	3.17	0.0250	0.0500	ug/L	1	4.00	---	79	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	4.26	0.250	0.500	ug/L	1	4.00	---	106	40-125%	---	---	
1,2-Dinitrobenzene	3.94	0.250	0.500	ug/L	1	4.00	---	99	59-120%	---	---	
1,3-Dinitrobenzene	4.30	0.250	0.500	ug/L	1	4.00	---	108	49-128%	---	---	
1,4-Dinitrobenzene	4.19	0.250	0.500	ug/L	1	4.00	---	105	40-120%	---	---	
Pyridine	1.48	0.100	0.200	ug/L	1	4.00	---	37	5-120%	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 76 %*	*Limits: 44-120 %*	*Dilution: 1x*
2-Fluorobiphenyl (Surr)	*77 %*	*44-120 %*	*"*
Phenol-d6 (Surr)	*29 %*	*10-120 %*	*"*
p-Terphenyl-d14 (Surr)	*101 %*	*50-133 %*	*"*
2-Fluorophenol (Surr)	*44 %*	*19-120 %*	*"*
2,4,6-Tribromophenol (Surr)	*103 %*	*43-140 %*	*"*

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120690-BS2)			Prepared: 12/10/19 07:10		Analyzed: 12/11/19 13:59							
EPA 8270D												
3,3'-Dichlorobenzidine	13.3	1.00	2.00	ug/L	2	8.00	---	**166**	**27-129%**	---	---	Q-29, Q-52
LCS Dup (9120690-BSD1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 16:06							**Q-19**
EPA 8270D												
Acenaphthene	3.16	0.0100	0.0200	ug/L	1	4.00	---	79	47-122%	5	30%	
Acenaphthylene	3.31	0.0100	0.0200	ug/L	1	4.00	---	83	41-130%	5	30%	
Anthracene	3.50	0.0100	0.0200	ug/L	1	4.00	---	87	57-123%	7	30%	
Benz(a)anthracene	4.26	0.0100	0.0200	ug/L	1	4.00	---	106	58-125%	4	30%	
Benzo(a)pyrene	4.10	0.0150	0.0300	ug/L	1	4.00	---	103	54-128%	3	30%	
Benzo(b)fluoranthene	4.00	0.0150	0.0300	ug/L	1	4.00	---	100	53-131%	4	30%	
Benzo(k)fluoranthene	3.91	0.0150	0.0300	ug/L	1	4.00	---	98	57-129%	4	30%	
Benzo(g,h,i)perylene	4.09	0.0100	0.0200	ug/L	1	4.00	---	102	50-134%	3	30%	
Chrysene	3.96	0.0100	0.0200	ug/L	1	4.00	---	99	59-123%	2	30%	
Dibenz(a,h)anthracene	3.92	0.0100	0.0200	ug/L	1	4.00	---	98	51-134%	3	30%	
Fluoranthene	3.97	0.0100	0.0200	ug/L	1	4.00	---	99	57-128%	8	30%	
Fluorene	3.33	0.0100	0.0200	ug/L	1	4.00	---	83	52-124%	2	30%	
Indeno(1,2,3-cd)pyrene	4.01	0.0100	0.0200	ug/L	1	4.00	---	100	52-133%	4	30%	
1-Methylnaphthalene	3.11	0.0200	0.0400	ug/L	1	4.00	---	78	41-120%	1	30%	
2-Methylnaphthalene	3.20	0.0200	0.0400	ug/L	1	4.00	---	80	40-121%	0.1	30%	
Naphthalene	3.01	0.0200	0.0400	ug/L	1	4.00	---	75	40-121%	3	30%	B-02
Phenanthrene	3.24	0.0100	0.0200	ug/L	1	4.00	---	81	59-120%	7	30%	
Pyrene	3.88	0.0100	0.0200	ug/L	1	4.00	---	97	57-126%	9	30%	
Carbazole	4.14	0.0150	0.0300	ug/L	1	4.00	---	104	60-122%	9	30%	
Dibenzofuran	3.30	0.0100	0.0200	ug/L	1	4.00	---	82	53-120%	3	30%	
4-Chloro-3-methylphenol	3.51	0.100	0.200	ug/L	1	4.00	---	88	52-120%	0.4	30%	
2-Chlorophenol	3.17	0.0500	0.100	ug/L	1	4.00	---	79	38-120%	2	30%	
2,4-Dichlorophenol	3.78	0.0500	0.100	ug/L	1	4.00	---	94	47-121%	2	30%	
2,4-Dimethylphenol	3.20	0.0500	0.100	ug/L	1	4.00	---	80	31-124%	2	30%	
2,4-Dinitrophenol	4.55	0.250	0.500	ug/L	1	4.00	---	114	23-143%	2	30%	
4,6-Dinitro-2-methylphenol	4.86	0.250	0.500	ug/L	1	4.00	---	121	44-137%	3	30%	
2-Methylphenol	2.86	0.0250	0.0500	ug/L	1	4.00	---	72	30-120%	3	30%	
3+4-Methylphenol(s)	2.60	0.0250	0.0500	ug/L	1	4.00	---	65	29-120%	5	30%	
2-Nitrophenol	3.60	0.100	0.200	ug/L	1	4.00	---	90	47-123%	2	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9120690-BSD1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 16:06							**Q-19**
4-Nitrophenol	1.79	0.100	0.200	ug/L	1	4.00	---	45	5-120%	9	30%	
Pentachlorophenol (PCP)	4.54	0.100	0.200	ug/L	1	4.00	---	113	35-138%	4	30%	
Phenol	1.47	0.200	0.400	ug/L	1	4.00	---	37	5-120%	7	30%	
2,3,4,6-Tetrachlorophenol	3.92	0.0500	0.100	ug/L	1	4.00	---	98	50-128%	2	30%	
2,3,5,6-Tetrachlorophenol	4.22	0.0500	0.100	ug/L	1	4.00	---	106	50-121%	1	30%	
2,4,5-Trichlorophenol	3.85	0.0500	0.100	ug/L	1	4.00	---	96	53-123%	5	30%	
2,4,6-Trichlorophenol	3.86	0.0500	0.100	ug/L	1	4.00	---	97	50-125%	5	30%	
Bis(2-ethylhexyl)phthalate	4.14	0.200	0.400	ug/L	1	4.00	---	104	55-135%	0.09	30%	
Butyl benzyl phthalate	4.16	0.200	0.400	ug/L	1	4.00	---	104	53-134%	0.02	30%	
Diethylphthalate	3.96	0.200	0.400	ug/L	1	4.00	---	99	55-125%	3	30%	
Dimethylphthalate	3.72	0.200	0.400	ug/L	1	4.00	---	93	45-127%	5	30%	
Di-n-butylphthalate	4.13	0.200	0.400	ug/L	1	4.00	---	103	59-127%	6	30%	
Di-n-octyl phthalate	4.36	0.200	0.400	ug/L	1	4.00	---	109	51-140%	2	30%	
N-Nitrosodimethylamine	1.90	0.0250	0.0500	ug/L	1	4.00	---	47	6-120%	4	30%	
N-Nitroso-di-n-propylamine	3.04	0.0250	0.0500	ug/L	1	4.00	---	76	49-120%	0.5	30%	
N-Nitrosodiphenylamine	3.40	0.0250	0.0500	ug/L	1	4.00	---	85	51-123%	7	30%	
Bis(2-Chloroethoxy) methane	3.12	0.0250	0.0500	ug/L	1	4.00	---	78	48-120%	4	30%	
Bis(2-Chloroethyl) ether	2.94	0.0250	0.0500	ug/L	1	4.00	---	74	43-120%	2	30%	
2,2'-Oxybis(1-Chloropropane)	2.20	0.0250	0.0500	ug/L	1	4.00	---	55	37-130%	2	30%	Q-31
Hexachlorobenzene	3.46	0.0100	0.0200	ug/L	1	4.00	---	87	52-125%	6	30%	
Hexachlorobutadiene	3.29	0.0250	0.0500	ug/L	1	4.00	---	82	22-124%	2	30%	
Hexachlorocyclopentadiene	3.64	0.0500	0.100	ug/L	1	4.00	---	91	5-127%	4	30%	
Hexachloroethane	3.25	0.0250	0.0500	ug/L	1	4.00	---	81	21-120%	0.3	30%	
2-Chloronaphthalene	3.24	0.0100	0.0200	ug/L	1	4.00	---	81	40-120%	3	30%	
1,2-Dichlorobenzene	2.84	0.0250	0.0500	ug/L	1	4.00	---	71	32-120%	0.3	30%	
1,3-Dichlorobenzene	2.91	0.0250	0.0500	ug/L	1	4.00	---	73	28-120%	0.7	30%	
1,4-Dichlorobenzene	2.87	0.0250	0.0500	ug/L	1	4.00	---	72	29-120%	0.3	30%	
1,2,4-Trichlorobenzene	3.12	0.0250	0.0500	ug/L	1	4.00	---	78	29-120%	2	30%	
4-Bromophenyl phenyl ether	3.75	0.0250	0.0500	ug/L	1	4.00	---	94	54-124%	7	30%	
4-Chlorophenyl phenyl ether	3.52	0.0250	0.0500	ug/L	1	4.00	---	88	53-121%	2	30%	
Aniline	2.80	0.0500	0.100	ug/L	1	4.00	---	70	6-120%	7	30%	
4-Chloroaniline	2.55	0.0250	0.0500	ug/L	1	4.00	---	64	33-120%	11	30%	
2-Nitroaniline	3.93	0.200	0.400	ug/L	1	4.00	---	98	54-127%	4	30%	
3-Nitroaniline	3.02	0.200	0.400	ug/L	1	4.00	---	75	41-128%	5	30%	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9120690-BSD1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 16:06							**Q-19**
4-Nitroaniline	2.88	0.200	0.400	ug/L	1	4.00	---	72	35-120%	1	30%	
Nitrobenzene	3.02	0.100	0.200	ug/L	1	4.00	---	76	45-121%	0.9	30%	
2,4-Dinitrotoluene	3.92	0.100	0.200	ug/L	1	4.00	---	98	57-128%	0.6	30%	
2,6-Dinitrotoluene	3.99	0.100	0.200	ug/L	1	4.00	---	100	57-124%	4	30%	
Benzoic acid	3.46	1.25	2.50	ug/L	1	8.00	---	43	5-120%	7	30%	
Benzyl alcohol	2.82	0.100	0.200	ug/L	1	4.00	---	71	31-120%	5	30%	
Isophorone	3.24	0.0250	0.0500	ug/L	1	4.00	---	81	42-124%	5	30%	
Azobenzene (1,2-DPH)	2.95	0.0250	0.0500	ug/L	1	4.00	---	74	61-120%	7	30%	
Bis(2-Ethylhexyl) adipate	4.21	0.250	0.500	ug/L	1	4.00	---	105	40-125%	1	30%	
1,2-Dinitrobenzene	3.84	0.250	0.500	ug/L	1	4.00	---	96	59-120%	3	30%	
1,3-Dinitrobenzene	4.27	0.250	0.500	ug/L	1	4.00	---	107	49-128%	0.8	30%	
1,4-Dinitrobenzene	4.15	0.250	0.500	ug/L	1	4.00	---	104	40-120%	0.9	30%	
Pyridine	1.53	0.100	0.200	ug/L	1	4.00	---	38	5-120%	3	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 76 %*		*Limits: 44-120 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*74 %*		*44-120 %*				*"*			
Phenol-d6 (Surr)			*31 %*		*10-120 %*				*"*			
p-Terphenyl-d14 (Surr)			*100 %*		*50-133 %*				*"*			
2-Fluorophenol (Surr)			*46 %*		*19-120 %*				*"*			
2,4,6-Tribromophenol (Surr)			*98 %*		*43-140 %*				*"*			
LCS Dup (9120690-BSD2)			Prepared: 12/10/19 07:10		Analyzed: 12/11/19 14:34							**Q-19**
EPA 8270D												
3,3'-Dichlorobenzidine	12.4	1.00	2.00	ug/L	2	8.00	---	**154**	**27-129%**	7	30%	Q-29

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Blank (9120708-BLK2)			Prepared: 12/10/19 11:17 Analyzed: 12/10/19 16:32									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitrophenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitrophenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Phenol	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Blank (9120708-BLK2)			Prepared: 12/10/19 11:17		Analyzed: 12/10/19 16:32							
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	ug/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Dimethylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Blank (9120708-BLK2)			Prepared: 12/10/19 11:17		Analyzed: 12/10/19 16:32							
Benzoic acid	ND	157	312	ug/kg wet	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 101 %*		*Limits: 37-122 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*87 %*		*44-115 %*			*"*				
Phenol-d6 (Surr)			*98 %*		*33-122 %*			*"*				
p-Terphenyl-d14 (Surr)			*104 %*		*54-127 %*			*"*				
2-Fluorophenol (Surr)			*105 %*		*35-115 %*			*"*				
2,4,6-Tribromophenol (Surr)			*102 %*		*39-132 %*			*"*				Q-41
LCS (9120708-BS2)			Prepared: 12/10/19 11:17		Analyzed: 12/10/19 17:08							
EPA 8270D												
Acenaphthene	440	1.33	2.67	ug/kg wet	1	533	---	83	40-122%	---	---	
Acenaphthylene	466	1.33	2.67	ug/kg wet	1	533	---	87	32-132%	---	---	
Anthracene	515	1.33	2.67	ug/kg wet	1	533	---	97	47-123%	---	---	
Benz(a)anthracene	538	1.33	2.67	ug/kg wet	1	533	---	101	49-126%	---	---	
Benzo(a)pyrene	510	2.00	4.00	ug/kg wet	1	533	---	96	45-129%	---	---	
Benzo(b)fluoranthene	512	2.00	4.00	ug/kg wet	1	533	---	96	45-132%	---	---	
Benzo(k)fluoranthene	516	2.00	4.00	ug/kg wet	1	533	---	97	47-132%	---	---	
Benzo(g,h,i)perylene	535	1.33	2.67	ug/kg wet	1	533	---	100	43-134%	---	---	
Chrysene	513	1.33	2.67	ug/kg wet	1	533	---	96	50-124%	---	---	
Dibenz(a,h)anthracene	529	1.33	2.67	ug/kg wet	1	533	---	99	45-134%	---	---	
Fluoranthene	569	1.33	2.67	ug/kg wet	1	533	---	107	50-127%	---	---	
Fluorene	474	1.33	2.67	ug/kg wet	1	533	---	89	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	500	1.33	2.67	ug/kg wet	1	533	---	94	45-133%	---	---	
1-Methylnaphthalene	504	2.67	5.33	ug/kg wet	1	533	---	94	40-120%	---	---	
2-Methylnaphthalene	506	2.67	5.33	ug/kg wet	1	533	---	95	38-122%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
LCS (9120708-BS2)			Prepared: 12/10/19 11:17		Analyzed: 12/10/19 17:08							
Naphthalene	427	2.67	5.33	ug/kg wet	1	533	---	80	35-123%	---	---	
Phenanthrene	457	1.33	2.67	ug/kg wet	1	533	---	86	50-121%	---	---	
Pyrene	576	1.33	2.67	ug/kg wet	1	533	---	108	47-127%	---	---	
Carbazole	576	2.00	4.00	ug/kg wet	1	533	---	108	50-122%	---	---	
Dibenzofuran	462	1.33	2.67	ug/kg wet	1	533	---	87	44-120%	---	---	
4-Chloro-3-methylphenol	665	13.3	26.7	ug/kg wet	1	533	---	**125**	**45-122%**	---	---	Q-29, Q-41
2-Chlorophenol	503	6.67	13.3	ug/kg wet	1	533	---	94	34-121%	---	---	
2,4-Dichlorophenol	535	6.67	13.3	ug/kg wet	1	533	---	100	40-122%	---	---	Q-41
2,4-Dimethylphenol	515	6.67	13.3	ug/kg wet	1	533	---	97	30-127%	---	---	
2,4-Dinitrophenol	628	33.3	66.7	ug/kg wet	1	533	---	118	5-137%	---	---	Q-41
4,6-Dinitro-2-methylphenol	639	33.3	66.7	ug/kg wet	1	533	---	120	29-132%	---	---	Q-41
2-Methylphenol	554	3.33	6.67	ug/kg wet	1	533	---	104	32-122%	---	---	
3+4-Methylphenol(s)	596	3.33	6.67	ug/kg wet	1	533	---	112	34-120%	---	---	
2-Nitrophenol	486	13.3	26.7	ug/kg wet	1	533	---	91	36-123%	---	---	
4-Nitrophenol	620	13.3	26.7	ug/kg wet	1	533	---	116	30-132%	---	---	Q-41
Pentachlorophenol (PCP)	562	13.3	26.7	ug/kg wet	1	533	---	105	25-133%	---	---	
Phenol	546	2.67	5.33	ug/kg wet	1	533	---	102	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	551	6.67	13.3	ug/kg wet	1	533	---	103	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	581	6.67	13.3	ug/kg wet	1	533	---	109	40-120%	---	---	Q-41
2,4,5-Trichlorophenol	563	6.67	13.3	ug/kg wet	1	533	---	106	41-124%	---	---	
2,4,6-Trichlorophenol	528	6.67	13.3	ug/kg wet	1	533	---	99	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	510	20.0	40.0	ug/kg wet	1	533	---	96	51-133%	---	---	
Butyl benzyl phthalate	540	13.3	26.7	ug/kg wet	1	533	---	101	48-132%	---	---	
Diethylphthalate	529	13.3	26.7	ug/kg wet	1	533	---	99	50-124%	---	---	
Dimethylphthalate	508	13.3	26.7	ug/kg wet	1	533	---	95	48-124%	---	---	
Di-n-butylphthalate	551	13.3	26.7	ug/kg wet	1	533	---	103	51-128%	---	---	
Di-n-octyl phthalate	537	13.3	26.7	ug/kg wet	1	533	---	101	44-140%	---	---	
N-Nitrosodimethylamine	494	3.33	6.67	ug/kg wet	1	533	---	93	23-120%	---	---	
N-Nitroso-di-n-propylamine	508	3.33	6.67	ug/kg wet	1	533	---	95	36-120%	---	---	
N-Nitrosodiphenylamine	500	3.33	6.67	ug/kg wet	1	533	---	94	38-127%	---	---	
Bis(2-Chloroethoxy) methane	452	3.33	6.67	ug/kg wet	1	533	---	85	36-121%	---	---	
Bis(2-Chloroethyl) ether	448	3.33	6.67	ug/kg wet	1	533	---	84	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	410	3.33	6.67	ug/kg wet	1	533	---	77	33-131%	---	---	
Hexachlorobenzene	488	1.33	2.67	ug/kg wet	1	533	---	92	44-122%	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
LCS (9120708-BS2)			Prepared: 12/10/19 11:17		Analyzed: 12/10/19 17:08							
Hexachlorobutadiene	417	3.33	6.67	ug/kg wet	1	533	---	78	32-123%	---	---	
Hexachlorocyclopentadiene	330	6.67	13.3	ug/kg wet	1	533	---	62	5-140%	---	---	
Hexachloroethane	416	3.33	6.67	ug/kg wet	1	533	---	78	28-120%	---	---	
2-Chloronaphthalene	423	1.33	2.67	ug/kg wet	1	533	---	79	41-120%	---	---	
1,2-Dichlorobenzene	433	3.33	6.67	ug/kg wet	1	533	---	81	33-120%	---	---	
1,3-Dichlorobenzene	418	3.33	6.67	ug/kg wet	1	533	---	78	30-120%	---	---	
1,4-Dichlorobenzene	422	3.33	6.67	ug/kg wet	1	533	---	79	31-120%	---	---	
1,2,4-Trichlorobenzene	424	3.33	6.67	ug/kg wet	1	533	---	80	34-120%	---	---	
4-Bromophenyl phenyl ether	512	3.33	6.67	ug/kg wet	1	533	---	96	46-124%	---	---	
4-Chlorophenyl phenyl ether	486	3.33	6.67	ug/kg wet	1	533	---	91	45-121%	---	---	
Aniline	467	6.67	13.3	ug/kg wet	1	533	---	88	7-120%	---	---	
4-Chloroaniline	288	3.33	6.67	ug/kg wet	1	533	---	54	16-120%	---	---	
2-Nitroaniline	529	26.7	53.3	ug/kg wet	1	533	---	99	44-127%	---	---	
3-Nitroaniline	456	26.7	53.3	ug/kg wet	1	533	---	85	33-120%	---	---	
4-Nitroaniline	586	26.7	53.3	ug/kg wet	1	533	---	110	35-120%	---	---	
Nitrobenzene	517	13.3	26.7	ug/kg wet	1	533	---	97	34-122%	---	---	
2,4-Dinitrotoluene	559	13.3	26.7	ug/kg wet	1	533	---	105	48-126%	---	---	
2,6-Dinitrotoluene	528	13.3	26.7	ug/kg wet	1	533	---	99	46-124%	---	---	
Benzoic acid	743	167	333	ug/kg wet	1	1070	---	70	5-140%	---	---	
Benzyl alcohol	571	6.67	13.3	ug/kg wet	1	533	---	107	29-122%	---	---	Q-41
Isophorone	473	3.33	6.67	ug/kg wet	1	533	---	89	30-122%	---	---	
Azobenzene (1,2-DPH)	445	3.33	6.67	ug/kg wet	1	533	---	83	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	603	33.3	66.7	ug/kg wet	1	533	---	113	60-121%	---	---	
3,3'-Dichlorobenzidine	1050	26.7	53.3	ug/kg wet	1	1070	---	99	22-121%	---	---	Q-31
1,2-Dinitrobenzene	543	33.3	66.7	ug/kg wet	1	533	---	102	44-120%	---	---	Q-41
1,3-Dinitrobenzene	561	33.3	66.7	ug/kg wet	1	533	---	105	42-127%	---	---	Q-41
1,4-Dinitrobenzene	578	33.3	66.7	ug/kg wet	1	533	---	108	37-132%	---	---	Q-41
Pyridine	385	6.67	13.3	ug/kg wet	1	533	---	72	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 104 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*84 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*94 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*106 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*85 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*110 %*		*39-132 %*				*"*			Q-41

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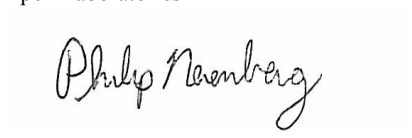

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Duplicate (9120708-DUP2)			Prepared: 12/10/19 11:17 Analyzed: 12/10/19 18:21									**R-04**
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
EPA 8270D												
Acenaphthene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Acenaphthylene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Anthracene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	466	466	ug/kg dry	100	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	233	466	ug/kg dry	100	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	233	466	ug/kg dry	100	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Chrysene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Fluoranthene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Fluorene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	311	621	ug/kg dry	100	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	311	621	ug/kg dry	100	---	ND	---	---	---	30%	
Naphthalene	ND	311	621	ug/kg dry	100	---	ND	---	---	---	30%	
Phenanthrene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Pyrene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Carbazole	ND	233	466	ug/kg dry	100	---	ND	---	---	---	30%	
Dibenzofuran	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chloro-3-methylphenol	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chlorophenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	3880	7770	ug/kg dry	100	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	3880	7770	ug/kg dry	100	---	ND	---	---	---	30%	
2-Methylphenol	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
2-Nitrophenol	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
4-Nitrophenol	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Duplicate (9120708-DUP2)			Prepared: 12/10/19 11:17		Analyzed: 12/10/19 18:21							**R-04**
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
Phenol	ND	311	621	ug/kg dry	100	---	ND	---	---	---	30%	
2,3,4,6-Tetrachlorophenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	ND	2330	4660	ug/kg dry	100	---	ND	---	---	---	30%	
Butyl benzyl phthalate	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
Diethylphthalate	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
Dimethylphthalate	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachloroethane	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	155	311	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Aniline	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chloroaniline	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
2-Nitroaniline	ND	3110	6210	ug/kg dry	100	---	ND	---	---	---	30%	
3-Nitroaniline	ND	3110	6210	ug/kg dry	100	---	ND	---	---	---	30%	
4-Nitroaniline	ND	3110	6210	ug/kg dry	100	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Duplicate (9120708-DUP2)			Prepared: 12/10/19 11:17 Analyzed: 12/10/19 18:21									**R-04**
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
Nitrobenzene	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	1550	3110	ug/kg dry	100	---	ND	---	---	---	30%	
Benzoic acid	ND	19400	38800	ug/kg dry	100	---	ND	---	---	---	30%	
Benzyl alcohol	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
Isophorone	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	388	777	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	3880	7770	ug/kg dry	100	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	3110	6210	ug/kg dry	100	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	3880	7770	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	3880	7770	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	3880	7770	ug/kg dry	100	---	ND	---	---	---	30%	
Pyridine	ND	777	1550	ug/kg dry	100	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*	*Limits: 37-122 %*			*Dilution: 100x*					S-05
2-Fluorobiphenyl (Surr)			*94 %*	*44-115 %*			*"*					S-05
Phenol-d6 (Surr)			*88 %*	*33-122 %*			*"*					S-05
p-Terphenyl-d14 (Surr)			*100 %*	*54-127 %*			*"*					S-05
2-Fluorophenol (Surr)			*99 %*	*35-115 %*			*"*					S-05
2,4,6-Tribromophenol (Surr)			*177 %*	*39-132 %*			*"*					S-05
Matrix Spike (9120708-MS2)			Prepared: 12/10/19 11:17 Analyzed: 12/11/19 15:08									
QC Source Sample: Non-SDG (A9L0228-05RE1)												
EPA 8270D												
Acenaphthene	570	16.6	33.4	ug/kg dry	10	666	21.5	82	40-122%	---	---	
Acenaphthylene	539	16.6	33.4	ug/kg dry	10	666	ND	81	32-132%	---	---	
Anthracene	653	16.6	33.4	ug/kg dry	10	666	ND	98	47-123%	---	---	
Benz(a)anthracene	620	16.6	33.4	ug/kg dry	10	666	17.3	90	49-126%	---	---	
Benzo(a)pyrene	635	25.0	50.0	ug/kg dry	10	666	28.7	91	45-129%	---	---	
Benzo(b)fluoranthene	652	25.0	50.0	ug/kg dry	10	666	27.4	94	45-132%	---	---	
Benzo(k)fluoranthene	623	25.0	50.0	ug/kg dry	10	666	ND	93	47-132%	---	---	
Benzo(g,h,i)perylene	540	16.6	33.4	ug/kg dry	10	666	ND	81	43-134%	---	---	
Chrysene	602	16.6	33.4	ug/kg dry	10	666	ND	90	50-124%	---	---	
Dibenz(a,h)anthracene	570	16.6	33.4	ug/kg dry	10	666	ND	86	45-134%	---	---	

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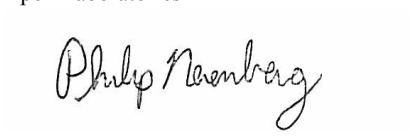

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Matrix Spike (9120708-MS2)			Prepared: 12/10/19 11:17		Analyzed: 12/11/19 15:08							
QC Source Sample: Non-SDG (A9L0228-05RE1)												
Fluoranthene	663	16.6	33.4	ug/kg dry	10	666	44.3	93	50-127%	---	---	
Fluorene	583	16.6	33.4	ug/kg dry	10	666	ND	87	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	535	16.6	33.4	ug/kg dry	10	666	ND	80	45-133%	---	---	
1-Methylnaphthalene	521	33.4	66.6	ug/kg dry	10	666	ND	78	40-120%	---	---	
2-Methylnaphthalene	522	33.4	66.6	ug/kg dry	10	666	ND	78	38-122%	---	---	
Naphthalene	515	33.4	66.6	ug/kg dry	10	666	132	58	35-123%	---	---	
Phenanthrene	617	16.6	33.4	ug/kg dry	10	666	72.5	82	50-121%	---	---	
Pyrene	685	16.6	33.4	ug/kg dry	10	666	44.1	96	47-127%	---	---	
Carbazole	708	25.0	50.0	ug/kg dry	10	666	ND	106	50-122%	---	---	
Dibenzofuran	571	16.6	33.4	ug/kg dry	10	666	ND	86	44-120%	---	---	
4-Chloro-3-methylphenol	717	166	334	ug/kg dry	10	666	ND	108	45-122%	---	---	
2-Chlorophenol	515	83.3	166	ug/kg dry	10	666	ND	77	34-121%	---	---	
2,4-Dichlorophenol	668	83.3	166	ug/kg dry	10	666	ND	100	40-122%	---	---	Q-41
2,4-Dimethylphenol	514	83.3	166	ug/kg dry	10	666	ND	77	30-127%	---	---	
2,4-Dinitrophenol	1050	416	833	ug/kg dry	10	666	ND	**158**	**5-137%**	---	---	Q-41, Q-11
4,6-Dinitro-2-methylphenol	1030	416	833	ug/kg dry	10	666	ND	**154**	**29-132%**	---	---	Q-41, Q-11
2-Methylphenol	571	41.6	83.3	ug/kg dry	10	666	ND	86	32-122%	---	---	
3+4-Methylphenol(s)	598	41.6	83.3	ug/kg dry	10	666	ND	90	34-120%	---	---	
2-Nitrophenol	592	166	334	ug/kg dry	10	666	ND	89	36-123%	---	---	
4-Nitrophenol	703	166	334	ug/kg dry	10	666	ND	106	30-132%	---	---	
Pentachlorophenol (PCP)	692	166	334	ug/kg dry	10	666	ND	104	25-133%	---	---	
Phenol	570	33.4	66.6	ug/kg dry	10	666	ND	86	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	624	83.3	166	ug/kg dry	10	666	ND	94	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	654	83.3	166	ug/kg dry	10	666	ND	98	40-120%	---	---	
2,4,5-Trichlorophenol	626	83.3	166	ug/kg dry	10	666	ND	94	41-124%	---	---	
2,4,6-Trichlorophenol	602	83.3	166	ug/kg dry	10	666	ND	90	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	677	250	500	ug/kg dry	10	666	ND	102	51-133%	---	---	
Butyl benzyl phthalate	746	166	334	ug/kg dry	10	666	ND	112	48-132%	---	---	
Diethylphthalate	604	166	334	ug/kg dry	10	666	ND	91	50-124%	---	---	
Dimethylphthalate	534	166	334	ug/kg dry	10	666	ND	80	48-124%	---	---	
Di-n-butylphthalate	703	166	334	ug/kg dry	10	666	ND	105	51-128%	---	---	
Di-n-octyl phthalate	865	166	334	ug/kg dry	10	666	ND	130	44-140%	---	---	
N-Nitrosodimethylamine	481	41.6	83.3	ug/kg dry	10	666	ND	72	23-120%	---	---	Q-41

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Matrix Spike (9120708-MS2)			Prepared: 12/10/19 11:17		Analyzed: 12/11/19 15:08							
QC Source Sample: Non-SDG (A9L0228-05RE1)												
N-Nitroso-di-n-propylamine	556	41.6	83.3	ug/kg dry	10	666	ND	83	36-120%	---	---	
N-Nitrosodiphenylamine	658	41.6	83.3	ug/kg dry	10	666	ND	99	38-127%	---	---	
Bis(2-Chloroethoxy) methane	524	41.6	83.3	ug/kg dry	10	666	ND	79	36-121%	---	---	
Bis(2-Chloroethyl) ether	477	41.6	83.3	ug/kg dry	10	666	ND	72	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	526	41.6	83.3	ug/kg dry	10	666	ND	79	33-131%	---	---	
Hexachlorobenzene	567	16.6	33.4	ug/kg dry	10	666	ND	85	44-122%	---	---	
Hexachlorobutadiene	472	41.6	83.3	ug/kg dry	10	666	ND	71	32-123%	---	---	
Hexachlorocyclopentadiene	162	83.3	166	ug/kg dry	10	666	ND	24	5-140%	---	---	J
Hexachloroethane	433	41.6	83.3	ug/kg dry	10	666	ND	65	28-120%	---	---	
2-Chloronaphthalene	500	16.6	33.4	ug/kg dry	10	666	ND	75	41-120%	---	---	
1,2-Dichlorobenzene	426	41.6	83.3	ug/kg dry	10	666	ND	64	33-120%	---	---	
1,3-Dichlorobenzene	419	41.6	83.3	ug/kg dry	10	666	ND	63	30-120%	---	---	
1,4-Dichlorobenzene	421	41.6	83.3	ug/kg dry	10	666	ND	63	31-120%	---	---	
1,2,4-Trichlorobenzene	495	41.6	83.3	ug/kg dry	10	666	ND	74	34-120%	---	---	
4-Bromophenyl phenyl ether	589	41.6	83.3	ug/kg dry	10	666	ND	88	46-124%	---	---	
4-Chlorophenyl phenyl ether	566	41.6	83.3	ug/kg dry	10	666	ND	85	45-121%	---	---	
Aniline	238	83.3	166	ug/kg dry	10	666	ND	36	7-120%	---	---	
4-Chloroaniline	211	41.6	83.3	ug/kg dry	10	666	ND	32	16-120%	---	---	
2-Nitroaniline	650	334	666	ug/kg dry	10	666	ND	98	44-127%	---	---	J
3-Nitroaniline	ND	334	666	ug/kg dry	10	666	ND		**33-120%**	---	---	Q-01
4-Nitroaniline	ND	334	666	ug/kg dry	10	666	ND		**35-120%**	---	---	Q-01
Nitrobenzene	504	166	334	ug/kg dry	10	666	ND	76	34-122%	---	---	
2,4-Dinitrotoluene	666	166	334	ug/kg dry	10	666	ND	100	48-126%	---	---	
2,6-Dinitrotoluene	593	166	334	ug/kg dry	10	666	ND	89	46-124%	---	---	
Benzoic acid	2230	2090	4160	ug/kg dry	10	1330	ND	**167**	**5-140%**	---	---	Q-31, Q-11, J
Benzyl alcohol	699	83.3	166	ug/kg dry	10	666	ND	105	29-122%	---	---	Q-41
Isophorone	560	41.6	83.3	ug/kg dry	10	666	ND	84	30-122%	---	---	
Azobenzene (1,2-DPH)	708	41.6	83.3	ug/kg dry	10	666	ND	106	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	840	416	833	ug/kg dry	10	666	ND	**126**	**60-121%**	---	---	Q-11
3,3'-Dichlorobenzidine	ND	334	666	ug/kg dry	10	1330	ND		**22-121%**	---	---	Q-01, Q-41
1,2-Dinitrobenzene	598	416	833	ug/kg dry	10	666	ND	90	44-120%	---	---	J
1,3-Dinitrobenzene	651	416	833	ug/kg dry	10	666	ND	98	42-127%	---	---	Q-41, J
1,4-Dinitrobenzene	681	416	833	ug/kg dry	10	666	ND	102	37-132%	---	---	Q-41, J

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120708 - EPA 3546							**Soil**					
Matrix Spike (9120708-MS2)			Prepared: 12/10/19 11:17 Analyzed: 12/11/19 15:08									
QC Source Sample: Non-SDG (A9L0228-05RE1)												
Pyridine	337	83.3	166	ug/kg dry	10	666	ND	51	5-120%	---	---	Q-41
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 76 %*	*Limits: 37-122 %*			*Dilution: 10x*					
2-Fluorobiphenyl (Surr)			*74 %*	*44-115 %*			*"*					
Phenol-d6 (Surr)			*78 %*	*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)			*122 %*	*54-127 %*			*"*					
2-Fluorophenol (Surr)			*74 %*	*35-115 %*			*"*					Q-41
2,4,6-Tribromophenol (Surr)			*106 %*	*39-132 %*			*"*					Q-41

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 19:25									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitrophenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitrophenol	ND	25.0	25.0	ug/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Phenol	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 19:25							
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	ug/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	**14.2**	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	B-02, J
Dimethylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	**20.3**	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	B-02, J
Di-n-octyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 19:25									
Benzoic acid	ND	157	312	ug/kg wet	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 75 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*76 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*73 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*89 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*73 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*99 %*		*39-132 %*				*"*			
LCS (9120852-BS1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 20:11									**Q-18**
EPA 8270D												
Acenaphthene	460	2.66	5.34	ug/kg wet	2	533	---	86	40-122%	---	---	
Acenaphthylene	493	2.66	5.34	ug/kg wet	2	533	---	92	32-132%	---	---	
Anthracene	514	2.66	5.34	ug/kg wet	2	533	---	96	47-123%	---	---	
Benz(a)anthracene	544	2.66	5.34	ug/kg wet	2	533	---	102	49-126%	---	---	
Benzo(a)pyrene	546	4.00	8.00	ug/kg wet	2	533	---	102	45-129%	---	---	
Benzo(b)fluoranthene	537	4.00	8.00	ug/kg wet	2	533	---	101	45-132%	---	---	
Benzo(k)fluoranthene	534	4.00	8.00	ug/kg wet	2	533	---	100	47-132%	---	---	
Benzo(g,h,i)perylene	507	2.66	5.34	ug/kg wet	2	533	---	95	43-134%	---	---	
Chrysene	487	2.66	5.34	ug/kg wet	2	533	---	91	50-124%	---	---	
Dibenz(a,h)anthracene	510	2.66	5.34	ug/kg wet	2	533	---	96	45-134%	---	---	
Fluoranthene	554	2.66	5.34	ug/kg wet	2	533	---	104	50-127%	---	---	
Fluorene	500	2.66	5.34	ug/kg wet	2	533	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	490	2.66	5.34	ug/kg wet	2	533	---	92	45-133%	---	---	
1-Methylnaphthalene	455	5.34	10.7	ug/kg wet	2	533	---	85	40-120%	---	---	
2-Methylnaphthalene	465	5.34	10.7	ug/kg wet	2	533	---	87	38-122%	---	---	

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Philip Nerenberg, Lab Director

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
LCS (9120852-BS1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 20:11							**Q-18**
Naphthalene	456	5.34	10.7	ug/kg wet	2	533	---	86	35-123%	---	---	
Phenanthrene	469	2.66	5.34	ug/kg wet	2	533	---	88	50-121%	---	---	
Pyrene	548	2.66	5.34	ug/kg wet	2	533	---	103	47-127%	---	---	
Carbazole	363	4.00	8.00	ug/kg wet	2	533	---	68	50-122%	---	---	
Dibenzofuran	470	2.66	5.34	ug/kg wet	2	533	---	88	44-120%	---	---	
4-Chloro-3-methylphenol	500	26.6	53.4	ug/kg wet	2	533	---	94	45-122%	---	---	
2-Chlorophenol	497	13.3	26.6	ug/kg wet	2	533	---	93	34-121%	---	---	
2,4-Dichlorophenol	538	13.3	26.6	ug/kg wet	2	533	---	101	40-122%	---	---	
2,4-Dimethylphenol	540	13.3	26.6	ug/kg wet	2	533	---	101	30-127%	---	---	
2,4-Dinitrophenol	767	66.6	133	ug/kg wet	2	533	---	**144**	**5-137%**	---	---	Q-29
4,6-Dinitro-2-methylphenol	692	66.6	133	ug/kg wet	2	533	---	130	29-132%	---	---	
2-Methylphenol	474	6.66	13.3	ug/kg wet	2	533	---	89	32-122%	---	---	
3+4-Methylphenol(s)	481	6.66	13.3	ug/kg wet	2	533	---	90	34-120%	---	---	
2-Nitrophenol	542	26.6	53.4	ug/kg wet	2	533	---	102	36-123%	---	---	Q-41
4-Nitrophenol	590	53.4	53.4	ug/kg wet	2	533	---	111	30-132%	---	---	
Pentachlorophenol (PCP)	666	26.6	53.4	ug/kg wet	2	533	---	125	25-133%	---	---	
Phenol	452	5.34	10.7	ug/kg wet	2	533	---	85	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	553	13.3	26.6	ug/kg wet	2	533	---	104	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	609	13.3	26.6	ug/kg wet	2	533	---	114	40-120%	---	---	Q-41
2,4,5-Trichlorophenol	550	13.3	26.6	ug/kg wet	2	533	---	103	41-124%	---	---	
2,4,6-Trichlorophenol	534	13.3	26.6	ug/kg wet	2	533	---	100	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	624	40.0	80.0	ug/kg wet	2	533	---	117	51-133%	---	---	
Butyl benzyl phthalate	543	26.6	53.4	ug/kg wet	2	533	---	102	48-132%	---	---	
Diethylphthalate	559	26.6	53.4	ug/kg wet	2	533	---	105	50-124%	---	---	B-02
Dimethylphthalate	534	26.6	53.4	ug/kg wet	2	533	---	100	48-124%	---	---	
Di-n-butylphthalate	599	26.6	53.4	ug/kg wet	2	533	---	112	51-128%	---	---	B-02
Di-n-octyl phthalate	642	26.6	53.4	ug/kg wet	2	533	---	120	44-140%	---	---	Q-41
N-Nitrosodimethylamine	405	6.66	13.3	ug/kg wet	2	533	---	76	23-120%	---	---	
N-Nitroso-di-n-propylamine	431	6.66	13.3	ug/kg wet	2	533	---	81	36-120%	---	---	
N-Nitrosodiphenylamine	435	6.66	13.3	ug/kg wet	2	533	---	82	38-127%	---	---	
Bis(2-Chloroethoxy) methane	457	6.66	13.3	ug/kg wet	2	533	---	86	36-121%	---	---	
Bis(2-Chloroethyl) ether	406	6.66	13.3	ug/kg wet	2	533	---	76	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	325	6.66	13.3	ug/kg wet	2	533	---	61	33-131%	---	---	
Hexachlorobenzene	478	2.66	5.34	ug/kg wet	2	533	---	90	44-122%	---	---	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
LCS (9120852-BS1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 20:11							**Q-18**
Hexachlorobutadiene	507	6.66	13.3	ug/kg wet	2	533	---	95	32-123%	---	---	
Hexachlorocyclopentadiene	411	13.3	26.6	ug/kg wet	2	533	---	77	5-140%	---	---	
Hexachloroethane	485	6.66	13.3	ug/kg wet	2	533	---	91	28-120%	---	---	
2-Chloronaphthalene	490	2.66	5.34	ug/kg wet	2	533	---	92	41-120%	---	---	
1,2-Dichlorobenzene	437	6.66	13.3	ug/kg wet	2	533	---	82	33-120%	---	---	
1,3-Dichlorobenzene	456	6.66	13.3	ug/kg wet	2	533	---	86	30-120%	---	---	
1,4-Dichlorobenzene	445	6.66	13.3	ug/kg wet	2	533	---	83	31-120%	---	---	
1,2,4-Trichlorobenzene	470	6.66	13.3	ug/kg wet	2	533	---	88	34-120%	---	---	
4-Bromophenyl phenyl ether	520	6.66	13.3	ug/kg wet	2	533	---	98	46-124%	---	---	
4-Chlorophenyl phenyl ether	504	6.66	13.3	ug/kg wet	2	533	---	94	45-121%	---	---	
Aniline	150	13.3	26.6	ug/kg wet	2	533	---	28	7-120%	---	---	
4-Chloroaniline	203	6.66	13.3	ug/kg wet	2	533	---	38	16-120%	---	---	
2-Nitroaniline	536	53.4	107	ug/kg wet	2	533	---	100	44-127%	---	---	
3-Nitroaniline	302	53.4	107	ug/kg wet	2	533	---	57	33-120%	---	---	
4-Nitroaniline	238	53.4	107	ug/kg wet	2	533	---	45	35-120%	---	---	
Nitrobenzene	437	26.6	53.4	ug/kg wet	2	533	---	82	34-122%	---	---	
2,4-Dinitrotoluene	500	26.6	53.4	ug/kg wet	2	533	---	94	48-126%	---	---	
2,6-Dinitrotoluene	550	26.6	53.4	ug/kg wet	2	533	---	103	46-124%	---	---	
Benzoic acid	1540	334	666	ug/kg wet	2	1070	---	**145**	**5-140%**	---	---	Q-29
Benzyl alcohol	450	13.3	26.6	ug/kg wet	2	533	---	84	29-122%	---	---	
Isophorone	472	6.66	13.3	ug/kg wet	2	533	---	89	30-122%	---	---	
Azobenzene (1,2-DPH)	439	6.66	13.3	ug/kg wet	2	533	---	82	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	579	66.6	133	ug/kg wet	2	533	---	109	60-121%	---	---	
3,3'-Dichlorobenzidine	220	53.4	107	ug/kg wet	2	1070	---	**21**	**22-121%**	---	---	Q-30
1,2-Dinitrobenzene	513	66.6	133	ug/kg wet	2	533	---	96	44-120%	---	---	
1,3-Dinitrobenzene	566	66.6	133	ug/kg wet	2	533	---	106	42-127%	---	---	
1,4-Dinitrobenzene	578	66.6	133	ug/kg wet	2	533	---	108	37-132%	---	---	
Pyridine	351	13.3	26.6	ug/kg wet	2	533	---	66	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 37-122 %*			*Dilution: 2x*				
2-Fluorobiphenyl (Surr)			*92 %*		*44-115 %*			*"*				
Phenol-d6 (Surr)			*93 %*		*33-122 %*			*"*				
p-Terphenyl-d14 (Surr)			*106 %*		*54-127 %*			*"*				
2-Fluorophenol (Surr)			*93 %*		*35-115 %*			*"*				
2,4,6-Tribromophenol (Surr)			*110 %*		*39-132 %*			*"*				

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Tigard, OR 97223
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)				Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20								
QC Source Sample: RAU1-04-SO-1.3 (A9L0097-17)												
EPA 8270D												
Acenaphthene	**777**	216	435	ug/kg dry	100	---	1140	---	---	**38**	**30%**	Q-04
Acenaphthylene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Anthracene	**231**	216	435	ug/kg dry	100	---	258	---	---	11	30%	J
Benz(a)anthracene	**421**	216	435	ug/kg dry	100	---	366	---	---	14	30%	J
Benzo(a)pyrene	**560**	325	651	ug/kg dry	100	---	451	---	---	22	30%	J
Benzo(b)fluoranthene	**677**	325	651	ug/kg dry	100	---	729	---	---	7	30%	
Benzo(k)fluoranthene	ND	325	651	ug/kg dry	100	---	424	---	---	***	**30%**	Q-04
Benzo(g,h,i)perylene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Chrysene	**589**	216	435	ug/kg dry	100	---	634	---	---	7	30%	
Dibenz(a,h)anthracene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Fluoranthene	**703**	216	435	ug/kg dry	100	---	787	---	---	11	30%	
Fluorene	**558**	216	435	ug/kg dry	100	---	850	---	---	**41**	**30%**	Q-04
Indeno(1,2,3-cd)pyrene	**274**	216	435	ug/kg dry	100	---	ND	---	---		**30%**	Q-04, J
1-Methylnaphthalene	ND	435	867	ug/kg dry	100	---	501	---	---	***	**30%**	Q-04
2-Methylnaphthalene	**530**	435	867	ug/kg dry	100	---	870	---	---	**49**	**30%**	Q-04, J
Naphthalene	ND	435	867	ug/kg dry	100	---	720	---	---	***	**30%**	Q-04
Phenanthrene	**509**	216	435	ug/kg dry	100	---	716	---	---	**34**	**30%**	Q-04
Pyrene	**546**	216	435	ug/kg dry	100	---	633	---	---	15	30%	
Carbazole	ND	325	651	ug/kg dry	100	---	ND	---	---	---	30%	
Dibenzofuran	**350**	216	435	ug/kg dry	100	---	575	---	---	**49**	**30%**	Q-04, J
4-Chloro-3-methylphenol	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
2-Methylphenol	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2-Nitrophenol	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
4-Nitrophenol	ND	4350	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20									
QC Source Sample: RAU1-04-SO-1.3 (A9L0097-17)												
Phenol	ND	435	867	ug/kg dry	100	---	ND	---	---	---	30%	
2,3,4,6-Tetrachlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	ND	3250	6510	ug/kg dry	100	---	ND	---	---	---	30%	
Butyl benzyl phthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Diethylphthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Dimethylphthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachloroethane	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Aniline	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chloroaniline	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2-Nitroaniline	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	
3-Nitroaniline	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	
4-Nitroaniline	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20									
QC Source Sample: RAU1-04-SO-1.3 (A9L0097-17)												
Nitrobenzene	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Benzoic acid	ND	27200	54200	ug/kg dry	100	---	ND	---	---	---	30%	
Benzyl alcohol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Isophorone	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
Pyridine	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 64 %*			*Limits: 37-122 %*	*Dilution: 100x*					S-05
2-Fluorobiphenyl (Surr)			*66 %*			*44-115 %*	*"*					S-05
Phenol-d6 (Surr)			*47 %*			*33-122 %*	*"*					S-05
p-Terphenyl-d14 (Surr)			*76 %*			*54-127 %*	*"*					S-05
2-Fluorophenol (Surr)			*53 %*			*35-115 %*	*"*					S-05
2,4,6-Tribromophenol (Surr)			*199 %*			*39-132 %*	*"*					S-05

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120657 - EPA 3051A							**Soil**					
Blank (9120657-BLK1)			Prepared: 12/09/19 11:28 Analyzed: 12/09/19 19:31									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Manganese	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0385	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (9120657-BS1)			Prepared: 12/09/19 11:28 Analyzed: 12/09/19 19:41									
EPA 6020A												
Arsenic	49.9	0.500	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Cadmium	51.5	0.100	0.200	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Chromium	50.2	0.500	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Copper	51.6	0.500	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Lead	50.9	0.100	0.200	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Manganese	51.7	0.500	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Mercury	1.01	0.0400	0.0800	mg/kg wet	10	1.00	---	101	80-120%	---	---	
Nickel	53.6	0.500	1.00	mg/kg wet	10	50.0	---	107	80-120%	---	---	
Zinc	52.4	2.00	4.00	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Duplicate (9120657-DUP1)			Prepared: 12/09/19 11:28 Analyzed: 12/09/19 20:09									
QC Source Sample: Non-SDG (A9K0779-57)												
Arsenic	**7.91**	0.516	1.03	mg/kg dry	10	---	7.92	---	---	0.2	40%	
Cadmium	**0.145**	0.103	0.206	mg/kg dry	10	---	0.148	---	---	3	40%	J
Chromium	**26.8**	0.516	1.03	mg/kg dry	10	---	26.8	---	---	0.2	40%	
Copper	**21.0**	0.516	1.03	mg/kg dry	10	---	21.3	---	---	1	40%	
Lead	**17.1**	0.103	0.206	mg/kg dry	10	---	17.5	---	---	2	40%	
Manganese	**1110**	0.516	1.03	mg/kg dry	10	---	1150	---	---	3	40%	
Mercury	ND	0.0413	0.0825	mg/kg dry	10	---	ND	---	---	---	40%	
Nickel	**16.6**	0.516	1.03	mg/kg dry	10	---	16.6	---	---	0.2	40%	
Zinc	**80.6**	2.06	4.13	mg/kg dry	10	---	82.2	---	---	2	40%	

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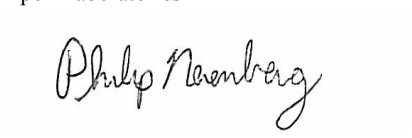

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120657 - EPA 3051A							**Soil**					
Matrix Spike (9120657-MS1)			Prepared: 12/09/19 11:28 Analyzed: 12/09/19 20:13									
QC Source Sample: Non-SDG (A9K0779-57)												
EPA 6020A												
Arsenic	60.3	0.552	1.10	mg/kg dry	10	55.2	7.92	95	75-125%	---	---	
Cadmium	56.9	0.110	0.221	mg/kg dry	10	55.2	0.148	103	75-125%	---	---	
Chromium	81.2	0.552	1.10	mg/kg dry	10	55.2	26.8	98	75-125%	---	---	
Copper	76.5	0.552	1.10	mg/kg dry	10	55.2	21.3	100	75-125%	---	---	
Lead	73.8	0.110	0.221	mg/kg dry	10	55.2	17.5	102	75-125%	---	---	
Manganese	1190	0.552	1.10	mg/kg dry	10	55.2	1150	83	75-125%	---	---	
Mercury	1.09	0.0441	0.0883	mg/kg dry	10	1.10	ND	99	75-125%	---	---	
Nickel	73.7	0.552	1.10	mg/kg dry	10	55.2	16.6	103	75-125%	---	---	
Zinc	136	2.21	4.41	mg/kg dry	10	55.2	82.2	98	75-125%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120851 - EPA 3015A							**Water**					
Blank (9120851-BLK1)			Prepared: 12/12/19 15:00		Analyzed: 12/13/19 16:14							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	ug/L	1	---	---	---	---	---	---	
LCS (9120851-BS1)			Prepared: 12/12/19 15:00		Analyzed: 12/13/19 16:09							
EPA 6020A												
Arsenic	50.7	0.500	1.00	ug/L	1	55.6	---	91	80-120%	---	---	
Cadmium	52.6	0.0400	0.200	ug/L	1	55.6	---	95	80-120%	---	---	
Chromium	52.5	0.500	1.00	ug/L	1	55.6	---	95	80-120%	---	---	
Copper	53.8	0.500	1.00	ug/L	1	55.6	---	97	80-120%	---	---	
Lead	51.3	0.100	0.200	ug/L	1	55.6	---	92	80-120%	---	---	
Manganese	54.0	0.500	1.00	ug/L	1	55.6	---	97	80-120%	---	---	
Mercury	1.04	0.0400	0.0800	ug/L	1	1.11	---	93	80-120%	---	---	
Nickel	53.4	0.500	1.00	ug/L	1	55.6	---	96	80-120%	---	---	
Zinc	52.0	2.00	4.00	ug/L	1	55.6	---	94	80-120%	---	---	
Matrix Spike (9120851-MS1)			Prepared: 12/12/19 15:00		Analyzed: 12/13/19 16:55							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12)												
EPA 6020A												
Arsenic	51.3	0.500	1.00	ug/L	1	55.6	0.896	91	75-125%	---	---	
Cadmium	52.5	0.0400	0.200	ug/L	1	55.6	0.0777	94	75-125%	---	---	
Chromium	64.7	0.500	1.00	ug/L	1	55.6	12.5	94	75-125%	---	---	
Copper	72.4	0.500	1.00	ug/L	1	55.6	19.8	95	75-125%	---	---	
Lead	54.7	0.100	0.200	ug/L	1	55.6	2.93	93	75-125%	---	---	
Mercury	1.13	0.0400	0.0800	ug/L	1	1.11	0.0969	93	75-125%	---	---	
Nickel	59.7	0.500	1.00	ug/L	1	55.6	6.90	95	75-125%	---	---	
Zinc	102	2.00	4.00	ug/L	1	55.6	51.1	91	75-125%	---	---	

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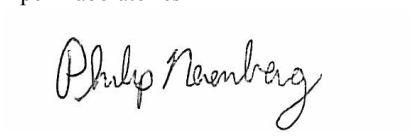

Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120851 - EPA 3015A							**Water**					
Matrix Spike (9120851-MS2)			Prepared: 12/12/19 15:00		Analyzed: 12/16/19 22:19							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE1)												
EPA 6020A												
Manganese	3400	5.00	10.0	ug/L	10	55.6	3390	**7**	**75-125%**	---	---	Q-03, Q-16
Matrix Spike Dup (9120851-MSD1)			Prepared: 12/12/19 15:00		Analyzed: 12/13/19 17:00							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12)												
EPA 6020A												
Arsenic	58.3	0.500	1.00	ug/L	1	55.6	0.896	103	75-125%	13	20%	
Cadmium	59.4	0.0400	0.200	ug/L	1	55.6	0.0777	107	75-125%	12	20%	
Chromium	73.8	0.500	1.00	ug/L	1	55.6	12.5	110	75-125%	13	20%	
Copper	86.0	0.500	1.00	ug/L	1	55.6	19.8	119	75-125%	17	20%	
Lead	57.4	0.100	0.200	ug/L	1	55.6	2.93	98	75-125%	5	20%	
Mercury	1.17	0.0400	0.0800	ug/L	1	1.11	0.0969	97	75-125%	4	20%	
Nickel	67.4	0.500	1.00	ug/L	1	55.6	6.90	109	75-125%	12	20%	
Zinc	118	2.00	4.00	ug/L	1	55.6	51.1	121	75-125%	15	20%	
Matrix Spike Dup (9120851-MSD2)			Prepared: 12/12/19 15:00		Analyzed: 12/16/19 22:24							
QC Source Sample: RAU2-05-GW-7.5 (A9L0097-12RE1)												
EPA 6020A												
Manganese	3630	5.00	10.0	ug/L	10	55.6	3390	**424**	**75-125%**	7	20%	Q-03, Q-16

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A							**Water**					
Blank (9120878-BLK1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:03							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	Q-41
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	ug/L	1	---	---	---	---	---	---	
LCS (9120878-BS1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:08							
EPA 6020A												
Arsenic	56.2	0.500	1.00	ug/L	1	55.6	---	101	80-120%	---	---	
Cadmium	57.8	0.0400	0.200	ug/L	1	55.6	---	104	80-120%	---	---	
Chromium	57.7	0.500	1.00	ug/L	1	55.6	---	104	80-120%	---	---	
Copper	59.2	0.500	1.00	ug/L	1	55.6	---	107	80-120%	---	---	
Lead	52.6	0.100	0.200	ug/L	1	55.6	---	95	80-120%	---	---	Q-41
Manganese	59.7	0.500	1.00	ug/L	1	55.6	---	107	80-120%	---	---	
Mercury	1.02	0.0400	0.0800	ug/L	1	1.11	---	91	80-120%	---	---	
Nickel	58.5	0.500	1.00	ug/L	1	55.6	---	105	80-120%	---	---	
Zinc	57.0	2.00	4.00	ug/L	1	55.6	---	103	80-120%	---	---	
Matrix Spike (9120878-MS1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:17							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
EPA 6020A												
Arsenic	50.7	0.500	1.00	ug/L	1	55.6	1.20	89	75-125%	---	---	
Cadmium	52.6	0.0400	0.200	ug/L	1	55.6	ND	95	75-125%	---	---	
Chromium	53.5	0.500	1.00	ug/L	1	55.6	2.49	92	75-125%	---	---	
Copper	56.0	0.500	1.00	ug/L	1	55.6	4.54	93	75-125%	---	---	
Manganese	383	0.500	1.00	ug/L	1	55.6	325	105	75-125%	---	---	
Mercury	1.06	0.0400	0.0800	ug/L	1	1.11	ND	95	75-125%	---	---	
Nickel	52.8	0.500	1.00	ug/L	1	55.6	1.35	93	75-125%	---	---	
Zinc	54.7	2.00	4.00	ug/L	1	55.6	3.91	91	75-125%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A							**Water**					
Matrix Spike (9120878-MS2)			Prepared: 12/13/19 10:12		Analyzed: 12/14/19 01:22							
QC Source Sample: Non-SDG (A9L0520-04)												
EPA 6020A												
Arsenic	55.4	0.500	1.00	ug/L	1	55.6	4.73	91	75-125%	---	---	
Cadmium	53.2	0.0400	0.200	ug/L	1	55.6	ND	96	75-125%	---	---	
Chromium	52.3	0.500	1.00	ug/L	1	55.6	0.951	92	75-125%	---	---	
Copper	71.5	0.500	1.00	ug/L	1	55.6	19.1	94	75-125%	---	---	
Lead	56.1	0.100	0.200	ug/L	1	55.6	1.75	98	75-125%	---	---	
Manganese	176	0.500	1.00	ug/L	1	55.6	121	99	75-125%	---	---	
Mercury	1.05	0.0400	0.0800	ug/L	1	1.11	ND	94	75-125%	---	---	
Nickel	52.8	0.500	1.00	ug/L	1	55.6	1.40	92	75-125%	---	---	
Zinc	257	2.00	4.00	ug/L	1	55.6	202	100	75-125%	---	---	
Matrix Spike (9120878-MS3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:11							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE1)												
EPA 6020A												
Lead	54.0	0.100	0.200	ug/L	1	55.6	0.843	96	75-125%	---	---	Q-16
Matrix Spike Dup (9120878-MSD1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:31							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16)												
EPA 6020A												
Arsenic	51.4	0.500	1.00	ug/L	1	55.6	1.20	90	75-125%	1	20%	
Cadmium	52.2	0.0400	0.200	ug/L	1	55.6	ND	94	75-125%	0.6	20%	
Chromium	53.9	0.500	1.00	ug/L	1	55.6	2.49	93	75-125%	0.7	20%	
Copper	57.0	0.500	1.00	ug/L	1	55.6	4.54	94	75-125%	2	20%	
Manganese	389	0.500	1.00	ug/L	1	55.6	325	116	75-125%	2	20%	
Mercury	1.04	0.0400	0.0800	ug/L	1	1.11	ND	94	75-125%	1	20%	
Nickel	53.2	0.500	1.00	ug/L	1	55.6	1.35	93	75-125%	0.8	20%	
Zinc	55.4	2.00	4.00	ug/L	1	55.6	3.91	93	75-125%	1	20%	
Matrix Spike Dup (9120878-MSD3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:15							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE1)												
EPA 6020A												

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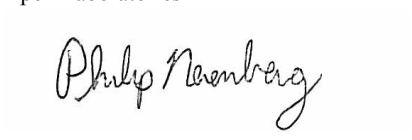

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A							**Water**					
Matrix Spike Dup (9120878-MSD3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:15							
QC Source Sample: RAU1-07-GW-7.5 (A9L0097-16RE1)												
Lead	54.2	0.100	0.200	ug/L	1	55.6	0.843	96	75-125%	0.5	20%	Q-16

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Philip Nerenberg

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120880 - EPA 3051A							**Soil**					
Blank (9120880-BLK1)			Prepared: 12/13/19 10:15 Analyzed: 12/13/19 20:11									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Manganese	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0385	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (9120880-BS1)			Prepared: 12/13/19 10:15 Analyzed: 12/13/19 20:20									
EPA 6020A												
Arsenic	48.6	0.500	1.00	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Cadmium	49.4	0.100	0.200	mg/kg wet	10	50.0	---	99	80-120%	---	---	
Chromium	49.2	0.500	1.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Copper	50.7	0.500	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Lead	51.1	0.100	0.200	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Manganese	50.8	0.500	1.00	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Mercury	0.985	0.0400	0.0800	mg/kg wet	10	1.00	---	98	80-120%	---	---	
Nickel	50.6	0.500	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Zinc	49.6	2.00	4.00	mg/kg wet	10	50.0	---	99	80-120%	---	---	
Duplicate (9120880-DUP1)			Prepared: 12/13/19 10:15 Analyzed: 12/13/19 20:30									
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
EPA 6020A												
Arsenic	**2.05**	0.565	1.13	mg/kg dry	10	---	2.48	---	---	19	40%	
Cadmium	ND	0.113	0.226	mg/kg dry	10	---	ND	---	---	---	40%	
Chromium	**24.4**	0.565	1.13	mg/kg dry	10	---	25.1	---	---	3	40%	
Copper	**47.3**	0.565	1.13	mg/kg dry	10	---	43.3	---	---	9	40%	
Lead	**10.1**	0.113	0.226	mg/kg dry	10	---	6.87	---	---	38	40%	
Manganese	**339**	0.565	1.13	mg/kg dry	10	---	351	---	---	3	40%	
Mercury	**0.516**	0.0452	0.0903	mg/kg dry	10	---	0.261	---	---	**66**	**40%**	Q-04
Nickel	**26.6**	0.565	1.13	mg/kg dry	10	---	27.6	---	---	4	40%	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120880 - EPA 3051A							**Soil**					
Duplicate (9120880-DUP1)			Prepared: 12/13/19 10:15		Analyzed: 12/13/19 20:30							
QC Source Sample: RAU1-07-SO-1.8 (A9L0097-15)												
Zinc	**54.2**	2.26	4.52	mg/kg dry	10	---	52.9	---	---	2	40%	
Matrix Spike (9120880-MS1)			Prepared: 12/13/19 10:15		Analyzed: 12/13/19 21:02							
QC Source Sample: RAU1-02-SO-1 (A9L0097-23)												
EPA 6020A												
Arsenic	59.6	0.639	1.28	mg/kg dry	10	63.9	1.05	92	75-125%	---	---	
Cadmium	59.0	0.128	0.256	mg/kg dry	10	63.9	ND	92	75-125%	---	---	
Chromium	71.3	0.639	1.28	mg/kg dry	10	63.9	8.45	98	75-125%	---	---	
Copper	98.0	0.639	1.28	mg/kg dry	10	63.9	30.9	105	75-125%	---	---	
Lead	62.5	0.128	0.256	mg/kg dry	10	63.9	2.76	93	75-125%	---	---	
Manganese	375	0.639	1.28	mg/kg dry	10	63.9	290	**133**	**75-125%**	---	---	Q-04
Mercury	1.16	0.0511	0.102	mg/kg dry	10	1.28	ND	90	75-125%	---	---	
Nickel	76.1	0.639	1.28	mg/kg dry	10	63.9	11.8	101	75-125%	---	---	
Zinc	102	2.56	5.11	mg/kg dry	10	63.9	36.3	102	75-125%	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120890 - EPA 3051A							**Soil**					
Blank (9120890-BLK1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 17:51									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Manganese	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0385	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (9120890-BS1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 17:56									
EPA 6020A												
Arsenic	48.4	0.500	1.00	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Cadmium	50.1	0.100	0.200	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Chromium	50.0	0.500	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Copper	51.4	0.500	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Lead	52.4	0.100	0.200	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Manganese	51.5	0.500	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Mercury	1.00	0.0400	0.0800	mg/kg wet	10	1.00	---	100	80-120%	---	---	
Nickel	51.2	0.500	1.00	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Zinc	49.8	2.00	4.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Duplicate (9120890-DUP1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 18:19									
QC Source Sample: RAU1-11-SO-3.5 (A9L0097-35)												
EPA 6020A												
Arsenic	**5.31**	0.608	1.22	mg/kg dry	10	---	6.21	---	---	16	40%	
Cadmium	**0.125**	0.122	0.243	mg/kg dry	10	---	ND	---	---		**40%**	Q-05, J
Chromium	**29.8**	0.608	1.22	mg/kg dry	10	---	23.8	---	---	22	40%	
Copper	**53.5**	0.608	1.22	mg/kg dry	10	---	42.9	---	---	22	40%	
Lead	**10.3**	0.122	0.243	mg/kg dry	10	---	12.4	---	---	19	40%	
Manganese	**257**	0.608	1.22	mg/kg dry	10	---	258	---	---	0.3	40%	
Mercury	ND	0.0487	0.0973	mg/kg dry	10	---	ND	---	---	---	40%	
Nickel	**26.3**	0.608	1.22	mg/kg dry	10	---	24.9	---	---	5	40%	

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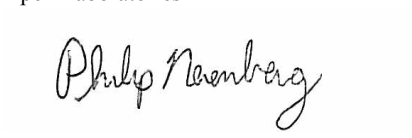

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120890 - EPA 3051A							**Soil**					
Duplicate (9120890-DUP1)			Prepared: 12/13/19 11:57		Analyzed: 12/13/19 18:19							
QC Source Sample: RAU1-11-SO-3.5 (A9L0097-35)												
Zinc	**65.9**	2.43	4.87	mg/kg dry	10	---	61.1	---	---	8	40%	
Matrix Spike (9120890-MS1)			Prepared: 12/13/19 11:57		Analyzed: 12/13/19 18:28							
QC Source Sample: RAU1-11-SO-3.5 (A9L0097-35)												
EPA 6020A												
Arsenic	60.1	0.587	1.17	mg/kg dry	10	58.7	6.21	92	75-125%	---	---	
Cadmium	58.0	0.117	0.235	mg/kg dry	10	58.7	ND	99	75-125%	---	---	
Chromium	80.3	0.587	1.17	mg/kg dry	10	58.7	23.8	96	75-125%	---	---	
Copper	154	0.587	1.17	mg/kg dry	10	58.7	42.9	**189**	**75-125%**	---	---	Q-04
Lead	69.7	0.117	0.235	mg/kg dry	10	58.7	12.4	98	75-125%	---	---	
Manganese	274	0.587	1.17	mg/kg dry	10	58.7	258	**28**	**75-125%**	---	---	Q-04
Mercury	1.12	0.0469	0.0939	mg/kg dry	10	1.17	ND	95	75-125%	---	---	
Nickel	79.2	0.587	1.17	mg/kg dry	10	58.7	24.9	93	75-125%	---	---	
Zinc	113	2.35	4.69	mg/kg dry	10	58.7	61.1	89	75-125%	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121432 - EPA 3060A							**Solid**					
Blank (9121432-BLK1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:19							
EPA 7196A												
Chromium (VI)	ND	0.225	0.450	mg/kg	1	---	---	---	---	---	---	
LCS (9121432-BS1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:20							
EPA 7196A												
Chromium (VI)	20.2	0.225	0.450	mg/kg	1	20.0	---	101	83-110%	---	---	
Duplicate (9121432-DUP1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:23							
QC Source Sample: RAU1-01-SO-2.4 (A9L0097-19)												
EPA 7196A												
Chromium (VI)	**0.252**	0.222	0.445	mg/kg	1	---	0.293	---	---	15	20%	J
Matrix Spike (9121432-MS1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:23							
QC Source Sample: RAU1-01-SO-2.4 (A9L0097-19)												
EPA 7196A												
Chromium (VI)	0.258	0.222	0.444	mg/kg	1	19.7	0.293	**-0.2**	**83-110%**	---	---	Cr6-01, J
Matrix Spike (9121432-MS2)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:24							
QC Source Sample: RAU1-01-SO-2.4 (A9L0097-19)												
EPA 7196A												
Chromium (VI)	1600	22.2	44.4	mg/kg	100	1580	ND	102	83-110%	---	---	
Post Spike (9121432-PS1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:25							
QC Source Sample: RAU1-01-SO-2.4 (A9L0097-19)												
EPA 7196A												
Chromium (VI)	348			ug/L	1	398	6.63	86	85-115%		---	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120545 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120545-DUP1)			Prepared: 12/05/19 09:05		Analyzed: 12/06/19 08:40							
QC Source Sample: Non-SDG (A9L0049-10)												
% Solids	**83.7**	1.00	1.00	%	1	---	83.3	---	---	0.5	10%	
Duplicate (9120545-DUP2)			Prepared: 12/05/19 09:05		Analyzed: 12/06/19 08:40							
QC Source Sample: Non-SDG (A9L0055-10)												
% Solids	**75.8**	1.00	1.00	%	1	---	74.6	---	---	1	10%	
Duplicate (9120545-DUP3)			Prepared: 12/05/19 09:05		Analyzed: 12/06/19 08:40							
QC Source Sample: Non-SDG (A9L0074-04)												
% Solids	**89.1**	1.00	1.00	%	1	---	89.6	---	---	0.5	10%	
Duplicate (9120545-DUP4)			Prepared: 12/05/19 09:05		Analyzed: 12/06/19 08:40							
QC Source Sample: RAU3-02-SO-2.5 (A9L0097-47)												
EPA 8000C												
% Solids	**94.4**	1.00	1.00	%	1	---	93.8	---	---	0.7	10%	
Duplicate (9120545-DUP5)			Prepared: 12/05/19 09:05		Analyzed: 12/06/19 08:40							
QC Source Sample: Non-SDG (A9L0132-23)												
% Solids	**83.3**	1.00	1.00	%	1	---	82.5	---	---	1	10%	
Duplicate (9120545-DUP6)			Prepared: 12/05/19 18:28		Analyzed: 12/06/19 08:40							
QC Source Sample: Non-SDG (A9L0163-01)												
% Solids	**76.7**	1.00	1.00	%	1	---	75.3	---	---	2	10%	
Duplicate (9120545-DUP7)			Prepared: 12/05/19 18:28		Analyzed: 12/06/19 08:40							
QC Source Sample: Non-SDG (A9L0170-01)												
% Solids	**87.8**	1.00	1.00	%	1	---	88.5	---	---	0.8	10%	

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

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120602 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120602-DUP1)			Prepared: 12/06/19 08:42		Analyzed: 12/09/19 07:51							
QC Source Sample: Non-SDG (A9K0656-04)												
% Solids	**95.5**	1.00	1.00	%	1	---	95.5	---	---	0.005	10%	
Duplicate (9120602-DUP2)			Prepared: 12/06/19 08:42		Analyzed: 12/09/19 07:51							
QC Source Sample: RAU1-11-SO-3.5 (A9L0097-35)												
EPA 8000C												
% Solids	**88.6**	1.00	1.00	%	1	---	88.9	---	---	0.4	10%	
Duplicate (9120602-DUP3)			Prepared: 12/06/19 08:42		Analyzed: 12/09/19 07:51							
QC Source Sample: Non-SDG (A9L0157-09)												
% Solids	**79.1**	1.00	1.00	%	1	---	76.8	---	---	3	10%	
Duplicate (9120602-DUP4)			Prepared: 12/06/19 19:21		Analyzed: 12/09/19 07:51							
QC Source Sample: Non-SDG (A9L0204-01)												
% Solids	**48.2**	1.00	1.00	%	1	---	50.0	---	---	4	10%	
Duplicate (9120602-DUP5)			Prepared: 12/06/19 19:21		Analyzed: 12/09/19 07:51							
QC Source Sample: Non-SDG (A9L0205-02)												
% Solids	**88.6**	1.00	1.00	%	1	---	87.1	---	---	2	10%	
Duplicate (9120602-DUP6)			Prepared: 12/06/19 19:21		Analyzed: 12/09/19 07:51							
QC Source Sample: Non-SDG (A9L0211-04)												
% Solids	**94.2**	1.00	1.00	%	1	---	94.3	---	---	0.1	10%	
Duplicate (9120602-DUP7)			Prepared: 12/06/19 19:21		Analyzed: 12/09/19 07:51							
QC Source Sample: Non-SDG (A9L0213-04)												
% Solids	**69.9**	1.00	1.00	%	1	---	69.8	---	---	0.06	10%	

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

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120702 - Total Solids (Dry Weight)							Soil					
Duplicate (9120702-DUP1)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: RAU3-05-SO-3 (A9L0097-10)												
EPA 8000C												
% Solids	**83.5**	1.00	1.00	%	1	---	84.2	---	---	0.7	10%	
Duplicate (9120702-DUP2)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0188-02)												
% Solids	**91.1**	1.00	1.00	%	1	---	91.9	---	---	0.8	10%	
Duplicate (9120702-DUP3)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0188-10)												
% Solids	**75.2**	1.00	1.00	%	1	---	77.1	---	---	2	10%	
Duplicate (9120702-DUP4)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0191-43)												
% Solids	**86.3**	1.00	1.00	%	1	---	87.7	---	---	2	10%	
Duplicate (9120702-DUP5)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0223-01)												
% Solids	**76.6**	1.00	1.00	%	1	---	73.6	---	---	4	10%	
Duplicate (9120702-DUP6)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0230-02)												
% Solids	**75.2**	1.00	1.00	%	1	---	75.7	---	---	0.6	10%	
Duplicate (9120702-DUP7)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0287-04)												
% Solids	**91.5**	1.00	1.00	%	1	---	91.3	---	---	0.3	10%	
Duplicate (9120702-DUP8)			Prepared: 12/10/19 18:44		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0335-03)												
% Solids	**93.0**	1.00	1.00	%	1	---	92.8	---	---	0.2	10%	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120702 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120702-DUP9)			Prepared: 12/10/19 19:21		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0339-01)												
% Solids	**74.9**	1.00	1.00	%	1	---	73.8	---	---	2	10%	

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

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QUALITY CONTROL (QC) SAMPLE RESULTS

Wet Chemistry

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch BHL0233 - No Prep Wet Chem							**Water**					
Blank (BHL0233-BLK1)			Prepared: 12/09/19 15:44		Analyzed: 12/09/19 17:04							
SM 4500-S2 D-00												
Sulfide	ND	0.050	0.050	mg/L	1	---	---	---	---	---	---	U
LCS (BHL0233-BS1)			Prepared: 12/09/19 15:44		Analyzed: 12/09/19 17:04							
SM 4500-S2 D-00												
Sulfide	0.506	0.050	0.050	mg/L	1	0.50144	---	101	75-125%	---	---	
Matrix Spike (BHL0233-MS2)			Prepared: 12/09/19 15:44		Analyzed: 12/09/19 17:39							
QC Source Sample: A9L0097-20 (A9L0097-20)												
SM 4500-S2 D-00												
Sulfide	0.458	0.050	0.050	mg/L	1	0.50144	ND	91.3	75-125%	---	---	
Matrix Spike (BHL0233-MS3)			Prepared: 12/09/19 15:44		Analyzed: 12/09/19 17:40							
QC Source Sample: A9L0097-24 (A9L0097-24)												
SM 4500-S2 D-00												
Sulfide	0.447	0.050	0.050	mg/L	1	0.50144	ND	89.1	75-125%	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120563							
A9L0097-07	Water	NWTPH-HCID	12/02/19 11:49	12/05/19 11:08	970mL/5mL	1000mL/5mL	1.03
A9L0097-41	Water	NWTPH-HCID	12/03/19 12:13	12/05/19 11:08	1000mL/5mL	1000mL/5mL	1.00
A9L0097-49	Water	NWTPH-HCID	12/03/19 16:22	12/05/19 11:08	760mL/5mL	1000mL/5mL	1.32
A9L0097-57	Water	NWTPH-HCID	12/03/19 18:00	12/05/19 11:08	1010mL/5mL	1000mL/5mL	0.99

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120583							
A9L0097-06	Soil	NWTPH-HCID	12/02/19 11:25	12/05/19 15:46	10.47g/10mL	10g/10mL	0.96
A9L0097-40	Soil	NWTPH-HCID	12/03/19 11:30	12/05/19 15:46	10.4g/10mL	10g/10mL	0.96
A9L0097-42	Soil	NWTPH-HCID	12/03/19 11:45	12/05/19 15:46	10.92g/10mL	10g/10mL	0.92
A9L0097-43	Soil	NWTPH-HCID	12/03/19 12:35	12/05/19 15:46	10.78g/10mL	10g/10mL	0.93
A9L0097-44	Soil	NWTPH-HCID	12/03/19 13:00	12/05/19 15:46	10.2g/10mL	10g/10mL	0.98
A9L0097-45	Soil	NWTPH-HCID	12/03/19 13:40	12/05/19 15:46	10.51g/10mL	10g/10mL	0.95
A9L0097-46	Soil	NWTPH-HCID	12/03/19 13:45	12/05/19 15:46	10.27g/10mL	10g/10mL	0.97
A9L0097-48	Soil	NWTPH-HCID	12/03/19 16:00	12/05/19 15:46	10.52g/10mL	10g/10mL	0.95
A9L0097-56	Soil	NWTPH-HCID	12/03/19 15:55	12/05/19 15:46	10.69g/10mL	10g/10mL	0.94
Batch: 9120727							
A9L0097-10	Soil	NWTPH-HCID	12/02/19 11:15	12/10/19 14:41	10.22g/10mL	10g/10mL	0.98

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120563							
A9L0097-02	Water	NWTPH-Dx	12/02/19 10:24	12/05/19 13:02	1050mL/5mL	1000mL/5mL	0.95
A9L0097-05	Water	NWTPH-Dx	12/02/19 11:18	12/05/19 13:02	950mL/5mL	1000mL/5mL	1.05
A9L0097-09	Water	NWTPH-Dx	12/02/19 12:04	12/05/19 13:10	870mL/5mL	1000mL/5mL	1.15
A9L0097-12	Water	NWTPH-Dx	12/02/19 12:45	12/05/19 13:02	940mL/5mL	1000mL/5mL	1.06
A9L0097-16	Water	NWTPH-Dx	12/02/19 14:08	12/05/19 13:09	940mL/5mL	1000mL/5mL	1.06
A9L0097-49	Water	NWTPH-Dx	12/03/19 16:22	12/05/19 11:08	760mL/5mL	1000mL/5mL	1.32
Batch: 9120671							
A9L0097-14	Water	NWTPH-Dx	12/02/19 13:38	12/09/19 17:21	990mL/5mL	1000mL/5mL	1.01
A9L0097-18	Water	NWTPH-Dx	12/02/19 15:23	12/09/19 17:21	980mL/5mL	1000mL/5mL	1.02
A9L0097-20	Water	NWTPH-Dx	12/02/19 16:15	12/09/19 17:21	990mL/5mL	1000mL/5mL	1.01

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-22	Water	NWTPH-Dx	12/02/19 16:50	12/09/19 17:21	910mL/5mL	1000mL/5mL	1.10
A9L0097-24	Water	NWTPH-Dx	12/02/19 16:13	12/09/19 17:21	930mL/5mL	1000mL/5mL	1.08
A9L0097-25	Water	NWTPH-Dx	12/02/19 16:44	12/09/19 17:21	930mL/5mL	1000mL/5mL	1.08
A9L0097-31	Water	NWTPH-Dx	12/03/19 09:15	12/09/19 17:21	920mL/5mL	1000mL/5mL	1.09
Batch: 9120726							
A9L0097-34	Water	NWTPH-Dx	12/03/19 09:06	12/10/19 13:45	950mL/5mL	1000mL/5mL	1.05
A9L0097-36	Water	NWTPH-Dx	12/03/19 10:04	12/10/19 13:45	960mL/5mL	1000mL/5mL	1.04
A9L0097-37	Water	NWTPH-Dx	12/03/19 09:15	12/10/19 13:45	1000mL/5mL	1000mL/5mL	1.00
A9L0097-39	Water	NWTPH-Dx	12/03/19 10:14	12/10/19 13:45	930mL/5mL	1000mL/5mL	1.08
A9L0097-51	Water	NWTPH-Dx	12/03/19 16:47	12/10/19 13:45	840mL/5mL	1000mL/5mL	1.19
A9L0097-53	Water	NWTPH-Dx	12/03/19 16:55	12/10/19 13:45	870mL/5mL	1000mL/5mL	1.15
A9L0097-55	Water	NWTPH-Dx	12/03/19 17:10	12/10/19 13:45	1000mL/5mL	1000mL/5mL	1.00
A9L0097-58	Water	NWTPH-Dx	12/03/19 17:10	12/10/19 13:45	970mL/5mL	1000mL/5mL	1.03

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120667							
A9L0097-01	Soil	NWTPH-Dx	12/02/19 09:45	12/09/19 12:50	10.46g/5mL	10g/5mL	0.96
A9L0097-03	Soil	NWTPH-Dx	12/02/19 10:20	12/09/19 12:50	10.97g/5mL	10g/5mL	0.91
A9L0097-04	Soil	NWTPH-Dx	12/02/19 10:50	12/09/19 12:50	10.77g/5mL	10g/5mL	0.93
A9L0097-08	Soil	NWTPH-Dx	12/02/19 11:45	12/09/19 12:50	10.22g/5mL	10g/5mL	0.98
A9L0097-13	Soil	NWTPH-Dx	12/02/19 12:55	12/09/19 12:50	10.09g/5mL	10g/5mL	0.99
A9L0097-17	Soil	NWTPH-Dx	12/02/19 14:25	12/09/19 12:50	10.04g/5mL	10g/5mL	1.00
A9L0097-19	Soil	NWTPH-Dx	12/02/19 14:03	12/09/19 12:50	10.36g/5mL	10g/5mL	0.97
A9L0097-21	Soil	NWTPH-Dx	12/02/19 14:55	12/09/19 12:50	10.02g/5mL	10g/5mL	1.00
A9L0097-23	Soil	NWTPH-Dx	12/02/19 15:35	12/09/19 12:54	10.21g/5mL	10g/5mL	0.98
Batch: 9120721							
A9L0097-11RE1	Soil	NWTPH-Dx	12/02/19 12:40	12/10/19 12:58	10.02g/5mL	10g/5mL	1.00
A9L0097-15RE1	Soil	NWTPH-Dx	12/02/19 12:15	12/10/19 12:58	10.35g/5mL	10g/5mL	0.97
A9L0097-29RE1	Soil	NWTPH-Dx	12/02/19 12:40	12/10/19 12:58	10.28g/5mL	10g/5mL	0.97
A9L0097-30RE1	Soil	NWTPH-Dx	12/03/19 08:45	12/10/19 12:58	10.35g/5mL	10g/5mL	0.97
A9L0097-33	Soil	NWTPH-Dx	12/03/19 08:10	12/10/19 12:58	10.2g/5mL	10g/5mL	0.98
A9L0097-35	Soil	NWTPH-Dx	12/03/19 09:05	12/10/19 12:58	10.22g/5mL	10g/5mL	0.98
A9L0097-38RE1	Soil	NWTPH-Dx	12/03/19 09:50	12/10/19 12:58	10.48g/5mL	10g/5mL	0.95
A9L0097-47	Soil	NWTPH-Dx	12/03/19 15:30	12/10/19 12:58	10.08g/5mL	10g/5mL	0.99
A9L0097-50	Soil	NWTPH-Dx	12/03/19 14:45	12/10/19 12:58	10.53g/5mL	10g/5mL	0.95

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-52	Soil	NWTPH-Dx	12/03/19 15:00	12/10/19 12:58	10.33g/5mL	10g/5mL	0.97
A9L0097-54	Soil	NWTPH-Dx	12/03/19 15:30	12/10/19 12:58	10.81g/5mL	10g/5mL	0.93
Batch: 9120906							
A9L0097-06	Soil	NWTPH-Dx	12/02/19 11:25	12/13/19 14:20	10.49g/5mL	10g/5mL	0.95
A9L0097-40	Soil	NWTPH-Dx	12/03/19 11:30	12/13/19 14:20	10.2g/5mL	10g/5mL	0.98
A9L0097-45	Soil	NWTPH-Dx	12/03/19 13:40	12/13/19 14:20	10.22g/5mL	10g/5mL	0.98

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120654							
A9L0097-39RE1	Water	NWTPH-Gx (MS)	12/03/19 10:14	12/09/19 12:34	5mL/5mL	5mL/5mL	1.00

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120608							
A9L0097-38	Soil	NWTPH-Gx (MS)	12/03/19 09:50	12/03/19 09:50	5.18g/5mL	5g/5mL	0.97

BTEX Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120635							
A9L0097-49	Water	EPA 8260C	12/03/19 16:22	12/07/19 11:00	5mL/5mL	5mL/5mL	1.00

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120751							
A9L0097-06	Soil	5035A/8260C	12/02/19 11:25	12/02/19 11:25	6.02g/5mL	5g/5mL	0.83
Batch: 9120813							
A9L0097-40	Soil	5035A/8260C	12/03/19 11:30	12/03/19 11:30	5.24g/5mL	5g/5mL	0.95
A9L0097-45	Soil	5035A/8260C	12/03/19 13:40	12/03/19 13:40	5.83g/5mL	5g/5mL	0.86

Volatile Organic Compounds by EPA 5035A/8260C

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Volatile Organic Compounds by EPA 5035A/8260C

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120603							
A9L0097-17	Soil	5035A/8260C	12/02/19 14:25	12/02/19 14:25	4.55g/5mL	5g/5mL	1.10
Batch: 9120608							
A9L0097-38	Soil	5035A/8260C	12/03/19 09:50	12/03/19 09:50	5.18g/5mL	5g/5mL	0.97
Batch: 9120751							
A9L0097-15	Soil	5035A/8260C	12/02/19 12:15	12/02/19 12:15	4.46g/5mL	5g/5mL	1.12
A9L0097-19	Soil	5035A/8260C	12/02/19 14:03	12/02/19 14:03	6.65g/5mL	5g/5mL	0.75
A9L0097-21	Soil	5035A/8260C	12/02/19 14:55	12/02/19 14:55	4.96g/5mL	5g/5mL	1.01
A9L0097-23	Soil	5035A/8260C	12/02/19 15:35	12/02/19 15:35	5.91g/5mL	5g/5mL	0.85
A9L0097-33	Soil	5035A/8260C	12/03/19 08:10	12/03/19 08:10	4.26g/5mL	5g/5mL	1.17
A9L0097-35	Soil	5035A/8260C	12/03/19 09:05	12/03/19 09:05	4.82g/5mL	5g/5mL	1.04
Batch: 9120813							
A9L0097-50	Soil	5035A/8260C	12/03/19 14:45	12/03/19 14:45	5.91g/5mL	5g/5mL	0.85
A9L0097-52	Soil	5035A/8260C	12/03/19 15:00	12/03/19 15:00	5.7g/5mL	5g/5mL	0.88
A9L0097-54	Soil	5035A/8260C	12/03/19 15:30	12/03/19 15:30	5.68g/5mL	5g/5mL	0.88

Volatile Organic Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120593							
A9L0097-16	Water	EPA 8260C	12/02/19 14:08	12/06/19 10:54	5mL/5mL	5mL/5mL	1.00
A9L0097-18	Water	EPA 8260C	12/02/19 15:23	12/06/19 10:54	5mL/5mL	5mL/5mL	1.00
A9L0097-20	Water	EPA 8260C	12/02/19 16:15	12/06/19 10:54	5mL/5mL	5mL/5mL	1.00
A9L0097-22	Water	EPA 8260C	12/02/19 16:50	12/06/19 10:54	5mL/5mL	5mL/5mL	1.00
A9L0097-28	Water	EPA 8260C	12/02/19 00:00	12/06/19 10:54	5mL/5mL	5mL/5mL	1.00
A9L0097-34	Water	EPA 8260C	12/03/19 09:06	12/06/19 10:54	5mL/5mL	5mL/5mL	1.00
Batch: 9120635							
A9L0097-24RE1	Water	EPA 8260C	12/02/19 16:13	12/07/19 11:00	5mL/5mL	5mL/5mL	1.00
A9L0097-51	Water	EPA 8260C	12/03/19 16:47	12/07/19 11:00	5mL/5mL	5mL/5mL	1.00
A9L0097-53	Water	EPA 8260C	12/03/19 16:55	12/07/19 11:00	5mL/5mL	5mL/5mL	1.00
A9L0097-55	Water	EPA 8260C	12/03/19 17:10	12/07/19 11:00	5mL/5mL	5mL/5mL	1.00
A9L0097-58	Water	EPA 8260C	12/03/19 17:10	12/07/19 11:00	5mL/5mL	5mL/5mL	1.00
Batch: 9120654							
A9L0097-36RE1	Water	EPA 8260C	12/03/19 10:04	12/09/19 12:34	5mL/5mL	5mL/5mL	1.00

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Volatile Organic Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-39RE1	Water	EPA 8260C	12/03/19 10:14	12/09/19 12:34	5mL/5mL	5mL/5mL	1.00
Batch: 9120700							
A9L0097-39RE2	Water	EPA 8260C	12/03/19 10:14	12/10/19 12:32	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120841							
A9L0097-49	Water	EPA 8082A	12/03/19 16:22	12/12/19 12:55	850mL/2mL	1000mL/2mL	1.18

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120759							
A9L0097-06	Soil	EPA 8082A	12/02/19 11:25	12/11/19 10:16	10.13g/2mL	10g/2mL	0.99
A9L0097-17	Soil	EPA 8082A	12/02/19 14:25	12/11/19 10:16	10.64g/2mL	10g/2mL	0.94
A9L0097-19	Soil	EPA 8082A	12/02/19 14:03	12/11/19 10:16	10.62g/2mL	10g/2mL	0.94
A9L0097-21RE1	Soil	EPA 8082A	12/02/19 14:55	12/11/19 10:16	10.76g/2mL	10g/2mL	0.93
A9L0097-23RE1	Soil	EPA 8082A	12/02/19 15:35	12/11/19 10:16	10.1g/2mL	10g/2mL	0.99
A9L0097-40RE1	Soil	EPA 8082A	12/03/19 11:30	12/11/19 10:16	10.66g/2mL	10g/2mL	0.94
A9L0097-45RE1	Soil	EPA 8082A	12/03/19 13:40	12/11/19 10:16	10.3g/2mL	10g/2mL	0.97

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Prep: EPA 3511 (Bottle Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120718							
A9L0097-49	Water	EPA 8270D LVI	12/03/19 16:22	12/10/19 12:29	106.07mL/5mL	125mL/5mL	1.18
A9L0097-53	Water	EPA 8270D LVI	12/03/19 16:55	12/10/19 12:29	103.34mL/5mL	125mL/5mL	1.21
A9L0097-55	Water	EPA 8270D LVI	12/03/19 17:10	12/10/19 12:29	99.96mL/5mL	125mL/5mL	1.25
A9L0097-58	Water	EPA 8270D LVI	12/03/19 17:10	12/10/19 12:29	105.78mL/5mL	125mL/5mL	1.18

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid/Base Neutral)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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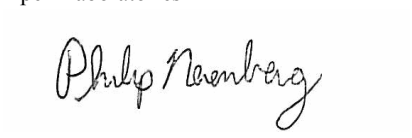

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid/Base Neutral)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120673							
A9L0097-02RE2	Water	EPA 8270D	12/02/19 10:24	12/09/19 13:57	1010mL/1mL	1000mL/1mL	0.99
A9L0097-02RE3	Water	EPA 8270D	12/02/19 10:24	12/09/19 13:57	1010mL/1mL	1000mL/1mL	0.99
A9L0097-05RE2	Water	EPA 8270D	12/02/19 11:18	12/09/19 13:57	950mL/1mL	1000mL/1mL	1.05
A9L0097-09RE2	Water	EPA 8270D	12/02/19 12:04	12/09/19 13:57	1010mL/1mL	1000mL/1mL	0.99
A9L0097-12RE2	Water	EPA 8270D	12/02/19 12:45	12/09/19 13:57	940mL/1mL	1000mL/1mL	1.06
A9L0097-14RE3	Water	EPA 8270D	12/02/19 13:38	12/09/19 13:57	900mL/1mL	1000mL/1mL	1.11
A9L0097-16RE3	Water	EPA 8270D	12/02/19 14:08	12/09/19 13:57	1010mL/1mL	1000mL/1mL	0.99
A9L0097-18RE2	Water	EPA 8270D	12/02/19 15:23	12/09/19 13:57	930mL/1mL	1000mL/1mL	1.08
A9L0097-20RE1	Water	EPA 8270D	12/02/19 16:15	12/09/19 13:57	850mL/1mL	1000mL/1mL	1.18
A9L0097-22RE1	Water	EPA 8270D	12/02/19 16:50	12/09/19 13:57	920mL/1mL	1000mL/1mL	1.09
A9L0097-24RE2	Water	EPA 8270D	12/02/19 16:13	12/09/19 13:57	930mL/1mL	1000mL/1mL	1.08
A9L0097-25RE2	Water	EPA 8270D	12/02/19 16:44	12/09/19 13:57	990mL/1mL	1000mL/1mL	1.01
Batch: 9120690							
A9L0097-31RE1	Water	EPA 8270D	12/03/19 09:15	12/10/19 07:10	890mL/1mL	1000mL/1mL	1.12
A9L0097-34RE1	Water	EPA 8270D	12/03/19 09:06	12/10/19 07:10	960mL/1mL	1000mL/1mL	1.04
A9L0097-36RE1	Water	EPA 8270D	12/03/19 10:04	12/10/19 07:10	890mL/1mL	1000mL/1mL	1.12
A9L0097-37RE1	Water	EPA 8270D	12/03/19 09:15	12/10/19 07:10	980mL/1mL	1000mL/1mL	1.02
A9L0097-39RE2	Water	EPA 8270D	12/03/19 10:14	12/10/19 07:10	930mL/1mL	1000mL/1mL	1.08
A9L0097-51RE1	Water	EPA 8270D	12/03/19 16:47	12/10/19 07:10	760mL/1mL	1000mL/1mL	1.32

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120660							
A9L0097-06	Soil	EPA 8270D	12/02/19 11:25	12/09/19 11:20	15.51g/2mL	15g/2mL	0.97
A9L0097-40RE1	Soil	EPA 8270D	12/03/19 11:30	12/09/19 11:20	15.66g/2mL	15g/2mL	0.96
A9L0097-45RE1	Soil	EPA 8270D	12/03/19 13:40	12/09/19 11:20	15.76g/2mL	15g/2mL	0.95
A9L0097-47RE1	Soil	EPA 8270D	12/03/19 15:30	12/09/19 11:20	15.18g/2mL	15g/2mL	0.99
A9L0097-52RE2	Soil	EPA 8270D	12/03/19 15:00	12/09/19 11:20	15.68g/2mL	15g/2mL	0.96
A9L0097-54RE1	Soil	EPA 8270D	12/03/19 15:30	12/09/19 11:20	15.64g/2mL	15g/2mL	0.96
A9L0097-54RE2	Soil	EPA 8270D	12/03/19 15:30	12/09/19 11:20	15.64g/2mL	15g/2mL	0.96
Batch: 9120708							
A9L0097-01RE1	Soil	EPA 8270D	12/02/19 09:45	12/10/19 11:17	15.1g/2mL	15g/2mL	0.99
A9L0097-03RE1	Soil	EPA 8270D	12/02/19 10:20	12/10/19 11:17	15.72g/2mL	15g/2mL	0.95
A9L0097-04	Soil	EPA 8270D	12/02/19 10:50	12/10/19 11:17	15.41g/2mL	15g/2mL	0.97
A9L0097-08	Soil	EPA 8270D	12/02/19 11:45	12/10/19 11:17	15.08g/2mL	15g/2mL	1.00

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-11	Soil	EPA 8270D	12/02/19 12:40	12/10/19 11:17	15.47g/2mL	15g/2mL	0.97
A9L0097-13	Soil	EPA 8270D	12/02/19 12:55	12/10/19 11:17	15.73g/2mL	15g/2mL	0.95
A9L0097-15	Soil	EPA 8270D	12/02/19 12:15	12/10/19 11:17	15.06g/2mL	15g/2mL	1.00
Batch: 9120852							
A9L0097-17	Soil	EPA 8270D	12/02/19 14:25	12/12/19 15:17	15.34g/2mL	15g/2mL	0.98
A9L0097-19RE2	Soil	EPA 8270D	12/02/19 14:03	12/12/19 15:17	15.07g/2mL	15g/2mL	1.00
A9L0097-21RE1	Soil	EPA 8270D	12/02/19 14:55	12/12/19 15:17	15.18g/2mL	15g/2mL	0.99
A9L0097-23	Soil	EPA 8270D	12/02/19 15:35	12/12/19 15:17	15.74g/2mL	15g/2mL	0.95
A9L0097-29RE2	Soil	EPA 8270D	12/02/19 12:40	12/12/19 15:17	15.17g/2mL	15g/2mL	0.99
A9L0097-30RE2	Soil	EPA 8270D	12/03/19 08:45	12/12/19 15:17	15.58g/2mL	15g/2mL	0.96
A9L0097-33RE1	Soil	EPA 8270D	12/03/19 08:10	12/12/19 15:17	15.29g/2mL	15g/2mL	0.98
A9L0097-35	Soil	EPA 8270D	12/03/19 09:05	12/12/19 15:17	15.51g/2mL	15g/2mL	0.97
A9L0097-38RE1	Soil	EPA 8270D	12/03/19 09:50	12/12/19 15:17	15.23g/2mL	15g/2mL	0.99
A9L0097-50	Soil	EPA 8270D	12/03/19 14:45	12/12/19 15:17	15.7g/2mL	15g/2mL	0.96

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120851							
A9L0097-02	Water	EPA 6020A	12/02/19 10:24	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-02RE1	Water	EPA 6020A	12/02/19 10:24	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-05	Water	EPA 6020A	12/02/19 11:18	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-05RE1	Water	EPA 6020A	12/02/19 11:18	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-07	Water	EPA 6020A	12/02/19 11:49	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-07RE1	Water	EPA 6020A	12/02/19 11:49	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-09	Water	EPA 6020A	12/02/19 12:04	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-12	Water	EPA 6020A	12/02/19 12:45	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-12RE1	Water	EPA 6020A	12/02/19 12:45	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-14	Water	EPA 6020A	12/02/19 13:38	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-14RE1	Water	EPA 6020A	12/02/19 13:38	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-18	Water	EPA 6020A	12/02/19 15:23	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-18RE1	Water	EPA 6020A	12/02/19 15:23	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-20	Water	EPA 6020A	12/02/19 16:15	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-20RE1	Water	EPA 6020A	12/02/19 16:15	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-22	Water	EPA 6020A	12/02/19 16:50	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-22RE1	Water	EPA 6020A	12/02/19 16:50	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-24RE1	Water	EPA 6020A	12/02/19 16:13	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-25	Water	EPA 6020A	12/02/19 16:44	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-25RE1	Water	EPA 6020A	12/02/19 16:44	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-31	Water	EPA 6020A	12/03/19 09:15	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-31RE1	Water	EPA 6020A	12/03/19 09:15	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-34	Water	EPA 6020A	12/03/19 09:06	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-34RE1	Water	EPA 6020A	12/03/19 09:06	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-36	Water	EPA 6020A	12/03/19 10:04	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-36RE1	Water	EPA 6020A	12/03/19 10:04	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-37	Water	EPA 6020A	12/03/19 09:15	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-37RE1	Water	EPA 6020A	12/03/19 09:15	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-39	Water	EPA 6020A	12/03/19 10:14	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-39RE1	Water	EPA 6020A	12/03/19 10:14	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-41	Water	EPA 6020A	12/03/19 12:13	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-41RE1	Water	EPA 6020A	12/03/19 12:13	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-49	Water	EPA 6020A	12/03/19 16:22	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-49RE1	Water	EPA 6020A	12/03/19 16:22	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-51	Water	EPA 6020A	12/03/19 16:47	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-51RE1	Water	EPA 6020A	12/03/19 16:47	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-53	Water	EPA 6020A	12/03/19 16:55	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
A9L0097-53RE1	Water	EPA 6020A	12/03/19 16:55	12/12/19 15:00	45mL/50mL	45mL/50mL	1.00
Batch: 9120878							
A9L0097-16	Water	EPA 6020A	12/02/19 14:08	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-16RE1	Water	EPA 6020A	12/02/19 14:08	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-55	Water	EPA 6020A	12/03/19 17:10	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-55RE1	Water	EPA 6020A	12/03/19 17:10	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-57	Water	EPA 6020A	12/03/19 18:00	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-57RE1	Water	EPA 6020A	12/03/19 18:00	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-58	Water	EPA 6020A	12/03/19 17:10	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0097-58RE1	Water	EPA 6020A	12/03/19 17:10	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120657							
A9L0097-01	Soil	EPA 6020A	12/02/19 09:45	12/09/19 11:28	0.493g/50mL	0.5g/50mL	1.01
A9L0097-03	Soil	EPA 6020A	12/02/19 10:20	12/09/19 11:28	0.459g/50mL	0.5g/50mL	1.09
A9L0097-04	Soil	EPA 6020A	12/02/19 10:50	12/09/19 11:28	0.52g/50mL	0.5g/50mL	0.96

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-06	Soil	EPA 6020A	12/02/19 11:25	12/09/19 11:28	0.457g/50mL	0.5g/50mL	1.09
A9L0097-08	Soil	EPA 6020A	12/02/19 11:45	12/09/19 11:28	0.451g/50mL	0.5g/50mL	1.11
A9L0097-11	Soil	EPA 6020A	12/02/19 12:40	12/09/19 11:28	0.498g/50mL	0.5g/50mL	1.00
A9L0097-13	Soil	EPA 6020A	12/02/19 12:55	12/09/19 11:28	0.513g/50mL	0.5g/50mL	0.98
Batch: 9120880							
A9L0097-15	Soil	EPA 6020A	12/02/19 12:15	12/13/19 10:15	0.494g/50mL	0.5g/50mL	1.01
A9L0097-17	Soil	EPA 6020A	12/02/19 14:25	12/13/19 10:15	0.511g/50mL	0.5g/50mL	0.98
A9L0097-19	Soil	EPA 6020A	12/02/19 14:03	12/13/19 10:15	0.502g/50mL	0.5g/50mL	1.00
A9L0097-21	Soil	EPA 6020A	12/02/19 14:55	12/13/19 10:15	0.513g/50mL	0.5g/50mL	0.98
A9L0097-23	Soil	EPA 6020A	12/02/19 15:35	12/13/19 10:15	0.506g/50mL	0.5g/50mL	0.99
Batch: 9120890							
A9L0097-29	Soil	EPA 6020A	12/02/19 12:40	12/13/19 11:57	0.455g/50mL	0.5g/50mL	1.10
A9L0097-30	Soil	EPA 6020A	12/03/19 08:45	12/13/19 11:57	0.481g/50mL	0.5g/50mL	1.04
A9L0097-33	Soil	EPA 6020A	12/03/19 08:10	12/13/19 11:57	0.507g/50mL	0.5g/50mL	0.99
A9L0097-35	Soil	EPA 6020A	12/03/19 09:05	12/13/19 11:57	0.456g/50mL	0.5g/50mL	1.10
A9L0097-38	Soil	EPA 6020A	12/03/19 09:50	12/13/19 11:57	0.493g/50mL	0.5g/50mL	1.01
A9L0097-40	Soil	EPA 6020A	12/03/19 11:30	12/13/19 11:57	0.489g/50mL	0.5g/50mL	1.02
A9L0097-42	Soil	EPA 6020A	12/03/19 11:45	12/13/19 11:57	0.502g/50mL	0.5g/50mL	1.00
A9L0097-43	Soil	EPA 6020A	12/03/19 12:35	12/13/19 11:57	0.473g/50mL	0.5g/50mL	1.06
A9L0097-44	Soil	EPA 6020A	12/03/19 13:00	12/13/19 11:57	0.492g/50mL	0.5g/50mL	1.02
A9L0097-45	Soil	EPA 6020A	12/03/19 13:40	12/13/19 11:57	0.466g/50mL	0.5g/50mL	1.07
A9L0097-46	Soil	EPA 6020A	12/03/19 13:45	12/13/19 11:57	0.504g/50mL	0.5g/50mL	0.99
A9L0097-47	Soil	EPA 6020A	12/03/19 15:30	12/13/19 11:57	0.483g/50mL	0.5g/50mL	1.04
A9L0097-48	Soil	EPA 6020A	12/03/19 16:00	12/13/19 11:57	0.478g/50mL	0.5g/50mL	1.05
A9L0097-50	Soil	EPA 6020A	12/03/19 14:45	12/13/19 11:57	0.455g/50mL	0.5g/50mL	1.10
A9L0097-52	Soil	EPA 6020A	12/03/19 15:00	12/13/19 11:57	0.508g/50mL	0.5g/50mL	0.98
A9L0097-54	Soil	EPA 6020A	12/03/19 15:30	12/13/19 11:57	0.466g/50mL	0.5g/50mL	1.07
A9L0097-56	Soil	EPA 6020A	12/03/19 15:55	12/13/19 11:57	0.462g/50mL	0.5g/50mL	1.08

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Prep: EPA 3060A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121432							
A9L0097-08	Soil	EPA 7196A	12/02/19 11:45	12/31/19 07:18	2.5061g/111mL	2.5g/111mL	1.00
A9L0097-19	Soil	EPA 7196A	12/02/19 14:03	12/31/19 07:18	2.5187g/111mL	2.5g/111mL	0.99

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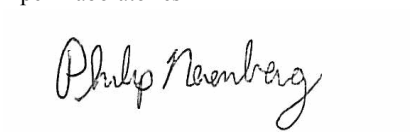

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Prep: EPA 3060A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-46	Soil	EPA 7196A	12/03/19 13:45	12/31/19 07:18	2.5415g/111mL	2.5g/111mL	0.98
A9L0097-56	Soil	EPA 7196A	12/03/19 15:55	12/31/19 07:18	2.5552g/111mL	2.5g/111mL	0.98

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120545							
A9L0097-06	Soil	EPA 8000C	12/02/19 11:25	12/05/19 09:05			NA
A9L0097-15	Soil	EPA 8000C	12/02/19 12:15	12/05/19 09:05			NA
A9L0097-40	Soil	EPA 8000C	12/03/19 11:30	12/05/19 09:05			NA
A9L0097-42	Soil	EPA 8000C	12/03/19 11:45	12/05/19 09:05			NA
A9L0097-43	Soil	EPA 8000C	12/03/19 12:35	12/05/19 09:05			NA
A9L0097-44	Soil	EPA 8000C	12/03/19 13:00	12/05/19 09:05			NA
A9L0097-45	Soil	EPA 8000C	12/03/19 13:40	12/05/19 09:05			NA
A9L0097-46	Soil	EPA 8000C	12/03/19 13:45	12/05/19 09:05			NA
A9L0097-47	Soil	EPA 8000C	12/03/19 15:30	12/05/19 09:05			NA
A9L0097-48	Soil	EPA 8000C	12/03/19 16:00	12/05/19 09:05			NA
A9L0097-50	Soil	EPA 8000C	12/03/19 14:45	12/05/19 09:05			NA
A9L0097-52	Soil	EPA 8000C	12/03/19 15:00	12/05/19 09:05			NA
A9L0097-54	Soil	EPA 8000C	12/03/19 15:30	12/05/19 09:05			NA
A9L0097-56	Soil	EPA 8000C	12/03/19 15:55	12/05/19 09:05			NA
Batch: 9120602							
A9L0097-01	Soil	EPA 8000C	12/02/19 09:45	12/06/19 08:42			NA
A9L0097-03	Soil	EPA 8000C	12/02/19 10:20	12/06/19 08:42			NA
A9L0097-04	Soil	EPA 8000C	12/02/19 10:50	12/06/19 08:42			NA
A9L0097-08	Soil	EPA 8000C	12/02/19 11:45	12/06/19 08:42			NA
A9L0097-11	Soil	EPA 8000C	12/02/19 12:40	12/06/19 08:42			NA
A9L0097-13	Soil	EPA 8000C	12/02/19 12:55	12/06/19 08:42			NA
A9L0097-17	Soil	EPA 8000C	12/02/19 14:25	12/06/19 08:42			NA
A9L0097-19	Soil	EPA 8000C	12/02/19 14:03	12/06/19 08:42			NA
A9L0097-21	Soil	EPA 8000C	12/02/19 14:55	12/06/19 08:42			NA
A9L0097-23	Soil	EPA 8000C	12/02/19 15:35	12/06/19 08:42			NA
A9L0097-29	Soil	EPA 8000C	12/02/19 12:40	12/06/19 08:42			NA
A9L0097-30	Soil	EPA 8000C	12/03/19 08:45	12/06/19 08:42			NA
A9L0097-33	Soil	EPA 8000C	12/03/19 08:10	12/06/19 08:42			NA
A9L0097-35	Soil	EPA 8000C	12/03/19 09:05	12/06/19 08:42			NA

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Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0097-38	Soil	EPA 8000C	12/03/19 09:50	12/06/19 08:42			NA
Batch: 9120702							
A9L0097-10	Soil	EPA 8000C	12/02/19 11:15	12/10/19 10:05			NA

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

Analytical Resources, Inc.

SAMPLE PREPARATION INFORMATION

Wet Chemistry

Prep: No Prep Wet Chem

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: BHL0233							
A9L0097-20RE1	Water	SM 4500-S2 D-00	12/02/19 16:15	12/09/19 16:27	5mL/5mL	5mL/5mL	1.00
A9L0097-24RE1	Water	SM 4500-S2 D-00	12/02/19 16:13	12/09/19 16:27	5mL/5mL	5mL/5mL	1.00

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Philip Nerenberg

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QUALIFIER DEFINITIONS

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

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A-01	Closing Calibration Verification Standard (CCV) failed method criteria by -5% due to sample matrix affect. Results are estimated.
A-01a	MDL raised to MRL due to possible carryover.
AMEND	Result for this sample or analyte has been amended from the original report. See Case Narrative for details.
B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
Cr6-01	Matrix Spike fails due to probable reducing conditions present in the sample. Sample is ND. Data quality is not affected because any hexavalent chromium present in the sample is likely to have been reduced to chromium three.
F-03	The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-09	Results in the Gasoline Range are primarily due to overlap from a heavier fuel hydrocarbon product.
F-15	Results for diesel are estimated due to overlap from the reported oil result.
F-16	Results for oil are estimated due to overlap from the reported diesel result.
F-17	No fuel pattern detected. The Diesel result represents carbon range C12 to C24, and the Oil result represents >C24 to C40.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
M-04	Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
P-10	Result estimated due to the presence of multiple PCB Aroclors and/or matrix interference.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-03	Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-11	Spike recovery cannot be accurately quantified due to sample dilution required for high analyte concentration and/or matrix interference.
Q-16	Reanalysis of an original Batch QC sample.
Q-18	Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.

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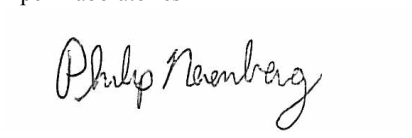

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Q-24	The RPD for this spike and spike duplicate is above established control limits. Recoveries for both the spike and spike duplicate are within control limits.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-30	Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-39	Results for sample duplicate are significantly higher than the sample results. See duplicate results in QC section of the report.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
Q-52	Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.
Q-54	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +1%. The results are reported as Estimated Values.
Q-54a	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +10%. The results are reported as Estimated Values.
Q-54b	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +2%. The results are reported as Estimated Values.
Q-54c	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +2.3%. The results are reported as Estimated Values.
Q-54d	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +27%. The results are reported as Estimated Values.
Q-54e	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +3%. The results are reported as Estimated Values.
Q-54f	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +5%. The results are reported as Estimated Values.
Q-54g	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +5.6%. The results are reported as Estimated Values.
Q-54h	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +6%. The results are reported as Estimated Values.
Q-54i	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +7%. The results are reported as Estimated Values.
Q-54j	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +8%. The results are reported as Estimated Values.
Q-54k	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +8.1%. The results are reported as Estimated Values.
Q-54l	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +9.6%. The results are reported as Estimated Values.

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Q-54m	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -0.7%. The results are reported as Estimated Values.
Q-54n	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -1%. The results are reported as Estimated Values.
Q-54o	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -1.6%. The results are reported as Estimated Values.
Q-54p	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -11%. The results are reported as Estimated Values.
Q-54q	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -2%. The results are reported as Estimated Values.
Q-54r	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -2.6%. The results are reported as Estimated Values.
Q-54s	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -3%. The results are reported as Estimated Values.
Q-54t	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -4%. The results are reported as Estimated Values.
Q-54u	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -5.5%. The results are reported as Estimated Values.
Q-54v	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -6.2%. The results are reported as Estimated Values.
Q-54w	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -6.8%. The results are reported as Estimated Values.
Q-54x	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -7.3%. The results are reported as Estimated Values.
Q-54y	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -8.3%. The results are reported as Estimated Values.
Q-55	Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260C, however there is adequate sensitivity to ensure detection at the reporting level.
Q-56	Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
S-06	Surrogate recovery is outside of established control limits.
TEMP	Sample(s) received outside of recommended temperature. See Case Narrative.
V-15	Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

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V-16 Sample aliquot was subsampled from the sample container in the laboratory. The subsampled aliquot was not preserved within 48 hours of sampling.

Analytical Resources, Inc.

U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

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

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

NR Result Not Reported

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

Detection Limits: Limit of Detection (LOD)

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

Reporting Limits: Limit of Quantitation (LOQ)

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

Reporting Conventions:

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

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

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

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

QC Source:

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

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

Miscellaneous Notes:

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

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

Blanks:

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

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

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

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

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

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

Soil and Sediment Samples:

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

Sampling and Preservation Notes:

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

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

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

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

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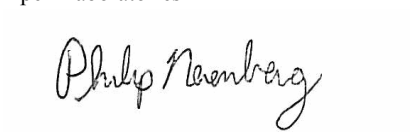

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LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

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

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

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

Secondary Accreditations

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

Subcontract Laboratory Accreditations

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

Field Testing Parameters

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

Apex Laboratories



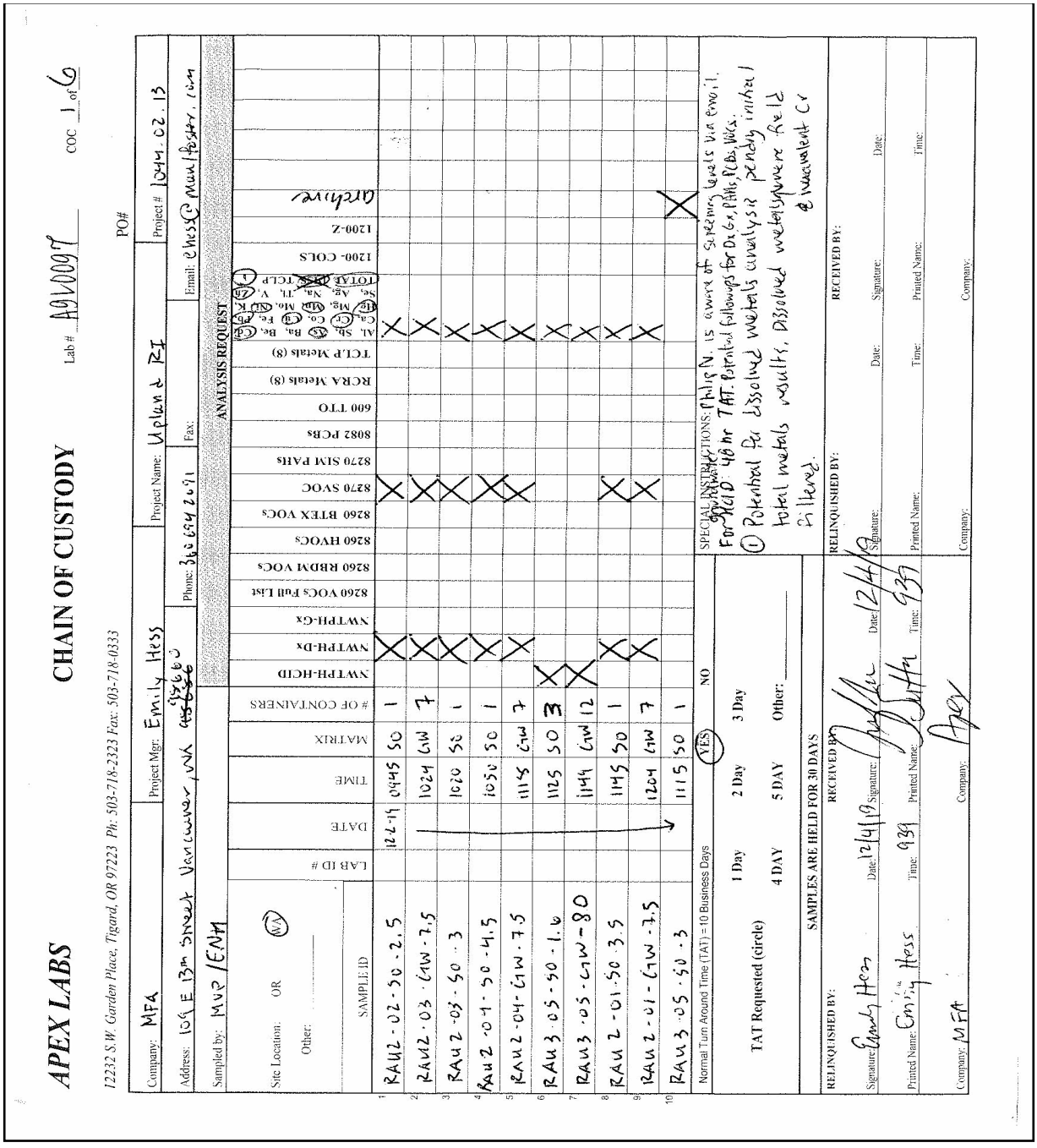
Philip Nerenberg, Lab Director

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

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**



APEX LABS — CHAIN OF CUSTODY — Lab # A9L0097 — COC 1 of 6

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: MFA — Project Mgr: Emily Hess — Project Name: Uplands RI — Project # 1044.02.13 — PO#

Address: 104 E 13th Street Vancouver, WA 98660 — Phone: 360 694 2691 — Fax: — Email: ehess@maulfoster.com

Sampled by: MVP/ENH

ANALYSIS REQUEST

	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	1200- COLS	1200-Z	Archive	TOTAL TCLP (As, Ag, Ba, Cd, Cr, Pb, Se, Hg)
1	RAU2-02-SO-2.5		12-4-19	0945	SO	1		X						X									
2	RAU2-03-GW-7.5			1024	GW	7		X						X									
3	RAU2-03-SO-3			1020	SO	1		X						X									
4	RAU2-04-SO-4.5			1050	SO	1		X						X									
5	RAU2-04-GW-7.5			1115	GW	7		X						X									
6	RAU3-05-SO-1.6			1125	SO	3	X							X									
7	RAU3-05-GW-80			1149	GW	12	X							X									
8	RAU2-01-SO-3.5			1145	SO	1		X						X									
9	RAU2-01-GW-7.5			1204	GW	7		X						X									
10	RAU3-05-SO-3		↓	1115	SO	1																X	

Normal Turn Around Time (TAT) = 10 Business Days — (YES) NO

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

SPECIAL INSTRUCTIONS: Philip N. is aware of screening levels via email. For NWTPH-Dx: 48 hr TAT. Partial follow-ups for Dx Gx, PAHs, PCBs, VOCs. (1) Potential for dissolved metals analysis pending initial total metals results. Dissolved metals analysis would be performed if warranted or if requested by Ecology.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Emily Hess — Date: 12/4/19 — RECEIVED BY: — Date: 12/4/19 — Time: 939

RELINQUISHED BY: — Date: — Time: — RECEIVED BY: — Date: — Time:

Printed Name: Emily Hess — Company: MFA — Printed Name: — Company: APEX — Signature: — Date: — Printed Name: — Time: — Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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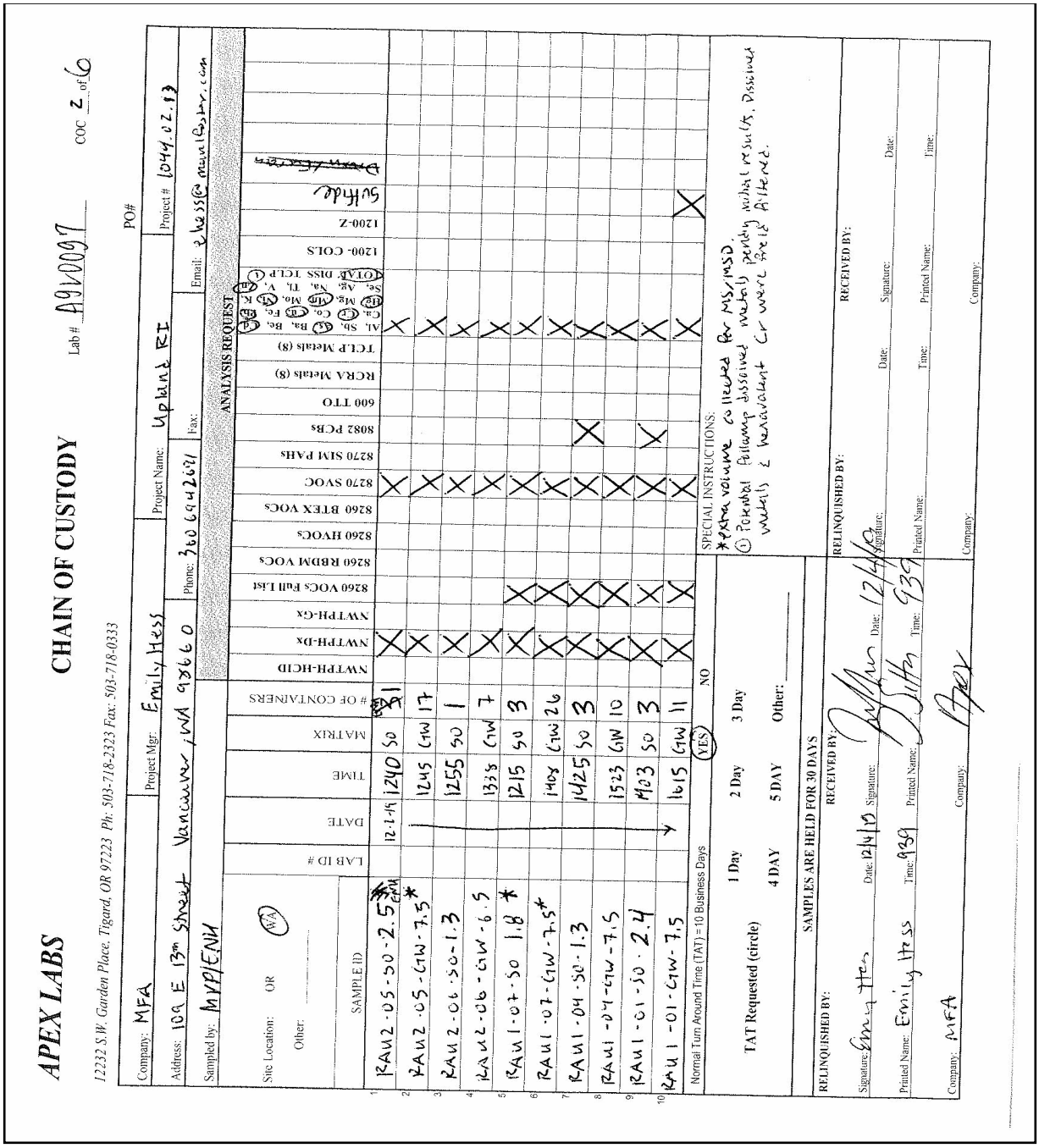
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**



Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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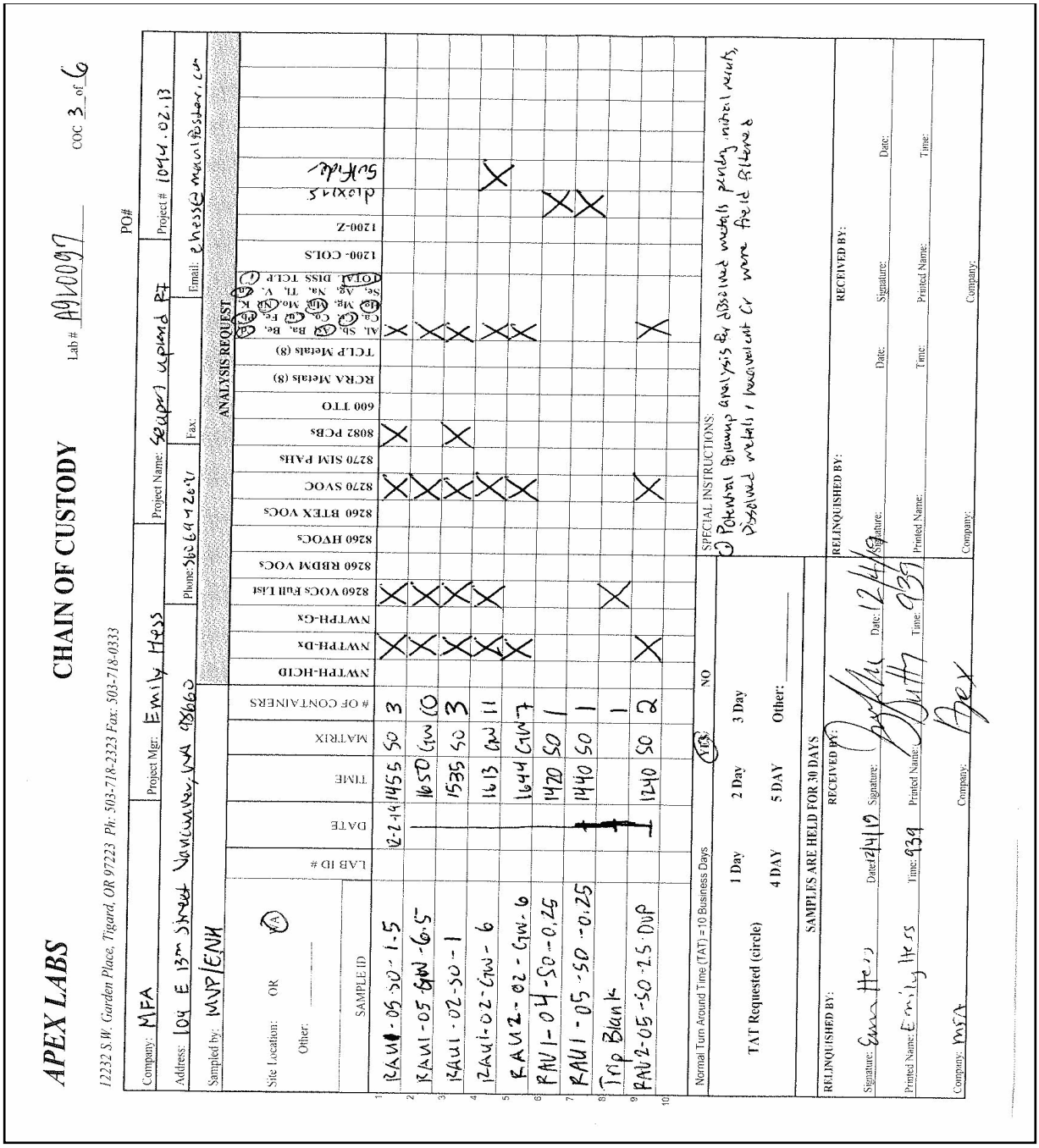
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**



APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A9L0097 COC 3 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Seaport Upland RI | PO# | Project # 1044.02.13
Address: 104 E 13th Street Vancouver WA 98660 | Phone: 360 694 7262 | Fax: | Email: ehess@mauldfoster.com
Sampled by: MAP/LENH

Site Location: OR WA
Other: _____

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn	TOTAL DISS TCLP	1200-COLS	1200-Z	dioxins	Surface
1 RAU1-05-SO-1-5		12-2-19	1455	SO	3		X		X				X		X				X					
2 RAU1-05-GW-6.5			1650	GW	10		X		X				X		X				X					
3 RAU1-02-SO-1			1535	SO	3		X		X				X		X				X					
4 RAU1-02-GW-6			1615	GW	11		X		X				X		X				X				X	
5 RAU2-02-GW-6			1644	GW	7		X		X				X											
6 RAU1-04-SO-0.25			1420	SO	1								X						X					
7 RAU1-05-SO-0.25			1440	SO	1				X				X						X					
8 Trip Blank					1																			
9 RAU2-05-SO-2.5 DUP			1240	SO	2		X						X						X					
10																								

Normal Turn Around Time (TAT) = 10 Business Days YES NO

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

SPECIAL INSTRUCTIONS:
1) Potential dilution analysis for dissolved metals pending initial results
Dissolved metals = Investigation Cr were field filtered

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Emma Hess Date/Time: 12/4/19 1439 Printed Name: Emily Hess Company: MFA
RECEIVED BY: Signature: Date: Time: Printed Name: Company:
RELINQUISHED BY: Signature: Date: 12/4/19 Time: 1939 Printed Name: Company: Apex
RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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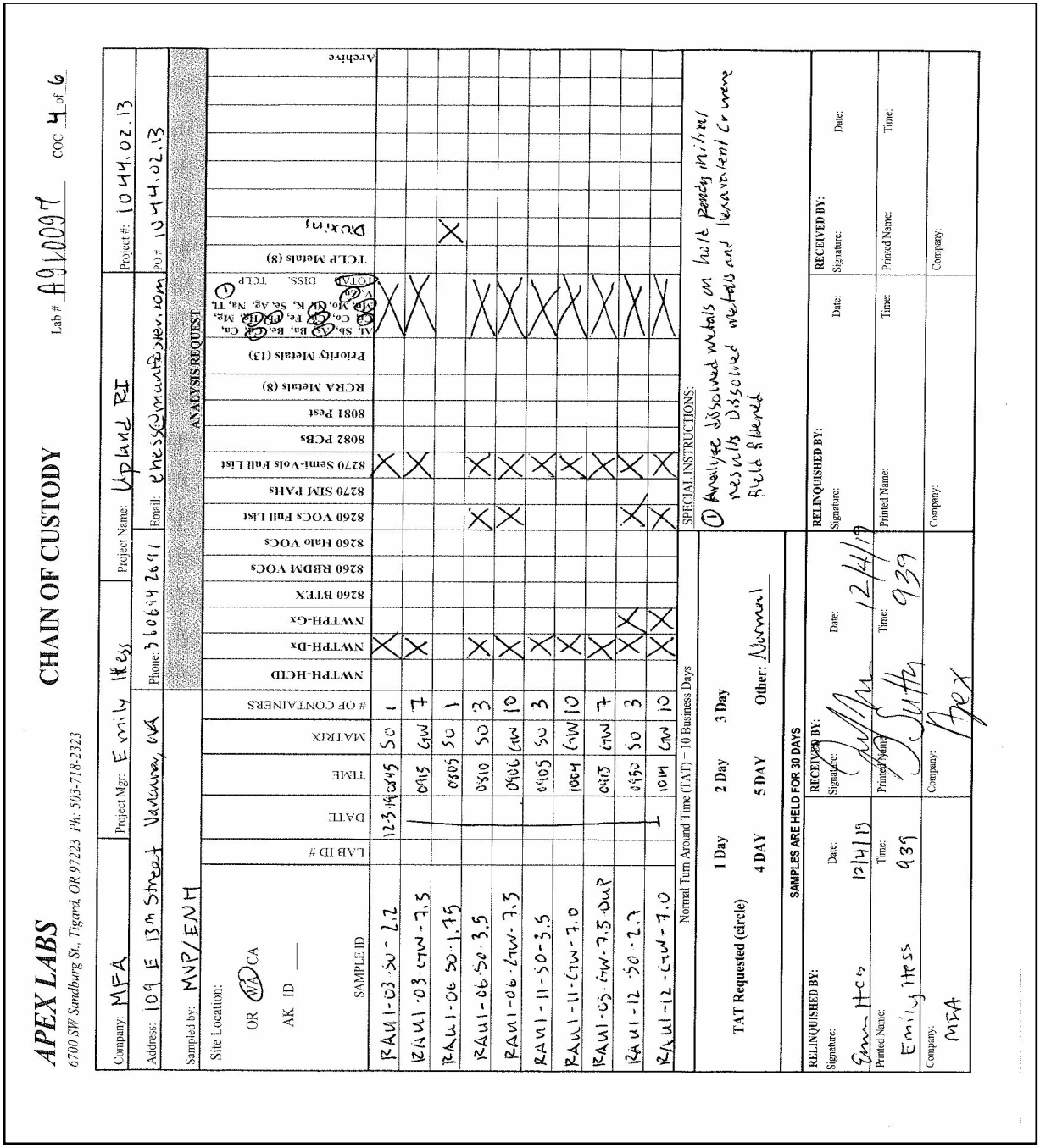
Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**



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

CHAIN OF CUSTODY

Lab # A9L0097 COC 4 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Upland RI | Project #: 1044.02.13
Address: 109 E 13th Street Vancouver, WA | Phone: 360 694 2691 | Email: ehess@maulfoster.com | PO # 1044.02.13
Sampled by: MNP/EMH

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Co, Fe, Pb, Mg, Mn, K, Se, Ag, Na, Tl. TOTAL DISS. TCLP	TCLP Metals (8)	Boxing	Archive
RAU1-03-SO-2.2		12-3-19	0845	SO	1		X							X								
RAU1-03-GW-7.5			0915	GW	7		X							X								
RAU1-06-SO-1.75			0905	SO	1							X								X		
RAU1-06-SO-3.5			0910	SO	3		X					X		X								
RAU1-06-GW-7.5			0916	GW	10		X					X		X								
RAU1-11-SO-3.5			0905	SO	3		X							X								
RAU1-11-GW-7.0			1004	GW	10		X							X								
RAU1-05-GW-7.5 DUP			0915	GW	7		X		X			X		X								
RAU1-12-SO-2.7			0950	SO	3		X		X			X		X								
RAU1-12-GW-7.0		1	1014	GW	10		X		X			X		X								

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
① Analyze dissolved metals on hold pending initial results. Dissolved metals and headspace if warranted by results. Rush filtered

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Gene Hess	Printed Name:	Printed Name:	Printed Name:
Date: 12/4/19	Date: 12/4/19	Date:	Date:
Time: 939	Time: 939	Time:	Time:
Company: MFA	Company: Apex	Company:	Company:

Apex Laboratories

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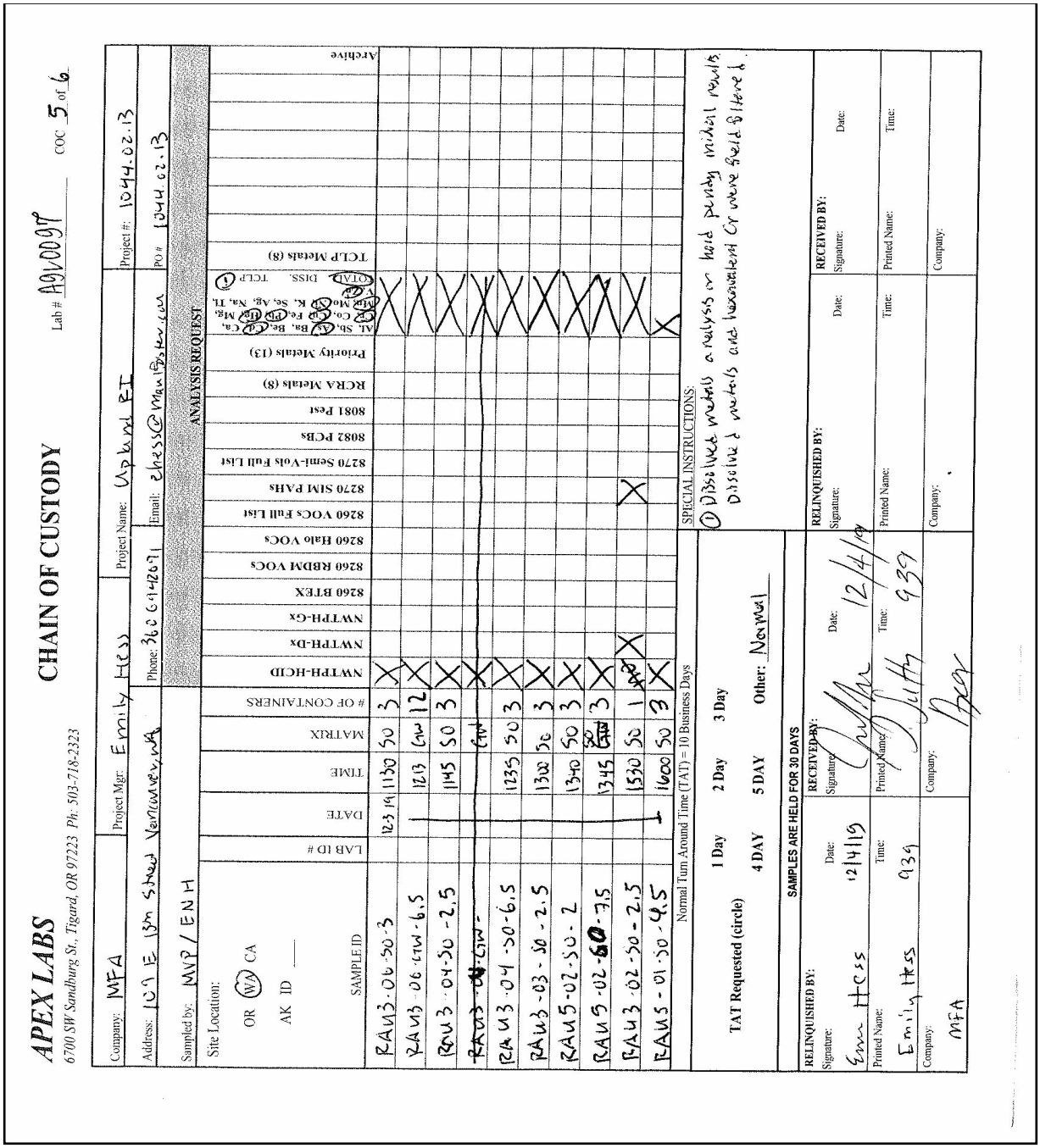
Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**



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

CHAIN OF CUSTODY

Lab # A9L0097 COC 5 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Upland RI | Project #: 1044.02.13
Address: 101 E 13th St Ste Vancouver WA | Phone: 360 694 2691 | Email: ehess@maulfoster.com | PO # 1044.02.13
Sampled by: MVP / ENH

Site Location: OR (WA) CA AK ID ___

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Co, Cr, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn (TOTAL) DISS. TCLP	TCLP Metals (8)	Archive
RAU3-06-50-3		12/9/13	1130	SO	3	X															
RAU3-06-6W-6.5			1213	GW	12																
RAU3-04-50-2.5			1145	SO	3	X															
RAU3-04-GW-				GW		X															
RAU3-04-50-6.5			1235	SO	3	X															
RAU3-03-50-2.5			1300	SO	3	X															
RAU5-02-50-2			1340	SO	3	X															
RAU5-02-60-7.5			1345	SO GW	3	X															
RAU3-02-50-2.5			1520	SO	1	X								X							
RAU5-01-50-9.5			1600	SO	3	X															

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
① Dissolve metals analysis on hold pending initial results. Dissolve metals analysis can be terminated for wave field blanks.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 12/4/13	Date: 12/4/13	Date:	Date:
Printed Name: Emily Hess	Printed Name: [illegible]	Printed Name:	Printed Name:
Time: 0934	Time: 0934	Time:	Time:
Company: MFA	Company: [illegible]	Company:	Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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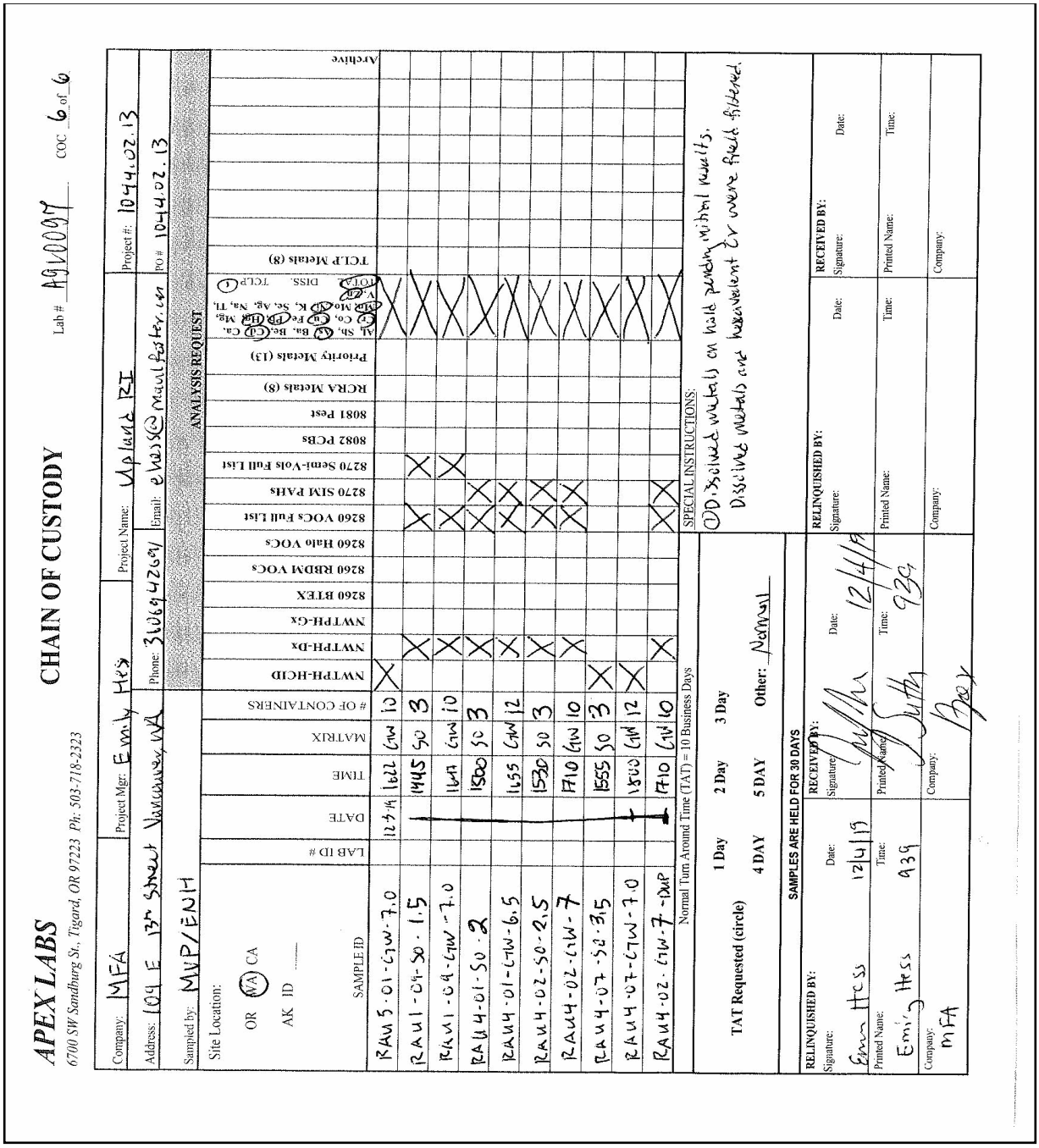
Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**



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

CHAIN OF CUSTODY

Lab # A9L0097 COC 6 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Upland RI | Project #: 1044.02.13
Address: 104 E 13th Street Vancouver WA | Phone: 3606942609 | Email: ehess@maulfoster.com | PO # 1044.02.13
Sampled by: MVP/ENH

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Co, Cr, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn (TOTAL / DISS.) TCLP (1)	TCLP Metals (8)	Archive
RAU5-01-GW-7.0		12/4	1622	GW	10	X															
RAU1-01-SO-1.5			1945	SO	3		X					X		X							
RAU1-04-GW-7.0			1417	GW	10		X					X		X							
RAU4-01-SO-2			1500	SO	3		X					X		X							
RAU4-01-GW-6.5			1455	GW	12		X					X		X							
RAU4-02-SO-2.5			1530	SO	3		X					X		X							
RAU4-02-GW-7			1710	GW	10		X					X		X							
RAU4-03-SO-3.5			1555	SO	3	X															
RAU4-03-GW-7.0			1800	GW	12		X					X		X							
RAU4-02-GW-7-DUP			1710	GW	10		X					X		X							

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
① Dissolved metals on hold pending initial results. Dissolved metals are inconvenient QC were field filtered.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	Date:	Time:	RECEIVED BY:	Date:	Time:
Signature:			Signature:		
Printed Name: Emily Hess	12/4/19	939	Printed Name:		
Company: MFA			Company:		

RELINQUISHED BY:	Date:	Time:	RECEIVED BY:	Date:	Time:
Signature:			Signature:		
Printed Name:			Printed Name:		
Company:			Company:		

Apex Laboratories

Philip Nerenberg

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A9 L0097

Project/Project #: Upland RI / 1044.02.13

Delivery Info:

Date/time received: 12/4/16 @ 9:34 By: JS

Delivered by: Apex____Client X ESS____FedEx____UPS____Swift____Senvoy ___SDS___Other_____

Cooler Inspection Date/time inspected: 12/4/16 @ 9:50 By: JS

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

Signed/dated by client? Yes X No ___

Signed/dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	2.9	3.0	1.1	4.8	3.3	3.0	2.9
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
Condition:	Good						

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

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

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

Samples Inspection: Date/time inspected: 12/4/16 @ 13:00 By: JS

All samples intact? Yes X No ___ Comments:

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

COC/container discrepancies form initiated? Yes X No ___ NA ___

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

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

Comments 3 VOAs have HS on RAU1-01-GW-7.0

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

Comments: pH 8 on 125 ml brown NaOH poly on RAU1-02-GW-6 RAU1-01-GW-7.5

Additional information: Strong odor on RAU1-02-GW-6

Labeled by: B Witness: BKK Cooler Inspected by: WJK See Project Contact Form: Y

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A9 L0097

Project/Project #: Upland RI / 1044.02.13

Delivery Info:

Date/time received: 12/4/19 @ 9:39 By: JS

Delivered by: Apex____Client X ESS____FedEx____UPS____Swift____Senvoy____SDS____Other____

Cooler Inspection Date/time inspected: 12/4/19 @ 9:50 By: MS

Chain of Custody included? Yes X No ___ Custody seals? Yes____ No X

Signed/dated by client? Yes X No ___

Signed/dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	2.1	0.3	4.1	2.2	5.7	3.1	4.4
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
Condition:	Good						

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

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

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

Samples Inspection: Date/time inspected: 12/4/19 @ 13:00 By: MS

All samples intact? Yes X No ___ Comments:

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

COC/container discrepancies form initiated? Yes X No ___ NA ___

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

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

Comments 1/3 VOAs have HS on RAU5-01-GW-7.0

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

Comments: pH 8 on 125 ml brown NaOH poly on RAU1-02-GW6, RAU1-01-GW-7.5

Additional information: Strong odor on RAU1-02-GW-6

Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A9L0097

Project/Project #: Upland RI / 1044.02.13

Delivery Info:

Date/time received: 12/4/19 @ 9:34 By: JG

Delivered by: Apex____Client_X_ESS____FedEx____UPS____Swift____Senvoy____SDS____Other_____

Cooler Inspection Date/time inspected: 12/4/19 @ 9:50 By: MM

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

Signed/dated by client? Yes X No ___

Signed/dated by Apex? Yes X No ___

	Cooler #1	Cooler #2 (to 24 in)	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	1.9						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
Condition:	Good						

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

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

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

Samples Inspection: Date/time inspected: 12/4/19 @ 13:00 By: JG

All samples intact? Yes X No ___ Comments:

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

COC/container discrepancies form initiated? Yes X No ___ NA ___

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

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

Comments 1/3 VOAs have HS on RAU5-01-GW-7.0

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

Comments: pH 8 on MS MD brown NaOH poly on RAU1-02-GW-6, RAU1-01-GW-7.5

Additional information: Strong odor on RAU1-02-GW-6

Labeled by: JG Witness: AKK Cooler Inspected by: MM AKK See Project Contact Form: Y

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0097 - 02 13 20 1501**

A9L0097

COC/Container Discrepancies

COC Reads	Container Reads/Comments
COC reads 1 trip blank	we received 3 trip blanks
NO D on 1/2 HCL Ambers for RAU1-03-GW-7.5 DUP	
Sediment in 3/3 vials for RAU1-06-GW-7.5 RAU1-11-GW-7.0 RAU1-12-GW-7.0 RAU5-01-GW-7.0 RAU1-09-GW-7.0 RAU4-01-GW-6.5 RAU4-02-GW-7 RAU4-07-GW-7.0 RAU4-02-GW-7 DUP RAU1-02-GW-6	
Sediment in 9/9 vials on RAU1-07-GW-7.5	
RAU1-07-SO-1.8, 3 containers	received 9 containers
TB #2194	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
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EPA ID: OR01039

AMENDED REPORT

Thursday, January 30, 2020

Emily Hess
Maul Foster & Alongi, INC.
2001 NW 19th Ave, STE 200
Portland, OR 97209

RE: A9L0191 - Seaport Tidelands - 1044.02.13

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

Enclosed are the results of analyses for work order A9L0191, which was received by the laboratory on 12/6/2019 at 12:10:00PM.

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

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

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #01	2.9 degC	Cooler #02	0.3 degC
Cooler #03	0.6 degC	Cooler #04	1.8 degC
Cooler #05	1.3 degC	Cooler #06	1.2 degC
Cooler #07	1.4 degC	Cooler #08	0.6 degC
Cooler #09	0.3 degC	Cooler #10	0.7 degC
Cooler #11	2.1 degC		

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

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RAU3-07-SO-2.0	A9L0191-01	Soil	12/04/19 08:00	12/06/19 12:10
RAU3-07-SO-6.0	A9L0191-02	Soil	12/04/19 08:15	12/06/19 12:10
RAU2-08-SO-2.0	A9L0191-03	Soil	12/04/19 08:40	12/06/19 12:10
RAU2-09-SO-1.5	A9L0191-04	Soil	12/04/19 09:30	12/06/19 12:10
RAU2-09-SO-8.0	A9L0191-05	Soil	12/04/19 09:40	12/06/19 12:10
RAU1-08-SO-2.0	A9L0191-06	Soil	12/04/19 10:30	12/06/19 12:10
RAU1-08-SO-7.0	A9L0191-07	Soil	12/04/19 10:40	12/06/19 12:10
RAU1-08-GW-7.0	A9L0191-08	Water	12/04/19 10:26	12/06/19 12:10
RAU2-SW-Chehalis	A9L0191-09	Water	12/04/19 09:40	12/06/19 12:10
RAU1-10-SO-2.0	A9L0191-10	Soil	12/04/19 11:00	12/06/19 12:10
RAU1-10-GW-8.5	A9L0191-11	Water	12/04/19 11:08	12/06/19 12:10
RAU4-10-SO-3.0	A9L0191-12	Soil	12/04/19 11:40	12/06/19 12:10
RAU4-10-GW-8.0	A9L0191-13	Water	12/04/19 14:51	12/06/19 12:10
RAU4-08-SO-1.75	A9L0191-14	Soil	12/04/19 12:30	12/06/19 12:10
RAU4-08-SO-1.75-DUP	A9L0191-15	Soil	12/04/19 12:30	12/06/19 12:10
RAU4-08-GW-7.5	A9L0191-16	Water	12/04/19 14:49	12/06/19 12:10
RAU4-03-SO-1.2	A9L0191-17	Soil	12/04/19 13:05	12/06/19 12:10
RAU4-03-SO-14.5	A9L0191-18	Soil	12/04/19 13:10	12/06/19 12:10
RAU4-12-SO-2.4	A9L0191-19	Soil	12/04/19 13:30	12/06/19 12:10
RAU6-02-SO-1.5	A9L0191-20	Soil	12/04/19 16:15	12/06/19 12:10
RAU6-01-SO-2.3	A9L0191-21	Soil	12/04/19 16:40	12/06/19 12:10
RAU4-05-SO-1.75	A9L0191-22	Soil	12/04/19 17:30	12/06/19 12:10
RAU4-05-SO-1.75-DUP	A9L0191-23	Soil	12/04/19 17:30	12/06/19 12:10
RAU4-05-GW-7.5	A9L0191-24	Water	12/04/19 17:38	12/06/19 12:10
Trip Blank	A9L0191-29	Water	12/04/19 00:00	12/06/19 12:10
RB	A9L0191-30	Water	12/05/19 18:00	12/06/19 12:10
RAU3-01-SO-2.0	A9L0191-41	Soil	12/05/19 07:50	12/06/19 12:10
RAU3-01-SO-6.5	A9L0191-42	Soil	12/05/19 08:00	12/06/19 12:10
RAU2-07-SO-1.5	A9L0191-43	Soil	12/05/19 08:20	12/06/19 12:10
RAU2-07-GW-7.5	A9L0191-44	Water	12/05/19 08:38	12/06/19 12:10
RAU4-06-SO-1.5	A9L0191-45	Soil	12/05/19 09:20	12/06/19 12:10
RAU4-06-GW-4.5	A9L0191-46	Water	12/05/19 09:24	12/06/19 12:10
RAU6-03-SO-2.5	A9L0191-47	Soil	12/05/19 09:40	12/06/19 12:10

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RAU6-03-SO-9.5	A9L0191-48	Soil	12/05/19 10:00	12/06/19 12:10
RAU4-11-SO-2.5	A9L0191-49	Soil	12/05/19 11:00	12/06/19 12:10
RAU4-11-GW-7.0	A9L0191-50	Water	12/05/19 11:14	12/06/19 12:10
RAU4-09-SO-2.5	A9L0191-51	Soil	12/05/19 13:40	12/06/19 12:10
RAU4-09-GW-7.0	A9L0191-52	Water	12/05/19 13:41	12/06/19 12:10
RAU4-04-SO-3.45	A9L0191-53	Soil	12/05/19 14:30	12/06/19 12:10
RAU4-04-GW-7.0	A9L0191-54	Water	12/05/19 14:14	12/06/19 12:10
RAU7-01-SO-1.5	A9L0191-55	Soil	12/05/19 15:55	12/06/19 12:10
RAU7-01-GW-8.5	A9L0191-56	Water	12/05/19 15:45	12/06/19 12:10
RAU7-02-SO-2.5	A9L0191-57	Soil	12/05/19 16:30	12/06/19 12:10
RAU7-02-GW-9.5	A9L0191-58	Water	12/05/19 16:31	12/06/19 12:10
RAU-SO-IDW	A9L0191-59	Soil	12/05/19 17:15	12/06/19 12:10
RAU-GW-IDW	A9L0191-60	Water	12/05/19 17:15	12/06/19 12:10

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL CASE NARRATIVE

Work Order: A9L0191

Amended Final Report #1

Per client request, this report version contains a subset of the samples listed on the 6 pages of chain of custody.

Philip Nerenberg
Lab Director
1/30/20

Apex Laboratories

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-07-SO-2.0 (A9L0191-01)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	25.4	25.4	mg/kg dry	1	12/10/19 00:58	NWTPH-HCID	
Diesel Range Organics	ND	63.4	63.4	mg/kg dry	1	12/10/19 00:58	NWTPH-HCID	
Oil Range Organics	ND	127	127	mg/kg dry	1	12/10/19 00:58	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*86 %*	*Limits: 50-150 %*	*1*	*12/10/19 00:58*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*89 %*	*50-150 %*	*1*	*12/10/19 00:58*	*NWTPH-HCID*	
RAU3-07-SO-6.0 (A9L0191-02)				**Matrix: Soil**		**Batch: 9120779**		
Gasoline Range Organics	ND	27.8	27.8	mg/kg dry	1	12/11/19 23:01	NWTPH-HCID	
Diesel Range Organics	ND	69.6	69.6	mg/kg dry	1	12/11/19 23:01	NWTPH-HCID	
Oil Range Organics	ND	139	139	mg/kg dry	1	12/11/19 23:01	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*93 %*	*Limits: 50-150 %*	*1*	*12/11/19 23:01*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*	*1*	*12/11/19 23:01*	*NWTPH-HCID*	
RAU4-10-SO-3.0 (A9L0191-12)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	22.7	22.7	mg/kg dry	1	12/10/19 01:39	NWTPH-HCID	
Diesel Range Organics	ND	56.8	56.8	mg/kg dry	1	12/10/19 01:39	NWTPH-HCID	
Oil Range Organics	ND	114	114	mg/kg dry	1	12/10/19 01:39	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*61 %*	*Limits: 50-150 %*	*1*	*12/10/19 01:39*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*62 %*	*50-150 %*	*1*	*12/10/19 01:39*	*NWTPH-HCID*	
RAU4-10-GW-8.0 (A9L0191-13)				**Matrix: Water**		**Batch: 9120671**		
Gasoline Range Organics	ND	0.101	0.101	mg/L	1	12/10/19 05:25	NWTPH-HCID	
Diesel Range Organics	ND	0.253	0.253	mg/L	1	12/10/19 05:25	NWTPH-HCID	
Oil Range Organics	ND	0.253	0.253	mg/L	1	12/10/19 05:25	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*76 %*	*Limits: 50-150 %*	*1*	*12/10/19 05:25*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*34 %*	*10-120 %*	*1*	*12/10/19 05:25*	*NWTPH-HCID*	
RAU4-08-SO-1.75 (A9L0191-14)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	19.2	19.2	mg/kg dry	1	12/10/19 01:59	NWTPH-HCID	
Diesel Range Organics	ND	48.0	48.0	mg/kg dry	1	12/10/19 01:59	NWTPH-HCID	
Oil Range Organics	DET	96.0	96.0	mg/kg dry	1	12/10/19 01:59	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*90 %*	*Limits: 50-150 %*	*1*	*12/10/19 01:59*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*94 %*	*50-150 %*	*1*	*12/10/19 01:59*	*NWTPH-HCID*	

Apex Laboratories



Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	19.0	19.0	mg/kg dry	1	12/10/19 02:20	NWTPH-HCID	
Diesel Range Organics	ND	47.5	47.5	mg/kg dry	1	12/10/19 02:20	NWTPH-HCID	
Oil Range Organics	DET	95.1	95.1	mg/kg dry	1	12/10/19 02:20	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*	*1*	*12/10/19 02:20*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*96 %*	*50-150 %*	*1*	*12/10/19 02:20*	*NWTPH-HCID*	
RAU4-08-GW-7.5 (A9L0191-16)				**Matrix: Water**		**Batch: 9120671**		
Gasoline Range Organics	ND	0.109	0.109	mg/L	1	12/10/19 07:07	NWTPH-HCID	
Diesel Range Organics	ND	0.272	0.272	mg/L	1	12/10/19 07:07	NWTPH-HCID	
Oil Range Organics	ND	0.272	0.272	mg/L	1	12/10/19 07:07	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 80 %*	*Limits: 50-150 %*	*1*	*12/10/19 07:07*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*40 %*	*10-120 %*	*1*	*12/10/19 07:07*	*NWTPH-HCID*	
RAU4-03-SO-1.2 (A9L0191-17RE1)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	20.8	20.8	mg/kg dry	1	12/10/19 10:48	NWTPH-HCID	
Diesel Range Organics	ND	52.1	52.1	mg/kg dry	1	12/10/19 10:48	NWTPH-HCID	
Oil Range Organics	ND	104	104	mg/kg dry	1	12/10/19 10:48	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*	*1*	*12/10/19 10:48*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*89 %*	*50-150 %*	*1*	*12/10/19 10:48*	*NWTPH-HCID*	
RAU4-03-SO-14.5 (A9L0191-18RE1)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	35.0	35.0	mg/kg dry	1	12/10/19 11:56	NWTPH-HCID	
Diesel Range Organics	ND	87.6	87.6	mg/kg dry	1	12/10/19 11:56	NWTPH-HCID	
Oil Range Organics	ND	175	175	mg/kg dry	1	12/10/19 11:56	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 85 %*	*Limits: 50-150 %*	*1*	*12/10/19 11:56*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*85 %*	*50-150 %*	*1*	*12/10/19 11:56*	*NWTPH-HCID*	
RAU4-12-SO-2.4 (A9L0191-19RE1)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	22.1	22.1	mg/kg dry	1	12/10/19 11:10	NWTPH-HCID	
Diesel Range Organics	ND	55.3	55.3	mg/kg dry	1	12/10/19 11:10	NWTPH-HCID	
Oil Range Organics	ND	111	111	mg/kg dry	1	12/10/19 11:10	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 84 %*	*Limits: 50-150 %*	*1*	*12/10/19 11:10*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*83 %*	*50-150 %*	*1*	*12/10/19 11:10*	*NWTPH-HCID*	

Apex Laboratories



Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU6-02-SO-1.5 (A9L0191-20RE1)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	23.0	23.0	mg/kg dry	1	12/10/19 11:33	NWTPH-HCID	
Diesel Range Organics	ND	57.4	57.4	mg/kg dry	1	12/10/19 11:33	NWTPH-HCID	
Oil Range Organics	ND	115	115	mg/kg dry	1	12/10/19 11:33	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*92 %*	*Limits: 50-150 %*	*1*	*12/10/19 11:33*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*90 %*	*50-150 %*	*1*	*12/10/19 11:33*	*NWTPH-HCID*	
RAU6-01-SO-2.3 (A9L0191-21RE1)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	22.3	22.3	mg/kg dry	1	12/10/19 12:18	NWTPH-HCID	
Diesel Range Organics	ND	55.8	55.8	mg/kg dry	1	12/10/19 12:18	NWTPH-HCID	
Oil Range Organics	ND	112	112	mg/kg dry	1	12/10/19 12:18	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*72 %*	*Limits: 50-150 %*	*1*	*12/10/19 12:18*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*71 %*	*50-150 %*	*1*	*12/10/19 12:18*	*NWTPH-HCID*	
RB (A9L0191-30)				**Matrix: Water**		**Batch: 9120671**		
Gasoline Range Organics	ND	0.114	0.114	mg/L	1	12/10/19 07:28	NWTPH-HCID	
Diesel Range Organics	ND	0.284	0.284	mg/L	1	12/10/19 07:28	NWTPH-HCID	
Oil Range Organics	ND	0.284	0.284	mg/L	1	12/10/19 07:28	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*87 %*	*Limits: 50-150 %*	*1*	*12/10/19 07:28*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*44 %*	*10-120 %*	*1*	*12/10/19 07:28*	*NWTPH-HCID*	
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	21.7	21.7	mg/kg dry	1	12/10/19 04:43	NWTPH-HCID	
Diesel Range Organics	ND	54.1	54.1	mg/kg dry	1	12/10/19 04:43	NWTPH-HCID	
Oil Range Organics	DET	108	108	mg/kg dry	1	12/10/19 04:43	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*94 %*	*Limits: 50-150 %*	*1*	*12/10/19 04:43*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*94 %*	*50-150 %*	*1*	*12/10/19 04:43*	*NWTPH-HCID*	
RAU4-06-GW-4.5 (A9L0191-46)				**Matrix: Water**		**Batch: 9120671**		
Gasoline Range Organics	ND	0.110	0.110	mg/L	1	12/10/19 07:48	NWTPH-HCID	
Diesel Range Organics	ND	0.275	0.275	mg/L	1	12/10/19 07:48	NWTPH-HCID	
Oil Range Organics	DET	0.275	0.275	mg/L	1	12/10/19 07:48	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*52 %*	*Limits: 50-150 %*	*1*	*12/10/19 07:48*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*70 %*	*10-120 %*	*1*	*12/10/19 07:48*	*NWTPH-HCID*	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	22.8	22.8	mg/kg dry	1	12/10/19 05:04	NWTPH-HCID	
Diesel Range Organics	ND	57.0	57.0	mg/kg dry	1	12/10/19 05:04	NWTPH-HCID	
Oil Range Organics	DET	114	114	mg/kg dry	1	12/10/19 05:04	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*	*1*	*12/10/19 05:04*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*100 %*	*50-150 %*	*1*	*12/10/19 05:04*	*NWTPH-HCID*	
RAU6-03-SO-9.5 (A9L0191-48)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	35.3	35.3	mg/kg dry	1	12/10/19 05:45	NWTPH-HCID	
Diesel Range Organics	ND	88.3	88.3	mg/kg dry	1	12/10/19 05:45	NWTPH-HCID	
Oil Range Organics	ND	177	177	mg/kg dry	1	12/10/19 05:45	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 109 %*	*Limits: 50-150 %*	*1*	*12/10/19 05:45*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*103 %*	*50-150 %*	*1*	*12/10/19 05:45*	*NWTPH-HCID*	
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	19.7	19.7	mg/kg dry	1	12/10/19 06:06	NWTPH-HCID	
Diesel Range Organics	ND	49.3	49.3	mg/kg dry	1	12/10/19 06:06	NWTPH-HCID	
Oil Range Organics	DET	98.7	98.7	mg/kg dry	1	12/10/19 06:06	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 96 %*	*Limits: 50-150 %*	*1*	*12/10/19 06:06*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*	*1*	*12/10/19 06:06*	*NWTPH-HCID*	
RAU4-11-GW-7.0 (A9L0191-50)				**Matrix: Water**		**Batch: 9120671**		
Gasoline Range Organics	ND	0.119	0.119	mg/L	1	12/10/19 08:09	NWTPH-HCID	
Diesel Range Organics	ND	0.298	0.298	mg/L	1	12/10/19 08:09	NWTPH-HCID	
Oil Range Organics	ND	0.298	0.298	mg/L	1	12/10/19 08:09	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 85 %*	*Limits: 50-150 %*	*1*	*12/10/19 08:09*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*60 %*	*10-120 %*	*1*	*12/10/19 08:09*	*NWTPH-HCID*	
RAU4-09-SO-2.5 (A9L0191-51)				**Matrix: Soil**		**Batch: 9120672**		
Gasoline Range Organics	ND	21.3	21.3	mg/kg dry	1	12/10/19 06:26	NWTPH-HCID	
Diesel Range Organics	ND	53.2	53.2	mg/kg dry	1	12/10/19 06:26	NWTPH-HCID	
Oil Range Organics	ND	106	106	mg/kg dry	1	12/10/19 06:26	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*	*1*	*12/10/19 06:26*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*96 %*	*50-150 %*	*1*	*12/10/19 06:26*	*NWTPH-HCID*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-09-GW-7.0 (A9L0191-52)				**Matrix: Water**		**Batch: 9120671**		
Gasoline Range Organics	ND	0.108	0.108	mg/L	1	12/10/19 08:29	NWTPH-HCID	
Diesel Range Organics	ND	0.269	0.269	mg/L	1	12/10/19 08:29	NWTPH-HCID	
Oil Range Organics	ND	0.269	0.269	mg/L	1	12/10/19 08:29	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*91 %*	*Limits: 50-150 %*	*1*	*12/10/19 08:29*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*59 %*	*10-120 %*	*1*	*12/10/19 08:29*	*NWTPH-HCID*	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-SO-2.0 (A9L0191-03)				**Matrix: Soil**		**Batch: 9120775**		
Diesel	ND	12.5	25.0	mg/kg dry	1	12/11/19 23:16	NWTPH-Dx	
Oil	**60.6**	24.9	50.0	mg/kg dry	1	12/11/19 23:16	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*		*Limits: 50-150 %*	*1*	*12/11/19 23:16*	*NWTPH-Dx*	
RAU2-09-SO-1.5 (A9L0191-04RE1)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	443	886	mg/kg dry	40	12/13/19 09:36	NWTPH-Dx	
Oil	**3190**	886	1770	mg/kg dry	40	12/13/19 09:36	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*40*	*12/13/19 09:36*	*NWTPH-Dx*	*S-01*
RAU2-09-SO-8.0 (A9L0191-05RE1)				**Matrix: Soil**		**Batch: 9121014**		
Diesel	ND	664	1330	mg/kg dry	25	12/18/19 07:40	NWTPH-Dx	
Oil	**37200**	1330	2660	mg/kg dry	25	12/18/19 07:40	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*25*	*12/18/19 07:40*	*NWTPH-Dx*	*S-01*
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	107	213	mg/kg dry	10	12/12/19 22:14	NWTPH-Dx	
Oil	**8890**	213	427	mg/kg dry	10	12/12/19 22:14	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 84 %*		*Limits: 50-150 %*	*10*	*12/12/19 22:14*	*NWTPH-Dx*	*S-05*
RAU1-08-SO-7.0 (A9L0191-07RE1)				**Matrix: Soil**		**Batch: 9121014**		
Diesel	ND	277	554	mg/kg dry	20	12/18/19 08:00	NWTPH-Dx	
Oil	**9950**	554	1110	mg/kg dry	20	12/18/19 08:00	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*20*	*12/18/19 08:00*	*NWTPH-Dx*	*S-01*
RAU1-08-GW-7.0 (A9L0191-08)				**Matrix: Water**		**Batch: 9120774**		
Diesel	ND	0.104	0.208	mg/L	1	12/11/19 21:19	NWTPH-Dx	
Oil	ND	0.208	0.417	mg/L	1	12/11/19 21:19	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 106 %*		*Limits: 50-150 %*	*1*	*12/11/19 21:19*	*NWTPH-Dx*	
RAU1-10-SO-2.0 (A9L0191-10)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	**180**	10.2	25.0	mg/kg dry	1	12/12/19 22:55	NWTPH-Dx	**F-15**
Oil	**489**	20.3	50.0	mg/kg dry	1	12/12/19 22:55	NWTPH-Dx	**F-16**
Surrogate: o-Terphenyl (Surr)		*Recovery: 86 %*		*Limits: 50-150 %*	*1*	*12/12/19 22:55*	*NWTPH-Dx*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-10-GW-8.5 (A9L0191-11)				**Matrix: Water**		**Batch: 9120774**		
Diesel	**0.340**	0.111	0.222	mg/L	1	12/11/19 21:39	NWTPH-Dx	**F-17**
Oil	ND	0.222	0.444	mg/L	1	12/11/19 21:39	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 105 %*		*Limits: 50-150 %*	*1*	*12/11/19 21:39*	*NWTPH-Dx*	
RAU4-08-SO-1.75 (A9L0191-14)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	508	1020	mg/kg dry	50	12/13/19 21:09	NWTPH-Dx	
Oil	**4400**	1020	2030	mg/kg dry	50	12/13/19 21:09	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*50*	*12/13/19 21:09*	*NWTPH-Dx*	*S-01*
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	488	976	mg/kg dry	50	12/13/19 21:28	NWTPH-Dx	
Oil	**4850**	976	1950	mg/kg dry	50	12/13/19 21:28	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*50*	*12/13/19 21:28*	*NWTPH-Dx*	*S-01*
RAU4-05-SO-1.75 (A9L0191-22RE1)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	206	412	mg/kg dry	20	12/13/19 09:13	NWTPH-Dx	
Oil	**3130**	412	825	mg/kg dry	20	12/13/19 09:13	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*20*	*12/13/19 09:13*	*NWTPH-Dx*	*S-01*
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	10.9	25.0	mg/kg dry	1	12/12/19 23:36	NWTPH-Dx	
Oil	**2590**	21.8	50.0	mg/kg dry	1	12/12/19 23:36	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 77 %*		*Limits: 50-150 %*	*1*	*12/12/19 23:36*	*NWTPH-Dx*	
RAU4-05-GW-7.5 (A9L0191-24)				**Matrix: Water**		**Batch: 9120774**		
Diesel	ND	0.0943	0.189	mg/L	1	12/11/19 22:00	NWTPH-Dx	
Oil	**6.54**	0.189	0.377	mg/L	1	12/11/19 22:00	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 110 %*		*Limits: 50-150 %*	*1*	*12/11/19 22:00*	*NWTPH-Dx*	
RAU3-01-SO-2.0 (A9L0191-41)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	1060	2110	mg/kg dry	100	12/12/19 23:56	NWTPH-Dx	
Oil	**8070**	2110	4220	mg/kg dry	100	12/12/19 23:56	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*100*	*12/12/19 23:56*	*NWTPH-Dx*	*S-01*

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Philip Nerenberg

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-SO-1.5 (A9L0191-43)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	10.9	25.0	mg/kg dry	1	12/13/19 00:38	NWTPH-Dx	
Oil	ND	21.8	50.0	mg/kg dry	1	12/13/19 00:38	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 72 %*		*Limits: 50-150 %*	*1*	*12/13/19 00:38*	*NWTPH-Dx*	
RAU2-07-GW-7.5 (A9L0191-44)				**Matrix: Water**		**Batch: 9120774**		
Diesel	**0.526**	0.106	0.213	mg/L	1	12/11/19 22:20	NWTPH-Dx	**F-17**
Oil	ND	0.213	0.426	mg/L	1	12/11/19 22:20	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 102 %*		*Limits: 50-150 %*	*1*	*12/11/19 22:20*	*NWTPH-Dx*	
RAU4-06-SO-1.5 (A9L0191-45RE1)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	113	226	mg/kg dry	10	12/14/19 10:31	NWTPH-Dx	
Oil	**4640**	226	451	mg/kg dry	10	12/14/19 10:31	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 86 %*		*Limits: 50-150 %*	*10*	*12/14/19 10:31*	*NWTPH-Dx*	*S-05*
RAU4-06-GW-4.5 (A9L0191-46)				**Matrix: Water**		**Batch: 9120671**		
Diesel	ND	5.49	11.0	mg/L	50	12/12/19 22:01	NWTPH-Dx	
Oil	**481**	11.0	22.0	mg/L	50	12/12/19 22:01	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*50*	*12/12/19 22:01*	*NWTPH-Dx*	*S-01*
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	10.6	25.0	mg/kg dry	1	12/13/19 22:29	NWTPH-Dx	
Oil	**1140**	21.2	50.0	mg/kg dry	1	12/13/19 22:29	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 92 %*		*Limits: 50-150 %*	*1*	*12/13/19 22:29*	*NWTPH-Dx*	
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120906**		
Diesel	ND	9.99	25.0	mg/kg dry	1	12/13/19 22:49	NWTPH-Dx	
Oil	**377**	20.0	50.0	mg/kg dry	1	12/13/19 22:49	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*		*Limits: 50-150 %*	*1*	*12/13/19 22:49*	*NWTPH-Dx*	
RAU4-04-SO-3.45 (A9L0191-53)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	11.5	25.0	mg/kg dry	1	12/13/19 00:59	NWTPH-Dx	
Oil	**427**	23.0	50.0	mg/kg dry	1	12/13/19 00:59	NWTPH-Dx	**F-03**
Surrogate: o-Terphenyl (Surr)		*Recovery: 77 %*		*Limits: 50-150 %*	*1*	*12/13/19 00:59*	*NWTPH-Dx*	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-04-GW-7.0 (A9L0191-54)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.170**	0.102	0.204	mg/L	1	12/10/19 23:37	NWTPH-Dx	**J**
Oil	ND	0.204	0.408	mg/L	1	12/10/19 23:37	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 96 %*		*Limits: 50-150 %*	*1*	*12/10/19 23:37*	*NWTPH-Dx*	
RAU7-01-SO-1.5 (A9L0191-55)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	ND	10.5	25.0	mg/kg dry	1	12/13/19 01:19	NWTPH-Dx	
Oil	**24.7**	21.0	50.0	mg/kg dry	1	12/13/19 01:19	NWTPH-Dx	**J**
Surrogate: o-Terphenyl (Surr)		*Recovery: 79 %*		*Limits: 50-150 %*	*1*	*12/13/19 01:19*	*NWTPH-Dx*	
RAU7-01-GW-8.5 (A9L0191-56)				**Matrix: Water**		**Batch: 9120726**		
Diesel	**0.108**	0.102	0.204	mg/L	1	12/11/19 00:00	NWTPH-Dx	**J**
Oil	ND	0.204	0.408	mg/L	1	12/11/19 00:00	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 92 %*		*Limits: 50-150 %*	*1*	*12/11/19 00:00*	*NWTPH-Dx*	
RAU7-02-SO-2.5 (A9L0191-57)				**Matrix: Soil**		**Batch: 9120804**		
Diesel	**11.9**	10.1	25.0	mg/kg dry	1	12/13/19 01:40	NWTPH-Dx	**J**
Oil	**24.4**	20.2	50.0	mg/kg dry	1	12/13/19 01:40	NWTPH-Dx	**J**
Surrogate: o-Terphenyl (Surr)		*Recovery: 79 %*		*Limits: 50-150 %*	*1*	*12/13/19 01:40*	*NWTPH-Dx*	
RAU7-02-GW-9.5 (A9L0191-58)				**Matrix: Water**		**Batch: 9120774**		
Diesel	ND	0.104	0.208	mg/L	1	12/11/19 22:41	NWTPH-Dx	
Oil	ND	0.208	0.417	mg/L	1	12/11/19 22:41	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 98 %*		*Limits: 50-150 %*	*1*	*12/11/19 22:41*	*NWTPH-Dx*	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-08-SO-1.75 (A9L0191-14)				**Matrix: Soil**		**Batch: 9120873**		
Benzene	ND	6.44	12.9	ug/kg dry	50	12/13/19 19:02	5035A/8260C	
Toluene	ND	32.2	64.4	ug/kg dry	50	12/13/19 19:02	5035A/8260C	
Ethylbenzene	ND	16.1	32.2	ug/kg dry	50	12/13/19 19:02	5035A/8260C	
Xylenes, total	ND	48.3	96.6	ug/kg dry	50	12/13/19 19:02	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits: 80-120 %*	*1*	*12/13/19 19:02*	*5035A/8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*12/13/19 19:02*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/13/19 19:02*	*5035A/8260C*	
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**		**Batch: 9120873**		
Benzene	ND	6.39	12.8	ug/kg dry	50	12/13/19 19:29	5035A/8260C	
Toluene	ND	31.9	63.9	ug/kg dry	50	12/13/19 19:29	5035A/8260C	
Ethylbenzene	ND	16.0	31.9	ug/kg dry	50	12/13/19 19:29	5035A/8260C	
Xylenes, total	ND	47.9	95.8	ug/kg dry	50	12/13/19 19:29	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits: 80-120 %*	*1*	*12/13/19 19:29*	*5035A/8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*12/13/19 19:29*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/13/19 19:29*	*5035A/8260C*	
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**		**Batch: 9120873**		
Benzene	ND	5.30	10.6	ug/kg dry	50	12/13/19 20:23	5035A/8260C	
Toluene	ND	26.5	53.0	ug/kg dry	50	12/13/19 20:23	5035A/8260C	
Ethylbenzene	ND	13.3	26.5	ug/kg dry	50	12/13/19 20:23	5035A/8260C	
Xylenes, total	ND	39.8	79.5	ug/kg dry	50	12/13/19 20:23	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*103 %*	*Limits: 80-120 %*	*1*	*12/13/19 20:23*	*5035A/8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*12/13/19 20:23*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*	*1*	*12/13/19 20:23*	*5035A/8260C*	
RAU4-06-GW-4.5 (A9L0191-46RE1)				**Matrix: Water**		**Batch: 9120757**		
Benzene	**0.700**	0.100	0.200	ug/L	1	12/11/19 19:30	EPA 8260C	
Toluene	**4.92**	0.500	1.00	ug/L	1	12/11/19 19:30	EPA 8260C	
Ethylbenzene	**0.260**	0.250	0.500	ug/L	1	12/11/19 19:30	EPA 8260C	**J**
Xylenes, total	ND	0.750	1.50	ug/L	1	12/11/19 19:30	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*103 %*	*Limits: 80-120 %*	*1*	*12/11/19 19:30*	*EPA 8260C*	
Toluene-d8 (Surr)			*97 %*	*80-120 %*	*1*	*12/11/19 19:30*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/11/19 19:30*	*EPA 8260C*	

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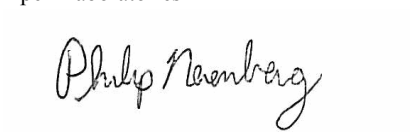

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**		**Batch: 9120873**		
Benzene	ND	5.58	11.2	ug/kg dry	50	12/13/19 20:50	5035A/8260C	
Toluene	ND	27.9	55.8	ug/kg dry	50	12/13/19 20:50	5035A/8260C	
Ethylbenzene	ND	13.9	27.9	ug/kg dry	50	12/13/19 20:50	5035A/8260C	
Xylenes, total	ND	55.8	83.6	ug/kg dry	50	12/13/19 20:50	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits: 80-120 %*	*1*	*12/13/19 20:50*	*5035A/8260C*	
Toluene-d8 (Surr)			*101 %*	*80-120 %*	*1*	*12/13/19 20:50*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*99 %*	*80-120 %*	*1*	*12/13/19 20:50*	*5035A/8260C*	
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120873**		
Benzene	ND	5.18	10.4	ug/kg dry	50	12/13/19 21:17	5035A/8260C	
Toluene	ND	25.9	51.8	ug/kg dry	50	12/13/19 21:17	5035A/8260C	
Ethylbenzene	ND	13.0	25.9	ug/kg dry	50	12/13/19 21:17	5035A/8260C	
Xylenes, total	ND	38.9	77.7	ug/kg dry	50	12/13/19 21:17	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*97 %*	*Limits: 80-120 %*	*1*	*12/13/19 21:17*	*5035A/8260C*	
Toluene-d8 (Surr)			*102 %*	*80-120 %*	*1*	*12/13/19 21:17*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/13/19 21:17*	*5035A/8260C*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-SO-1.5 (A9L0191-43)				**Matrix: Soil**		**Batch: 9120873**		
Acetone	ND	582	1160	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Acrylonitrile	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Benzene	ND	5.82	11.6	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Bromobenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Bromochloromethane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Bromodichloromethane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Bromoform	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Bromomethane	ND	582	582	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
2-Butanone (MEK)	ND	291	582	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
n-Butylbenzene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
sec-Butylbenzene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
tert-Butylbenzene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Carbon disulfide	ND	291	582	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Carbon tetrachloride	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Chlorobenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Chloroethane	ND	291	582	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Chloroform	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Chloromethane	ND	145	291	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
2-Chlorotoluene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
4-Chlorotoluene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Dibromochloromethane	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	145	291	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Dibromomethane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2-Dichlorobenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,3-Dichlorobenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,4-Dichlorobenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Dichlorodifluoromethane	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1-Dichloroethane	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1-Dichloroethene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
cis-1,2-Dichloroethene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
trans-1,2-Dichloroethene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-SO-1.5 (A9L0191-43)				**Matrix: Soil**		**Batch: 9120873**		
1,2-Dichloropropane	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,3-Dichloropropane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
2,2-Dichloropropane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1-Dichloropropene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
cis-1,3-Dichloropropene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
trans-1,3-Dichloropropene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Ethylbenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Hexachlorobutadiene	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
2-Hexanone	ND	291	582	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Isopropylbenzene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
4-Isopropyltoluene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Methylene chloride	ND	145	291	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	291	582	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Naphthalene	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
n-Propylbenzene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Styrene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Tetrachloroethene (PCE)	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Toluene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2,3-Trichlorobenzene	ND	145	291	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2,4-Trichlorobenzene	ND	145	291	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1,1-Trichloroethane	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,1,2-Trichloroethane	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Trichloroethene (TCE)	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Trichlorofluoromethane	ND	58.2	116	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2,3-Trichloropropane	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,2,4-Trimethylbenzene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
1,3,5-Trimethylbenzene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
Vinyl chloride	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
m,p-Xylene	ND	29.1	58.2	ug/kg dry	50	12/13/19 19:56	5035A/8260C	
o-Xylene	ND	14.5	29.1	ug/kg dry	50	12/13/19 19:56	5035A/8260C	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-SO-1.5 (A9L0191-43)				**Matrix: Soil**		**Batch: 9120873**		
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*	*Limits: 80-120 %*	*1*	*12/13/19 19:56*	*5035A/8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/13/19 19:56*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/13/19 19:56*	*5035A/8260C*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank (A9L0191-29)				**Matrix: Water**		**Batch: 9120943**		
Acetone	ND	10.0	20.0	ug/L	1	12/16/19 20:11	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/16/19 20:11	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/16/19 20:11	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/16/19 20:11	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/16/19 20:11	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/16/19 20:11	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank (A9L0191-29)				**Matrix: Water**		**Batch: 9120943**		
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/16/19 20:11	EPA 8260C	
2-Hexanone	ND	5.00	10.0	ug/L	1	12/16/19 20:11	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Methylene chloride	ND	5.00	10.0	ug/L	1	12/16/19 20:11	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/16/19 20:11	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Naphthalene	ND	1.00	2.00	ug/L	1	12/16/19 20:11	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/16/19 20:11	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/16/19 20:11	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/16/19 20:11	EPA 8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank (A9L0191-29)				**Matrix: Water**		**Batch: 9120943**		
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*104 %*	*Limits: 80-120 %*	*1*	*12/16/19 20:11*	*EPA 8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*12/16/19 20:11*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*97 %*	*80-120 %*	*1*	*12/16/19 20:11*	*EPA 8260C*	
RAU2-07-GW-7.5 (A9L0191-44)				**Matrix: Water**		**Batch: 9120654**		
Acetone	ND	20.0	20.0	ug/L	1	12/09/19 21:25	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Benzene	ND	0.100	0.200	ug/L	1	12/09/19 21:25	EPA 8260C	
Bromobenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Bromochloromethane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Bromoform	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Bromomethane	ND	5.00	5.00	ug/L	1	12/09/19 21:25	EPA 8260C	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	12/09/19 21:25	EPA 8260C	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Carbon disulfide	ND	5.00	10.0	ug/L	1	12/09/19 21:25	EPA 8260C	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Chlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Chloroethane	ND	5.00	5.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Chloroform	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Chloromethane	ND	2.50	5.00	ug/L	1	12/09/19 21:25	EPA 8260C	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Dibromomethane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-GW-7.5 (A9L0191-44)				**Matrix: Water**		**Batch: 9120654**		
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	12/09/19 21:25	EPA 8260C	
2-Hexanone	ND	10.0	10.0	ug/L	1	12/09/19 21:25	EPA 8260C	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
Methylene chloride	ND	1.50	3.00	ug/L	1	12/09/19 21:25	EPA 8260C	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	12/09/19 21:25	EPA 8260C	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Styrene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
Toluene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-GW-7.5 (A9L0191-44)				**Matrix: Water**		**Batch: 9120654**		
Vinyl chloride	ND	0.200	0.400	ug/L	1	12/09/19 21:25	EPA 8260C	
m,p-Xylene	ND	0.500	1.00	ug/L	1	12/09/19 21:25	EPA 8260C	
o-Xylene	ND	0.250	0.500	ug/L	1	12/09/19 21:25	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*112 %*	*Limits: 80-120 %*	*1*	*12/09/19 21:25*	*EPA 8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*12/09/19 21:25*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*95 %*	*80-120 %*	*1*	*12/09/19 21:25*	*EPA 8260C*	
RAU2-07-GW-7.5 (A9L0191-44RE1)				**Matrix: Water**		**Batch: 9120700**		
Naphthalene	**149**	1.00	2.00	ug/L	1	12/10/19 15:44	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*104 %*	*Limits: 80-120 %*	*1*	*12/10/19 15:44*	*EPA 8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*12/10/19 15:44*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*	*1*	*12/10/19 15:44*	*EPA 8260C*	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-SO-2.0 (A9L0191-03RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	
Aroclor 1221	ND	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	
Aroclor 1232	ND	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	
Aroclor 1242	ND	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	
Aroclor 1248	ND	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	
Aroclor 1254	**3.04**	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	**J**
Aroclor 1260	ND	2.52	5.04	ug/kg dry	1	12/13/19 10:16	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 87 %*		*Limits: 60-125 %*	*1*	*12/13/19 10:16*	*EPA 8082A*	
RAU2-09-SO-1.5 (A9L0191-04RE1)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Aroclor 1221	ND	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Aroclor 1232	ND	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Aroclor 1242	ND	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Aroclor 1248	ND	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Aroclor 1254	ND	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Aroclor 1260	**13.4**	5.39	10.8	ug/kg dry	1	12/13/19 10:51	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 81 %*		*Limits: 60-125 %*	*1*	*12/13/19 10:51*	*EPA 8082A*	
RAU4-08-SO-1.75 (A9L0191-14)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1221	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1232	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1242	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1248	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1254	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Aroclor 1260	ND	4.81	9.62	ug/kg dry	1	12/17/19 08:59	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 92 %*		*Limits: 60-125 %*	*1*	*12/17/19 08:59*	*EPA 8082A*	
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Aroclor 1221	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Aroclor 1232	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1242	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Aroclor 1248	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Aroclor 1254	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Aroclor 1260	ND	4.90	9.81	ug/kg dry	1	12/17/19 09:51	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 91 %*		*Limits: 60-125 %*	*1*	*12/17/19 09:51*	*EPA 8082A*	
RAU4-05-SO-1.75 (A9L0191-22)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Aroclor 1221	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Aroclor 1232	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Aroclor 1242	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Aroclor 1248	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Aroclor 1254	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Aroclor 1260	ND	2.09	4.17	ug/kg dry	1	12/12/19 12:47	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 78 %*		*Limits: 60-125 %*	*1*	*12/12/19 12:47*	*EPA 8082A*	
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Aroclor 1221	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Aroclor 1232	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Aroclor 1242	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Aroclor 1248	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Aroclor 1254	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Aroclor 1260	ND	2.14	4.27	ug/kg dry	1	12/12/19 13:23	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 74 %*		*Limits: 60-125 %*	*1*	*12/12/19 13:23*	*EPA 8082A*	
RAU4-05-GW-7.5 (A9L0191-24)				**Matrix: Water**		**Batch: 9120841**		**C-07**
Aroclor 1016	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	
Aroclor 1221	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	
Aroclor 1232	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	
Aroclor 1242	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	
Aroclor 1248	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	
Aroclor 1254	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	

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Apex Laboratories, LLC
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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-05-GW-7.5 (A9L0191-24)				**Matrix: Water**		**Batch: 9120841**		**C-07**
Aroclor 1260	ND	0.0204	0.0408	ug/L	1	12/16/19 16:02	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 66 %*		*Limits: 40-135 %*	*1*	*12/16/19 16:02*	*EPA 8082A*	
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Aroclor 1221	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Aroclor 1232	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Aroclor 1242	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Aroclor 1248	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Aroclor 1254	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Aroclor 1260	ND	2.32	4.65	ug/kg dry	1	12/12/19 13:58	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 72 %*		*Limits: 60-125 %*	*1*	*12/12/19 13:58*	*EPA 8082A*	
RAU4-06-GW-4.5 (A9L0191-46)				**Matrix: Water**		**Batch: 9120841**		**C-07**
Aroclor 1016	ND	0.0568	0.0568	ug/L	1	12/16/19 16:21	EPA 8082A	R-02
Aroclor 1221	ND	0.0455	0.0455	ug/L	1	12/16/19 16:21	EPA 8082A	
Aroclor 1232	ND	0.0682	0.0682	ug/L	1	12/16/19 16:21	EPA 8082A	R-02
Aroclor 1242	ND	0.0795	0.0795	ug/L	1	12/16/19 16:21	EPA 8082A	R-02
Aroclor 1248	ND	0.102	0.102	ug/L	1	12/16/19 16:21	EPA 8082A	R-02
Aroclor 1254	ND	0.0568	0.0568	ug/L	1	12/16/19 16:21	EPA 8082A	R-02
Aroclor 1260	ND	0.0227	0.0455	ug/L	1	12/16/19 16:21	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 35 %*		*Limits: 40-135 %*	*1*	*12/16/19 16:21*	*EPA 8082A*	*S-04*
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1221	ND	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1232	ND	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1242	ND	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1248	ND	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	
Aroclor 1254	**158**	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	**P-10**
Aroclor 1260	**46.8**	2.26	4.51	ug/kg dry	1	12/12/19 09:32	EPA 8082A	**P-10**
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 84 %*		*Limits: 60-125 %*	*1*	*12/12/19 09:32*	*EPA 8082A*	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Aroclor 1221	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Aroclor 1232	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Aroclor 1242	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Aroclor 1248	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Aroclor 1254	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Aroclor 1260	ND	2.04	4.07	ug/kg dry	1	12/12/19 14:34	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 81 %*		*Limits: 60-125 %*	*1*	*12/12/19 14:34*	*EPA 8082A*	
RAU4-04-SO-3.45 (A9L0191-53)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Aroclor 1221	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Aroclor 1232	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Aroclor 1242	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Aroclor 1248	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Aroclor 1254	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Aroclor 1260	ND	2.17	4.34	ug/kg dry	1	12/12/19 15:09	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 85 %*		*Limits: 60-125 %*	*1*	*12/12/19 15:09*	*EPA 8082A*	
RAU4-04-GW-7.0 (A9L0191-54)				**Matrix: Water**		**Batch: 9120841**		**C-07**
Aroclor 1016	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Aroclor 1221	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Aroclor 1232	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Aroclor 1242	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Aroclor 1248	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Aroclor 1254	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Aroclor 1260	ND	0.0217	0.0435	ug/L	1	12/16/19 17:26	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 87 %*		*Limits: 40-135 %*	*1*	*12/16/19 17:26*	*EPA 8082A*	
RAU7-01-SO-1.5 (A9L0191-55)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1016	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	
Aroclor 1221	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	
Aroclor 1232	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU7-01-SO-1.5 (A9L0191-55)				**Matrix: Soil**		**Batch: 9120759**		**C-07**
Aroclor 1242	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	
Aroclor 1248	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	
Aroclor 1254	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	
Aroclor 1260	ND	1.95	3.90	ug/kg dry	1	12/12/19 10:25	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 86 %*		*Limits: 60-125 %*	*1*	*12/12/19 10:25*	*EPA 8082A*	
RAU7-02-SO-2.5 (A9L0191-57)				**Matrix: Soil**		**Batch: 9120945**		**C-07**
Aroclor 1016	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Aroclor 1221	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Aroclor 1232	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Aroclor 1242	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Aroclor 1248	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Aroclor 1254	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Aroclor 1260	ND	2.00	3.99	ug/kg dry	1	12/17/19 08:52	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 85 %*		*Limits: 60-125 %*	*1*	*12/17/19 08:52*	*EPA 8082A*	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-05-GW-7.5 (A9L0191-24RE2)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	ND	0.0564	0.0564	ug/L	1	12/11/19 12:52	EPA 8270D LVI	R-02
Acenaphthylene	ND	0.0188	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Anthracene	ND	0.0376	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Benz(a)anthracene	ND	0.106	0.106	ug/L	1	12/11/19 12:52	EPA 8270D LVI	R-02
Benzo(a)pyrene	ND	0.0188	0.0188	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.00940	0.0188	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.0188	0.0188	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0188	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Chrysene	ND	0.106	0.106	ug/L	1	12/11/19 12:52	EPA 8270D LVI	R-02
Dibenz(a,h)anthracene	ND	0.00940	0.0188	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Fluoranthene	ND	0.0188	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Fluorene	**0.0408**	0.0188	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.00940	0.0188	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
1-Methylnaphthalene	**0.0966**	0.0376	0.0752	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0376	0.0752	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Naphthalene	**0.102**	0.0376	0.0752	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Phenanthrene	ND	0.0376	0.0752	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Pyrene	ND	0.0188	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Carbazole	ND	0.0587	0.0587	ug/L	1	12/11/19 12:52	EPA 8270D LVI	R-02
Dibenzofuran	ND	0.0188	0.0376	ug/L	1	12/11/19 12:52	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*88 %*	*Limits:*	*80-120 %*	*1*	*12/11/19 12:52*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*101 %*		*80-143 %*	*1*	*12/11/19 12:52*	*EPA 8270D LVI*	
RB (A9L0191-30)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	ND	0.0463	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Acenaphthylene	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Anthracene	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Benz(a)anthracene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Benzo(a)pyrene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Chrysene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RB (A9L0191-30)				**Matrix: Water**		**Batch: 9120718**		
Dibenz(a,h)anthracene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Fluoranthene	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Fluorene	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.0116	0.0232	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
1-Methylnaphthalene	ND	0.0463	0.0927	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0463	0.0927	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Naphthalene	**0.0568**	0.0463	0.0927	ug/L	1	12/11/19 00:47	EPA 8270D LVI	**J**
Phenanthrene	ND	0.0463	0.0927	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Pyrene	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Carbazole	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Dibenzofuran	ND	0.0232	0.0463	ug/L	1	12/11/19 00:47	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*105 %*	*Limits: 80-120 %*	*1*	*12/11/19 00:47*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*107 %*	*80-143 %*	*1*	*12/11/19 00:47*	*EPA 8270D LVI*	
RAU2-07-GW-7.5 (A9L0191-44)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	**9.75**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Acenaphthylene	**1.59**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Anthracene	**2.53**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Benz(a)anthracene	**0.550**	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Benzo(a)pyrene	**0.338**	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	**J**
Benzo(b)fluoranthene	**0.270**	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	**J**
Benzo(k)fluoranthene	ND	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Chrysene	**0.483**	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Fluoranthene	**2.23**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Fluorene	**10.2**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.193	0.386	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
1-Methylnaphthalene	**46.3**	0.772	1.54	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
2-Methylnaphthalene	**61.9**	0.772	1.54	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Naphthalene	**129**	0.772	1.54	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Phenanthrene	**13.2**	0.772	1.54	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Pyrene	**1.84**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-GW-7.5 (A9L0191-44)				**Matrix: Water**		**Batch: 9120718**		
Carbazole	**1.95**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Dibenzofuran	**6.51**	0.386	0.772	ug/L	20	12/11/19 01:19	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery: 115 %*		*Limits: 80-120 %*	*20*	*12/11/19 01:19*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*132 %*	*80-143 %*	*20*	*12/11/19 01:19*	*EPA 8270D LVI*	
RAU4-06-GW-4.5 (A9L0191-46)				**Matrix: Water**		**Batch: 9120781**		**R-04**
Acenaphthene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Acenaphthylene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Anthracene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Benz(a)anthracene	ND	9.44	18.9	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Benzo(a)pyrene	ND	18.9	18.9	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	18.9	18.9	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	24.8	24.8	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	R-02
Benzo(g,h,i)perylene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Chrysene	ND	18.9	18.9	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	18.9	18.9	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Fluoranthene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Fluorene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	18.9	18.9	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
1-Methylnaphthalene	ND	37.7	75.5	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
2-Methylnaphthalene	ND	37.7	75.5	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Naphthalene	ND	37.7	75.5	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Phenanthrene	ND	37.7	75.5	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Pyrene	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Carbazole	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Dibenzofuran	ND	18.9	37.7	ug/L	1000	12/11/19 20:26	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery: 390 %*		*Limits: 80-120 %*	*1000*	*12/11/19 20:26*	*EPA 8270D LVI*	*S-05*
Benzo(a)pyrene-d12 (Surr)			*570 %*	*80-143 %*	*1000*	*12/11/19 20:26*	*EPA 8270D LVI*	*S-05*
RAU4-04-GW-7.0 (A9L0191-54)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	**0.0414**	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Acenaphthylene	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Anthracene	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Benz(a)anthracene	ND	0.0102	0.0204	ug/L	1	12/11/19 01:52	EPA 8270D LVI	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-04-GW-7.0 (A9L0191-54)				**Matrix: Water**		**Batch: 9120718**		
Benzo(a)pyrene	ND	0.0217	0.0217	ug/L	1	12/11/19 01:52	EPA 8270D LVI	R-02
Benzo(b)fluoranthene	ND	0.0102	0.0204	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.0102	0.0204	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Chrysene	ND	0.0102	0.0204	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	0.0102	0.0204	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Fluoranthene	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Fluorene	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.0102	0.0204	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
1-Methylnaphthalene	**0.0455**	0.0409	0.0817	ug/L	1	12/11/19 01:52	EPA 8270D LVI	**J**
2-Methylnaphthalene	**0.0582**	0.0409	0.0817	ug/L	1	12/11/19 01:52	EPA 8270D LVI	**J**
Naphthalene	**0.0843**	0.0409	0.0817	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Phenanthrene	ND	0.0409	0.0817	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Pyrene	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Carbazole	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Dibenzofuran	ND	0.0204	0.0409	ug/L	1	12/11/19 01:52	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*102 %*	*Limits: 80-120 %*	*1*	*12/11/19 01:52*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*102 %*	*80-143 %*	*1*	*12/11/19 01:52*	*EPA 8270D LVI*	
RAU7-01-GW-8.5 (A9L0191-56)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	**0.279**	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Acenaphthylene	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Anthracene	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Benz(a)anthracene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Benzo(a)pyrene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Benzo(b)fluoranthene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Benzo(k)fluoranthene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Benzo(g,h,i)perylene	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Chrysene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Dibenz(a,h)anthracene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Fluoranthene	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Fluorene	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.0101	0.0203	ug/L	1	12/11/19 02:24	EPA 8270D LVI	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU7-01-GW-8.5 (A9L0191-56)				**Matrix: Water**		**Batch: 9120718**		
1-Methylnaphthalene	ND	0.0405	0.0810	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0405	0.0810	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Naphthalene	ND	0.0405	0.0810	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Phenanthrene	**0.0947**	0.0405	0.0810	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Pyrene	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Carbazole	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Dibenzofuran	ND	0.0203	0.0405	ug/L	1	12/11/19 02:24	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*107 %*	*Limits: 80-120 %*	*1*	*12/11/19 02:24*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*107 %*	*80-143 %*	*1*	*12/11/19 02:24*	*EPA 8270D LVI*	
RAU7-02-GW-9.5 (A9L0191-58)				**Matrix: Water**		**Batch: 9120718**		
Acenaphthene	**0.248**	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Acenaphthylene	ND	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Anthracene	**0.0339**	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	**J**
Benz(a)anthracene	**0.0181**	0.0117	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	**J**
Benzo(a)pyrene	ND	0.0234	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Benzo(b)fluoranthene	**0.0310**	0.0117	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Benzo(k)fluoranthene	**0.0123**	0.0117	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	**J**
Benzo(g,h,i)perylene	ND	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Chrysene	**0.0269**	0.0117	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	**M-05**
Dibenz(a,h)anthracene	ND	0.0117	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Fluoranthene	**0.0631**	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Fluorene	**0.175**	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Indeno(1,2,3-cd)pyrene	ND	0.0117	0.0234	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
1-Methylnaphthalene	ND	0.0468	0.0935	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
2-Methylnaphthalene	ND	0.0468	0.0935	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Naphthalene	ND	0.0468	0.0935	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Phenanthrene	**0.0836**	0.0468	0.0935	ug/L	1	12/11/19 02:57	EPA 8270D LVI	**J**
Pyrene	**0.0626**	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Carbazole	ND	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Dibenzofuran	**0.0760**	0.0234	0.0468	ug/L	1	12/11/19 02:57	EPA 8270D LVI	
Surrogate: Acenaphthylene-d8 (Surr)		*Recovery:*	*106 %*	*Limits: 80-120 %*	*1*	*12/11/19 02:57*	*EPA 8270D LVI*	
Benzo(a)pyrene-d12 (Surr)			*107 %*	*80-143 %*	*1*	*12/11/19 02:57*	*EPA 8270D LVI*	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-SO-2.0 (A9L0191-03RE3)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Acenaphthylene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Anthracene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Benz(a)anthracene	**18.0**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Benzo(a)pyrene	**35.3**	12.3	24.7	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Benzo(b)fluoranthene	**35.1**	12.3	24.7	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Benzo(k)fluoranthene	**20.8**	12.3	24.7	ug/kg dry	5	12/18/19 13:43	EPA 8270D	**J**
Benzo(g,h,i)perylene	**15.2**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	**J**
Chrysene	**21.5**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Dibenz(a,h)anthracene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Fluoranthene	**21.9**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Fluorene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Indeno(1,2,3-cd)pyrene	**17.7**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1-Methylnaphthalene	ND	16.5	32.9	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2-Methylnaphthalene	ND	16.5	32.9	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Naphthalene	**20.9**	16.5	32.9	ug/kg dry	5	12/18/19 13:43	EPA 8270D	**J**
Phenanthrene	**9.99**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	**J**
Pyrene	**29.1**	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Carbazole	ND	12.3	24.7	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Dibenzofuran	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4-Chloro-3-methylphenol	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2-Chlorophenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,4-Dichlorophenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,4-Dimethylphenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,4-Dinitrophenol	ND	206	412	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	206	412	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2-Methylphenol	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
3+4-Methylphenol(s)	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2-Nitrophenol	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4-Nitrophenol	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Pentachlorophenol (PCP)	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Phenol	ND	16.5	32.9	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-SO-2.0 (A9L0191-03RE3)				**Matrix: Soil**		**Batch: 9120852**		
2,3,5,6-Tetrachlorophenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,4,5-Trichlorophenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,4,6-Trichlorophenol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	123	247	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Butyl benzyl phthalate	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Diethylphthalate	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Dimethylphthalate	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Di-n-butylphthalate	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Di-n-octyl phthalate	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
N-Nitrosodimethylamine	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
N-Nitrosodiphenylamine	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Hexachlorobenzene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Hexachlorobutadiene	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Hexachlorocyclopentadiene	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Hexachloroethane	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2-Chloronaphthalene	ND	8.21	16.5	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1,2-Dichlorobenzene	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1,3-Dichlorobenzene	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1,4-Dichlorobenzene	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1,2,4-Trichlorobenzene	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4-Bromophenyl phenyl ether	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Aniline	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4-Chloroaniline	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2-Nitroaniline	ND	165	329	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
3-Nitroaniline	ND	165	329	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
4-Nitroaniline	ND	165	329	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Nitrobenzene	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
2,4-Dinitrotoluene	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-SO-2.0 (A9L0191-03RE3)				**Matrix: Soil**		**Batch: 9120852**		
2,6-Dinitrotoluene	ND	82.1	165	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Benzoic acid	ND	1030	2060	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Benzyl alcohol	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Isophorone	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Azobenzene (1,2-DPH)	ND	20.6	41.2	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	206	412	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
3,3'-Dichlorobenzidine	ND	165	329	ug/kg dry	5	12/18/19 13:43	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	206	412	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1,3-Dinitrobenzene	ND	206	412	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
1,4-Dinitrobenzene	ND	206	412	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Pyridine	ND	41.2	82.1	ug/kg dry	5	12/18/19 13:43	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*91 %*	*Limits: 37-122 %*	*5*	*12/18/19 13:43*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*82 %*	*44-115 %*	*5*	*12/18/19 13:43*	*EPA 8270D*	
Phenol-d6 (Surr)			*92 %*	*33-122 %*	*5*	*12/18/19 13:43*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*86 %*	*54-127 %*	*5*	*12/18/19 13:43*	*EPA 8270D*	
2-Fluorophenol (Surr)			*84 %*	*35-115 %*	*5*	*12/18/19 13:43*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*86 %*	*39-132 %*	*5*	*12/18/19 13:43*	*EPA 8270D*	
RAU2-09-SO-1.5 (A9L0191-04RE1)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Acenaphthene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Acenaphthylene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Anthracene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Benz(a)anthracene	ND	579	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Benzo(a)pyrene	**528**	434	868	ug/kg dry	200	12/16/19 17:48	EPA 8270D	**J**
Benzo(b)fluoranthene	**485**	434	868	ug/kg dry	200	12/16/19 17:48	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	434	868	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Benzo(g,h,i)perylene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Chrysene	ND	579	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Dibenz(a,h)anthracene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Fluoranthene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Fluorene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1-Methylnaphthalene	ND	579	1160	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2-Methylnaphthalene	ND	579	1160	ug/kg dry	200	12/16/19 17:48	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-SO-1.5 (A9L0191-04RE1)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Naphthalene	ND	579	1160	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Phenanthrene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Pyrene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Carbazole	ND	434	868	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Dibenzofuran	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4-Chloro-3-methylphenol	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2-Chlorophenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,4-Dichlorophenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,4-Dimethylphenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,4-Dinitrophenol	ND	7220	14500	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	7220	14500	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2-Methylphenol	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
3+4-Methylphenol(s)	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2-Nitrophenol	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4-Nitrophenol	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Pentachlorophenol (PCP)	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Phenol	ND	579	1160	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,4,5-Trichlorophenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,4,6-Trichlorophenol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4340	8680	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Butyl benzyl phthalate	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Diethylphthalate	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Dimethylphthalate	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Di-n-butylphthalate	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Di-n-octyl phthalate	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
N-Nitrosodimethylamine	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
N-Nitrosodiphenylamine	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-SO-1.5 (A9L0191-04RE1)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Hexachlorobenzene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Hexachlorobutadiene	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Hexachlorocyclopentadiene	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Hexachloroethane	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2-Chloronaphthalene	ND	289	579	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1,2-Dichlorobenzene	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1,3-Dichlorobenzene	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1,4-Dichlorobenzene	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1,2,4-Trichlorobenzene	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4-Bromophenyl phenyl ether	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Aniline	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4-Chloroaniline	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2-Nitroaniline	ND	5790	11600	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
3-Nitroaniline	ND	5790	11600	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
4-Nitroaniline	ND	5790	11600	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Nitrobenzene	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,4-Dinitrotoluene	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
2,6-Dinitrotoluene	ND	2890	5790	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Benzoic acid	ND	36200	72200	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Benzyl alcohol	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Isophorone	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Azobenzene (1,2-DPH)	ND	722	1450	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	7220	14500	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
3,3'-Dichlorobenzidine	ND	5790	11600	ug/kg dry	200	12/16/19 17:48	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	7220	14500	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1,3-Dinitrobenzene	ND	7220	14500	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
1,4-Dinitrobenzene	ND	7220	14500	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Pyridine	ND	1450	2890	ug/kg dry	200	12/16/19 17:48	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*77 %*	*Limits: 37-122 %*	*200*	*12/16/19 17:48*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*91 %*	*44-115 %*	*200*	*12/16/19 17:48*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*87 %*	*33-122 %*	*200*	*12/16/19 17:48*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*97 %*	*54-127 %*	*200*	*12/16/19 17:48*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*56 %*	*35-115 %*	*200*	*12/16/19 17:48*	*EPA 8270D*	*S-05*

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-SO-1.5 (A9L0191-04RE1)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Surrogate: 2,4,6-Tribromophenol (Surr)		*Recovery: 239 %*	*Limits: 39-132 %*		*200*	*12/16/19 17:48*	*EPA 8270D*	*S-05*
RAU2-09-SO-8.0 (A9L0191-05)				**Matrix: Soil**		**Batch: 9120927**		
Acenaphthene	**701**	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Acenaphthylene	ND	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Anthracene	ND	479	479	ug/kg dry	40	12/16/19 15:50	EPA 8270D	R-02
Benz(a)anthracene	ND	291	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Benzo(a)pyrene	ND	566	566	ug/kg dry	40	12/16/19 15:50	EPA 8270D	R-02
Benzo(b)fluoranthene	ND	653	653	ug/kg dry	40	12/16/19 15:50	EPA 8270D	R-02
Benzo(k)fluoranthene	ND	436	436	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Benzo(g,h,i)perylene	ND	348	348	ug/kg dry	40	12/16/19 15:50	EPA 8270D	R-02
Chrysene	ND	1340	1340	ug/kg dry	40	12/16/19 15:50	EPA 8270D	R-02
Dibenz(a,h)anthracene	ND	291	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Fluoranthene	ND	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Fluorene	**574**	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	291	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1-Methylnaphthalene	ND	291	580	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2-Methylnaphthalene	ND	291	580	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Naphthalene	ND	291	580	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Phenanthrene	**754**	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Pyrene	**1080**	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Carbazole	ND	436	436	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Dibenzofuran	**329**	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4-Chloro-3-methylphenol	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2-Chlorophenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,4-Dichlorophenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,4-Dimethylphenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,4-Dinitrophenol	ND	3630	7260	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	3630	7260	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2-Methylphenol	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
3+4-Methylphenol(s)	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2-Nitrophenol	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4-Nitrophenol	ND	2910	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Pentachlorophenol (PCP)	ND	2910	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-SO-8.0 (A9L0191-05)				**Matrix: Soil**		**Batch: 9120927**		
Phenol	ND	291	580	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,4,5-Trichlorophenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,4,6-Trichlorophenol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	2180	4360	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Butyl benzyl phthalate	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Diethylphthalate	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Dimethylphthalate	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Di-n-butylphthalate	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Di-n-octyl phthalate	ND	2910	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
N-Nitrosodimethylamine	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
N-Nitrosodiphenylamine	ND	1960	1960	ug/kg dry	40	12/16/19 15:50	EPA 8270D	R-02
Bis(2-Chloroethoxy) methane	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Hexachlorobenzene	ND	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Hexachlorobutadiene	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Hexachlorocyclopentadiene	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Hexachloroethane	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2-Chloronaphthalene	ND	145	291	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1,2-Dichlorobenzene	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1,3-Dichlorobenzene	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1,4-Dichlorobenzene	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1,2,4-Trichlorobenzene	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4-Bromophenyl phenyl ether	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Aniline	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4-Chloroaniline	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2-Nitroaniline	ND	2910	5800	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
3-Nitroaniline	ND	2910	5800	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
4-Nitroaniline	ND	2910	5800	ug/kg dry	40	12/16/19 15:50	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-SO-8.0 (A9L0191-05)				**Matrix: Soil**		**Batch: 9120927**		
Nitrobenzene	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,4-Dinitrotoluene	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
2,6-Dinitrotoluene	ND	1450	2910	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Benzoic acid	ND	18200	36300	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Benzyl alcohol	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Isophorone	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Azobenzene (1,2-DPH)	ND	363	726	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	3630	7260	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2910	5800	ug/kg dry	40	12/16/19 15:50	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	3630	7260	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1,3-Dinitrobenzene	ND	3630	7260	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
1,4-Dinitrobenzene	ND	3630	7260	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Pyridine	ND	726	1450	ug/kg dry	40	12/16/19 15:50	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*59 %*	*Limits: 37-122 %*	*40*	*12/16/19 15:50*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*96 %*	*44-115 %*	*40*	*12/16/19 15:50*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*45 %*	*33-122 %*	*40*	*12/16/19 15:50*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*99 %*	*54-127 %*	*40*	*12/16/19 15:50*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*46 %*	*35-115 %*	*40*	*12/16/19 15:50*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*156 %*	*39-132 %*	*40*	*12/16/19 15:50*	*EPA 8270D*	*S-05*
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Acenaphthene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Acenaphthylene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Anthracene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benz(a)anthracene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benzo(a)pyrene	ND	458	916	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benzo(b)fluoranthene	ND	458	916	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benzo(k)fluoranthene	ND	458	916	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benzo(g,h,i)perylene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Chrysene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Dibenz(a,h)anthracene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Fluoranthene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Fluorene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
1-Methylnaphthalene	ND	611	1220	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2-Methylnaphthalene	ND	611	1220	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Naphthalene	ND	611	1220	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Phenanthrene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Pyrene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Carbazole	ND	458	916	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Dibenzofuran	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4-Chloro-3-methylphenol	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2-Chlorophenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,4-Dichlorophenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,4-Dimethylphenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,4-Dinitrophenol	ND	7620	15300	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	7620	15300	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2-Methylphenol	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
3+4-Methylphenol(s)	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2-Nitrophenol	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4-Nitrophenol	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Pentachlorophenol (PCP)	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Phenol	ND	611	1220	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,4,5-Trichlorophenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,4,6-Trichlorophenol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4580	9160	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Butyl benzyl phthalate	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Diethylphthalate	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Dimethylphthalate	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Di-n-butylphthalate	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Di-n-octyl phthalate	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
N-Nitrosodimethylamine	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
N-Nitrosodiphenylamine	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Bis(2-Chloroethyl) ether	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Hexachlorobenzene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Hexachlorobutadiene	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Hexachlorocyclopentadiene	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Hexachloroethane	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2-Chloronaphthalene	ND	304	611	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
1,2-Dichlorobenzene	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
1,3-Dichlorobenzene	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
1,4-Dichlorobenzene	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
1,2,4-Trichlorobenzene	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4-Bromophenyl phenyl ether	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Aniline	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4-Chloroaniline	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2-Nitroaniline	ND	6110	12200	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
3-Nitroaniline	ND	6110	12200	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
4-Nitroaniline	ND	6110	12200	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Nitrobenzene	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,4-Dinitrotoluene	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
2,6-Dinitrotoluene	ND	3040	6110	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benzoic acid	ND	38200	76200	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Benzyl alcohol	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Isophorone	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Azobenzene (1,2-DPH)	ND	762	1530	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	7620	15300	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
3,3'-Dichlorobenzidine	ND	6110	12200	ug/kg dry	200	12/16/19 16:24	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	7620	15300	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
1,3-Dinitrobenzene	ND	7620	15300	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
1,4-Dinitrobenzene	ND	7620	15300	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Pyridine	ND	1530	3040	ug/kg dry	200	12/16/19 16:24	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*58 %*	*Limits: 37-122 %*	*200*	*12/16/19 16:24*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*70 %*	*44-115 %*	*200*	*12/16/19 16:24*	*EPA 8270D*	*S-05*

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Surrogate: Phenol-d6 (Surr)		*Recovery: 13 %*	*Limits: 33-122 %*		*200*	*12/16/19 16:24*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)		*112 %*	*54-127 %*		*200*	*12/16/19 16:24*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)		*53 %*	*35-115 %*		*200*	*12/16/19 16:24*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)		*286 %*	*39-132 %*		*200*	*12/16/19 16:24*	*EPA 8270D*	*S-05*
RAU1-08-SO-7.0 (A9L0191-07)				**Matrix: Soil**		**Batch: 9120927**		
Acenaphthene	ND	152	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Acenaphthylene	ND	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Anthracene	ND	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Benz(a)anthracene	**162**	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	**M-05**
Benzo(a)pyrene	ND	240	240	ug/kg dry	40	12/16/19 15:23	EPA 8270D	R-02
Benzo(b)fluoranthene	ND	360	360	ug/kg dry	40	12/16/19 15:23	EPA 8270D	R-02
Benzo(k)fluoranthene	ND	228	228	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Chrysene	**551**	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Fluoranthene	**317**	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Fluorene	ND	152	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1-Methylnaphthalene	ND	152	304	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2-Methylnaphthalene	**173**	152	304	ug/kg dry	40	12/16/19 15:23	EPA 8270D	**J**
Naphthalene	**250**	152	304	ug/kg dry	40	12/16/19 15:23	EPA 8270D	**J**
Phenanthrene	**447**	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Pyrene	**446**	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Carbazole	ND	114	228	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Dibenzofuran	ND	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4-Chloro-3-methylphenol	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2-Chlorophenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,4-Dichlorophenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,4-Dimethylphenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,4-Dinitrophenol	ND	1900	3810	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1900	3810	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2-Methylphenol	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
3+4-Methylphenol(s)	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2-Nitrophenol	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4-Nitrophenol	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Pentachlorophenol (PCP)	ND	1520	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-SO-7.0 (A9L0191-07)				**Matrix: Soil**		**Batch: 9120927**		
Phenol	ND	152	304	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,4,5-Trichlorophenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,4,6-Trichlorophenol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	1140	2280	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Butyl benzyl phthalate	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Diethylphthalate	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Dimethylphthalate	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Di-n-butylphthalate	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Di-n-octyl phthalate	ND	1520	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
N-Nitrosodimethylamine	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	381	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
N-Nitrosodiphenylamine	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Hexachlorobenzene	ND	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Hexachlorobutadiene	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Hexachlorocyclopentadiene	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Hexachloroethane	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2-Chloronaphthalene	ND	76.0	152	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1,2-Dichlorobenzene	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1,3-Dichlorobenzene	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1,4-Dichlorobenzene	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1,2,4-Trichlorobenzene	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4-Bromophenyl phenyl ether	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Aniline	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4-Chloroaniline	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2-Nitroaniline	ND	1520	3040	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
3-Nitroaniline	ND	1520	3040	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
4-Nitroaniline	ND	1520	3040	ug/kg dry	40	12/16/19 15:23	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-SO-7.0 (A9L0191-07)				**Matrix: Soil**		**Batch: 9120927**		
Nitrobenzene	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,4-Dinitrotoluene	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
2,6-Dinitrotoluene	ND	760	1520	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Benzoic acid	ND	9540	19000	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Benzyl alcohol	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Isophorone	ND	417	417	ug/kg dry	40	12/16/19 15:23	EPA 8270D	R-02
Azobenzene (1,2-DPH)	ND	190	381	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1900	3810	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
3,3'-Dichlorobenzidine	ND	1520	3040	ug/kg dry	40	12/16/19 15:23	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1900	3810	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1,3-Dinitrobenzene	ND	1900	3810	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
1,4-Dinitrobenzene	ND	1900	3810	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Pyridine	ND	381	760	ug/kg dry	40	12/16/19 15:23	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*35 %*	*Limits: 37-122 %*	*40*	*12/16/19 15:23*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*80 %*	*44-115 %*	*40*	*12/16/19 15:23*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*77 %*	*33-122 %*	*40*	*12/16/19 15:23*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*99 %*	*54-127 %*	*40*	*12/16/19 15:23*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*69 %*	*35-115 %*	*40*	*12/16/19 15:23*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*119 %*	*39-132 %*	*40*	*12/16/19 15:23*	*EPA 8270D*	*S-05*
RAU1-08-SO-7.0 (A9L0191-07RE1)				**Matrix: Soil**		**Batch: 9120927**		**R-04**
Benzo(g,h,i)perylene	ND	760	1520	ug/kg dry	400	12/16/19 17:12	EPA 8270D	
Dibenz(a,h)anthracene	ND	760	1520	ug/kg dry	400	12/16/19 17:12	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	760	1520	ug/kg dry	400	12/16/19 17:12	EPA 8270D	
RAU1-08-GW-7.0 (A9L0191-08RE1)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	**0.231**	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Acenaphthylene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Anthracene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Benz(a)anthracene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Benzo(a)pyrene	ND	0.0645	0.129	ug/L	4	12/12/19 17:37	EPA 8270D	
Benzo(b)fluoranthene	ND	0.0645	0.129	ug/L	4	12/12/19 17:37	EPA 8270D	
Benzo(k)fluoranthene	ND	0.0645	0.129	ug/L	4	12/12/19 17:37	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-GW-7.0 (A9L0191-08RE1)				**Matrix: Water**		**Batch: 9120690**		
Chrysene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Fluoranthene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Fluorene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
1-Methylnaphthalene	ND	0.0860	0.172	ug/L	4	12/12/19 17:37	EPA 8270D	
2-Methylnaphthalene	ND	0.0860	0.172	ug/L	4	12/12/19 17:37	EPA 8270D	
Naphthalene	ND	0.0860	0.172	ug/L	4	12/12/19 17:37	EPA 8270D	
Phenanthrene	**0.0650**	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	**J**
Pyrene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Carbazole	ND	0.0645	0.129	ug/L	4	12/12/19 17:37	EPA 8270D	
Dibenzofuran	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.860	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
2-Chlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
2,4-Dichlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
2,4-Dimethylphenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
2,4-Dinitrophenol	ND	1.08	2.15	ug/L	4	12/12/19 17:37	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1.08	2.15	ug/L	4	12/12/19 17:37	EPA 8270D	
2-Methylphenol	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
3+4-Methylphenol(s)	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
2-Nitrophenol	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
4-Nitrophenol	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
Phenol	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
Butyl benzyl phthalate	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
Diethylphthalate	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
Dimethylphthalate	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
Di-n-butylphthalate	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-GW-7.0 (A9L0191-08RE1)				**Matrix: Water**		**Batch: 9120690**		
Di-n-octyl phthalate	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
N-Nitrosodimethylamine	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Hexachlorobenzene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
Hexachlorobutadiene	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Hexachlorocyclopentadiene	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
Hexachloroethane	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
2-Chloronaphthalene	ND	0.0430	0.0860	ug/L	4	12/12/19 17:37	EPA 8270D	
1,2-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
1,3-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
1,4-Dichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
1,2,4-Trichlorobenzene	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Aniline	ND	0.215	0.430	ug/L	4	12/12/19 17:37	EPA 8270D	
4-Chloroaniline	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
2-Nitroaniline	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
3-Nitroaniline	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
4-Nitroaniline	ND	0.860	1.72	ug/L	4	12/12/19 17:37	EPA 8270D	
Nitrobenzene	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
2,4-Dinitrotoluene	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
2,6-Dinitrotoluene	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
Benzoic acid	ND	5.38	10.8	ug/L	4	12/12/19 17:37	EPA 8270D	
Benzyl alcohol	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
Isophorone	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.108	0.215	ug/L	4	12/12/19 17:37	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1.08	2.15	ug/L	4	12/12/19 17:37	EPA 8270D	
3,3'-Dichlorobenzidine	ND	2.15	4.30	ug/L	4	12/12/19 17:37	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/12/19 17:37	EPA 8270D	

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ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-GW-7.0 (A9L0191-08RE1)				**Matrix: Water**		**Batch: 9120690**		
1,3-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/12/19 17:37	EPA 8270D	
1,4-Dinitrobenzene	ND	1.08	2.15	ug/L	4	12/12/19 17:37	EPA 8270D	
Pyridine	ND	0.430	0.860	ug/L	4	12/12/19 17:37	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*81 %*	*Limits: 44-120 %*	*4*	*12/12/19 17:37*	*EPA 8270D*	*Q-41*
2-Fluorobiphenyl (Surr)			*66 %*	*44-120 %*	*4*	*12/12/19 17:37*	*EPA 8270D*	
Phenol-d6 (Surr)			*25 %*	*10-120 %*	*4*	*12/12/19 17:37*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*84 %*	*50-133 %*	*4*	*12/12/19 17:37*	*EPA 8270D*	
2-Fluorophenol (Surr)			*36 %*	*19-120 %*	*4*	*12/12/19 17:37*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*96 %*	*43-140 %*	*4*	*12/12/19 17:37*	*EPA 8270D*	
RAU1-10-SO-2.0 (A9L0191-10)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	**988**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Acenaphthylene	ND	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Anthracene	**308**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Benz(a)anthracene	**157**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Benzo(a)pyrene	**115**	83.2	166	ug/kg dry	40	12/13/19 20:53	EPA 8270D	**J**
Benzo(b)fluoranthene	**107**	83.2	166	ug/kg dry	40	12/13/19 20:53	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	83.2	166	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Benzo(g,h,i)perylene	ND	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Chrysene	**107**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Fluoranthene	**591**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Fluorene	**719**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
1-Methylnaphthalene	**626**	111	222	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2-Methylnaphthalene	**535**	111	222	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Naphthalene	**124**	111	222	ug/kg dry	40	12/13/19 20:53	EPA 8270D	**J**
Phenanthrene	**1650**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Pyrene	**638**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Carbazole	**107**	83.2	166	ug/kg dry	40	12/13/19 20:53	EPA 8270D	**J**
Dibenzofuran	**323**	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4-Chloro-3-methylphenol	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2-Chlorophenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,4-Dichlorophenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-10-SO-2.0 (A9L0191-10)				**Matrix: Soil**		**Batch: 9120852**		
2,4-Dimethylphenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,4-Dinitrophenol	ND	1390	2780	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1390	2780	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2-Methylphenol	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
3+4-Methylphenol(s)	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2-Nitrophenol	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4-Nitrophenol	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Pentachlorophenol (PCP)	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Phenol	ND	111	222	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,4,5-Trichlorophenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,4,6-Trichlorophenol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	832	1660	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Butyl benzyl phthalate	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Diethylphthalate	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Dimethylphthalate	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Di-n-butylphthalate	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Di-n-octyl phthalate	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
N-Nitrosodimethylamine	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
N-Nitrosodiphenylamine	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Hexachlorobenzene	ND	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Hexachlorobutadiene	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Hexachlorocyclopentadiene	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Hexachloroethane	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2-Chloronaphthalene	ND	55.3	111	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
1,2-Dichlorobenzene	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
1,3-Dichlorobenzene	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
1,4-Dichlorobenzene	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-10-SO-2.0 (A9L0191-10)				**Matrix: Soil**		**Batch: 9120852**		
1,2,4-Trichlorobenzene	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4-Bromophenyl phenyl ether	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Aniline	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4-Chloroaniline	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2-Nitroaniline	ND	1110	2220	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
3-Nitroaniline	ND	1110	2220	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
4-Nitroaniline	ND	1110	2220	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Nitrobenzene	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,4-Dinitrotoluene	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
2,6-Dinitrotoluene	ND	553	1110	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Benzoic acid	ND	6950	13900	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Benzyl alcohol	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Isophorone	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Azobenzene (1,2-DPH)	ND	139	278	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	1390	2780	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
3,3'-Dichlorobenzidine	ND	1110	2220	ug/kg dry	40	12/13/19 20:53	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	1390	2780	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
1,3-Dinitrobenzene	ND	1390	2780	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
1,4-Dinitrobenzene	ND	1390	2780	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Pyridine	ND	278	553	ug/kg dry	40	12/13/19 20:53	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*63 %*	*Limits: 37-122 %*	*40*	*12/13/19 20:53*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*84 %*	*44-115 %*	*40*	*12/13/19 20:53*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*46 %*	*33-122 %*	*40*	*12/13/19 20:53*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*97 %*	*54-127 %*	*40*	*12/13/19 20:53*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*47 %*	*35-115 %*	*40*	*12/13/19 20:53*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*112 %*	*39-132 %*	*40*	*12/13/19 20:53*	*EPA 8270D*	*S-05*
RAU1-10-GW-8.5 (A9L0191-11)				**Matrix: Water**		**Batch: 9120690**		
Acenaphthene	**17.6**	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Acenaphthylene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Anthracene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Benz(a)anthracene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Benzo(a)pyrene	ND	0.698	1.40	ug/L	40	12/12/19 10:19	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-10-GW-8.5 (A9L0191-11)				**Matrix: Water**		**Batch: 9120690**		
Benzo(b)fluoranthene	ND	0.698	1.40	ug/L	40	12/12/19 10:19	EPA 8270D	
Benzo(k)fluoranthene	ND	0.698	1.40	ug/L	40	12/12/19 10:19	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Chrysene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Fluoranthene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Fluorene	**5.66**	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
1-Methylnaphthalene	**20.4**	0.930	1.86	ug/L	40	12/12/19 10:19	EPA 8270D	
2-Methylnaphthalene	**19.4**	0.930	1.86	ug/L	40	12/12/19 10:19	EPA 8270D	
Naphthalene	**200**	0.930	1.86	ug/L	40	12/12/19 10:19	EPA 8270D	**B-02**
Phenanthrene	**2.76**	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Pyrene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Carbazole	**6.73**	0.698	1.40	ug/L	40	12/12/19 10:19	EPA 8270D	
Dibenzofuran	**3.06**	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
4-Chloro-3-methylphenol	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
2-Chlorophenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
2,4-Dichlorophenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
2,4-Dimethylphenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
2,4-Dinitrophenol	ND	11.6	23.3	ug/L	40	12/12/19 10:19	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	11.6	23.3	ug/L	40	12/12/19 10:19	EPA 8270D	
2-Methylphenol	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
3+4-Methylphenol(s)	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
2-Nitrophenol	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
4-Nitrophenol	ND	9.30	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
Pentachlorophenol (PCP)	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
Phenol	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
2,4,5-Trichlorophenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
2,4,6-Trichlorophenol	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
Butyl benzyl phthalate	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-10-GW-8.5 (A9L0191-11)				**Matrix: Water**		**Batch: 9120690**		
Diethylphthalate	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
Dimethylphthalate	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
Di-n-butylphthalate	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
Di-n-octyl phthalate	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
N-Nitrosodimethylamine	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
N-Nitrosodiphenylamine	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
Hexachlorobenzene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
Hexachlorobutadiene	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
Hexachlorocyclopentadiene	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
Hexachloroethane	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
2-Chloronaphthalene	ND	0.465	0.930	ug/L	40	12/12/19 10:19	EPA 8270D	
1,2-Dichlorobenzene	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
1,3-Dichlorobenzene	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
1,4-Dichlorobenzene	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
1,2,4-Trichlorobenzene	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
4-Bromophenyl phenyl ether	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
Aniline	ND	2.33	4.65	ug/L	40	12/12/19 10:19	EPA 8270D	
4-Chloroaniline	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
2-Nitroaniline	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
3-Nitroaniline	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
4-Nitroaniline	ND	9.30	18.6	ug/L	40	12/12/19 10:19	EPA 8270D	
Nitrobenzene	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
2,4-Dinitrotoluene	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
2,6-Dinitrotoluene	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
Benzoic acid	ND	58.1	116	ug/L	40	12/12/19 10:19	EPA 8270D	
Benzyl alcohol	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
Isophorone	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	
Azobenzene (1,2-DPH)	ND	1.16	2.33	ug/L	40	12/12/19 10:19	EPA 8270D	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-10-GW-8.5 (A9L0191-11)				**Matrix: Water**		**Batch: 9120690**		
Bis(2-Ethylhexyl) adipate	ND	11.6	23.3	ug/L	40	12/12/19 10:19	EPA 8270D	
3,3'-Dichlorobenzidine	ND	23.3	46.5	ug/L	40	12/12/19 10:19	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	11.6	23.3	ug/L	40	12/12/19 10:19	EPA 8270D	
1,3-Dinitrobenzene	ND	11.6	23.3	ug/L	40	12/12/19 10:19	EPA 8270D	
1,4-Dinitrobenzene	ND	11.6	23.3	ug/L	40	12/12/19 10:19	EPA 8270D	
Pyridine	ND	4.65	9.30	ug/L	40	12/12/19 10:19	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*63 %*	*Limits: 44-120 %*	*40*	*12/12/19 10:19*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*83 %*	*44-120 %*	*40*	*12/12/19 10:19*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*21 %*	*10-120 %*	*40*	*12/12/19 10:19*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*98 %*	*50-133 %*	*40*	*12/12/19 10:19*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*33 %*	*19-120 %*	*40*	*12/12/19 10:19*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*126 %*	*43-140 %*	*40*	*12/12/19 10:19*	*EPA 8270D*	*S-05*
RAU4-08-SO-1.75 (A9L0191-14RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Acenaphthylene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Anthracene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Benz(a)anthracene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Benzo(a)pyrene	ND	392	784	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Benzo(b)fluoranthene	ND	392	784	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Benzo(k)fluoranthene	ND	392	784	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Benzo(g,h,i)perylene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Chrysene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Dibenz(a,h)anthracene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Fluoranthene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Fluorene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
1-Methylnaphthalene	ND	523	1040	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
2-Methylnaphthalene	ND	523	1040	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Naphthalene	ND	523	1040	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Phenanthrene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Pyrene	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Carbazole	ND	392	784	ug/kg dry	200	12/16/19 17:00	EPA 8270D	
Dibenzofuran	ND	261	523	ug/kg dry	200	12/16/19 17:00	EPA 8270D	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-08-SO-1.75 (A9L0191-14RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*73 %*	*Limits: 37-122 %*	*200*	*12/16/19 17:00*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*80 %*	*44-115 %*	*200*	*12/16/19 17:00*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*53 %*	*33-122 %*	*200*	*12/16/19 17:00*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*	*200*	*12/16/19 17:00*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*75 %*	*35-115 %*	*200*	*12/16/19 17:00*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*250 %*	*39-132 %*	*200*	*12/16/19 17:00*	*EPA 8270D*	*S-05*
RAU4-08-SO-1.75-DUP (A9L0191-15RE1)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Acenaphthylene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Anthracene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Benz(a)anthracene	ND	548	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Benzo(a)pyrene	ND	410	821	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Benzo(b)fluoranthene	ND	410	821	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Benzo(k)fluoranthene	ND	410	821	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Benzo(g,h,i)perylene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Chrysene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Dibenz(a,h)anthracene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Fluoranthene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Fluorene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
1-Methylnaphthalene	ND	548	1090	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
2-Methylnaphthalene	ND	548	1090	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Naphthalene	ND	548	1090	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Phenanthrene	**364**	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	**J**
Pyrene	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Carbazole	ND	410	821	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Dibenzofuran	ND	273	548	ug/kg dry	200	12/16/19 17:35	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*7 %*	*Limits: 37-122 %*	*200*	*12/16/19 17:35*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*86 %*	*44-115 %*	*200*	*12/16/19 17:35*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*47 %*	*33-122 %*	*200*	*12/16/19 17:35*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*103 %*	*54-127 %*	*200*	*12/16/19 17:35*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*27 %*	*35-115 %*	*200*	*12/16/19 17:35*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*252 %*	*39-132 %*	*200*	*12/16/19 17:35*	*EPA 8270D*	*S-05*

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-05-SO-1.75 (A9L0191-22)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Acenaphthene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Acenaphthylene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Anthracene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Benz(a)anthracene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Benzo(a)pyrene	ND	84.7	169	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Benzo(b)fluoranthene	ND	84.7	169	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Benzo(k)fluoranthene	ND	84.7	169	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Benzo(g,h,i)perylene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Chrysene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Dibenz(a,h)anthracene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Fluoranthene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Fluorene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
1-Methylnaphthalene	ND	113	226	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
2-Methylnaphthalene	ND	113	226	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Naphthalene	ND	113	226	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Phenanthrene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Pyrene	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Carbazole	ND	84.7	169	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Dibenzofuran	ND	56.4	113	ug/kg dry	40	12/09/19 23:14	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*55 %*	*Limits: 37-122 %*	*40*	*12/09/19 23:14*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*86 %*	*44-115 %*	*40*	*12/09/19 23:14*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*40 %*	*33-122 %*	*40*	*12/09/19 23:14*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*96 %*	*54-127 %*	*40*	*12/09/19 23:14*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*67 %*	*35-115 %*	*40*	*12/09/19 23:14*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*103 %*	*39-132 %*	*40*	*12/09/19 23:14*	*EPA 8270D*	*S-05*
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Acenaphthene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Acenaphthylene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Anthracene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Benz(a)anthracene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Benzo(a)pyrene	ND	90.4	181	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Benzo(b)fluoranthene	ND	90.4	181	ug/kg dry	40	12/09/19 23:49	EPA 8270D	

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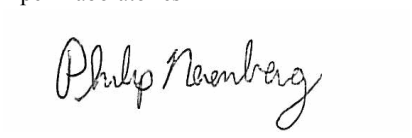

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Benzo(k)fluoranthene	ND	90.4	181	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Benzo(g,h,i)perylene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Chrysene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Dibenz(a,h)anthracene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Fluoranthene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Fluorene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
1-Methylnaphthalene	ND	121	241	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
2-Methylnaphthalene	ND	121	241	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Naphthalene	ND	121	241	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Phenanthrene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Pyrene	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Carbazole	ND	90.4	181	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Dibenzofuran	ND	60.1	121	ug/kg dry	40	12/09/19 23:49	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*55 %*	*Limits: 37-122 %*	*40*	*12/09/19 23:49*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*83 %*	*44-115 %*	*40*	*12/09/19 23:49*	*EPA 8270D*	
Phenol-d6 (Surr)			*39 %*	*33-122 %*	*40*	*12/09/19 23:49*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*	*40*	*12/09/19 23:49*	*EPA 8270D*	
2-Fluorophenol (Surr)			*57 %*	*35-115 %*	*40*	*12/09/19 23:49*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*101 %*	*39-132 %*	*40*	*12/09/19 23:49*	*EPA 8270D*	
RAU3-01-SO-2.0 (A9L0191-41RE1)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Acenaphthene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Acenaphthylene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Anthracene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Benz(a)anthracene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Benzo(a)pyrene	ND	1040	1040	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Benzo(b)fluoranthene	ND	521	1040	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Benzo(k)fluoranthene	ND	521	1040	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Benzo(g,h,i)perylene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Chrysene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Dibenz(a,h)anthracene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Fluoranthene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Fluorene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-01-SO-2.0 (A9L0191-41RE1)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Indeno(1,2,3-cd)pyrene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
1-Methylnaphthalene	ND	695	1390	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
2-Methylnaphthalene	ND	695	1390	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Naphthalene	ND	695	1390	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Phenanthrene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Pyrene	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Carbazole	ND	521	1040	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Dibenzofuran	ND	346	695	ug/kg dry	250	12/10/19 14:42	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*78 %*	*Limits: 37-122 %*	*250*	*12/10/19 14:42*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*83 %*	*44-115 %*	*250*	*12/10/19 14:42*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*81 %*	*33-122 %*	*250*	*12/10/19 14:42*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*	*250*	*12/10/19 14:42*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*68 %*	*35-115 %*	*250*	*12/10/19 14:42*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*351 %*	*39-132 %*	*250*	*12/10/19 14:42*	*EPA 8270D*	*S-05*
RAU2-07-SO-1.5 (A9L0191-43RE2)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Acenaphthylene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Anthracene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Benz(a)anthracene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Benzo(a)pyrene	**2.33**	2.19	4.38	ug/kg dry	1	12/11/19 20:36	EPA 8270D	**J**
Benzo(b)fluoranthene	ND	2.19	4.38	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Benzo(k)fluoranthene	ND	2.19	4.38	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Chrysene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Fluoranthene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Fluorene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
1-Methylnaphthalene	ND	2.93	5.84	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
2-Methylnaphthalene	ND	2.93	5.84	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Naphthalene	ND	2.93	5.84	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Phenanthrene	**2.73**	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	**J**
Pyrene	**1.54**	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	**J**

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-SO-1.5 (A9L0191-43RE2)				**Matrix: Soil**		**Batch: 9120660**		
Carbazole	ND	2.19	4.38	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Dibenzofuran	ND	1.46	2.93	ug/kg dry	1	12/11/19 20:36	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*87 %*	*Limits: 37-122 %*	*1*	*12/11/19 20:36*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*69 %*	*44-115 %*	*1*	*12/11/19 20:36*	*EPA 8270D*	
Phenol-d6 (Surr)			*84 %*	*33-122 %*	*1*	*12/11/19 20:36*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*79 %*	*54-127 %*	*1*	*12/11/19 20:36*	*EPA 8270D*	
2-Fluorophenol (Surr)			*78 %*	*35-115 %*	*1*	*12/11/19 20:36*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*99 %*	*39-132 %*	*1*	*12/11/19 20:36*	*EPA 8270D*	*Q-41*
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Acenaphthylene	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Anthracene	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Benz(a)anthracene	**72.9**	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	**J**
Benzo(a)pyrene	ND	89.1	178	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Benzo(b)fluoranthene	ND	89.1	178	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Benzo(k)fluoranthene	ND	89.1	178	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Benzo(g,h,i)perylene	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Chrysene	**67.5**	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Fluoranthene	**64.5**	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	**J**
Fluorene	**59.5**	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
1-Methylnaphthalene	ND	119	237	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
2-Methylnaphthalene	ND	119	237	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Naphthalene	ND	119	237	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Phenanthrene	**255**	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Pyrene	**109**	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	**J**
Carbazole	ND	89.1	178	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Dibenzofuran	ND	59.3	119	ug/kg dry	40	12/13/19 19:43	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*77 %*	*Limits: 37-122 %*	*40*	*12/13/19 19:43*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*101 %*	*44-115 %*	*40*	*12/13/19 19:43*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*70 %*	*33-122 %*	*40*	*12/13/19 19:43*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*102 %*	*54-127 %*	*40*	*12/13/19 19:43*	*EPA 8270D*	*S-05*

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**		**Batch: 9120852**		
Surrogate: 2-Fluorophenol (Surr)			*Recovery: 74 %*	*Limits: 35-115 %*	*40*	*12/13/19 19:43*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*119 %*	*39-132 %*	*40*	*12/13/19 19:43*	*EPA 8270D*	*S-05*
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**		**Batch: 9120852**		
Acenaphthene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Acenaphthylene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Anthracene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Benz(a)anthracene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Benzo(a)pyrene	**114**	90.5	181	ug/kg dry	40	12/13/19 20:19	EPA 8270D	**J**
Benzo(b)fluoranthene	**113**	90.5	181	ug/kg dry	40	12/13/19 20:19	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	90.5	181	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Benzo(g,h,i)perylene	**73.2**	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	**J**
Chrysene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Dibenz(a,h)anthracene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Fluoranthene	**102**	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	**J**
Fluorene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
1-Methylnaphthalene	**151**	121	241	ug/kg dry	40	12/13/19 20:19	EPA 8270D	**J**
2-Methylnaphthalene	**260**	121	241	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Naphthalene	**266**	121	241	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Phenanthrene	**115**	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	**J**
Pyrene	**129**	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Carbazole	ND	90.5	181	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Dibenzofuran	ND	60.2	121	ug/kg dry	40	12/13/19 20:19	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 72 %*	*Limits: 37-122 %*	*40*	*12/13/19 20:19*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*90 %*	*44-115 %*	*40*	*12/13/19 20:19*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*73 %*	*33-122 %*	*40*	*12/13/19 20:19*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*	*40*	*12/13/19 20:19*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*75 %*	*35-115 %*	*40*	*12/13/19 20:19*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*128 %*	*39-132 %*	*40*	*12/13/19 20:19*	*EPA 8270D*	*S-05*
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Acenaphthene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Acenaphthylene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
Anthracene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Benz(a)anthracene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Benzo(a)pyrene	ND	80.8	162	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Benzo(b)fluoranthene	ND	80.8	162	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Benzo(k)fluoranthene	ND	80.8	162	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Benzo(g,h,i)perylene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Chrysene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Dibenz(a,h)anthracene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Fluoranthene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Fluorene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
1-Methylnaphthalene	ND	108	215	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2-Methylnaphthalene	ND	108	215	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Naphthalene	ND	108	215	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Phenanthrene	**58.2**	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	**J**
Pyrene	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Carbazole	ND	80.8	162	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Dibenzofuran	ND	53.7	108	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
4-Chloro-3-methylphenol	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2-Chlorophenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2,4-Dichlorophenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2,4-Dimethylphenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2,4-Dinitrophenol	ND	1350	2690	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	1350	2690	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2-Methylphenol	ND	135	269	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
3+4-Methylphenol(s)	ND	135	269	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2-Nitrophenol	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
4-Nitrophenol	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Pentachlorophenol (PCP)	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Phenol	ND	108	215	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
2,4,5-Trichlorophenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120852**		**R-04**
2,4,6-Trichlorophenol	ND	269	537	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	808	1620	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Butyl benzyl phthalate	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Diethylphthalate	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Dimethylphthalate	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Di-n-butylphthalate	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Di-n-octyl phthalate	ND	537	1080	ug/kg dry	40	12/13/19 20:54	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*74 %*	*Limits: 37-122 %*	*40*	*12/13/19 20:54*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*94 %*	*44-115 %*	*40*	*12/13/19 20:54*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*73 %*	*33-122 %*	*40*	*12/13/19 20:54*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*	*40*	*12/13/19 20:54*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*74 %*	*35-115 %*	*40*	*12/13/19 20:54*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*120 %*	*39-132 %*	*40*	*12/13/19 20:54*	*EPA 8270D*	*S-05*
RAU4-04-SO-3.45 (A9L0191-53RE1)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Acenaphthene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Acenaphthylene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Anthracene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Benz(a)anthracene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Benzo(a)pyrene	ND	45.4	90.7	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Benzo(b)fluoranthene	ND	45.4	90.7	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Benzo(k)fluoranthene	ND	45.4	90.7	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Benzo(g,h,i)perylene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Chrysene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Dibenz(a,h)anthracene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Fluoranthene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Fluorene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
1-Methylnaphthalene	ND	60.6	121	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
2-Methylnaphthalene	ND	60.6	121	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Naphthalene	ND	60.6	121	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Phenanthrene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Pyrene	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Carbazole	ND	45.4	90.7	ug/kg dry	20	12/11/19 22:25	EPA 8270D	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-04-SO-3.45 (A9L0191-53RE1)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Dibenzofuran	ND	30.2	60.6	ug/kg dry	20	12/11/19 22:25	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*88 %*	*Limits: 37-122 %*	*20*	*12/11/19 22:25*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*76 %*	*44-115 %*	*20*	*12/11/19 22:25*	*EPA 8270D*	
Phenol-d6 (Surr)			*85 %*	*33-122 %*	*20*	*12/11/19 22:25*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*	*20*	*12/11/19 22:25*	*EPA 8270D*	
2-Fluorophenol (Surr)			*79 %*	*35-115 %*	*20*	*12/11/19 22:25*	*EPA 8270D*	*Q-41*
2,4,6-Tribromophenol (Surr)			*97 %*	*39-132 %*	*20*	*12/11/19 22:25*	*EPA 8270D*	*Q-41*
RAU7-01-SO-1.5 (A9L0191-55RE2)				**Matrix: Soil**		**Batch: 9120660**		
Acenaphthene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Acenaphthylene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Anthracene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Benz(a)anthracene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Benzo(a)pyrene	**2.11**	2.00	4.01	ug/kg dry	1	12/11/19 21:12	EPA 8270D	**J**
Benzo(b)fluoranthene	ND	2.00	4.01	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Benzo(k)fluoranthene	ND	2.00	4.01	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Benzo(g,h,i)perylene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Chrysene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Dibenz(a,h)anthracene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Fluoranthene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Fluorene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
1-Methylnaphthalene	ND	2.68	5.34	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
2-Methylnaphthalene	ND	2.68	5.34	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Naphthalene	ND	2.68	5.34	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Phenanthrene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Pyrene	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Carbazole	ND	2.00	4.01	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Dibenzofuran	ND	1.33	2.68	ug/kg dry	1	12/11/19 21:12	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*84 %*	*Limits: 37-122 %*	*1*	*12/11/19 21:12*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*71 %*	*44-115 %*	*1*	*12/11/19 21:12*	*EPA 8270D*	
Phenol-d6 (Surr)			*79 %*	*33-122 %*	*1*	*12/11/19 21:12*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*	*1*	*12/11/19 21:12*	*EPA 8270D*	
2-Fluorophenol (Surr)			*75 %*	*35-115 %*	*1*	*12/11/19 21:12*	*EPA 8270D*	*Q-41*

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU7-01-SO-1.5 (A9L0191-55RE2)				**Matrix: Soil**		**Batch: 9120660**		
Surrogate: 2,4,6-Tribromophenol (Surr)			*Recovery: 80 %*	*Limits: 39-132 %*	*1*	*12/11/19 21:12*	*EPA 8270D*	*Q-41*
RAU7-02-SO-2.5 (A9L0191-57RE2)				**Matrix: Soil**		**Batch: 9120660**		**R-04**
Acenaphthene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Acenaphthylene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Anthracene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Benz(a)anthracene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Benzo(a)pyrene	ND	8.15	16.3	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Benzo(b)fluoranthene	ND	8.15	16.3	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Benzo(k)fluoranthene	ND	8.15	16.3	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Benzo(g,h,i)perylene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Chrysene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Dibenz(a,h)anthracene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Fluoranthene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Fluorene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
1-Methylnaphthalene	ND	10.9	21.7	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
2-Methylnaphthalene	ND	10.9	21.7	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Naphthalene	ND	10.9	21.7	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Phenanthrene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Pyrene	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Carbazole	ND	8.15	16.3	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Dibenzofuran	ND	5.42	10.9	ug/kg dry	4	12/10/19 21:59	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 84 %*	*Limits: 37-122 %*	*4*	*12/10/19 21:59*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*77 %*	*44-115 %*	*4*	*12/10/19 21:59*	*EPA 8270D*	
Phenol-d6 (Surr)			*82 %*	*33-122 %*	*4*	*12/10/19 21:59*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*86 %*	*54-127 %*	*4*	*12/10/19 21:59*	*EPA 8270D*	
2-Fluorophenol (Surr)			*73 %*	*35-115 %*	*4*	*12/10/19 21:59*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*94 %*	*39-132 %*	*4*	*12/10/19 21:59*	*EPA 8270D*	*Q-41*

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-SW-Chehalis (A9L0191-09RE1)				**Matrix: Water**				
Batch: 9120878								
Calcium	**191000**	5000	10000	ug/L	100	12/17/19 00:48	EPA 200.8	**B**
Magnesium	**583000**	2500	5000	ug/L	100	12/17/19 00:48	EPA 200.8	**B-02**

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-07-SO-2.0 (A9L0191-01)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.96**	0.745	1.49	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Cadmium	ND	0.149	0.298	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Chromium	**36.0**	0.745	1.49	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Copper	**46.9**	0.745	1.49	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Lead	**5.03**	0.149	0.298	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Manganese	**450**	0.745	1.49	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Mercury	ND	0.0596	0.119	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Nickel	**29.2**	0.745	1.49	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
Zinc	**45.0**	2.98	5.96	mg/kg dry	10	12/17/19 01:58	EPA 6020A	
RAU3-07-SO-6.0 (A9L0191-02)				**Matrix: Soil**				
Batch: 9120890								
Arsenic	**2.46**	0.692	1.38	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Cadmium	ND	0.138	0.277	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Chromium	**63.1**	0.692	1.38	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Copper	**51.0**	0.692	1.38	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Lead	**3.71**	0.138	0.277	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Manganese	**506**	0.692	1.38	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Mercury	ND	0.0553	0.111	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Nickel	**34.1**	0.692	1.38	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
Zinc	**45.4**	2.77	5.53	mg/kg dry	10	12/13/19 19:57	EPA 6020A	
RAU2-08-SO-2.0 (A9L0191-03)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**2.70**	0.706	1.41	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Cadmium	ND	0.141	0.282	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Chromium	**31.5**	0.706	1.41	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Copper	**55.3**	0.706	1.41	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Lead	**10.0**	0.141	0.282	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Manganese	**887**	0.706	1.41	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Mercury	**0.0740**	0.0565	0.113	mg/kg dry	10	12/17/19 02:02	EPA 6020A	**J**
Nickel	**28.5**	0.706	1.41	mg/kg dry	10	12/17/19 02:02	EPA 6020A	
Zinc	**53.0**	2.82	5.65	mg/kg dry	10	12/17/19 02:02	EPA 6020A	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-SO-1.5 (A9L0191-04)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**3.05**	0.559	1.12	mg/kg dry	10	12/17/19 02:07	EPA 6020A	
Cadmium	**0.138**	0.112	0.223	mg/kg dry	10	12/17/19 02:07	EPA 6020A	**J**
Chromium	**21.0**	0.559	1.12	mg/kg dry	10	12/17/19 02:07	EPA 6020A	
Copper	**49.2**	0.559	1.12	mg/kg dry	10	12/17/19 02:07	EPA 6020A	
Lead	**11.1**	0.112	0.223	mg/kg dry	10	12/17/19 02:07	EPA 6020A	**Q-42**
Manganese	**316**	0.559	1.12	mg/kg dry	10	12/17/19 02:07	EPA 6020A	**Q-42**
Mercury	**0.252**	0.0447	0.0894	mg/kg dry	10	12/17/19 02:07	EPA 6020A	**Q-39, Q-42**
Nickel	**20.7**	0.559	1.12	mg/kg dry	10	12/17/19 02:07	EPA 6020A	
Zinc	**86.9**	2.23	4.47	mg/kg dry	10	12/17/19 02:07	EPA 6020A	**Q-42**
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**3.55**	0.610	1.22	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
Cadmium	**0.161**	0.122	0.244	mg/kg dry	10	12/17/19 02:21	EPA 6020A	**J**
Chromium	**51.7**	0.610	1.22	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
Copper	**57.0**	0.610	1.22	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
Lead	**14.1**	0.122	0.244	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
Manganese	**291**	0.610	1.22	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
Mercury	**0.0784**	0.0488	0.0977	mg/kg dry	10	12/17/19 02:21	EPA 6020A	**J**
Nickel	**35.0**	0.610	1.22	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
Zinc	**89.7**	2.44	4.88	mg/kg dry	10	12/17/19 02:21	EPA 6020A	
RAU1-08-GW-7.0 (A9L0191-08)				**Matrix: Water**				
Batch: 9120878								
Arsenic	ND	0.500	1.00	ug/L	1	12/13/19 23:59	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/13/19 23:59	EPA 6020A	
Chromium	**0.591**	0.500	1.00	ug/L	1	12/13/19 23:59	EPA 6020A	**J**
Copper	**1.78**	0.500	1.00	ug/L	1	12/13/19 23:59	EPA 6020A	
Lead	**1.01**	0.100	0.200	ug/L	1	12/13/19 23:59	EPA 6020A	
Manganese	**337**	0.500	1.00	ug/L	1	12/13/19 23:59	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/13/19 23:59	EPA 6020A	
Nickel	**1.07**	0.500	1.00	ug/L	1	12/13/19 23:59	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU1-08-GW-7.0 (A9L0191-08)				**Matrix: Water**				
Zinc	**2.34**	2.00	4.00	ug/L	1	12/13/19 23:59	EPA 6020A	**J**
RAU1-10-SO-2.0 (A9L0191-10)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**0.975**	0.532	1.06	mg/kg dry	10	12/17/19 02:26	EPA 6020A	**J**
Cadmium	ND	0.106	0.213	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Chromium	**22.0**	0.532	1.06	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Copper	**57.2**	0.532	1.06	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Lead	**2.99**	0.106	0.213	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Manganese	**272**	0.532	1.06	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Mercury	ND	0.0426	0.0852	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Nickel	**24.8**	0.532	1.06	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
Zinc	**35.6**	2.13	4.26	mg/kg dry	10	12/17/19 02:26	EPA 6020A	
RAU1-10-GW-8.5 (A9L0191-11)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**1.62**	0.500	1.00	ug/L	1	12/14/19 00:08	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/14/19 00:08	EPA 6020A	
Chromium	**10.5**	0.500	1.00	ug/L	1	12/14/19 00:08	EPA 6020A	
Copper	**21.4**	0.500	1.00	ug/L	1	12/14/19 00:08	EPA 6020A	
Lead	**1.97**	0.100	0.200	ug/L	1	12/14/19 00:08	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/14/19 00:08	EPA 6020A	
Nickel	**9.06**	0.500	1.00	ug/L	1	12/14/19 00:08	EPA 6020A	
Zinc	**10.6**	2.00	4.00	ug/L	1	12/14/19 00:08	EPA 6020A	
RAU1-10-GW-8.5 (A9L0191-11RE1)				**Matrix: Water**				
Batch: 9120878								
Manganese	**14600**	25.0	50.0	ug/L	50	12/17/19 00:53	EPA 6020A	
RAU4-10-SO-3.0 (A9L0191-12)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.58**	0.658	1.32	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Cadmium	ND	0.132	0.263	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Chromium	**31.2**	0.658	1.32	mg/kg dry	10	12/17/19 02:40	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-10-SO-3.0 (A9L0191-12)				**Matrix: Soil**				
Copper	**37.1**	0.658	1.32	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Lead	**2.63**	0.132	0.263	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Manganese	**286**	0.658	1.32	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Mercury	ND	0.0527	0.105	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Nickel	**23.2**	0.658	1.32	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
Zinc	**56.2**	2.63	5.27	mg/kg dry	10	12/17/19 02:40	EPA 6020A	
RAU4-10-GW-8.0 (A9L0191-13)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**1.86**	0.500	1.00	ug/L	1	12/14/19 00:13	EPA 6020A	
Cadmium	**0.0472**	0.0400	0.200	ug/L	1	12/14/19 00:13	EPA 6020A	**J**
Chromium	**6.89**	0.500	1.00	ug/L	1	12/14/19 00:13	EPA 6020A	
Copper	**13.4**	0.500	1.00	ug/L	1	12/14/19 00:13	EPA 6020A	
Lead	**1.89**	0.100	0.200	ug/L	1	12/14/19 00:13	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/14/19 00:13	EPA 6020A	
Nickel	**6.78**	0.500	1.00	ug/L	1	12/14/19 00:13	EPA 6020A	
Zinc	**12.8**	2.00	4.00	ug/L	1	12/14/19 00:13	EPA 6020A	
RAU4-10-GW-8.0 (A9L0191-13RE1)				**Matrix: Water**				
Batch: 9120878								
Manganese	**3570**	5.00	10.0	ug/L	10	12/17/19 00:57	EPA 6020A	
RAU4-08-SO-1.75 (A9L0191-14)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.02**	0.541	1.08	mg/kg dry	10	12/17/19 02:44	EPA 6020A	**J**
Cadmium	ND	0.108	0.216	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Chromium	**17.8**	0.541	1.08	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Copper	**66.1**	0.541	1.08	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Lead	**1.17**	0.108	0.216	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Manganese	**392**	0.541	1.08	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Mercury	ND	0.0433	0.0866	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Nickel	**27.1**	0.541	1.08	mg/kg dry	10	12/17/19 02:44	EPA 6020A	
Zinc	**36.9**	2.16	4.33	mg/kg dry	10	12/17/19 02:44	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**0.801**	0.514	1.03	mg/kg dry	10	12/17/19 02:49	EPA 6020A	**J**
Cadmium	ND	0.103	0.205	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Chromium	**15.1**	0.514	1.03	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Copper	**61.3**	0.514	1.03	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Lead	**0.958**	0.103	0.205	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Manganese	**291**	0.514	1.03	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Mercury	ND	0.0411	0.0822	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Nickel	**22.9**	0.514	1.03	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
Zinc	**28.9**	2.05	4.11	mg/kg dry	10	12/17/19 02:49	EPA 6020A	
RAU4-08-GW-7.5 (A9L0191-16)				**Matrix: Water**				
Batch: 9120878								
Arsenic	**1.76**	0.500	1.00	ug/L	1	12/14/19 00:27	EPA 6020A	
Cadmium	**0.205**	0.0400	0.200	ug/L	1	12/14/19 00:27	EPA 6020A	
Chromium	**17.9**	0.500	1.00	ug/L	1	12/14/19 00:27	EPA 6020A	
Copper	**39.4**	0.500	1.00	ug/L	1	12/14/19 00:27	EPA 6020A	
Lead	**3.12**	0.100	0.200	ug/L	1	12/14/19 00:27	EPA 6020A	
Mercury	**0.0494**	0.0400	0.0800	ug/L	1	12/14/19 00:27	EPA 6020A	**J**
Nickel	**14.6**	0.500	1.00	ug/L	1	12/14/19 00:27	EPA 6020A	
Zinc	**22.3**	2.00	4.00	ug/L	1	12/14/19 00:27	EPA 6020A	
RAU4-08-GW-7.5 (A9L0191-16RE1)				**Matrix: Water**				
Batch: 9120878								
Manganese	**13900**	25.0	50.0	ug/L	50	12/17/19 01:02	EPA 6020A	
RAU4-03-SO-1.2 (A9L0191-17)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**2.47**	0.627	1.25	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Cadmium	ND	0.125	0.251	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Chromium	**35.0**	0.627	1.25	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Copper	**61.4**	0.627	1.25	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Lead	**6.12**	0.125	0.251	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Manganese	**454**	0.627	1.25	mg/kg dry	10	12/17/19 02:54	EPA 6020A	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-03-SO-1.2 (A9L0191-17)				**Matrix: Soil**				
Mercury	ND	0.0502	0.100	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Nickel	**29.0**	0.627	1.25	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
Zinc	**60.2**	2.51	5.02	mg/kg dry	10	12/17/19 02:54	EPA 6020A	
RAU4-03-SO-14.5 (A9L0191-18)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**7.66**	0.935	1.87	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Cadmium	ND	0.187	0.374	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Chromium	**37.9**	0.935	1.87	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Copper	**57.9**	0.935	1.87	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Lead	**6.95**	0.187	0.374	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Manganese	**299**	0.935	1.87	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Mercury	ND	0.0748	0.150	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Nickel	**28.4**	0.935	1.87	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
Zinc	**73.2**	3.74	7.48	mg/kg dry	10	12/17/19 02:58	EPA 6020A	
RAU4-12-SO-2.4 (A9L0191-19)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.10**	0.596	1.19	mg/kg dry	10	12/17/19 03:03	EPA 6020A	**J**
Cadmium	ND	0.119	0.239	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Chromium	**16.8**	0.596	1.19	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Copper	**26.5**	0.596	1.19	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Lead	**3.61**	0.119	0.239	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Manganese	**147**	0.596	1.19	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Mercury	ND	0.0477	0.0954	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Nickel	**14.5**	0.596	1.19	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
Zinc	**30.8**	2.39	4.77	mg/kg dry	10	12/17/19 03:03	EPA 6020A	
RAU6-02-SO-1.5 (A9L0191-20)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.42**	0.598	1.20	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Cadmium	ND	0.120	0.239	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Chromium	**18.1**	0.598	1.20	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Copper	**28.9**	0.598	1.20	mg/kg dry	10	12/17/19 03:07	EPA 6020A	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU6-02-SO-1.5 (A9L0191-20)				**Matrix: Soil**				
Lead	**4.31**	0.120	0.239	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Manganese	**161**	0.598	1.20	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Mercury	ND	0.0479	0.0957	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Nickel	**19.1**	0.598	1.20	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
Zinc	**31.6**	2.39	4.79	mg/kg dry	10	12/17/19 03:07	EPA 6020A	
RAU6-01-SO-2.3 (A9L0191-21)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.72**	0.603	1.21	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Cadmium	ND	0.121	0.241	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Chromium	**26.0**	0.603	1.21	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Copper	**32.8**	0.603	1.21	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Lead	**11.2**	0.121	0.241	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Manganese	**252**	0.603	1.21	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Mercury	**0.0632**	0.0482	0.0965	mg/kg dry	10	12/17/19 03:12	EPA 6020A	**J**
Nickel	**21.3**	0.603	1.21	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
Zinc	**50.0**	2.41	4.82	mg/kg dry	10	12/17/19 03:12	EPA 6020A	
RAU4-05-SO-1.75 (A9L0191-22)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.02**	0.621	1.24	mg/kg dry	10	12/17/19 03:17	EPA 6020A	**J**
Cadmium	ND	0.124	0.248	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
Chromium	**33.4**	0.621	1.24	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
Copper	**60.2**	0.621	1.24	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
Lead	**3.01**	0.124	0.248	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
Manganese	**347**	0.621	1.24	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
Mercury	**0.0506**	0.0497	0.0994	mg/kg dry	10	12/17/19 03:17	EPA 6020A	**J**
Nickel	**26.4**	0.621	1.24	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
Zinc	**41.8**	2.48	4.97	mg/kg dry	10	12/17/19 03:17	EPA 6020A	
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**0.923**	0.591	1.18	mg/kg dry	10	12/17/19 03:21	EPA 6020A	**J**
Cadmium	ND	0.118	0.236	mg/kg dry	10	12/17/19 03:21	EPA 6020A	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**				
Chromium	**27.6**	0.591	1.18	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
Copper	**53.4**	0.591	1.18	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
Lead	**3.25**	0.118	0.236	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
Manganese	**375**	0.591	1.18	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
Mercury	ND	0.0473	0.0946	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
Nickel	**24.4**	0.591	1.18	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
Zinc	**40.0**	2.36	4.73	mg/kg dry	10	12/17/19 03:21	EPA 6020A	
RAU4-05-GW-7.5 (A9L0191-24)				**Matrix: Water**				
Batch: 9120937								
Lead	**20.8**	0.500	1.00	ug/L	5	12/16/19 19:15	EPA 6020A	
Mercury	ND	0.200	0.400	ug/L	5	12/16/19 19:15	EPA 6020A	R-04
RAU4-05-GW-7.5 (A9L0191-24RE1)				**Matrix: Water**				
Batch: 9120937								
Arsenic	**3.04**	2.50	5.00	ug/L	5	12/17/19 18:10	EPA 6020A	**J, R-04**
Cadmium	**0.329**	0.200	1.00	ug/L	5	12/17/19 18:10	EPA 6020A	**J, R-04**
Chromium	**33.2**	2.50	5.00	ug/L	5	12/17/19 18:10	EPA 6020A	
Copper	**117**	2.50	5.00	ug/L	5	12/17/19 18:10	EPA 6020A	
Manganese	**4460**	2.50	5.00	ug/L	5	12/17/19 18:10	EPA 6020A	
Nickel	**21.3**	2.50	5.00	ug/L	5	12/17/19 18:10	EPA 6020A	
Zinc	**351**	10.0	20.0	ug/L	5	12/17/19 18:10	EPA 6020A	
RB (A9L0191-30)				**Matrix: Water**				
Batch: 9120937								
Lead	**0.495**	0.100	0.200	ug/L	1	12/16/19 19:20	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/16/19 19:20	EPA 6020A	
RB (A9L0191-30RE1)				**Matrix: Water**				
Batch: 9120937								
Arsenic	ND	0.500	1.00	ug/L	1	12/17/19 18:15	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/17/19 18:15	EPA 6020A	
Chromium	**0.678**	0.500	1.00	ug/L	1	12/17/19 18:15	EPA 6020A	**J**
Copper	**0.513**	0.500	1.00	ug/L	1	12/17/19 18:15	EPA 6020A	**J**

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RB (A9L0191-30RE1)				**Matrix: Water**				
Manganese	ND	0.500	1.00	ug/L	1	12/17/19 18:15	EPA 6020A	
Nickel	ND	0.500	1.00	ug/L	1	12/17/19 18:15	EPA 6020A	
Zinc	ND	2.00	4.00	ug/L	1	12/17/19 18:15	EPA 6020A	
RAU3-01-SO-2.0 (A9L0191-41)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**0.872**	0.592	1.18	mg/kg dry	10	12/17/19 03:35	EPA 6020A	**J**
Cadmium	ND	0.118	0.237	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Chromium	**9.49**	0.592	1.18	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Copper	**35.6**	0.592	1.18	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Lead	**3.90**	0.118	0.237	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Manganese	**206**	0.592	1.18	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Mercury	ND	0.0474	0.0948	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Nickel	**16.2**	0.592	1.18	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
Zinc	**48.2**	2.37	4.74	mg/kg dry	10	12/17/19 03:35	EPA 6020A	
RAU2-07-SO-1.5 (A9L0191-43)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.23**	0.550	1.10	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Cadmium	ND	0.110	0.220	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Chromium	**25.0**	0.550	1.10	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Copper	**38.4**	0.550	1.10	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Lead	**2.48**	0.110	0.220	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Manganese	**258**	0.550	1.10	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Mercury	ND	0.0440	0.0880	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Nickel	**18.2**	0.550	1.10	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
Zinc	**30.6**	2.20	4.40	mg/kg dry	10	12/17/19 03:40	EPA 6020A	
RAU2-07-GW-7.5 (A9L0191-44RE1)				**Matrix: Water**				
Batch: 9120937								
Arsenic	**2.55**	0.500	1.00	ug/L	1	12/17/19 18:29	EPA 6020A	
Cadmium	**5.02**	0.0400	0.200	ug/L	1	12/17/19 18:29	EPA 6020A	
Chromium	**10.4**	0.500	1.00	ug/L	1	12/17/19 18:29	EPA 6020A	
Copper	**84.9**	0.500	1.00	ug/L	1	12/17/19 18:29	EPA 6020A	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-07-GW-7.5 (A9L0191-44RE1)				**Matrix: Water**				
Lead	**24.5**	0.100	0.200	ug/L	1	12/17/19 18:29	EPA 6020A	
Manganese	**1410**	0.500	1.00	ug/L	1	12/17/19 18:29	EPA 6020A	
Mercury	**0.226**	0.0400	0.0800	ug/L	1	12/17/19 18:29	EPA 6020A	
Nickel	**8.10**	0.500	1.00	ug/L	1	12/17/19 18:29	EPA 6020A	
Zinc	**423**	2.00	4.00	ug/L	1	12/17/19 18:29	EPA 6020A	
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**1.09**	0.635	1.27	mg/kg dry	10	12/17/19 03:45	EPA 6020A	**J**
Cadmium	ND	0.127	0.254	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Chromium	**35.2**	0.635	1.27	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Copper	**72.4**	0.635	1.27	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Lead	**3.84**	0.127	0.254	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Manganese	**349**	0.635	1.27	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Mercury	ND	0.0508	0.102	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Nickel	**37.9**	0.635	1.27	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
Zinc	**57.6**	2.54	5.08	mg/kg dry	10	12/17/19 03:45	EPA 6020A	
RAU4-06-GW-4.5 (A9L0191-46)				**Matrix: Water**				
Batch: 9120937								
Arsenic	**11.2**	2.50	5.00	ug/L	5	12/16/19 19:48	EPA 6020A	
Cadmium	**1.30**	0.200	1.00	ug/L	5	12/16/19 19:48	EPA 6020A	
Chromium	**123**	2.50	5.00	ug/L	5	12/16/19 19:48	EPA 6020A	**Q-42**
Copper	**246**	2.50	5.00	ug/L	5	12/16/19 19:48	EPA 6020A	**Q-42**
Lead	**29.1**	0.500	1.00	ug/L	5	12/16/19 19:48	EPA 6020A	
Manganese	**9960**	2.50	5.00	ug/L	5	12/16/19 19:48	EPA 6020A	**Q-42**
Mercury	ND	0.200	0.400	ug/L	5	12/16/19 19:48	EPA 6020A	R-04
Nickel	**96.8**	2.50	5.00	ug/L	5	12/16/19 19:48	EPA 6020A	**Q-42**
Zinc	**280**	10.0	20.0	ug/L	5	12/16/19 19:48	EPA 6020A	**Q-42**
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**				
Batch: 9120960								
Arsenic	**4.58**	0.584	1.17	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
Cadmium	**1.44**	0.117	0.233	mg/kg dry	10	12/17/19 03:49	EPA 6020A	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**				
Chromium	**29.8**	0.584	1.17	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
Copper	**114**	0.584	1.17	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
Lead	**225**	0.117	0.233	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
Manganese	**422**	0.584	1.17	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
Mercury	**0.0573**	0.0467	0.0934	mg/kg dry	10	12/17/19 03:49	EPA 6020A	**J**
Nickel	**31.3**	0.584	1.17	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
Zinc	**275**	2.33	4.67	mg/kg dry	10	12/17/19 03:49	EPA 6020A	
RAU6-03-SO-9.5 (A9L0191-48)				**Matrix: Soil**				
Batch: 9120988								
Arsenic	**6.58**	0.946	1.89	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Cadmium	**0.221**	0.189	0.378	mg/kg dry	10	12/17/19 17:07	EPA 6020A	**J**
Chromium	**39.5**	0.946	1.89	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Copper	**55.7**	0.946	1.89	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Lead	**7.29**	0.189	0.378	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Manganese	**334**	0.946	1.89	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Mercury	ND	0.0757	0.151	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Nickel	**28.0**	0.946	1.89	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
Zinc	**77.1**	3.78	7.57	mg/kg dry	10	12/17/19 17:07	EPA 6020A	
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**				
Batch: 9120988								
Arsenic	**1.63**	0.594	1.19	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Cadmium	ND	0.119	0.237	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Chromium	**15.9**	0.594	1.19	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Copper	**38.5**	0.594	1.19	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Lead	**2.13**	0.119	0.237	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Manganese	**525**	0.594	1.19	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Mercury	ND	0.0475	0.0950	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Nickel	**18.3**	0.594	1.19	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
Zinc	**47.0**	2.37	4.75	mg/kg dry	10	12/17/19 17:12	EPA 6020A	
RAU4-11-GW-7.0 (A9L0191-50)				**Matrix: Water**				
Batch: 9120937								

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-11-GW-7.0 (A9L0191-50)				**Matrix: Water**				
Arsenic	**1.37**	0.500	1.00	ug/L	1	12/16/19 20:02	EPA 6020A	
Chromium	**5.68**	0.500	1.00	ug/L	1	12/16/19 20:02	EPA 6020A	
Copper	**5.66**	0.500	1.00	ug/L	1	12/16/19 20:02	EPA 6020A	
Lead	**1.23**	0.100	0.200	ug/L	1	12/16/19 20:02	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/16/19 20:02	EPA 6020A	
Nickel	**2.97**	0.500	1.00	ug/L	1	12/16/19 20:02	EPA 6020A	
Zinc	**9.46**	2.00	4.00	ug/L	1	12/16/19 20:02	EPA 6020A	
RAU4-11-GW-7.0 (A9L0191-50RE1)				**Matrix: Water**				
Batch: 9120937								
Manganese	**9060**	25.0	50.0	ug/L	50	12/17/19 18:48	EPA 6020A	
RAU4-11-GW-7.0 (A9L0191-50RE2)				**Matrix: Water**				
Batch: 9120937								
Cadmium	ND	0.0400	0.200	ug/L	1	12/18/19 15:23	EPA 6020A	
RAU4-09-SO-2.5 (A9L0191-51)				**Matrix: Soil**				
Batch: 9120988								
Arsenic	**1.83**	0.592	1.18	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Cadmium	ND	0.118	0.237	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Chromium	**8.89**	0.592	1.18	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Copper	**17.1**	0.592	1.18	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Lead	**2.89**	0.118	0.237	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Manganese	**668**	0.592	1.18	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Mercury	ND	0.0473	0.0946	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Nickel	**7.82**	0.592	1.18	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
Zinc	**56.3**	2.37	4.73	mg/kg dry	10	12/17/19 17:16	EPA 6020A	
RAU4-09-GW-7.0 (A9L0191-52)				**Matrix: Water**				
Batch: 9120937								
Arsenic	ND	0.500	1.00	ug/L	1	12/16/19 20:07	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/16/19 20:07	EPA 6020A	
Chromium	**1.12**	0.500	1.00	ug/L	1	12/16/19 20:07	EPA 6020A	
Copper	**2.68**	0.500	1.00	ug/L	1	12/16/19 20:07	EPA 6020A	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-09-GW-7.0 (A9L0191-52)				**Matrix: Water**				
Lead	**0.378**	0.100	0.200	ug/L	1	12/16/19 20:07	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/16/19 20:07	EPA 6020A	
Nickel	**0.842**	0.500	1.00	ug/L	1	12/16/19 20:07	EPA 6020A	**J**
Zinc	**2.37**	2.00	4.00	ug/L	1	12/16/19 20:07	EPA 6020A	**J**
RAU4-09-GW-7.0 (A9L0191-52RE1)				**Matrix: Water**				
Batch: 9120937								
Manganese	**13500**	5.00	10.0	ug/L	10	12/17/19 18:53	EPA 6020A	
RAU4-04-SO-3.45 (A9L0191-53)				**Matrix: Soil**				
Batch: 9120988								
Arsenic	**1.49**	0.581	1.16	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Cadmium	ND	0.116	0.232	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Chromium	**20.4**	0.581	1.16	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Copper	**29.8**	0.581	1.16	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Lead	**3.50**	0.116	0.232	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Manganese	**278**	0.581	1.16	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Mercury	ND	0.0465	0.0930	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Nickel	**17.8**	0.581	1.16	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
Zinc	**112**	2.32	4.65	mg/kg dry	10	12/17/19 17:21	EPA 6020A	
RAU4-04-GW-7.0 (A9L0191-54)				**Matrix: Water**				
Batch: 9120937								
Arsenic	ND	0.500	1.00	ug/L	1	12/16/19 20:12	EPA 6020A	
Chromium	**0.725**	0.500	1.00	ug/L	1	12/16/19 20:12	EPA 6020A	**J**
Copper	**0.959**	0.500	1.00	ug/L	1	12/16/19 20:12	EPA 6020A	**J**
Lead	**0.265**	0.100	0.200	ug/L	1	12/16/19 20:12	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/16/19 20:12	EPA 6020A	
Nickel	**2.11**	0.500	1.00	ug/L	1	12/16/19 20:12	EPA 6020A	
Zinc	**2.03**	2.00	4.00	ug/L	1	12/16/19 20:12	EPA 6020A	**J**
RAU4-04-GW-7.0 (A9L0191-54RE1)				**Matrix: Water**				
Batch: 9120937								
Manganese	**8690**	25.0	50.0	ug/L	50	12/17/19 18:57	EPA 6020A	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-04-GW-7.0 (A9L0191-54RE2)				**Matrix: Water**				
Batch: 9120937								
Cadmium	ND	0.0400	0.200	ug/L	1	12/18/19 15:28	EPA 6020A	
RAU7-01-SO-1.5 (A9L0191-55)				**Matrix: Soil**				
Batch: 9120988								
Arsenic	**1.81**	0.548	1.10	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Cadmium	ND	0.110	0.219	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Chromium	**17.6**	0.548	1.10	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Copper	**58.7**	0.548	1.10	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Lead	**2.95**	0.110	0.219	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Manganese	**346**	0.548	1.10	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Mercury	ND	0.0438	0.0876	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Nickel	**28.9**	0.548	1.10	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
Zinc	**45.8**	2.19	4.38	mg/kg dry	10	12/17/19 17:26	EPA 6020A	
RAU7-01-GW-8.5 (A9L0191-56)				**Matrix: Water**				
Batch: 9120937								
Arsenic	**1.95**	0.500	1.00	ug/L	1	12/16/19 20:16	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/16/19 20:16	EPA 6020A	
Chromium	**6.32**	0.500	1.00	ug/L	1	12/16/19 20:16	EPA 6020A	
Copper	**14.2**	0.500	1.00	ug/L	1	12/16/19 20:16	EPA 6020A	
Lead	**1.45**	0.100	0.200	ug/L	1	12/16/19 20:16	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/16/19 20:16	EPA 6020A	
Nickel	**4.62**	0.500	1.00	ug/L	1	12/16/19 20:16	EPA 6020A	
Zinc	**18.3**	2.00	4.00	ug/L	1	12/16/19 20:16	EPA 6020A	
RAU7-01-GW-8.5 (A9L0191-56RE1)				**Matrix: Water**				
Batch: 9120937								
Manganese	**18200**	5.00	10.0	ug/L	10	12/17/19 19:02	EPA 6020A	
RAU7-02-SO-2.5 (A9L0191-57)				**Matrix: Soil**				
Batch: 9120988								
Arsenic	**1.27**	0.536	1.07	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Cadmium	ND	0.107	0.214	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Chromium	**22.5**	0.536	1.07	mg/kg dry	10	12/17/19 17:30	EPA 6020A	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU7-02-SO-2.5 (A9L0191-57)				**Matrix: Soil**				
Copper	**69.4**	0.536	1.07	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Lead	**2.63**	0.107	0.214	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Manganese	**472**	0.536	1.07	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Mercury	ND	0.0429	0.0858	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Nickel	**30.2**	0.536	1.07	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
Zinc	**46.1**	2.14	4.29	mg/kg dry	10	12/17/19 17:30	EPA 6020A	
RAU7-02-GW-9.5 (A9L0191-58)				**Matrix: Water**				
Batch: 9120937								
Arsenic	ND	0.500	1.00	ug/L	1	12/16/19 20:21	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/16/19 20:21	EPA 6020A	
Chromium	**3.58**	0.500	1.00	ug/L	1	12/16/19 20:21	EPA 6020A	
Copper	**8.87**	0.500	1.00	ug/L	1	12/16/19 20:21	EPA 6020A	
Lead	**0.741**	0.100	0.200	ug/L	1	12/16/19 20:21	EPA 6020A	
Manganese	**269**	0.500	1.00	ug/L	1	12/16/19 20:21	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/16/19 20:21	EPA 6020A	
Nickel	**2.77**	0.500	1.00	ug/L	1	12/16/19 20:21	EPA 6020A	
Zinc	**12.8**	2.00	4.00	ug/L	1	12/16/19 20:21	EPA 6020A	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-07-SO-2.0 (A9L0191-01RE1)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**0.622**	0.441	0.882	mg/kg	2	12/31/19 16:25	EPA 7196A	**J, R-04**
RAU3-07-SO-6.0 (A9L0191-02RE1)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	ND	1.11	2.22	mg/kg	5	12/31/19 16:25	EPA 7196A	R-04
RAU1-08-SO-2.0 (A9L0191-06RE1)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**0.667**	0.220	0.439	mg/kg	1	12/31/19 16:26	EPA 7196A	
RAU4-03-SO-1.2 (A9L0191-17)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	ND	0.222	0.443	mg/kg	1	12/31/19 15:29	EPA 7196A	
RAU4-03-SO-14.5 (A9L0191-18RE1)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**1.26**	1.08	2.17	mg/kg	5	12/31/19 16:26	EPA 7196A	**J, R-04**
RAU6-03-SO-9.5 (A9L0191-48RE1)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	**1.14**	1.10	2.20	mg/kg	5	12/31/19 16:27	EPA 7196A	**J, R-04**
RAU7-02-SO-2.5 (A9L0191-57RE1)				**Matrix: Soil**		**Batch: 9121432**		
Chromium (VI)	ND	0.223	0.445	mg/kg	1	12/31/19 16:28	EPA 7196A	

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ANALYTICAL SAMPLE RESULTS

Total Hardness (Calculated) by SM 2340B (200.8)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-SW-Chehalis (A9L0191-09)				**Matrix: Water**			**(Calculated)**	
Hardness	**2880**	---	45.6	mg CaCO3/L	100	12/17/19 00:48	SM 2340B	

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ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-07-SO-2.0 (A9L0191-01)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**73.9**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU3-07-SO-6.0 (A9L0191-02)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**70.0**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU2-08-SO-2.0 (A9L0191-03)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**76.5**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU2-09-SO-1.5 (A9L0191-04)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**89.5**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU2-09-SO-8.0 (A9L0191-05)				**Matrix: Soil**		**Batch: 9120929**		
% Solids	**36.4**	1.00	1.00	%	1	12/17/19 08:32	EPA 8000C	
RAU1-08-SO-2.0 (A9L0191-06)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**85.3**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU1-08-SO-7.0 (A9L0191-07)				**Matrix: Soil**		**Batch: 9120929**		
% Solids	**68.0**	1.00	1.00	%	1	12/17/19 08:32	EPA 8000C	
RAU1-10-SO-2.0 (A9L0191-10)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**92.1**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU4-10-SO-3.0 (A9L0191-12)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**81.5**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-08-SO-1.75 (A9L0191-14)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**97.3**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-08-SO-1.75-DUP (A9L0191-15)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**96.9**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-03-SO-1.2 (A9L0191-17)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**88.2**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-03-SO-14.5 (A9L0191-18)				**Matrix: Soil**		**Batch: 9120643**		

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Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-03-SO-14.5 (A9L0191-18)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**54.9**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-12-SO-2.4 (A9L0191-19)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**85.5**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU6-02-SO-1.5 (A9L0191-20)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**83.9**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU6-01-SO-2.3 (A9L0191-21)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**86.2**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-05-SO-1.75 (A9L0191-22)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**88.7**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU4-05-SO-1.75-DUP (A9L0191-23)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**87.9**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU3-01-SO-2.0 (A9L0191-41)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**93.6**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU2-07-SO-1.5 (A9L0191-43)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**87.7**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU4-06-SO-1.5 (A9L0191-45)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**84.8**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU6-03-SO-2.5 (A9L0191-47)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**86.9**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU6-03-SO-9.5 (A9L0191-48)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**55.8**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-11-SO-2.5 (A9L0191-49)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**93.6**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-09-SO-2.5 (A9L0191-51)				**Matrix: Soil**		**Batch: 9120643**		

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AMENDED REPORT

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-09-SO-2.5 (A9L0191-51)				**Matrix: Soil**		**Batch: 9120643**		
% Solids	**86.8**	1.00	1.00	%	1	12/10/19 10:00	EPA 8000C	
RAU4-04-SO-3.45 (A9L0191-53)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**86.0**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU7-01-SO-1.5 (A9L0191-55)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**94.7**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	
RAU7-02-SO-2.5 (A9L0191-57)				**Matrix: Soil**		**Batch: 9120702**		
% Solids	**94.6**	1.00	1.00	%	1	12/11/19 08:50	EPA 8000C	

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ANALYTICAL SAMPLE RESULTS (Subcontracted)

Wet Chemistry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-10-GW-8.0 (A9L0191-13)				**Matrix: Water**			**Batch: BHL0315**	
Batch: BHL0315								
Sulfide	ND	0.050	0.050	mg/L	1	12/17/19 19:00	SM 4500-S2 D-00	U
RAU4-11-GW-7.0 (A9L0191-50)				**Matrix: Water**			**Batch: BHL0315**	
Batch: BHL0315								
Sulfide	ND	0.050	0.050	mg/L	1	12/17/19 19:01	SM 4500-S2 D-00	U

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120671 - EPA 3510C (Fuels/Acid Ext.)												**Water**
Blank (9120671-BLK1)			Prepared: 12/09/19 13:46 Analyzed: 12/10/19 00:37									
NWTPH-HCID												
Gasoline Range Organics	ND	0.0909	0.0909	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	0.227	0.227	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	0.227	0.227	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*31 %*	*10-120 %*			*"*					
Batch 9120672 - NWTPH-HCID (Soil)												**Soil**
Blank (9120672-BLK1)			Prepared: 12/09/19 13:51 Analyzed: 12/10/19 00:37									
NWTPH-HCID												
Gasoline Range Organics	ND	18.2	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	45.5	45.5	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	90.9	90.9	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*100 %*	*50-150 %*			*"*					
Duplicate (9120672-DUP1)			Prepared: 12/09/19 13:51 Analyzed: 12/10/19 01:18									
QC Source Sample: RAU3-07-SO-2.0 (A9L0191-01)												
NWTPH-HCID												
Gasoline Range Organics	ND	25.5	25.5	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	63.6	63.6	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	127	127	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 60 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*62 %*	*50-150 %*			*"*					
Duplicate (9120672-DUP2)			Prepared: 12/09/19 13:51 Analyzed: 12/10/19 07:07									
QC Source Sample: Non-SDG (A9L0213-04RE1)												
Gasoline Range Organics	ND	19.9	19.9	mg/kg wet	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	49.8	49.8	mg/kg wet	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	99.6	99.6	mg/kg wet	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 96 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*87 %*	*50-150 %*			*"*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120672 - NWTPH-HCID (Soil)							**Soil**					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120779 - NWTPH-HCID (Soil)							Soil					
Blank (9120779-BLK1)			Prepared: 12/11/19 13:56 Analyzed: 12/11/19 21:39									
NWTPH-HCID												
Gasoline Range Organics	ND	18.2	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	45.5	45.5	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	90.9	90.9	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*94 %*	*50-150 %*			*"*					
Duplicate (9120779-DUP1)			Prepared: 12/11/19 13:56 Analyzed: 12/11/19 22:20									
QC Source Sample: Non-SDG (A9L0188-10RE1)												
Gasoline Range Organics	ND	23.7	23.7	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	59.2	59.2	mg/kg dry	1	---	ND	---	---	**---**	**30%**	Q-05
Oil Range Organics	ND	118	118	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 72 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*72 %*	*50-150 %*			*"*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120671 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9120671-BLK1)			Prepared: 12/09/19 13:46		Analyzed: 12/10/19 00:37							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (9120671-BS1)			Prepared: 12/09/19 13:46		Analyzed: 12/10/19 00:58							
NWTPH-Dx												
Diesel	1.03	0.100	0.200	mg/L	1	1.25	---	82	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 110 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (9120671-BSD1)			Prepared: 12/09/19 13:46		Analyzed: 12/10/19 01:18							**Q-19**
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115%	2	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 108 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120726 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9120726-BLK1)			Prepared: 12/10/19 13:45		Analyzed: 12/10/19 20:13							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (9120726-BS1)			Prepared: 12/10/19 13:45		Analyzed: 12/10/19 20:36							
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (9120726-BSD1)			Prepared: 12/10/19 13:45		Analyzed: 12/10/19 20:58							**Q-19**
NWTPH-Dx												
Diesel	1.07	0.100	0.200	mg/L	1	1.25	---	85	58-115%	2	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120774 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9120774-BLK1)			Prepared: 12/11/19 12:51		Analyzed: 12/11/19 20:17							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 103 %*	*Limits: 50-150 %*		*Dilution: 1x*							
LCS (9120774-BS1)			Prepared: 12/11/19 12:51		Analyzed: 12/11/19 20:37							
NWTPH-Dx												
Diesel	1.07	0.100	0.200	mg/L	1	1.25	---	86	58-115%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 106 %*	*Limits: 50-150 %*		*Dilution: 1x*							
LCS Dup (9120774-BSD1)			Prepared: 12/11/19 12:51		Analyzed: 12/11/19 20:58							**Q-19**
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115%	2	20%	
Surr: o-Terphenyl (Surr)		*Recovery: 105 %*	*Limits: 50-150 %*		*Dilution: 1x*							

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120775 - EPA 3546 (Fuels)							**Soil**					
Blank (9120775-BLK1)			Prepared: 12/11/19 12:54		Analyzed: 12/11/19 20:16							
NWTPH-Dx												
Diesel	ND	9.09	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	18.2	50.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	18.2	36.4	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 93 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS (9120775-BS1)			Prepared: 12/11/19 12:54		Analyzed: 12/11/19 20:36							
NWTPH-Dx												
Diesel	117	10.0	20.0	mg/kg wet	1	125	---	94	76-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Duplicate (9120775-DUP1)			Prepared: 12/11/19 12:54		Analyzed: 12/11/19 21:16							
QC Source Sample: Non-SDG (A9L0179-01)												
Diesel	**56.1**	10.7	25.0	mg/kg dry	1	---	16.8	---	---	**108**	**30%**	Q-05
Oil	ND	21.4	50.0	mg/kg dry	1	---	ND	---	---	---	30%	
Mineral Oil	ND	21.4	42.8	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 87 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Duplicate (9120775-DUP2)			Prepared: 12/11/19 12:54		Analyzed: 12/12/19 00:36							
QC Source Sample: Non-SDG (A9L0192-03)												
Diesel	ND	10.0	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**68.0**	20.0	50.0	mg/kg dry	1	---	70.9	---	---	4	30%	F-03
Mineral Oil	ND	20.0	40.0	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 107 %*		*Limits: 50-150 %*		*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120804 - EPA 3546 (Fuels)							**Soil**					
Blank (9120804-BLK1)			Prepared: 12/12/19 08:23		Analyzed: 12/12/19 10:05							
NWTPH-Dx												
Diesel	ND	9.09	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	18.2	50.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 94 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS (9120804-BS1)			Prepared: 12/12/19 08:23		Analyzed: 12/12/19 10:25							
NWTPH-Dx												
Diesel	118	10.0	25.0	mg/kg wet	1	125	---	95	76-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Duplicate (9120804-DUP1)			Prepared: 12/12/19 08:23		Analyzed: 12/12/19 11:07							
QC Source Sample: Non-SDG (A9L0412-05RE1)												
Diesel	ND	9.56	25.0	mg/kg wet	1	---	ND	---	---	---	30%	
Oil	ND	19.1	50.0	mg/kg wet	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 56 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Duplicate (9120804-DUP2)			Prepared: 12/12/19 12:56		Analyzed: 12/13/19 01:19							
QC Source Sample: Non-SDG (A9L0323-04)												
Diesel	**204**	12.5	25.1	mg/kg dry	1	---	1220	---	---	**143**	**30%**	Q-04
Oil	ND	25.1	50.1	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 81 %*		*Limits: 50-150 %*		*Dilution: 1x*					

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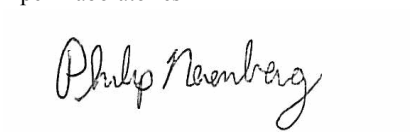

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120906 - EPA 3546 (Fuels)							**Soil**					
Blank (9120906-BLK1)			Prepared: 12/13/19 14:20		Analyzed: 12/13/19 18:49							
NWTPH-Dx												
Diesel	ND	9.09	18.2	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	18.2	36.4	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 101 %*	*Limits: 50-150 %*		*Dilution: 1x*							
LCS (9120906-BS1)			Prepared: 12/13/19 14:20		Analyzed: 12/13/19 19:09							
NWTPH-Dx												
Diesel	129	10.0	20.0	mg/kg wet	1	125	---	103	76-115%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 104 %*	*Limits: 50-150 %*		*Dilution: 1x*							
Duplicate (9120906-DUP1)			Prepared: 12/13/19 14:20		Analyzed: 12/13/19 19:49							
QC Source Sample: Non-SDG (A9L0097-06)												
Diesel	ND	9.96	19.9	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**1150**	19.9	39.8	mg/kg dry	1	---	949	---	---	20	30%	
Surr: o-Terphenyl (Surr)		*Recovery: 101 %*	*Limits: 50-150 %*		*Dilution: 1x*							
Duplicate (9120906-DUP2)			Prepared: 12/13/19 14:20		Analyzed: 12/14/19 05:07							
QC Source Sample: Non-SDG (A9L0356-05)												
Diesel	ND	11.4	22.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**72.4**	22.8	45.6	mg/kg dry	1	---	116	---	---	**46**	**30%**	Q-05
Surr: o-Terphenyl (Surr)		*Recovery: 97 %*	*Limits: 50-150 %*		*Dilution: 1x*							

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121014 - EPA 3546 (Fuels)							**Soil**					
Blank (9121014-BLK1)			Prepared: 12/17/19 12:56		Analyzed: 12/17/19 22:04							
NWTPH-Dx												
Diesel	ND	8.33	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	16.7	50.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	16.7	33.3	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS (9121014-BS1)			Prepared: 12/17/19 12:56		Analyzed: 12/17/19 22:26							
NWTPH-Dx												
Diesel	118	10.0	25.0	mg/kg wet	1	125	---	94	76-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 103 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Duplicate (9121014-DUP2)			Prepared: 12/17/19 12:56		Analyzed: 12/18/19 02:38							
QC Source Sample: Non-SDG (A9L0612-01)												
Diesel	ND	11.2	22.4	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**41.2**	22.4	44.8	mg/kg dry	1	---	63.5	---	---	**43**	**30%**	Q-05, J
Mineral Oil	ND	22.4	44.8	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 92 %*		*Limits: 50-150 %*		*Dilution: 1x*					
Duplicate (9121014-DUP3)			Prepared: 12/17/19 12:56		Analyzed: 12/18/19 11:01							
QC Source Sample: Non-SDG (A9L0188-03RE1)												
Diesel	**13100**	252	504	mg/kg dry	20	---	11900	---	---	10	30%	
Oil	ND	504	1010	mg/kg dry	20	---	ND	---	---	---	30%	
Mineral Oil	ND	504	1010	mg/kg dry	20	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: %*		*Limits: 50-150 %*		*Dilution: 20x*					S-01

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120757 - EPA 5030B												**Water**
Blank (9120757-BLK1)			Prepared: 12/11/19 10:05 Analyzed: 12/11/19 14:28									
EPA 8260C												
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	0.750	1.50	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*			*"*				
LCS (9120757-BS2)			Prepared: 12/11/19 10:05 Analyzed: 12/11/19 13:30									
EPA 8260C												
Benzene	18.8	0.100	0.200	ug/L	1	20.0	---	94	80-120%	---	---	
Toluene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Ethylbenzene	19.1	0.250	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
Xylenes, total	60.9	0.750	1.50	ug/L	1	60.0	---	102	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 97 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*96 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*102 %*		*80-120 %*			*"*				
Duplicate (9120757-DUP1)			Prepared: 12/11/19 13:52 Analyzed: 12/11/19 15:25									
QC Source Sample: RAU4-06-GW-4.5 (A9L0191-46)												
EPA 8260C												
Benzene	ND	1.00	2.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	**7.20**	5.00	10.0	ug/L	10	---	6.70	---	---	7	30%	J
Ethylbenzene	ND	2.50	5.00	ug/L	10	---	ND	---	---	---	30%	
Xylenes, total	ND	7.50	15.0	ug/L	10	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 107 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				
Matrix Spike (9120757-MS1)			Prepared: 12/11/19 13:52 Analyzed: 12/11/19 18:36									
QC Source Sample: Non-SDG (A9L0303-03)												
EPA 8260C												

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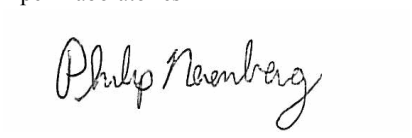

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120757 - EPA 5030B							**Water**					
Matrix Spike (9120757-MS1)			Prepared: 12/11/19 13:52		Analyzed: 12/11/19 18:36							
QC Source Sample: Non-SDG (A9L0303-03)												
Benzene	20.4	0.100	0.200	ug/L	1	20.0	ND	102	79-120%	---	---	
Toluene	19.7	0.500	1.00	ug/L	1	20.0	ND	98	80-121%	---	---	
Ethylbenzene	21.0	0.250	0.500	ug/L	1	20.0	ND	105	79-121%	---	---	
Xylenes, total	66.8	0.750	1.50	ug/L	1	60.0	ND	111	79-121%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 96 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*95 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				

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QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Blank (9120873-BLK1)			Prepared: 12/13/19 09:00 Analyzed: 12/13/19 11:20									
5035A/8260C												
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*			*"*					
LCS (9120873-BS1)			Prepared: 12/13/19 09:00 Analyzed: 12/13/19 10:25									
5035A/8260C												
Benzene	973	5.00	10.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Toluene	953	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Ethylbenzene	994	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Xylenes, total	3020	37.5	75.0	ug/kg wet	50	3000	---	101	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 97 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*101 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*			*"*					
Duplicate (9120873-DUP1)			Prepared: 12/11/19 13:55 Analyzed: 12/13/19 13:36									
QC Source Sample: Non-SDG (A9L0457-01)												
Benzene	ND	4.54	9.07	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	34.0	68.0	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*			*"*					
Matrix Spike (9120873-MS1)			Prepared: 12/11/19 13:44 Analyzed: 12/13/19 18:08									
QC Source Sample: Non-SDG (A9L0457-04)												
5035A/8260C												
Benzene	976	4.90	9.81	ug/kg dry	50	981	ND	99	77-121%	---	---	

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AMENDED REPORT

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Matrix Spike (9120873-MS1)			Prepared: 12/11/19 13:44 Analyzed: 12/13/19 18:08									
QC Source Sample: Non-SDG (A9L0457-04)												
Toluene	918	24.5	49.0	ug/kg dry	50	981	ND	94	77-121%	---	---	
Ethylbenzene	962	12.3	24.5	ug/kg dry	50	981	ND	98	76-122%	---	---	
Xylenes, total	2920	36.8	73.6	ug/kg dry	50	2940	ND	99	78-124%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Blank (9120873-BLK1)			Prepared: 12/13/19 09:00		Analyzed: 12/13/19 11:20							
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Blank (9120873-BLK1)			Prepared: 12/13/19 09:00 Analyzed: 12/13/19 11:20									
1,2-Dichloropropane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 99 %* *Limits: 80-120 %* *Dilution: 1x*

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Blank (9120873-BLK1)				Prepared: 12/13/19 09:00 Analyzed: 12/13/19 11:20								
Surr: Toluene-d8 (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*				*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*				*"*				
LCS (9120873-BS1)				Prepared: 12/13/19 09:00 Analyzed: 12/13/19 10:25								
5035A/8260C												
Acetone	1960	500	1000	ug/kg wet	50	2000	---	98	80-120%	---	---	
Acrylonitrile	1090	50.0	100	ug/kg wet	50	1000	---	109	80-120%	---	---	
Benzene	973	5.00	10.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Bromobenzene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Bromochloromethane	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Bromodichloromethane	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Bromoform	990	50.0	100	ug/kg wet	50	1000	---	99	80-120%	---	---	
Bromomethane	968	500	500	ug/kg wet	50	1000	---	97	80-120%	---	---	
2-Butanone (MEK)	2150	250	500	ug/kg wet	50	2000	---	107	80-120%	---	---	
n-Butylbenzene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
sec-Butylbenzene	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
tert-Butylbenzene	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Carbon disulfide	848	250	500	ug/kg wet	50	1000	---	85	80-120%	---	---	
Carbon tetrachloride	928	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Chlorobenzene	958	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Chloroethane	775	250	500	ug/kg wet	50	1000	---	**78**	**80-120%**	---	---	Q-55
Chloroform	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Chloromethane	815	125	250	ug/kg wet	50	1000	---	82	80-120%	---	---	
2-Chlorotoluene	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
4-Chlorotoluene	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Dibromochloromethane	1030	50.0	100	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,2-Dibromo-3-chloropropane	961	125	250	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,2-Dibromoethane (EDB)	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Dibromomethane	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dichlorobenzene	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,3-Dichlorobenzene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,4-Dichlorobenzene	972	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Dichlorodifluoromethane	881	50.0	100	ug/kg wet	50	1000	---	88	80-120%	---	---	
1,1-Dichloroethane	920	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
LCS (9120873-BS1)			Prepared: 12/13/19 09:00		Analyzed: 12/13/19 10:25							
1,2-Dichloroethane (EDC)	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,1-Dichloroethene	923	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
cis-1,2-Dichloroethene	973	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
trans-1,2-Dichloroethene	975	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,2-Dichloropropane	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,3-Dichloropropane	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
2,2-Dichloropropane	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
1,1-Dichloropropene	976	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
cis-1,3-Dichloropropene	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
trans-1,3-Dichloropropene	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Ethylbenzene	994	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Hexachlorobutadiene	942	50.0	100	ug/kg wet	50	1000	---	94	80-120%	---	---	
2-Hexanone	2070	250	500	ug/kg wet	50	2000	---	103	80-120%	---	---	
Isopropylbenzene	989	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
4-Isopropyltoluene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Methylene chloride	952	125	250	ug/kg wet	50	1000	---	95	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2270	250	500	ug/kg wet	50	2000	---	113	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Naphthalene	1020	50.0	100	ug/kg wet	50	1000	---	102	80-120%	---	---	
n-Propylbenzene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Styrene	912	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,1,1,2-Tetrachloroethane	994	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Tetrachloroethene (PCE)	966	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Toluene	953	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
1,2,3-Trichlorobenzene	969	125	250	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,2,4-Trichlorobenzene	963	125	250	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,1,1-Trichloroethane	981	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,1,2-Trichloroethane	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Trichloroethene (TCE)	931	12.5	25.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Trichlorofluoromethane	723	50.0	100	ug/kg wet	50	1000	---	**72**	**80-120%**	---	---	Q-55
1,2,3-Trichloropropane	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
1,2,4-Trimethylbenzene	934	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,3,5-Trimethylbenzene	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
LCS (9120873-BS1)			Prepared: 12/13/19 09:00 Analyzed: 12/13/19 10:25									
Vinyl chloride	870	12.5	25.0	ug/kg wet	50	1000	---	87	80-120%	---	---	
m,p-Xylene	1990	25.0	50.0	ug/kg wet	50	2000	---	100	80-120%	---	---	
o-Xylene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 97 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*101 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*		*"*					
Duplicate (9120873-DUP1)			Prepared: 12/11/19 13:55 Analyzed: 12/13/19 13:36									
QC Source Sample: Non-SDG (A9L0457-01)												
Acetone	ND	454	907	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	4.54	9.07	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	454	454	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	227	454	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	227	454	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	227	454	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	113	227	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	113	227	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Duplicate (9120873-DUP1)			Prepared: 12/11/19 13:55 Analyzed: 12/13/19 13:36									
QC Source Sample: Non-SDG (A9L0457-01)												
1,3-Dichlorobenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	227	454	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	227	227	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	227	454	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	**27.0**	11.3	22.7	ug/kg dry	50	---	ND	---	---		**30%**	Q-05
Toluene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	113	227	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	113	227	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Duplicate (9120873-DUP1)			Prepared: 12/11/19 13:55 Analyzed: 12/13/19 13:36									
QC Source Sample: Non-SDG (A9L0457-01)												
Trichloroethene (TCE)	**113**	11.3	22.7	ug/kg dry	50	---	ND	---	---		**30%**	Q-05
Trichlorofluoromethane	ND	45.4	90.7	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	22.7	45.4	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	11.3	22.7	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*			*"*					
Matrix Spike (9120873-MS1)			Prepared: 12/11/19 13:44 Analyzed: 12/13/19 18:08									
QC Source Sample: Non-SDG (A9L0457-04)												
5035A/8260C												
Acetone	1720	490	981	ug/kg dry	50	1960	ND	88	36-164%	---	---	
Acrylonitrile	954	49.0	98.1	ug/kg dry	50	981	ND	97	65-134%	---	---	
Benzene	976	4.90	9.81	ug/kg dry	50	981	ND	99	77-121%	---	---	
Bromobenzene	991	12.3	24.5	ug/kg dry	50	981	ND	101	78-121%	---	---	
Bromochloromethane	994	24.5	49.0	ug/kg dry	50	981	ND	101	78-125%	---	---	
Bromodichloromethane	1060	24.5	49.0	ug/kg dry	50	981	ND	108	75-127%	---	---	
Bromoform	1010	49.0	98.1	ug/kg dry	50	981	ND	103	67-132%	---	---	
Bromomethane	1050	490	490	ug/kg dry	50	981	ND	107	53-143%	---	---	
2-Butanone (MEK)	1840	245	490	ug/kg dry	50	1960	ND	94	51-148%	---	---	
n-Butylbenzene	981	24.5	49.0	ug/kg dry	50	981	ND	100	70-128%	---	---	
sec-Butylbenzene	991	24.5	49.0	ug/kg dry	50	981	ND	101	73-126%	---	---	
tert-Butylbenzene	1010	24.5	49.0	ug/kg dry	50	981	ND	102	73-125%	---	---	
Carbon disulfide	801	245	490	ug/kg dry	50	981	ND	82	63-132%	---	---	
Carbon tetrachloride	907	24.5	49.0	ug/kg dry	50	981	ND	92	70-135%	---	---	
Chlorobenzene	930	12.3	24.5	ug/kg dry	50	981	ND	95	79-120%	---	---	
Chloroethane	1130	245	490	ug/kg dry	50	981	ND	115	59-139%	---	---	Q-54j
Chloroform	1050	24.5	49.0	ug/kg dry	50	981	ND	107	78-123%	---	---	
Chloromethane	790	123	245	ug/kg dry	50	981	ND	81	50-136%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Matrix Spike (9120873-MS1)			Prepared: 12/11/19 13:44		Analyzed: 12/13/19 18:08							
QC Source Sample: Non-SDG (A9L0457-04)												
2-Chlorotoluene	1010	24.5	49.0	ug/kg dry	50	981	ND	103	75-122%	---	---	
4-Chlorotoluene	1010	24.5	49.0	ug/kg dry	50	981	ND	103	72-124%	---	---	
Dibromochloromethane	1040	49.0	98.1	ug/kg dry	50	981	ND	106	74-126%	---	---	
1,2-Dibromo-3-chloropropane	844	123	245	ug/kg dry	50	981	ND	86	61-132%	---	---	
1,2-Dibromoethane (EDB)	1020	24.5	49.0	ug/kg dry	50	981	ND	104	78-122%	---	---	
Dibromomethane	1010	24.5	49.0	ug/kg dry	50	981	ND	103	78-125%	---	---	
1,2-Dichlorobenzene	1020	12.3	24.5	ug/kg dry	50	981	ND	104	78-121%	---	---	
1,3-Dichlorobenzene	994	12.3	24.5	ug/kg dry	50	981	ND	101	77-121%	---	---	
1,4-Dichlorobenzene	944	12.3	24.5	ug/kg dry	50	981	ND	96	75-120%	---	---	
Dichlorodifluoromethane	862	49.0	98.1	ug/kg dry	50	981	ND	88	29-149%	---	---	
1,1-Dichloroethane	978	12.3	24.5	ug/kg dry	50	981	ND	100	76-125%	---	---	
1,2-Dichloroethane (EDC)	1000	12.3	24.5	ug/kg dry	50	981	ND	102	73-128%	---	---	
1,1-Dichloroethene	901	12.3	24.5	ug/kg dry	50	981	ND	92	70-131%	---	---	
cis-1,2-Dichloroethene	1010	12.3	24.5	ug/kg dry	50	981	ND	103	77-123%	---	---	
trans-1,2-Dichloroethene	946	12.3	24.5	ug/kg dry	50	981	ND	96	74-125%	---	---	
1,2-Dichloropropane	1030	12.3	24.5	ug/kg dry	50	981	ND	105	76-123%	---	---	
1,3-Dichloropropane	989	24.5	49.0	ug/kg dry	50	981	ND	101	77-121%	---	---	
2,2-Dichloropropane	855	24.5	49.0	ug/kg dry	50	981	ND	87	67-133%	---	---	
1,1-Dichloropropene	946	24.5	49.0	ug/kg dry	50	981	ND	96	76-125%	---	---	
cis-1,3-Dichloropropene	1040	24.5	49.0	ug/kg dry	50	981	ND	106	74-126%	---	---	
trans-1,3-Dichloropropene	983	24.5	49.0	ug/kg dry	50	981	ND	100	71-130%	---	---	
Ethylbenzene	962	12.3	24.5	ug/kg dry	50	981	ND	98	76-122%	---	---	
Hexachlorobutadiene	959	49.0	98.1	ug/kg dry	50	981	ND	98	61-135%	---	---	
2-Hexanone	1820	245	490	ug/kg dry	50	1960	ND	93	53-145%	---	---	
Isopropylbenzene	965	24.5	49.0	ug/kg dry	50	981	ND	98	68-134%	---	---	
4-Isopropyltoluene	971	24.5	49.0	ug/kg dry	50	981	ND	99	73-127%	---	---	
Methylene chloride	1020	123	245	ug/kg dry	50	981	ND	85	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2050	245	490	ug/kg dry	50	1960	ND	105	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1020	24.5	49.0	ug/kg dry	50	981	ND	103	73-125%	---	---	
Naphthalene	884	49.0	98.1	ug/kg dry	50	981	ND	90	62-129%	---	---	
n-Propylbenzene	971	12.3	24.5	ug/kg dry	50	981	ND	99	73-125%	---	---	
Styrene	889	24.5	49.0	ug/kg dry	50	981	ND	91	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1000	12.3	24.5	ug/kg dry	50	981	ND	102	78-125%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120873 - EPA 5035A							**Soil**					
Matrix Spike (9120873-MS1)			Prepared: 12/11/19 13:44		Analyzed: 12/13/19 18:08							
QC Source Sample: Non-SDG (A9L0457-04)												
1,1,2,2-Tetrachloroethane	1040	24.5	49.0	ug/kg dry	50	981	ND	106	70-124%	---	---	
Tetrachloroethene (PCE)	912	12.3	24.5	ug/kg dry	50	981	ND	93	73-128%	---	---	
Toluene	918	24.5	49.0	ug/kg dry	50	981	ND	94	77-121%	---	---	
1,2,3-Trichlorobenzene	855	123	245	ug/kg dry	50	981	ND	87	66-130%	---	---	
1,2,4-Trichlorobenzene	867	123	245	ug/kg dry	50	981	ND	88	67-129%	---	---	
1,1,1-Trichloroethane	958	12.3	24.5	ug/kg dry	50	981	ND	98	73-130%	---	---	
1,1,2-Trichloroethane	1030	12.3	24.5	ug/kg dry	50	981	ND	105	78-121%	---	---	
Trichloroethene (TCE)	920	12.3	24.5	ug/kg dry	50	981	ND	94	77-123%	---	---	
Trichlorofluoromethane	925	49.0	98.1	ug/kg dry	50	981	ND	94	62-140%	---	---	Q-54l
1,2,3-Trichloropropane	1020	24.5	49.0	ug/kg dry	50	981	ND	104	73-125%	---	---	
1,2,4-Trimethylbenzene	895	24.5	49.0	ug/kg dry	50	981	ND	91	75-123%	---	---	
1,3,5-Trimethylbenzene	972	24.5	49.0	ug/kg dry	50	981	ND	99	73-124%	---	---	
Vinyl chloride	907	12.3	24.5	ug/kg dry	50	981	ND	92	56-135%	---	---	
m,p-Xylene	1930	24.5	49.0	ug/kg dry	50	1960	ND	98	77-124%	---	---	
o-Xylene	989	12.3	24.5	ug/kg dry	50	981	ND	101	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*			*"*				

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Blank (9120654-BLK1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:56							
EPA 8260C												
Acetone	ND	20.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Blank (9120654-BLK1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:56							
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	10.0	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	2.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 112 %* *Limits: 80-120 %* *Dilution: 1x*

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B								**Water**				
Blank (9120654-BLK1)				Prepared: 12/09/19 11:00 Analyzed: 12/09/19 12:56								
Surr: Toluene-d8 (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*			*"*					
LCS (9120654-BS1)				Prepared: 12/09/19 11:00 Analyzed: 12/09/19 12:03								
EPA 8260C												
Acetone	31.4	20.0	20.0	ug/L	1	40.0	---	**78**	**80-120%**	---	---	Q-55
Acrylonitrile	20.2	1.00	2.00	ug/L	1	20.0	---	101	80-120%	---	---	
Benzene	20.3	0.100	0.200	ug/L	1	20.0	---	101	80-120%	---	---	
Bromobenzene	20.0	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Bromochloromethane	24.5	0.500	1.00	ug/L	1	20.0	---	**122**	**80-120%**	---	---	Q-56
Bromodichloromethane	21.8	0.500	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
Bromoform	25.6	0.500	1.00	ug/L	1	20.0	---	**128**	**80-120%**	---	---	Q-56
Bromomethane	21.2	5.00	5.00	ug/L	1	20.0	---	106	80-120%	---	---	
2-Butanone (MEK)	34.9	5.00	10.0	ug/L	1	40.0	---	87	80-120%	---	---	
n-Butylbenzene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
sec-Butylbenzene	17.8	0.500	1.00	ug/L	1	20.0	---	89	80-120%	---	---	
tert-Butylbenzene	16.3	0.500	1.00	ug/L	1	20.0	---	82	80-120%	---	---	
Carbon disulfide	19.4	5.00	10.0	ug/L	1	20.0	---	97	80-120%	---	---	
Carbon tetrachloride	22.5	0.500	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
Chlorobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Chloroethane	16.6	5.00	5.00	ug/L	1	20.0	---	83	80-120%	---	---	
Chloroform	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Chloromethane	16.9	2.50	5.00	ug/L	1	20.0	---	84	80-120%	---	---	
2-Chlorotoluene	18.4	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
4-Chlorotoluene	17.8	0.500	1.00	ug/L	1	20.0	---	89	80-120%	---	---	
Dibromochloromethane	25.9	0.500	1.00	ug/L	1	20.0	---	**130**	**80-120%**	---	---	Q-56
1,2-Dibromo-3-chloropropane	19.3	2.50	5.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,2-Dibromoethane (EDB)	19.9	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Dibromomethane	22.6	0.500	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,2-Dichlorobenzene	19.2	0.250	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
1,3-Dichlorobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
1,4-Dichlorobenzene	19.3	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Dichlorodifluoromethane	19.7	0.500	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
1,1-Dichloroethane	19.0	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
LCS (9120654-BS1)			Prepared: 12/09/19 11:00		Analyzed: 12/09/19 12:03							
1,2-Dichloroethane (EDC)	18.0	0.200	0.400	ug/L	1	20.0	---	90	80-120%	---	---	
1,1-Dichloroethene	18.5	0.200	0.400	ug/L	1	20.0	---	92	80-120%	---	---	
cis-1,2-Dichloroethene	18.6	0.200	0.400	ug/L	1	20.0	---	93	80-120%	---	---	
trans-1,2-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
1,2-Dichloropropane	20.2	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
1,3-Dichloropropane	18.9	0.500	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
2,2-Dichloropropane	17.9	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
1,1-Dichloropropene	18.9	0.500	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
cis-1,3-Dichloropropene	18.4	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
trans-1,3-Dichloropropene	18.1	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Ethylbenzene	18.1	0.250	0.500	ug/L	1	20.0	---	91	80-120%	---	---	
Hexachlorobutadiene	16.8	2.50	5.00	ug/L	1	20.0	---	84	80-120%	---	---	
2-Hexanone	31.0	10.0	10.0	ug/L	1	40.0	---	**77**	**80-120%**	---	---	Q-55
Isopropylbenzene	18.0	0.500	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
4-Isopropyltoluene	18.1	0.500	1.00	ug/L	1	20.0	---	91	80-120%	---	---	
Methylene chloride	21.0	1.50	3.00	ug/L	1	20.0	---	105	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	32.2	5.00	10.0	ug/L	1	40.0	---	81	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.5	0.500	1.00	ug/L	1	20.0	---	87	80-120%	---	---	
Naphthalene	15.9	2.00	2.00	ug/L	1	20.0	---	**79**	**80-120%**	---	---	Q-55
n-Propylbenzene	18.0	0.250	0.500	ug/L	1	20.0	---	90	80-120%	---	---	
Styrene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
1,1,1,2-Tetrachloroethane	21.9	0.200	0.400	ug/L	1	20.0	---	110	80-120%	---	---	
1,1,2,2-Tetrachloroethane	20.0	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Tetrachloroethene (PCE)	19.8	0.200	0.400	ug/L	1	20.0	---	99	80-120%	---	---	
Toluene	18.3	0.500	1.00	ug/L	1	20.0	---	91	80-120%	---	---	
1,2,3-Trichlorobenzene	18.0	1.00	2.00	ug/L	1	20.0	---	90	80-120%	---	---	
1,2,4-Trichlorobenzene	16.9	1.00	2.00	ug/L	1	20.0	---	84	80-120%	---	---	
1,1,1-Trichloroethane	19.0	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	
1,1,2-Trichloroethane	20.5	0.250	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Trichloroethene (TCE)	21.5	0.200	0.400	ug/L	1	20.0	---	108	80-120%	---	---	
Trichlorofluoromethane	20.7	1.00	2.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,2,3-Trichloropropane	19.8	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,2,4-Trimethylbenzene	18.5	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
1,3,5-Trimethylbenzene	18.3	0.500	1.00	ug/L	1	20.0	---	92	80-120%	---	---	

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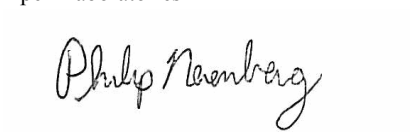

Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
LCS (9120654-BS1)			Prepared: 12/09/19 11:00 Analyzed: 12/09/19 12:03									
Vinyl chloride	19.3	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
m,p-Xylene	35.8	0.500	1.00	ug/L	1	40.0	---	89	80-120%	---	---	
o-Xylene	17.5	0.250	0.500	ug/L	1	20.0	---	87	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 111 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*99 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*96 %*		*80-120 %*				*"*			
Duplicate (9120654-DUP1)			Prepared: 12/09/19 12:34 Analyzed: 12/09/19 15:10									
QC Source Sample: Non-SDG (A9L0215-01)												
Acetone	ND	40000	40000	ug/L	2000	---	ND	---	---	---	30%	
Acrylonitrile	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
Benzene	ND	200	400	ug/L	2000	---	ND	---	---	---	30%	
Bromobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Bromochloromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Bromodichloromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Bromoform	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Bromomethane	ND	10000	10000	ug/L	2000	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	10000	20000	ug/L	2000	---	ND	---	---	---	30%	
n-Butylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Carbon disulfide	ND	10000	20000	ug/L	2000	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Chlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Chloroethane	ND	10000	10000	ug/L	2000	---	ND	---	---	---	30%	
Chloroform	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Chloromethane	ND	5000	10000	ug/L	2000	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Dibromochloromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	5000	10000	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Dibromomethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Duplicate (9120654-DUP1)			Prepared: 12/09/19 12:34 Analyzed: 12/09/19 15:10									
QC Source Sample: Non-SDG (A9L0215-01)												
1,3-Dichlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	**236000**	400	800	ug/L	2000	---	229000	---	---	3	30%	
trans-1,2-Dichloroethene	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Ethylbenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	5000	10000	ug/L	2000	---	ND	---	---	---	30%	
2-Hexanone	ND	20000	20000	ug/L	2000	---	ND	---	---	---	30%	
Isopropylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Methylene chloride	ND	3000	6000	ug/L	2000	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	10000	20000	ug/L	2000	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Naphthalene	ND	4000	4000	ug/L	2000	---	ND	---	---	---	30%	
n-Propylbenzene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Styrene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
Toluene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	400	800	ug/L	2000	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	

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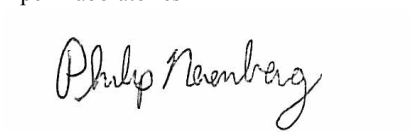

Philip Nerenberg, Lab Director

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Duplicate (9120654-DUP1)				Prepared: 12/09/19 12:34 Analyzed: 12/09/19 15:10								
QC Source Sample: Non-SDG (A9L0215-01)												
Trichloroethene (TCE)	**8370**	400	800	ug/L	2000	---	8350	---	---	0.2	30%	
Trichlorofluoromethane	ND	2000	4000	ug/L	2000	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
Vinyl chloride	**5020**	400	800	ug/L	2000	---	4540	---	---	10	30%	
m,p-Xylene	ND	1000	2000	ug/L	2000	---	ND	---	---	---	30%	
o-Xylene	ND	500	1000	ug/L	2000	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery: 112 %*	*Limits: 80-120 %*		*Dilution: 1x*							
Toluene-d8 (Surr)		*100 %*	*80-120 %*		*"*							
4-Bromofluorobenzene (Surr)		*98 %*	*80-120 %*		*"*							
Matrix Spike (9120654-MS1)				Prepared: 12/09/19 12:34 Analyzed: 12/09/19 23:13								
QC Source Sample: Non-SDG (A9L0244-01)												
EPA 8260C												
Acetone	41.4	20.0	20.0	ug/L	1	40.0	ND	104	39-160%	---	---	Q-54h
Acrylonitrile	21.1	1.00	2.00	ug/L	1	20.0	ND	105	63-135%	---	---	
Benzene	21.3	0.100	0.200	ug/L	1	20.0	ND	106	79-120%	---	---	
Bromobenzene	19.5	0.250	0.500	ug/L	1	20.0	ND	98	80-120%	---	---	
Bromochloromethane	25.2	0.500	1.00	ug/L	1	20.0	ND	**126**	**78-123%**	---	---	Q-54b
Bromodichloromethane	22.4	0.500	1.00	ug/L	1	20.0	ND	112	79-125%	---	---	
Bromoform	24.9	0.500	1.00	ug/L	1	20.0	ND	125	66-130%	---	---	Q-54e
Bromomethane	20.8	5.00	5.00	ug/L	1	20.0	ND	104	53-141%	---	---	
2-Butanone (MEK)	36.2	5.00	10.0	ug/L	1	40.0	ND	90	56-143%	---	---	
n-Butylbenzene	18.4	0.500	1.00	ug/L	1	20.0	ND	92	75-128%	---	---	
sec-Butylbenzene	18.0	0.500	1.00	ug/L	1	20.0	ND	90	77-126%	---	---	
tert-Butylbenzene	16.8	0.500	1.00	ug/L	1	20.0	ND	84	78-124%	---	---	
Carbon disulfide	20.6	5.00	10.0	ug/L	1	20.0	ND	103	64-133%	---	---	
Carbon tetrachloride	23.7	0.500	1.00	ug/L	1	20.0	ND	119	72-136%	---	---	
Chlorobenzene	20.5	0.250	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
Chloroethane	18.7	5.00	5.00	ug/L	1	20.0	ND	94	60-138%	---	---	
Chloroform	21.8	0.500	1.00	ug/L	1	20.0	ND	109	79-124%	---	---	
Chloromethane	17.5	2.50	5.00	ug/L	1	20.0	ND	88	50-139%	---	---	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Matrix Spike (9120654-MS1)			Prepared: 12/09/19 12:34		Analyzed: 12/09/19 23:13							
QC Source Sample: Non-SDG (A9L0244-01)												
2-Chlorotoluene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	79-122%	---	---	
4-Chlorotoluene	17.9	0.500	1.00	ug/L	1	20.0	ND	89	78-122%	---	---	
Dibromochloromethane	25.6	0.500	1.00	ug/L	1	20.0	ND	**128**	**74-126%**	---	---	Q-54f
1,2-Dibromo-3-chloropropane	17.9	2.50	5.00	ug/L	1	20.0	ND	89	62-128%	---	---	
1,2-Dibromoethane (EDB)	19.8	0.250	0.500	ug/L	1	20.0	ND	99	77-121%	---	---	
Dibromomethane	22.5	0.500	1.00	ug/L	1	20.0	ND	112	79-123%	---	---	
1,2-Dichlorobenzene	19.1	0.250	0.500	ug/L	1	20.0	ND	96	80-120%	---	---	
1,3-Dichlorobenzene	19.5	0.250	0.500	ug/L	1	20.0	ND	98	80-120%	---	---	
1,4-Dichlorobenzene	19.4	0.250	0.500	ug/L	1	20.0	ND	97	79-120%	---	---	
Dichlorodifluoromethane	20.5	0.500	1.00	ug/L	1	20.0	ND	103	32-152%	---	---	
1,1-Dichloroethane	20.4	0.200	0.400	ug/L	1	20.0	ND	102	77-125%	---	---	
1,2-Dichloroethane (EDC)	18.8	0.200	0.400	ug/L	1	20.0	ND	94	73-128%	---	---	
1,1-Dichloroethene	20.4	0.200	0.400	ug/L	1	20.0	ND	102	71-131%	---	---	
cis-1,2-Dichloroethene	19.7	0.200	0.400	ug/L	1	20.0	ND	98	78-123%	---	---	
trans-1,2-Dichloroethene	21.1	0.200	0.400	ug/L	1	20.0	ND	105	75-124%	---	---	
1,2-Dichloropropane	20.8	0.250	0.500	ug/L	1	20.0	ND	104	78-122%	---	---	
1,3-Dichloropropane	19.6	0.500	1.00	ug/L	1	20.0	ND	98	80-120%	---	---	
2,2-Dichloropropane	18.1	0.500	1.00	ug/L	1	20.0	ND	90	60-139%	---	---	
1,1-Dichloropropene	20.5	0.500	1.00	ug/L	1	20.0	ND	103	79-125%	---	---	
cis-1,3-Dichloropropene	16.6	0.500	1.00	ug/L	1	20.0	ND	83	75-124%	---	---	
trans-1,3-Dichloropropene	18.0	0.500	1.00	ug/L	1	20.0	ND	90	73-127%	---	---	
Ethylbenzene	19.1	0.250	0.500	ug/L	1	20.0	ND	95	79-121%	---	---	
Hexachlorobutadiene	17.0	2.50	5.00	ug/L	1	20.0	ND	85	66-134%	---	---	
2-Hexanone	31.9	10.0	10.0	ug/L	1	40.0	ND	80	57-139%	---	---	Q-54k
Isopropylbenzene	18.8	0.500	1.00	ug/L	1	20.0	ND	94	72-131%	---	---	
4-Isopropyltoluene	18.2	0.500	1.00	ug/L	1	20.0	ND	91	77-127%	---	---	
Methylene chloride	21.9	1.50	3.00	ug/L	1	20.0	ND	109	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	33.6	5.00	10.0	ug/L	1	40.0	ND	84	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	17.4	0.500	1.00	ug/L	1	20.0	ND	87	71-124%	---	---	
Naphthalene	15.1	2.00	2.00	ug/L	1	20.0	ND	75	61-128%	---	---	Q-54g
n-Propylbenzene	18.5	0.250	0.500	ug/L	1	20.0	ND	93	76-126%	---	---	
Styrene	19.0	0.500	1.00	ug/L	1	20.0	ND	95	78-123%	---	---	
1,1,1,2-Tetrachloroethane	22.3	0.200	0.400	ug/L	1	20.0	ND	112	78-124%	---	---	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120654 - EPA 5030B							**Water**					
Matrix Spike (9120654-MS1)			Prepared: 12/09/19 12:34		Analyzed: 12/09/19 23:13							
QC Source Sample: Non-SDG (A9L0244-01)												
1,1,2,2-Tetrachloroethane	20.0	0.250	0.500	ug/L	1	20.0	ND	100	71-121%	---	---	
Tetrachloroethene (PCE)	21.1	0.200	0.400	ug/L	1	20.0	ND	105	74-129%	---	---	
Toluene	19.4	0.500	1.00	ug/L	1	20.0	ND	97	80-121%	---	---	
1,2,3-Trichlorobenzene	17.1	1.00	2.00	ug/L	1	20.0	ND	85	69-129%	---	---	
1,2,4-Trichlorobenzene	15.9	1.00	2.00	ug/L	1	20.0	ND	80	69-130%	---	---	
1,1,1-Trichloroethane	20.7	0.200	0.400	ug/L	1	20.0	ND	103	74-131%	---	---	
1,1,2-Trichloroethane	21.0	0.250	0.500	ug/L	1	20.0	ND	105	80-120%	---	---	
Trichloroethene (TCE)	22.6	0.200	0.400	ug/L	1	20.0	ND	113	79-123%	---	---	
Trichlorofluoromethane	22.6	1.00	2.00	ug/L	1	20.0	ND	113	65-141%	---	---	
1,2,3-Trichloropropane	19.0	0.500	1.00	ug/L	1	20.0	ND	95	73-122%	---	---	
1,2,4-Trimethylbenzene	18.6	0.500	1.00	ug/L	1	20.0	ND	93	76-124%	---	---	
1,3,5-Trimethylbenzene	18.6	0.500	1.00	ug/L	1	20.0	ND	93	75-124%	---	---	
Vinyl chloride	20.9	0.200	0.400	ug/L	1	20.0	ND	105	58-137%	---	---	
m,p-Xylene	38.1	0.500	1.00	ug/L	1	40.0	ND	95	80-121%	---	---	
o-Xylene	17.8	0.250	0.500	ug/L	1	20.0	ND	89	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 109 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*97 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*93 %*		*80-120 %*			*"*				

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Blank (9120700-BLK1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 12:06									
EPA 8260C												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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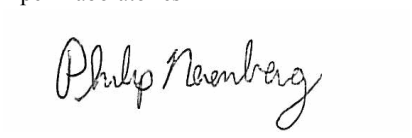

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Blank (9120700-BLK1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 12:06									
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 106 %* *Limits: 80-120 %* *Dilution: 1x*

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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Blank (9120700-BLK1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 12:06									
Surr: Toluene-d8 (Surr)			*Recovery: 97 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*101 %*	*80-120 %*			*"*					
LCS (9120700-BS1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 11:09									
EPA 8260C												
Acetone	35.8	10.0	20.0	ug/L	1	40.0	---	89	80-120%	---	---	
Acrylonitrile	19.4	1.00	2.00	ug/L	1	20.0	---	97	80-120%	---	---	
Benzene	19.7	0.100	0.200	ug/L	1	20.0	---	98	80-120%	---	---	
Bromobenzene	20.6	0.250	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Bromochloromethane	18.8	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
Bromodichloromethane	20.4	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Bromoform	19.4	0.500	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
Bromomethane	16.2	5.00	5.00	ug/L	1	20.0	---	81	80-120%	---	---	
2-Butanone (MEK)	38.9	5.00	10.0	ug/L	1	40.0	---	97	80-120%	---	---	
n-Butylbenzene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
sec-Butylbenzene	20.3	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
tert-Butylbenzene	20.5	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Carbon disulfide	18.9	5.00	10.0	ug/L	1	20.0	---	94	80-120%	---	---	
Carbon tetrachloride	23.6	0.500	1.00	ug/L	1	20.0	---	118	80-120%	---	---	
Chlorobenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Chloroethane	24.1	5.00	5.00	ug/L	1	20.0	---	**121**	**80-120%**	---	---	Q-56
Chloroform	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Chloromethane	13.8	5.00	5.00	ug/L	1	20.0	---	**69**	**80-120%**	---	---	Q-55
2-Chlorotoluene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
4-Chlorotoluene	20.7	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Dibromochloromethane	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,2-Dibromo-3-chloropropane	20.2	2.50	5.00	ug/L	1	20.0	---	101	80-120%	---	---	
1,2-Dibromoethane (EDB)	20.9	0.250	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Dibromomethane	21.0	0.500	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
1,2-Dichlorobenzene	20.9	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,3-Dichlorobenzene	20.8	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,4-Dichlorobenzene	19.0	0.250	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Dichlorodifluoromethane	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,1-Dichloroethane	19.2	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
LCS (9120700-BS1)			Prepared: 12/10/19 09:30		Analyzed: 12/10/19 11:09							
1,2-Dichloroethane (EDC)	20.5	0.200	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
1,1-Dichloroethene	20.6	0.200	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
cis-1,2-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
trans-1,2-Dichloroethene	19.1	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	
1,2-Dichloropropane	18.7	0.250	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
1,3-Dichloropropane	19.7	0.500	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
2,2-Dichloropropane	24.4	0.500	1.00	ug/L	1	20.0	---	**122**	**80-120%**	---	---	Q-56
1,1-Dichloropropene	21.4	0.500	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
cis-1,3-Dichloropropene	17.6	0.500	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
trans-1,3-Dichloropropene	22.0	0.500	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
Ethylbenzene	19.9	0.250	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Hexachlorobutadiene	22.5	2.50	5.00	ug/L	1	20.0	---	113	80-120%	---	---	
2-Hexanone	39.9	5.00	10.0	ug/L	1	40.0	---	100	80-120%	---	---	
Isopropylbenzene	20.7	0.500	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
4-Isopropyltoluene	20.4	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Methylene chloride	20.8	5.00	10.0	ug/L	1	20.0	---	104	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	39.2	5.00	10.0	ug/L	1	40.0	---	98	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	21.7	0.500	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
Naphthalene	20.8	1.00	2.00	ug/L	1	20.0	---	104	80-120%	---	---	
n-Propylbenzene	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Styrene	19.9	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,1,1,2-Tetrachloroethane	21.8	0.200	0.400	ug/L	1	20.0	---	109	80-120%	---	---	
1,1,2,2-Tetrachloroethane	19.4	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Tetrachloroethene (PCE)	20.9	0.200	0.400	ug/L	1	20.0	---	104	80-120%	---	---	
Toluene	18.7	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,2,3-Trichlorobenzene	24.9	1.00	2.00	ug/L	1	20.0	---	**125**	**80-120%**	---	---	Q-56
1,2,4-Trichlorobenzene	22.6	1.00	2.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,1,1-Trichloroethane	21.9	0.200	0.400	ug/L	1	20.0	---	110	80-120%	---	---	
1,1,2-Trichloroethane	20.3	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Trichloroethene (TCE)	19.8	0.200	0.400	ug/L	1	20.0	---	99	80-120%	---	---	
Trichlorofluoromethane	21.3	1.00	2.00	ug/L	1	20.0	---	106	80-120%	---	---	
1,2,3-Trichloropropane	19.7	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,2,4-Trimethylbenzene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,3,5-Trimethylbenzene	21.1	0.500	1.00	ug/L	1	20.0	---	106	80-120%	---	---	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
LCS (9120700-BS1)			Prepared: 12/10/19 09:30 Analyzed: 12/10/19 11:09									
Vinyl chloride	18.4	0.200	0.400	ug/L	1	20.0	---	92	80-120%	---	---	
m,p-Xylene	42.0	0.500	1.00	ug/L	1	40.0	---	105	80-120%	---	---	
o-Xylene	20.9	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*96 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*102 %*		*80-120 %*		*"*					
Duplicate (9120700-DUP1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 17:33									
QC Source Sample: Non-SDG (A9L0215-13)												
Acetone	ND	10000	20000	ug/L	1000	---	ND	---	---	---	30%	
Acrylonitrile	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
Benzene	ND	100	200	ug/L	1000	---	ND	---	---	---	30%	
Bromobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Bromochloromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Bromodichloromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Bromoform	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Bromomethane	ND	5000	5000	ug/L	1000	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
n-Butylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Carbon disulfide	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Chlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Chloroethane	ND	5000	5000	ug/L	1000	---	ND	---	---	---	30%	
Chloroform	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Chloromethane	ND	5000	5000	ug/L	1000	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Dibromochloromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2500	5000	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Dibromomethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Duplicate (9120700-DUP1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 17:33									
QC Source Sample: Non-SDG (A9L0215-13)												
1,3-Dichlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,1-Dichloroethene	**250**	200	400	ug/L	1000	---	250	---	---	0	30%	J
cis-1,2-Dichloroethene	**119000**	200	400	ug/L	1000	---	120000	---	---	0.8	30%	
trans-1,2-Dichloroethene	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Ethylbenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2500	5000	ug/L	1000	---	ND	---	---	---	30%	
2-Hexanone	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
Isopropylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Methylene chloride	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5000	10000	ug/L	1000	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Naphthalene	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
n-Propylbenzene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Styrene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
Toluene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	200	400	ug/L	1000	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	**250**	250	500	ug/L	1000	---	260	---	---	4	30%	J

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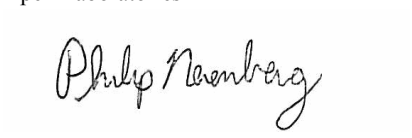

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Duplicate (9120700-DUP1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 17:33									
QC Source Sample: Non-SDG (A9L0215-13)												
Trichloroethene (TCE)	**28900**	200	400	ug/L	1000	---	28600	---	---	0.9	30%	
Trichlorofluoromethane	ND	1000	2000	ug/L	1000	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
Vinyl chloride	**2510**	200	400	ug/L	1000	---	2660	---	---	6	30%	
m,p-Xylene	ND	500	1000	ug/L	1000	---	ND	---	---	---	30%	
o-Xylene	ND	250	500	ug/L	1000	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery: 104 %*	*Limits: 80-120 %*		*Dilution: 1x*							
Toluene-d8 (Surr)		*98 %*	*80-120 %*		*"*							
4-Bromofluorobenzene (Surr)		*101 %*	*80-120 %*		*"*							
Matrix Spike (9120700-MS1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 21:38									
QC Source Sample: Non-SDG (A9L0215-19)												
EPA 8260C												
Acetone	1970	500	1000	ug/L	50	2000	ND	99	39-160%	---	---	
Acrylonitrile	978	50.0	100	ug/L	50	1000	ND	98	63-135%	---	---	
Benzene	1040	5.00	10.0	ug/L	50	1000	ND	104	79-120%	---	---	
Bromobenzene	1080	12.5	25.0	ug/L	50	1000	ND	108	80-120%	---	---	
Bromochloromethane	980	25.0	50.0	ug/L	50	1000	ND	98	78-123%	---	---	
Bromodichloromethane	1080	25.0	50.0	ug/L	50	1000	ND	108	79-125%	---	---	
Bromoform	992	25.0	50.0	ug/L	50	1000	ND	99	66-130%	---	---	
Bromomethane	998	250	250	ug/L	50	1000	ND	100	53-141%	---	---	
2-Butanone (MEK)	2030	250	500	ug/L	50	2000	ND	101	56-143%	---	---	
n-Butylbenzene	1080	25.0	50.0	ug/L	50	1000	ND	108	75-128%	---	---	
sec-Butylbenzene	1090	25.0	50.0	ug/L	50	1000	ND	109	77-126%	---	---	
tert-Butylbenzene	1100	25.0	50.0	ug/L	50	1000	ND	110	78-124%	---	---	
Carbon disulfide	733	250	500	ug/L	50	1000	ND	73	64-133%	---	---	
Carbon tetrachloride	1290	25.0	50.0	ug/L	50	1000	ND	129	72-136%	---	---	
Chlorobenzene	1030	12.5	25.0	ug/L	50	1000	ND	103	80-120%	---	---	
Chloroethane	1310	250	250	ug/L	50	1000	ND	131	60-138%	---	---	Q-54
Chloroform	1090	25.0	50.0	ug/L	50	1000	ND	109	79-124%	---	---	
Chloromethane	707	250	250	ug/L	50	1000	ND	71	50-139%	---	---	Q-54i

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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Matrix Spike (9120700-MS1)			Prepared: 12/10/19 12:32		Analyzed: 12/10/19 21:38							
QC Source Sample: Non-SDG (A9L0215-19)												
2-Chlorotoluene	1100	25.0	50.0	ug/L	50	1000	ND	110	79-122%	---	---	
4-Chlorotoluene	1100	25.0	50.0	ug/L	50	1000	ND	110	78-122%	---	---	
Dibromochloromethane	1040	25.0	50.0	ug/L	50	1000	ND	104	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1030	125	250	ug/L	50	1000	ND	103	62-128%	---	---	
1,2-Dibromoethane (EDB)	1090	12.5	25.0	ug/L	50	1000	ND	109	77-121%	---	---	
Dibromomethane	1080	25.0	50.0	ug/L	50	1000	ND	108	79-123%	---	---	
1,2-Dichlorobenzene	1090	12.5	25.0	ug/L	50	1000	ND	109	80-120%	---	---	
1,3-Dichlorobenzene	1100	12.5	25.0	ug/L	50	1000	ND	110	80-120%	---	---	
1,4-Dichlorobenzene	1000	12.5	25.0	ug/L	50	1000	ND	100	79-120%	---	---	
Dichlorodifluoromethane	974	25.0	50.0	ug/L	50	1000	ND	97	32-152%	---	---	
1,1-Dichloroethane	1010	10.0	20.0	ug/L	50	1000	ND	101	77-125%	---	---	
1,2-Dichloroethane (EDC)	1070	10.0	20.0	ug/L	50	1000	ND	107	73-128%	---	---	
1,1-Dichloroethene	896	10.0	20.0	ug/L	50	1000	ND	90	71-131%	---	---	
cis-1,2-Dichloroethene	1080	10.0	20.0	ug/L	50	1000	33.0	105	78-123%	---	---	
trans-1,2-Dichloroethene	1030	10.0	20.0	ug/L	50	1000	ND	103	75-124%	---	---	
1,2-Dichloropropane	974	12.5	25.0	ug/L	50	1000	ND	97	78-122%	---	---	
1,3-Dichloropropane	1010	25.0	50.0	ug/L	50	1000	ND	101	80-120%	---	---	
2,2-Dichloropropane	926	25.0	50.0	ug/L	50	1000	ND	93	60-139%	---	---	Q-54a
1,1-Dichloropropene	1160	25.0	50.0	ug/L	50	1000	ND	116	79-125%	---	---	
cis-1,3-Dichloropropene	872	25.0	50.0	ug/L	50	1000	ND	87	75-124%	---	---	
trans-1,3-Dichloropropene	1070	25.0	50.0	ug/L	50	1000	ND	107	73-127%	---	---	
Ethylbenzene	1060	12.5	25.0	ug/L	50	1000	ND	106	79-121%	---	---	
Hexachlorobutadiene	1170	125	250	ug/L	50	1000	ND	117	66-134%	---	---	
2-Hexanone	2080	250	500	ug/L	50	2000	ND	104	57-139%	---	---	
Isopropylbenzene	1120	25.0	50.0	ug/L	50	1000	ND	112	72-131%	---	---	
4-Isopropyltoluene	1080	25.0	50.0	ug/L	50	1000	ND	108	77-127%	---	---	
Methylene chloride	1120	250	500	ug/L	50	1000	ND	112	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	2000	250	500	ug/L	50	2000	ND	100	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	1100	25.0	50.0	ug/L	50	1000	ND	110	71-124%	---	---	
Naphthalene	1060	50.0	100	ug/L	50	1000	ND	106	61-128%	---	---	
n-Propylbenzene	1040	12.5	25.0	ug/L	50	1000	ND	104	76-126%	---	---	
Styrene	1060	25.0	50.0	ug/L	50	1000	ND	106	78-123%	---	---	
1,1,1,2-Tetrachloroethane	1160	10.0	20.0	ug/L	50	1000	ND	116	78-124%	---	---	

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Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120700 - EPA 5030B							**Water**					
Matrix Spike (9120700-MS1)			Prepared: 12/10/19 12:32 Analyzed: 12/10/19 21:38									
QC Source Sample: Non-SDG (A9L0215-19)												
1,1,2,2-Tetrachloroethane	986	12.5	25.0	ug/L	50	1000	ND	99	71-121%	---	---	
Tetrachloroethene (PCE)	1130	10.0	20.0	ug/L	50	1000	ND	113	74-129%	---	---	
Toluene	999	25.0	50.0	ug/L	50	1000	ND	100	80-121%	---	---	
1,2,3-Trichlorobenzene	1260	50.0	100	ug/L	50	1000	ND	126	69-129%	---	---	Q-54d
1,2,4-Trichlorobenzene	1140	50.0	100	ug/L	50	1000	ND	114	69-130%	---	---	
1,1,1-Trichloroethane	1180	10.0	20.0	ug/L	50	1000	ND	118	74-131%	---	---	
1,1,2-Trichloroethane	1050	12.5	25.0	ug/L	50	1000	ND	105	80-120%	---	---	
Trichloroethene (TCE)	1060	10.0	20.0	ug/L	50	1000	ND	106	79-123%	---	---	
Trichlorofluoromethane	1210	50.0	100	ug/L	50	1000	ND	121	65-141%	---	---	
1,2,3-Trichloropropane	1030	25.0	50.0	ug/L	50	1000	ND	103	73-122%	---	---	
1,2,4-Trimethylbenzene	1080	25.0	50.0	ug/L	50	1000	ND	108	76-124%	---	---	
1,3,5-Trimethylbenzene	1120	25.0	50.0	ug/L	50	1000	ND	112	75-124%	---	---	
Vinyl chloride	972	10.0	20.0	ug/L	50	1000	ND	97	58-137%	---	---	
m,p-Xylene	2270	25.0	50.0	ug/L	50	2000	ND	113	80-121%	---	---	
o-Xylene	1120	12.5	25.0	ug/L	50	1000	ND	112	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*95 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*80-120 %*			*"*				

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Blank (9120943-BLK1)			Prepared: 12/16/19 10:00 Analyzed: 12/16/19 12:58									
EPA 8260C												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Blank (9120943-BLK1)			Prepared: 12/16/19 10:00		Analyzed: 12/16/19 12:58							
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 105 %* *Limits: 80-120 %* *Dilution: 1x*

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B									**Water**			
Blank (9120943-BLK1)				Prepared: 12/16/19 10:00 Analyzed: 12/16/19 12:58								
Surr: Toluene-d8 (Surr)			*Recovery: 98 %*	*Limits: 80-120 %*				*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*100 %*	*80-120 %*				*"*				
LCS (9120943-BS1)				Prepared: 12/16/19 10:00 Analyzed: 12/16/19 12:04								
EPA 8260C												
Acetone	35.9	10.0	20.0	ug/L	1	40.0	---	90	80-120%	---	---	
Acrylonitrile	18.5	1.00	2.00	ug/L	1	20.0	---	92	80-120%	---	---	
Benzene	19.3	0.100	0.200	ug/L	1	20.0	---	97	80-120%	---	---	
Bromobenzene	20.9	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
Bromochloromethane	18.8	0.500	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
Bromodichloromethane	20.4	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Bromoform	19.7	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
Bromomethane	21.9	5.00	5.00	ug/L	1	20.0	---	110	80-120%	---	---	
2-Butanone (MEK)	38.1	5.00	10.0	ug/L	1	40.0	---	95	80-120%	---	---	
n-Butylbenzene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
sec-Butylbenzene	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
tert-Butylbenzene	20.4	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Carbon disulfide	17.7	5.00	10.0	ug/L	1	20.0	---	89	80-120%	---	---	
Carbon tetrachloride	23.3	0.500	1.00	ug/L	1	20.0	---	116	80-120%	---	---	
Chlorobenzene	19.9	0.250	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Chloroethane	24.6	5.00	5.00	ug/L	1	20.0	---	**123**	**80-120%**	---	---	Q-56
Chloroform	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Chloromethane	16.1	2.50	5.00	ug/L	1	20.0	---	80	80-120%	---	---	
2-Chlorotoluene	20.2	0.500	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
4-Chlorotoluene	21.1	0.500	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
Dibromochloromethane	20.5	0.500	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
1,2-Dibromo-3-chloropropane	19.4	2.50	5.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,2-Dibromoethane (EDB)	21.3	0.250	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Dibromomethane	20.1	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,2-Dichlorobenzene	20.7	0.250	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,3-Dichlorobenzene	21.2	0.250	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
1,4-Dichlorobenzene	19.1	0.250	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Dichlorodifluoromethane	20.9	0.500	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
1,1-Dichloroethane	18.6	0.200	0.400	ug/L	1	20.0	---	93	80-120%	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
LCS (9120943-BS1)			Prepared: 12/16/19 10:00		Analyzed: 12/16/19 12:04							
1,2-Dichloroethane (EDC)	20.9	0.200	0.400	ug/L	1	20.0	---	104	80-120%	---	---	
1,1-Dichloroethene	19.2	0.200	0.400	ug/L	1	20.0	---	96	80-120%	---	---	
cis-1,2-Dichloroethene	19.5	0.200	0.400	ug/L	1	20.0	---	98	80-120%	---	---	
trans-1,2-Dichloroethene	19.0	0.200	0.400	ug/L	1	20.0	---	95	80-120%	---	---	
1,2-Dichloropropane	18.1	0.250	0.500	ug/L	1	20.0	---	91	80-120%	---	---	
1,3-Dichloropropane	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
2,2-Dichloropropane	24.4	0.500	1.00	ug/L	1	20.0	---	**122**	**80-120%**	---	---	Q-56
1,1-Dichloropropene	21.4	0.500	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
cis-1,3-Dichloropropene	19.9	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
trans-1,3-Dichloropropene	22.6	0.500	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
Ethylbenzene	20.2	0.250	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Hexachlorobutadiene	22.1	2.50	5.00	ug/L	1	20.0	---	110	80-120%	---	---	
2-Hexanone	39.5	5.00	10.0	ug/L	1	40.0	---	99	80-120%	---	---	
Isopropylbenzene	20.8	0.500	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
4-Isopropyltoluene	20.0	0.500	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
Methylene chloride	21.8	5.00	10.0	ug/L	1	20.0	---	109	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	39.6	5.00	10.0	ug/L	1	40.0	---	99	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	21.7	0.500	1.00	ug/L	1	20.0	---	108	80-120%	---	---	
Naphthalene	19.3	1.00	2.00	ug/L	1	20.0	---	96	80-120%	---	---	
n-Propylbenzene	19.4	0.250	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Styrene	19.9	0.500	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,1,1,2-Tetrachloroethane	22.2	0.200	0.400	ug/L	1	20.0	---	111	80-120%	---	---	
1,1,2,2-Tetrachloroethane	19.6	0.250	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Tetrachloroethene (PCE)	21.2	0.200	0.400	ug/L	1	20.0	---	106	80-120%	---	---	
Toluene	19.1	0.500	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,2,3-Trichlorobenzene	23.3	1.00	2.00	ug/L	1	20.0	---	117	80-120%	---	---	
1,2,4-Trichlorobenzene	21.2	1.00	2.00	ug/L	1	20.0	---	106	80-120%	---	---	
1,1,1-Trichloroethane	22.0	0.200	0.400	ug/L	1	20.0	---	110	80-120%	---	---	
1,1,2-Trichloroethane	21.0	0.250	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Trichloroethene (TCE)	19.3	0.200	0.400	ug/L	1	20.0	---	97	80-120%	---	---	
Trichlorofluoromethane	22.7	1.00	2.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,2,3-Trichloropropane	20.5	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,2,4-Trimethylbenzene	20.6	0.500	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,3,5-Trimethylbenzene	21.0	0.500	1.00	ug/L	1	20.0	---	105	80-120%	---	---	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
LCS (9120943-BS1)			Prepared: 12/16/19 10:00 Analyzed: 12/16/19 12:04									
Vinyl chloride	18.1	0.200	0.400	ug/L	1	20.0	---	91	80-120%	---	---	
m,p-Xylene	43.0	0.500	1.00	ug/L	1	40.0	---	108	80-120%	---	---	
o-Xylene	21.1	0.250	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 95 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*98 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*100 %*		*80-120 %*				*"*			
Duplicate (9120943-DUP1)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 13:52									
QC Source Sample: Non-SDG (A9L0577-01)												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Acrylonitrile	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	ug/L	1	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	ug/L	1	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Duplicate (9120943-DUP1)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 13:52									
QC Source Sample: Non-SDG (A9L0577-01)												
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Hexanone	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Methylene chloride	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Duplicate (9120943-DUP1)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 13:52									
QC Source Sample: Non-SDG (A9L0577-01)												
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 105 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*99 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*		*"*					
Duplicate (9120943-DUP2)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 19:17									
QC Source Sample: Non-SDG (A9L0598-01)												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Acrylonitrile	ND	8.00	8.00	ug/L	1	---	ND	---	---	---	30%	R-02
Benzene	ND	0.100	0.200	ug/L	1	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromodichloromethane	**0.960**	0.500	1.00	ug/L	1	---	1.03	---	---	7	30%	J
Bromoform	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	12.0	12.0	ug/L	1	---	ND	---	---	---	30%	R-02
n-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Carbon disulfide	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	ug/L	1	---	ND	---	---	---	30%	
Chloroform	**2.59**	0.500	1.00	ug/L	1	---	2.65	---	---	2	30%	
Chloromethane	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Duplicate (9120943-DUP2)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 19:17									
QC Source Sample: Non-SDG (A9L0598-01)												
4-Chlorotoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Dibromochloromethane	**0.620**	0.500	1.00	ug/L	1	---	0.600	---	---	3	30%	J
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Hexanone	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Methylene chloride	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Duplicate (9120943-DUP2)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 19:17									
QC Source Sample: Non-SDG (A9L0598-01)												
Tetrachloroethene (PCE)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	1.00	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.200	0.400	ug/L	1	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	ug/L	1	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*96 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*				*"*			
Matrix Spike (9120943-MS1)			Prepared: 12/16/19 12:46 Analyzed: 12/16/19 21:59									
QC Source Sample: Non-SDG (A9L0592-01)												
EPA 8260C												
Acetone	67.7	10.0	20.0	ug/L	1	40.0	42.4	63	39-160%	---	---	
Acrylonitrile	18.2	1.00	2.00	ug/L	1	20.0	ND	91	63-135%	---	---	
Benzene	20.3	0.100	0.200	ug/L	1	20.0	ND	102	79-120%	---	---	
Bromobenzene	20.0	0.250	0.500	ug/L	1	20.0	ND	100	80-120%	---	---	
Bromochloromethane	19.5	0.500	1.00	ug/L	1	20.0	ND	98	78-123%	---	---	
Bromodichloromethane	21.0	0.500	1.00	ug/L	1	20.0	ND	105	79-125%	---	---	
Bromoform	19.2	0.500	1.00	ug/L	1	20.0	ND	96	66-130%	---	---	
Bromomethane	22.2	5.00	5.00	ug/L	1	20.0	ND	111	53-141%	---	---	
2-Butanone (MEK)	39.8	5.00	10.0	ug/L	1	40.0	ND	99	56-143%	---	---	
n-Butylbenzene	20.6	0.500	1.00	ug/L	1	20.0	ND	103	75-128%	---	---	
sec-Butylbenzene	20.3	0.500	1.00	ug/L	1	20.0	ND	102	77-126%	---	---	
tert-Butylbenzene	20.6	0.500	1.00	ug/L	1	20.0	ND	103	78-124%	---	---	

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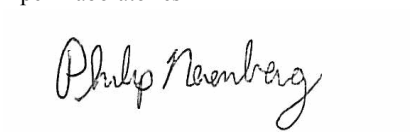

Philip Nerenberg, Lab Director

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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Matrix Spike (9120943-MS1)			Prepared: 12/16/19 12:46		Analyzed: 12/16/19 21:59							
QC Source Sample: Non-SDG (A9L0592-01)												
Carbon disulfide	19.8	5.00	10.0	ug/L	1	20.0	ND	99	64-133%	---	---	
Carbon tetrachloride	25.7	0.500	1.00	ug/L	1	20.0	ND	128	72-136%	---	---	
Chlorobenzene	20.0	0.250	0.500	ug/L	1	20.0	ND	100	80-120%	---	---	
Chloroethane	29.4	5.00	5.00	ug/L	1	20.0	ND	**147**	**60-138%**	---	---	Q-54c
Chloroform	21.4	0.500	1.00	ug/L	1	20.0	ND	107	79-124%	---	---	
Chloromethane	22.3	2.50	5.00	ug/L	1	20.0	ND	111	50-139%	---	---	
2-Chlorotoluene	20.4	0.500	1.00	ug/L	1	20.0	ND	102	79-122%	---	---	
4-Chlorotoluene	20.8	0.500	1.00	ug/L	1	20.0	ND	104	78-122%	---	---	
Dibromochloromethane	20.3	0.500	1.00	ug/L	1	20.0	ND	102	74-126%	---	---	
1,2-Dibromo-3-chloropropane	17.8	2.50	5.00	ug/L	1	20.0	ND	89	62-128%	---	---	
1,2-Dibromoethane (EDB)	20.6	0.250	0.500	ug/L	1	20.0	ND	103	77-121%	---	---	
Dibromomethane	20.0	0.500	1.00	ug/L	1	20.0	ND	100	79-123%	---	---	
1,2-Dichlorobenzene	20.7	0.250	0.500	ug/L	1	20.0	ND	103	80-120%	---	---	
1,3-Dichlorobenzene	20.9	0.250	0.500	ug/L	1	20.0	ND	104	80-120%	---	---	
1,4-Dichlorobenzene	18.7	0.250	0.500	ug/L	1	20.0	ND	93	79-120%	---	---	
Dichlorodifluoromethane	23.5	0.500	1.00	ug/L	1	20.0	ND	118	32-152%	---	---	
1,1-Dichloroethane	19.4	0.200	0.400	ug/L	1	20.0	ND	97	77-125%	---	---	
1,2-Dichloroethane (EDC)	20.7	0.200	0.400	ug/L	1	20.0	ND	104	73-128%	---	---	
1,1-Dichloroethene	20.1	0.200	0.400	ug/L	1	20.0	ND	100	71-131%	---	---	
cis-1,2-Dichloroethene	19.8	0.200	0.400	ug/L	1	20.0	ND	99	78-123%	---	---	
trans-1,2-Dichloroethene	20.4	0.200	0.400	ug/L	1	20.0	ND	102	75-124%	---	---	
1,2-Dichloropropane	18.5	0.250	0.500	ug/L	1	20.0	ND	92	78-122%	---	---	
1,3-Dichloropropane	19.5	0.500	1.00	ug/L	1	20.0	ND	98	80-120%	---	---	
2,2-Dichloropropane	23.7	0.500	1.00	ug/L	1	20.0	ND	119	60-139%	---	---	Q-54a
1,1-Dichloropropene	22.7	0.500	1.00	ug/L	1	20.0	ND	113	79-125%	---	---	
cis-1,3-Dichloropropene	17.5	0.500	1.00	ug/L	1	20.0	ND	87	75-124%	---	---	
trans-1,3-Dichloropropene	21.6	0.500	1.00	ug/L	1	20.0	ND	108	73-127%	---	---	
Ethylbenzene	20.7	0.250	0.500	ug/L	1	20.0	ND	103	79-121%	---	---	
Hexachlorobutadiene	21.0	2.50	5.00	ug/L	1	20.0	ND	105	66-134%	---	---	
2-Hexanone	38.4	5.00	10.0	ug/L	1	40.0	ND	96	57-139%	---	---	
Isopropylbenzene	21.6	0.500	1.00	ug/L	1	20.0	ND	108	72-131%	---	---	
4-Isopropyltoluene	20.6	0.500	1.00	ug/L	1	20.0	ND	103	77-127%	---	---	
Methylene chloride	21.0	5.00	10.0	ug/L	1	20.0	ND	105	74-124%	---	---	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120943 - EPA 5030B							**Water**					
Matrix Spike (9120943-MS1)			Prepared: 12/16/19 12:46		Analyzed: 12/16/19 21:59							
QC Source Sample: Non-SDG (A9L0592-01)												
4-Methyl-2-pentanone (MiBK)	38.8	5.00	10.0	ug/L	1	40.0	ND	97	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	21.4	0.500	1.00	ug/L	1	20.0	ND	107	71-124%	---	---	
Naphthalene	20.8	1.00	2.00	ug/L	1	20.0	1.01	99	61-128%	---	---	
n-Propylbenzene	19.7	0.250	0.500	ug/L	1	20.0	ND	99	76-126%	---	---	
Styrene	18.9	0.500	1.00	ug/L	1	20.0	ND	94	78-123%	---	---	
1,1,1,2-Tetrachloroethane	22.0	0.200	0.400	ug/L	1	20.0	ND	110	78-124%	---	---	
1,1,2,2-Tetrachloroethane	18.4	0.250	0.500	ug/L	1	20.0	ND	92	71-121%	---	---	
Tetrachloroethene (PCE)	21.7	0.200	0.400	ug/L	1	20.0	ND	109	74-129%	---	---	
Toluene	19.3	0.500	1.00	ug/L	1	20.0	ND	96	80-121%	---	---	
1,2,3-Trichlorobenzene	22.5	1.00	2.00	ug/L	1	20.0	ND	112	69-129%	---	---	
1,2,4-Trichlorobenzene	21.2	1.00	2.00	ug/L	1	20.0	ND	106	69-130%	---	---	
1,1,1-Trichloroethane	23.2	0.200	0.400	ug/L	1	20.0	ND	116	74-131%	---	---	
1,1,2-Trichloroethane	20.3	0.250	0.500	ug/L	1	20.0	ND	101	80-120%	---	---	
Trichloroethene (TCE)	20.1	0.200	0.400	ug/L	1	20.0	ND	101	79-123%	---	---	
Trichlorofluoromethane	26.8	1.00	2.00	ug/L	1	20.0	ND	134	65-141%	---	---	
1,2,3-Trichloropropane	18.9	0.500	1.00	ug/L	1	20.0	ND	95	73-122%	---	---	
1,2,4-Trimethylbenzene	20.7	0.500	1.00	ug/L	1	20.0	ND	103	76-124%	---	---	
1,3,5-Trimethylbenzene	21.2	0.500	1.00	ug/L	1	20.0	ND	106	75-124%	---	---	
Vinyl chloride	21.6	0.200	0.400	ug/L	1	20.0	ND	108	58-137%	---	---	
m,p-Xylene	44.7	0.500	1.00	ug/L	1	40.0	ND	112	80-121%	---	---	
o-Xylene	22.0	0.250	0.500	ug/L	1	20.0	ND	110	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 97 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*96 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*			*"*				

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120759 - EPA 3546							**Soil**					
Blank (9120759-BLK1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 08:56							**C-07**
EPA 8082A												
Aroclor 1016	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 95 %*		*Limits: 60-125 %*			*Dilution: 1x*				
LCS (9120759-BS1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 09:14							**C-07**
EPA 8082A												
Aroclor 1016	183	2.00	4.00	ug/kg wet	1	250	---	73	47-134%	---	---	
Aroclor 1260	226	2.00	4.00	ug/kg wet	1	250	---	90	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 97 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Duplicate (9120759-DUP1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 10:07							**C-07**
QC Source Sample: Non-SDG (A9L0097-06)												
Aroclor 1016	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1232	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1242	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1248	ND	2.08	4.17	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1254	**29.0**	2.08	4.17	ug/kg dry	1	---	32.7	---	---	12	30%	P-10
Aroclor 1260	**7.46**	2.08	4.17	ug/kg dry	1	---	8.87	---	---	17	30%	P-10
Surr: Decachlorobiphenyl (Surr)			*Recovery: 79 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Matrix Spike (9120759-MS1)			Prepared: 12/11/19 10:16		Analyzed: 12/12/19 11:36							**C-07, TEMP**
QC Source Sample: Non-SDG (A9L0279-02)												
EPA 8082A												
Aroclor 1016	290	8.28	16.6	ug/kg dry	1	414	ND	70	47-134%	---	---	
Aroclor 1260	344	8.28	16.6	ug/kg dry	1	414	ND	83	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 79 %*		*Limits: 60-125 %*			*Dilution: 1x*				

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Tigard, OR 97223
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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120759 - EPA 3546							**Soil**					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120841 - EPA 3510C (Neutral pH)							**Water**					
Blank (9120841-BLK1)			Prepared: 12/12/19 12:55 Analyzed: 12/16/19 14:49									**C-07**
EPA 8082A												
Aroclor 1016	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 40-135 %*			*Dilution: 1x*					
LCS (9120841-BS1)			Prepared: 12/12/19 12:55 Analyzed: 12/16/19 15:08									**C-07**
EPA 8082A												
Aroclor 1016	1.69	0.0200	0.0400	ug/L	1	2.50	---	67	46-129%	---	---	
Aroclor 1260	1.90	0.0200	0.0400	ug/L	1	2.50	---	76	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 40-135 %*			*Dilution: 1x*					
LCS Dup (9120841-BSD1)			Prepared: 12/12/19 12:55 Analyzed: 12/16/19 15:26									**C-07, Q-19**
EPA 8082A												
Aroclor 1016	1.63	0.0200	0.0400	ug/L	1	2.50	---	65	46-129%	4	30%	
Aroclor 1260	1.84	0.0200	0.0400	ug/L	1	2.50	---	74	45-134%	3	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 40-135 %*			*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120945 - EPA 3546							**Soil**					
Blank (9120945-BLK1)			Prepared: 12/16/19 10:43		Analyzed: 12/17/19 08:52							**C-07**
EPA 8082A												
Aroclor 1016	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 95 %*		*Limits: 60-125 %*			*Dilution: 1x*				
LCS (9120945-BS1)			Prepared: 12/16/19 10:43		Analyzed: 12/17/19 09:11							**C-07**
EPA 8082A												
Aroclor 1016	160	2.00	4.00	ug/kg wet	1	250	---	64	47-134%	---	---	
Aroclor 1260	210	2.00	4.00	ug/kg wet	1	250	---	84	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 92 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Duplicate (9120945-DUP1)			Prepared: 12/16/19 10:43		Analyzed: 12/17/19 09:29							**C-07**
QC Source Sample: RAU7-02-SO-2.5 (A9L0191-57)												
EPA 8082A												
Aroclor 1016	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1232	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1242	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1248	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1254	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1260	ND	2.07	4.13	ug/kg dry	1	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 82 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Matrix Spike (9120945-MS1)			Prepared: 12/16/19 10:43		Analyzed: 12/17/19 10:05							**C-07**
QC Source Sample: Non-SDG (A9L0482-01)												
EPA 8082A												
Aroclor 1016	168	5.90	11.8	ug/kg dry	1	295	ND	57	47-134%	---	---	
Aroclor 1260	208	5.90	11.8	ug/kg dry	1	295	ND	70	53-140%	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120945 - EPA 3546							**Soil**					
Matrix Spike (9120945-MS1)			Prepared: 12/16/19 10:43		Analyzed: 12/17/19 10:05							**C-07**
QC Source Sample: Non-SDG (A9L0482-01)												
Surr: Decachlorobiphenyl (Surr)			*Recovery: 80 %*		*Limits: 60-125 %*		*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120718 - EPA 3511 (Bottle Extraction)							**Water**					
Blank (9120718-BLK1)			Prepared: 12/10/19 12:29 Analyzed: 12/10/19 20:28									
EPA 8270D LVI												
Acenaphthene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00794	0.0159	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	0.0317	0.0635	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.0159	0.0317	ug/L	1	---	---	---	---	---	---	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*							*Dilution: 1x*
Benzo(a)pyrene-d12 (Surr)			*103 %*		*80-143 %*							*"*
LCS (9120718-BS1)			Prepared: 12/10/19 12:29 Analyzed: 12/10/19 21:00									
EPA 8270D LVI												
Acenaphthene	1.50	0.0160	0.0320	ug/L	1	1.60	---	94	78-135%	---	---	
Acenaphthylene	1.65	0.0160	0.0320	ug/L	1	1.60	---	103	80-126%	---	---	
Anthracene	1.56	0.0160	0.0320	ug/L	1	1.60	---	97	80-120%	---	---	
Benz(a)anthracene	1.67	0.00800	0.0160	ug/L	1	1.60	---	105	76-124%	---	---	
Benzo(a)pyrene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	71-127%	---	---	
Benzo(b)fluoranthene	1.62	0.00800	0.0160	ug/L	1	1.60	---	101	68-120%	---	---	
Benzo(k)fluoranthene	1.68	0.00800	0.0160	ug/L	1	1.60	---	105	72-120%	---	---	
Benzo(g,h,i)perylene	1.69	0.0160	0.0320	ug/L	1	1.60	---	105	71-120%	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120718 - EPA 3511 (Bottle Extraction)							**Water**					
LCS (9120718-BS1)			Prepared: 12/10/19 12:29		Analyzed: 12/10/19 21:00							
Chrysene	1.54	0.00800	0.0160	ug/L	1	1.60	---	97	71-121%	---	---	
Dibenz(a,h)anthracene	1.52	0.00800	0.0160	ug/L	1	1.60	---	95	69-122%	---	---	
Fluoranthene	1.59	0.0160	0.0320	ug/L	1	1.60	---	99	80-120%	---	---	
Fluorene	1.44	0.0160	0.0320	ug/L	1	1.60	---	90	78-129%	---	---	
Indeno(1,2,3-cd)pyrene	1.53	0.00800	0.0160	ug/L	1	1.60	---	96	72-132%	---	---	
1-Methylnaphthalene	1.46	0.0320	0.0640	ug/L	1	1.60	---	91	76-150%	---	---	
2-Methylnaphthalene	1.41	0.0320	0.0640	ug/L	1	1.60	---	88	80-158%	---	---	
Naphthalene	1.49	0.0320	0.0640	ug/L	1	1.60	---	93	80-132%	---	---	
Phenanthrene	1.46	0.0320	0.0640	ug/L	1	1.60	---	91	80-120%	---	---	
Pyrene	1.54	0.0160	0.0320	ug/L	1	1.60	---	96	73-127%	---	---	
Carbazole	1.52	0.0160	0.0320	ug/L	1	1.60	---	95	80-122%	---	---	
Dibenzofuran	1.43	0.0160	0.0320	ug/L	1	1.60	---	89	75-122%	---	---	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*107 %*		*80-143 %*				*"*			
LCS Dup (9120718-BSD1)			Prepared: 12/10/19 12:29		Analyzed: 12/10/19 21:33							**Q-19**
EPA 8270D LVI												
Acenaphthene	1.51	0.0160	0.0320	ug/L	1	1.60	---	95	78-135%	0.9	30%	
Acenaphthylene	1.68	0.0160	0.0320	ug/L	1	1.60	---	105	80-126%	2	30%	
Anthracene	1.58	0.0160	0.0320	ug/L	1	1.60	---	99	80-120%	2	30%	
Benz(a)anthracene	1.67	0.00800	0.0160	ug/L	1	1.60	---	104	76-124%	0.4	30%	
Benzo(a)pyrene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	71-127%	0.3	30%	
Benzo(b)fluoranthene	1.70	0.00800	0.0160	ug/L	1	1.60	---	106	68-120%	5	30%	
Benzo(k)fluoranthene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	72-120%	3	30%	
Benzo(g,h,i)perylene	1.74	0.0160	0.0320	ug/L	1	1.60	---	109	71-120%	3	30%	
Chrysene	1.56	0.00800	0.0160	ug/L	1	1.60	---	97	71-121%	0.9	30%	
Dibenz(a,h)anthracene	1.53	0.00800	0.0160	ug/L	1	1.60	---	96	69-122%	1	30%	
Fluoranthene	1.54	0.0160	0.0320	ug/L	1	1.60	---	96	80-120%	3	30%	
Fluorene	1.44	0.0160	0.0320	ug/L	1	1.60	---	90	78-129%	0.1	30%	
Indeno(1,2,3-cd)pyrene	1.56	0.00800	0.0160	ug/L	1	1.60	---	98	72-132%	2	30%	
1-Methylnaphthalene	1.47	0.0320	0.0640	ug/L	1	1.60	---	92	76-150%	0.6	30%	
2-Methylnaphthalene	1.41	0.0320	0.0640	ug/L	1	1.60	---	88	80-158%	0.1	30%	
Naphthalene	1.51	0.0320	0.0640	ug/L	1	1.60	---	94	80-132%	1	30%	
Phenanthrene	1.47	0.0320	0.0640	ug/L	1	1.60	---	92	80-120%	0.5	30%	

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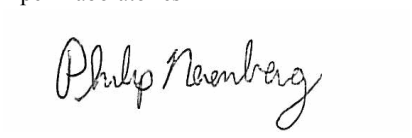

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120718 - EPA 3511 (Bottle Extraction)							**Water**					
LCS Dup (9120718-BSD1)			Prepared: 12/10/19 12:29		Analyzed: 12/10/19 21:33							**Q-19**
Pyrene	1.48	0.0160	0.0320	ug/L	1	1.60	---	93	73-127%	4	30%	
Carbazole	1.42	0.0160	0.0320	ug/L	1	1.60	---	89	80-122%	7	30%	
Dibenzofuran	1.43	0.0160	0.0320	ug/L	1	1.60	---	89	75-122%	0.08	30%	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*106 %*		*80-143 %*				*"*			

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120781 - EPA 3511 (Bottle Extraction)							**Water**					
Blank (9120781-BLK1)			Prepared: 12/11/19 14:58 Analyzed: 12/11/19 17:42									
EPA 8270D LVI												
Acenaphthene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00800	0.0160	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0320	0.0640	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0320	0.0640	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	0.0320	0.0640	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	0.0320	0.0640	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.0160	0.0320	ug/L	1	---	---	---	---	---	---	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*							*Dilution: 1x*
Benzo(a)pyrene-d12 (Surr)			*102 %*		*80-143 %*							*"*
LCS (9120781-BS1)			Prepared: 12/11/19 14:58 Analyzed: 12/11/19 18:15									
EPA 8270D LVI												
Acenaphthene	1.49	0.0160	0.0320	ug/L	1	1.60	---	93	78-135%	---	---	
Acenaphthylene	1.66	0.0160	0.0320	ug/L	1	1.60	---	104	80-126%	---	---	
Anthracene	1.58	0.0160	0.0320	ug/L	1	1.60	---	99	80-120%	---	---	
Benz(a)anthracene	1.68	0.00800	0.0160	ug/L	1	1.60	---	105	76-124%	---	---	
Benzo(a)pyrene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	71-127%	---	---	
Benzo(b)fluoranthene	1.62	0.00800	0.0160	ug/L	1	1.60	---	101	68-120%	---	---	
Benzo(k)fluoranthene	1.68	0.00800	0.0160	ug/L	1	1.60	---	105	72-120%	---	---	
Benzo(g,h,i)perylene	1.74	0.0160	0.0320	ug/L	1	1.60	---	109	71-120%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120781 - EPA 3511 (Bottle Extraction)							**Water**					
LCS (9120781-BS1)			Prepared: 12/11/19 14:58		Analyzed: 12/11/19 18:15							
Chrysene	1.53	0.00800	0.0160	ug/L	1	1.60	---	96	71-121%	---	---	
Dibenz(a,h)anthracene	1.53	0.00800	0.0160	ug/L	1	1.60	---	96	69-122%	---	---	
Fluoranthene	1.53	0.0160	0.0320	ug/L	1	1.60	---	96	80-120%	---	---	
Fluorene	1.41	0.0160	0.0320	ug/L	1	1.60	---	88	78-129%	---	---	
Indeno(1,2,3-cd)pyrene	1.56	0.00800	0.0160	ug/L	1	1.60	---	97	72-132%	---	---	
1-Methylnaphthalene	1.53	0.0320	0.0640	ug/L	1	1.60	---	96	76-150%	---	---	
2-Methylnaphthalene	1.51	0.0320	0.0640	ug/L	1	1.60	---	94	80-158%	---	---	
Naphthalene	1.50	0.0320	0.0640	ug/L	1	1.60	---	94	80-132%	---	---	
Phenanthrene	1.46	0.0320	0.0640	ug/L	1	1.60	---	91	80-120%	---	---	
Pyrene	1.45	0.0160	0.0320	ug/L	1	1.60	---	91	73-127%	---	---	
Carbazole	1.46	0.0160	0.0320	ug/L	1	1.60	---	92	80-122%	---	---	
Dibenzofuran	1.40	0.0160	0.0320	ug/L	1	1.60	---	88	75-122%	---	---	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*106 %*		*80-143 %*				*"*			
LCS Dup (9120781-BSD1)			Prepared: 12/11/19 14:58		Analyzed: 12/11/19 18:48							**Q-19**
EPA 8270D LVI												
Acenaphthene	1.51	0.0160	0.0320	ug/L	1	1.60	---	95	78-135%	2	30%	
Acenaphthylene	1.71	0.0160	0.0320	ug/L	1	1.60	---	107	80-126%	3	30%	
Anthracene	1.58	0.0160	0.0320	ug/L	1	1.60	---	99	80-120%	0.1	30%	
Benz(a)anthracene	1.73	0.00800	0.0160	ug/L	1	1.60	---	108	76-124%	3	30%	
Benzo(a)pyrene	1.78	0.00800	0.0160	ug/L	1	1.60	---	111	71-127%	3	30%	
Benzo(b)fluoranthene	1.72	0.00800	0.0160	ug/L	1	1.60	---	107	68-120%	6	30%	
Benzo(k)fluoranthene	1.74	0.00800	0.0160	ug/L	1	1.60	---	109	72-120%	4	30%	
Benzo(g,h,i)perylene	1.73	0.0160	0.0320	ug/L	1	1.60	---	108	71-120%	0.8	30%	
Chrysene	1.59	0.00800	0.0160	ug/L	1	1.60	---	100	71-121%	4	30%	
Dibenz(a,h)anthracene	1.65	0.00800	0.0160	ug/L	1	1.60	---	103	69-122%	8	30%	
Fluoranthene	1.46	0.0160	0.0320	ug/L	1	1.60	---	91	80-120%	5	30%	
Fluorene	1.47	0.0160	0.0320	ug/L	1	1.60	---	92	78-129%	4	30%	
Indeno(1,2,3-cd)pyrene	1.62	0.00800	0.0160	ug/L	1	1.60	---	101	72-132%	4	30%	
1-Methylnaphthalene	1.61	0.0320	0.0640	ug/L	1	1.60	---	100	76-150%	5	30%	
2-Methylnaphthalene	1.56	0.0320	0.0640	ug/L	1	1.60	---	98	80-158%	3	30%	
Naphthalene	1.54	0.0320	0.0640	ug/L	1	1.60	---	96	80-132%	3	30%	
Phenanthrene	1.47	0.0320	0.0640	ug/L	1	1.60	---	92	80-120%	0.7	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120781 - EPA 3511 (Bottle Extraction)							**Water**					
LCS Dup (9120781-BSD1)			Prepared: 12/11/19 14:58		Analyzed: 12/11/19 18:48							**Q-19**
Pyrene	1.41	0.0160	0.0320	ug/L	1	1.60	---	88	73-127%	3	30%	
Carbazole	1.31	0.0160	0.0320	ug/L	1	1.60	---	82	80-122%	11	30%	
Dibenzofuran	1.47	0.0160	0.0320	ug/L	1	1.60	---	92	75-122%	5	30%	
Surr: Acenaphthylene-d8 (Surr)			*Recovery: 107 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Benzo(a)pyrene-d12 (Surr)			*107 %*		*80-143 %*				*"*			

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
Blank (9120660-BLK1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 16:08									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 62 %*	*Limits: 37-122 %*			*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*76 %*	*44-115 %*			*"*					
Phenol-d6 (Surr)			*60 %*	*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*			*"*					
2-Fluorophenol (Surr)			*65 %*	*35-115 %*			*"*					
2,4,6-Tribromophenol (Surr)			*81 %*	*39-132 %*			*"*					
LCS (9120660-BS1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 16:43									
EPA 8270D												
Acenaphthene	475	5.32	10.7	ug/kg wet	4	533	---	89	40-122%	---	---	
Acenaphthylene	497	5.32	10.7	ug/kg wet	4	533	---	93	32-132%	---	---	
Anthracene	529	5.32	10.7	ug/kg wet	4	533	---	99	47-123%	---	---	
Benz(a)anthracene	522	5.32	10.7	ug/kg wet	4	533	---	98	49-126%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
LCS (9120660-BS1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 16:43									
Benzo(a)pyrene	524	8.00	16.0	ug/kg wet	4	533	---	98	45-129%	---	---	
Benzo(b)fluoranthene	522	8.00	16.0	ug/kg wet	4	533	---	98	45-132%	---	---	
Benzo(k)fluoranthene	509	8.00	16.0	ug/kg wet	4	533	---	95	47-132%	---	---	
Benzo(g,h,i)perylene	537	5.32	10.7	ug/kg wet	4	533	---	101	43-134%	---	---	
Chrysene	522	5.32	10.7	ug/kg wet	4	533	---	98	50-124%	---	---	
Dibenz(a,h)anthracene	520	5.32	10.7	ug/kg wet	4	533	---	98	45-134%	---	---	
Fluoranthene	555	5.32	10.7	ug/kg wet	4	533	---	104	50-127%	---	---	
Fluorene	499	5.32	10.7	ug/kg wet	4	533	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	491	5.32	10.7	ug/kg wet	4	533	---	92	45-133%	---	---	
1-Methylnaphthalene	492	10.7	21.3	ug/kg wet	4	533	---	92	40-120%	---	---	
2-Methylnaphthalene	505	10.7	21.3	ug/kg wet	4	533	---	95	38-122%	---	---	
Naphthalene	478	10.7	21.3	ug/kg wet	4	533	---	90	35-123%	---	---	
Phenanthrene	497	5.32	10.7	ug/kg wet	4	533	---	93	50-121%	---	---	
Pyrene	561	5.32	10.7	ug/kg wet	4	533	---	105	47-127%	---	---	
Carbazole	618	8.00	16.0	ug/kg wet	4	533	---	116	50-122%	---	---	Q-41
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 71 %*	*Limits: 37-122 %*			*Dilution: 4x*					
2-Fluorobiphenyl (Surr)			*91 %*	*44-115 %*			*"*					
Phenol-d6 (Surr)			*71 %*	*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)			*96 %*	*54-127 %*			*"*					
2-Fluorophenol (Surr)			*74 %*	*35-115 %*			*"*					
2,4,6-Tribromophenol (Surr)			*92 %*	*39-132 %*			*"*					
Duplicate (9120660-DUP1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 19:45									
QC Source Sample: Non-SDG (A9L0084-04RE2)												
Acenaphthene	ND	1.63	3.27	ug/kg dry	1	---	1.87	---	---	***	**30%**	Q-05
Acenaphthylene	**3.01**	1.63	3.27	ug/kg dry	1	---	3.98	---	---	28	30%	J
Anthracene	**2.65**	1.63	3.27	ug/kg dry	1	---	3.51	---	---	28	30%	J
Benz(a)anthracene	**6.96**	1.63	3.27	ug/kg dry	1	---	6.06	---	---	14	30%	
Benzo(a)pyrene	**12.6**	2.45	4.90	ug/kg dry	1	---	9.42	---	---	29	30%	
Benzo(b)fluoranthene	**13.8**	2.45	4.90	ug/kg dry	1	---	13.2	---	---	5	30%	
Benzo(k)fluoranthene	**6.29**	2.45	4.90	ug/kg dry	1	---	5.15	---	---	20	30%	M-05
Benzo(g,h,i)perylene	**6.85**	1.63	3.27	ug/kg dry	1	---	6.85	---	---	0.03	30%	
Chrysene	**9.16**	1.63	3.27	ug/kg dry	1	---	10.3	---	---	12	30%	
Dibenz(a,h)anthracene	ND	1.63	3.27	ug/kg dry	1	---	ND	---	---	---	30%	

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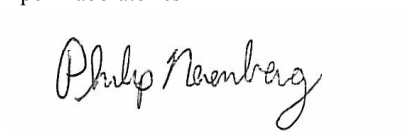

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
Duplicate (9120660-DUP1)			Prepared: 12/09/19 11:20 Analyzed: 12/09/19 19:45									
QC Source Sample: Non-SDG (A9L0084-04RE2)												
Fluoranthene	**13.1**	1.63	3.27	ug/kg dry	1	---	18.8	---	---	**35**	**30%**	Q-05
Fluorene	**2.28**	1.63	3.27	ug/kg dry	1	---	3.11	---	---	**31**	**30%**	Q-05, J
Indeno(1,2,3-cd)pyrene	**7.32**	1.63	3.27	ug/kg dry	1	---	6.47	---	---	12	30%	
1-Methylnaphthalene	ND	3.27	6.52	ug/kg dry	1	---	3.33	---	---	***	**30%**	Q-05
2-Methylnaphthalene	**4.14**	3.27	6.52	ug/kg dry	1	---	5.50	---	---	28	30%	J
Naphthalene	**17.4**	3.27	6.52	ug/kg dry	1	---	24.6	---	---	**35**	**30%**	Q-05
Phenanthrene	**15.0**	1.63	3.27	ug/kg dry	1	---	20.6	---	---	**31**	**30%**	Q-05
Pyrene	**14.0**	1.63	3.27	ug/kg dry	1	---	20.2	---	---	**36**	**30%**	Q-05
Carbazole	ND	2.45	4.90	ug/kg dry	1	---	ND	---	---	---	30%	
Dibenzofuran	**2.56**	1.63	3.27	ug/kg dry	1	---	3.76	---	---	**38**	**30%**	Q-05, J
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 61 %*	*Limits: 37-122 %*			*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*64 %*	*44-115 %*			*"*					
Phenol-d6 (Surr)			*69 %*	*33-122 %*			*"*					
p-Terphenyl-d14 (Surr)			*71 %*	*54-127 %*			*"*					
2-Fluorophenol (Surr)			*68 %*	*35-115 %*			*"*					
2,4,6-Tribromophenol (Surr)			*80 %*	*39-132 %*			*"*					Q-41
Matrix Spike (9120660-MS2)			Prepared: 12/09/19 11:20 Analyzed: 12/10/19 22:35									
QC Source Sample: RAU7-02-SO-2.5 (A9L0191-57RE2)												
EPA 8270D												
Acenaphthene	478	5.46	11.0	ug/kg dry	4	548	ND	87	40-122%	---	---	
Acenaphthylene	499	5.46	11.0	ug/kg dry	4	548	ND	91	32-132%	---	---	
Anthracene	517	5.46	11.0	ug/kg dry	4	548	ND	94	47-123%	---	---	
Benz(a)anthracene	516	5.46	11.0	ug/kg dry	4	548	ND	94	49-126%	---	---	
Benzo(a)pyrene	512	8.22	16.4	ug/kg dry	4	548	ND	93	45-129%	---	---	
Benzo(b)fluoranthene	505	8.22	16.4	ug/kg dry	4	548	ND	92	45-132%	---	---	
Benzo(k)fluoranthene	508	8.22	16.4	ug/kg dry	4	548	ND	93	47-132%	---	---	
Benzo(g,h,i)perylene	394	5.46	11.0	ug/kg dry	4	548	ND	72	43-134%	---	---	
Chrysene	492	5.46	11.0	ug/kg dry	4	548	ND	90	50-124%	---	---	
Dibenz(a,h)anthracene	470	5.46	11.0	ug/kg dry	4	548	ND	86	45-134%	---	---	
Fluoranthene	545	5.46	11.0	ug/kg dry	4	548	ND	99	50-127%	---	---	
Fluorene	514	5.46	11.0	ug/kg dry	4	548	ND	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	428	5.46	11.0	ug/kg dry	4	548	ND	78	45-133%	---	---	

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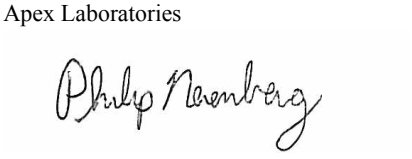

Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120660 - EPA 3546							**Soil**					
Matrix Spike (9120660-MS2)			Prepared: 12/09/19 11:20 Analyzed: 12/10/19 22:35									
QC Source Sample: RAU7-02-SO-2.5 (A9L0191-57RE2)												
1-Methylnaphthalene	518	11.0	21.9	ug/kg dry	4	548	ND	95	40-120%	---	---	
2-Methylnaphthalene	514	11.0	21.9	ug/kg dry	4	548	ND	94	38-122%	---	---	
Naphthalene	453	11.0	21.9	ug/kg dry	4	548	ND	83	35-123%	---	---	
Phenanthrene	476	5.46	11.0	ug/kg dry	4	548	ND	87	50-121%	---	---	
Pyrene	535	5.46	11.0	ug/kg dry	4	548	ND	98	47-127%	---	---	
Carbazole	563	8.22	16.4	ug/kg dry	4	548	ND	103	50-122%	---	---	
Dibenzofuran	494	5.46	11.0	ug/kg dry	4	548	ND	90	44-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 96 %*		*Limits: 37-122 %*		*Dilution: 4x*					
2-Fluorobiphenyl (Surr)			*83 %*		*44-115 %*		*"*					
Phenol-d6 (Surr)			*91 %*		*33-122 %*		*"*					
p-Terphenyl-d14 (Surr)			*95 %*		*54-127 %*		*"*					
2-Fluorophenol (Surr)			*95 %*		*35-115 %*		*"*					
2,4,6-Tribromophenol (Surr)			*111 %*		*39-132 %*		*"*					

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120690-BLK1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 14:57							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Naphthalene	**0.0237**	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	B-02, J
Phenanthrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120690-BLK1)			Prepared: 12/10/19 07:10 Analyzed: 12/10/19 14:57									
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Hexachloroethane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Aniline	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
4-Chloroaniline	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
3-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
4-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Nitrobenzene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9120690-BLK1)			Prepared: 12/10/19 07:10 Analyzed: 12/10/19 14:57									
Benzoic acid	ND	1.14	2.27	ug/L	1	---	---	---	---	---	---	
Benzyl alcohol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Isophorone	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	0.455	0.909	ug/L	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
Pyridine	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*77 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*25 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*94 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*40 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*104 %*		*43-140 %*			*"*				
LCS (9120690-BS1)			Prepared: 12/10/19 07:10 Analyzed: 12/10/19 15:31									
EPA 8270D												
Acenaphthene	3.31	0.0100	0.0200	ug/L	1	4.00	---	83	47-122%	---	---	
Acenaphthylene	3.47	0.0100	0.0200	ug/L	1	4.00	---	87	41-130%	---	---	
Anthracene	3.76	0.0100	0.0200	ug/L	1	4.00	---	94	57-123%	---	---	
Benz(a)anthracene	4.41	0.0100	0.0200	ug/L	1	4.00	---	110	58-125%	---	---	
Benzo(a)pyrene	4.23	0.0150	0.0300	ug/L	1	4.00	---	106	54-128%	---	---	
Benzo(b)fluoranthene	4.15	0.0150	0.0300	ug/L	1	4.00	---	104	53-131%	---	---	
Benzo(k)fluoranthene	4.06	0.0150	0.0300	ug/L	1	4.00	---	102	57-129%	---	---	
Benzo(g,h,i)perylene	4.23	0.0100	0.0200	ug/L	1	4.00	---	106	50-134%	---	---	
Chrysene	4.05	0.0100	0.0200	ug/L	1	4.00	---	101	59-123%	---	---	
Dibenz(a,h)anthracene	4.05	0.0100	0.0200	ug/L	1	4.00	---	101	51-134%	---	---	
Fluoranthene	4.29	0.0100	0.0200	ug/L	1	4.00	---	107	57-128%	---	---	
Fluorene	3.41	0.0100	0.0200	ug/L	1	4.00	---	85	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	4.15	0.0100	0.0200	ug/L	1	4.00	---	104	52-133%	---	---	
1-Methylnaphthalene	3.15	0.0200	0.0400	ug/L	1	4.00	---	79	41-120%	---	---	
2-Methylnaphthalene	3.20	0.0200	0.0400	ug/L	1	4.00	---	80	40-121%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120690-BS1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 15:31							
Naphthalene	3.10	0.0200	0.0400	ug/L	1	4.00	---	78	40-121%	---	---	B-02
Phenanthrene	3.47	0.0100	0.0200	ug/L	1	4.00	---	87	59-120%	---	---	
Pyrene	4.23	0.0100	0.0200	ug/L	1	4.00	---	106	57-126%	---	---	
Carbazole	4.51	0.0150	0.0300	ug/L	1	4.00	---	113	60-122%	---	---	
Dibenzofuran	3.39	0.0100	0.0200	ug/L	1	4.00	---	85	53-120%	---	---	
4-Chloro-3-methylphenol	3.49	0.100	0.200	ug/L	1	4.00	---	87	52-120%	---	---	
2-Chlorophenol	3.24	0.0500	0.100	ug/L	1	4.00	---	81	38-120%	---	---	
2,4-Dichlorophenol	3.84	0.0500	0.100	ug/L	1	4.00	---	96	47-121%	---	---	
2,4-Dimethylphenol	3.26	0.0500	0.100	ug/L	1	4.00	---	82	31-124%	---	---	
2,4-Dinitrophenol	4.45	0.250	0.500	ug/L	1	4.00	---	111	23-143%	---	---	
4,6-Dinitro-2-methylphenol	4.73	0.250	0.500	ug/L	1	4.00	---	118	44-137%	---	---	
2-Methylphenol	2.77	0.0250	0.0500	ug/L	1	4.00	---	69	30-120%	---	---	
3+4-Methylphenol(s)	2.48	0.0250	0.0500	ug/L	1	4.00	---	62	29-120%	---	---	
2-Nitrophenol	3.69	0.100	0.200	ug/L	1	4.00	---	92	47-123%	---	---	Q-41
4-Nitrophenol	1.64	0.100	0.200	ug/L	1	4.00	---	41	5-120%	---	---	
Pentachlorophenol (PCP)	4.73	0.100	0.200	ug/L	1	4.00	---	118	35-138%	---	---	
Phenol	1.37	0.200	0.400	ug/L	1	4.00	---	34	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	4.01	0.0500	0.100	ug/L	1	4.00	---	100	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	4.28	0.0500	0.100	ug/L	1	4.00	---	107	50-121%	---	---	Q-41
2,4,5-Trichlorophenol	4.05	0.0500	0.100	ug/L	1	4.00	---	101	53-123%	---	---	
2,4,6-Trichlorophenol	4.08	0.0500	0.100	ug/L	1	4.00	---	102	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	4.15	0.200	0.400	ug/L	1	4.00	---	104	55-135%	---	---	
Butyl benzyl phthalate	4.16	0.200	0.400	ug/L	1	4.00	---	104	53-134%	---	---	
Diethylphthalate	4.09	0.200	0.400	ug/L	1	4.00	---	102	55-125%	---	---	
Dimethylphthalate	3.91	0.200	0.400	ug/L	1	4.00	---	98	45-127%	---	---	
Di-n-butylphthalate	4.38	0.200	0.400	ug/L	1	4.00	---	110	59-127%	---	---	
Di-n-octyl phthalate	4.44	0.200	0.400	ug/L	1	4.00	---	111	51-140%	---	---	Q-41
N-Nitrosodimethylamine	1.97	0.0250	0.0500	ug/L	1	4.00	---	49	6-120%	---	---	
N-Nitroso-di-n-propylamine	3.03	0.0250	0.0500	ug/L	1	4.00	---	76	49-120%	---	---	
N-Nitrosodiphenylamine	3.65	0.0250	0.0500	ug/L	1	4.00	---	91	51-123%	---	---	
Bis(2-Chloroethoxy) methane	3.26	0.0250	0.0500	ug/L	1	4.00	---	82	48-120%	---	---	
Bis(2-Chloroethyl) ether	3.01	0.0250	0.0500	ug/L	1	4.00	---	75	43-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	2.24	0.0250	0.0500	ug/L	1	4.00	---	56	37-130%	---	---	Q-31
Hexachlorobenzene	3.68	0.0100	0.0200	ug/L	1	4.00	---	92	52-125%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120690-BS1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 15:31							
Hexachlorobutadiene	3.36	0.0250	0.0500	ug/L	1	4.00	---	84	22-124%	---	---	
Hexachlorocyclopentadiene	3.79	0.0500	0.100	ug/L	1	4.00	---	95	5-127%	---	---	
Hexachloroethane	3.26	0.0250	0.0500	ug/L	1	4.00	---	81	21-120%	---	---	
2-Chloronaphthalene	3.35	0.0100	0.0200	ug/L	1	4.00	---	84	40-120%	---	---	
1,2-Dichlorobenzene	2.84	0.0250	0.0500	ug/L	1	4.00	---	71	32-120%	---	---	
1,3-Dichlorobenzene	2.89	0.0250	0.0500	ug/L	1	4.00	---	72	28-120%	---	---	
1,4-Dichlorobenzene	2.88	0.0250	0.0500	ug/L	1	4.00	---	72	29-120%	---	---	
1,2,4-Trichlorobenzene	3.17	0.0250	0.0500	ug/L	1	4.00	---	79	29-120%	---	---	
4-Bromophenyl phenyl ether	4.02	0.0250	0.0500	ug/L	1	4.00	---	101	54-124%	---	---	
4-Chlorophenyl phenyl ether	3.57	0.0250	0.0500	ug/L	1	4.00	---	89	53-121%	---	---	
Aniline	2.62	0.0500	0.100	ug/L	1	4.00	---	66	6-120%	---	---	
4-Chloroaniline	2.84	0.0250	0.0500	ug/L	1	4.00	---	71	33-120%	---	---	
2-Nitroaniline	4.07	0.200	0.400	ug/L	1	4.00	---	102	54-127%	---	---	
3-Nitroaniline	2.86	0.200	0.400	ug/L	1	4.00	---	72	41-128%	---	---	
4-Nitroaniline	2.85	0.200	0.400	ug/L	1	4.00	---	71	35-120%	---	---	
Nitrobenzene	3.00	0.100	0.200	ug/L	1	4.00	---	75	45-121%	---	---	
2,4-Dinitrotoluene	3.94	0.100	0.200	ug/L	1	4.00	---	99	57-128%	---	---	
2,6-Dinitrotoluene	4.13	0.100	0.200	ug/L	1	4.00	---	103	57-124%	---	---	
Benzoic acid	3.24	1.25	2.50	ug/L	1	8.00	---	40	5-120%	---	---	
Benzyl alcohol	2.69	0.100	0.200	ug/L	1	4.00	---	67	31-120%	---	---	
Isophorone	3.40	0.0250	0.0500	ug/L	1	4.00	---	85	42-124%	---	---	
Azobenzene (1,2-DPH)	3.17	0.0250	0.0500	ug/L	1	4.00	---	79	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	4.26	0.250	0.500	ug/L	1	4.00	---	106	40-125%	---	---	
1,2-Dinitrobenzene	3.94	0.250	0.500	ug/L	1	4.00	---	99	59-120%	---	---	
1,3-Dinitrobenzene	4.30	0.250	0.500	ug/L	1	4.00	---	108	49-128%	---	---	
1,4-Dinitrobenzene	4.19	0.250	0.500	ug/L	1	4.00	---	105	40-120%	---	---	
Pyridine	1.48	0.100	0.200	ug/L	1	4.00	---	37	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 76 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*77 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*29 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*101 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*44 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*103 %*		*43-140 %*			*"*				

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9120690-BS2)			Prepared: 12/10/19 07:10		Analyzed: 12/11/19 13:59							
EPA 8270D												
3,3'-Dichlorobenzidine	13.3	1.00	2.00	ug/L	2	8.00	---	**166**	**27-129%**	---	---	Q-29, Q-52
LCS Dup (9120690-BSD1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 16:06							**Q-19**
EPA 8270D												
Acenaphthene	3.16	0.0100	0.0200	ug/L	1	4.00	---	79	47-122%	5	30%	
Acenaphthylene	3.31	0.0100	0.0200	ug/L	1	4.00	---	83	41-130%	5	30%	
Anthracene	3.50	0.0100	0.0200	ug/L	1	4.00	---	87	57-123%	7	30%	
Benz(a)anthracene	4.26	0.0100	0.0200	ug/L	1	4.00	---	106	58-125%	4	30%	
Benzo(a)pyrene	4.10	0.0150	0.0300	ug/L	1	4.00	---	103	54-128%	3	30%	
Benzo(b)fluoranthene	4.00	0.0150	0.0300	ug/L	1	4.00	---	100	53-131%	4	30%	
Benzo(k)fluoranthene	3.91	0.0150	0.0300	ug/L	1	4.00	---	98	57-129%	4	30%	
Benzo(g,h,i)perylene	4.09	0.0100	0.0200	ug/L	1	4.00	---	102	50-134%	3	30%	
Chrysene	3.96	0.0100	0.0200	ug/L	1	4.00	---	99	59-123%	2	30%	
Dibenz(a,h)anthracene	3.92	0.0100	0.0200	ug/L	1	4.00	---	98	51-134%	3	30%	
Fluoranthene	3.97	0.0100	0.0200	ug/L	1	4.00	---	99	57-128%	8	30%	
Fluorene	3.33	0.0100	0.0200	ug/L	1	4.00	---	83	52-124%	2	30%	
Indeno(1,2,3-cd)pyrene	4.01	0.0100	0.0200	ug/L	1	4.00	---	100	52-133%	4	30%	
1-Methylnaphthalene	3.11	0.0200	0.0400	ug/L	1	4.00	---	78	41-120%	1	30%	
2-Methylnaphthalene	3.20	0.0200	0.0400	ug/L	1	4.00	---	80	40-121%	0.1	30%	
Naphthalene	3.01	0.0200	0.0400	ug/L	1	4.00	---	75	40-121%	3	30%	B-02
Phenanthrene	3.24	0.0100	0.0200	ug/L	1	4.00	---	81	59-120%	7	30%	
Pyrene	3.88	0.0100	0.0200	ug/L	1	4.00	---	97	57-126%	9	30%	
Carbazole	4.14	0.0150	0.0300	ug/L	1	4.00	---	104	60-122%	9	30%	
Dibenzofuran	3.30	0.0100	0.0200	ug/L	1	4.00	---	82	53-120%	3	30%	
4-Chloro-3-methylphenol	3.51	0.100	0.200	ug/L	1	4.00	---	88	52-120%	0.4	30%	
2-Chlorophenol	3.17	0.0500	0.100	ug/L	1	4.00	---	79	38-120%	2	30%	
2,4-Dichlorophenol	3.78	0.0500	0.100	ug/L	1	4.00	---	94	47-121%	2	30%	
2,4-Dimethylphenol	3.20	0.0500	0.100	ug/L	1	4.00	---	80	31-124%	2	30%	
2,4-Dinitrophenol	4.55	0.250	0.500	ug/L	1	4.00	---	114	23-143%	2	30%	
4,6-Dinitro-2-methylphenol	4.86	0.250	0.500	ug/L	1	4.00	---	121	44-137%	3	30%	
2-Methylphenol	2.86	0.0250	0.0500	ug/L	1	4.00	---	72	30-120%	3	30%	
3+4-Methylphenol(s)	2.60	0.0250	0.0500	ug/L	1	4.00	---	65	29-120%	5	30%	
2-Nitrophenol	3.60	0.100	0.200	ug/L	1	4.00	---	90	47-123%	2	30%	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9120690-BSD1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 16:06							**Q-19**
4-Nitrophenol	1.79	0.100	0.200	ug/L	1	4.00	---	45	5-120%	9	30%	
Pentachlorophenol (PCP)	4.54	0.100	0.200	ug/L	1	4.00	---	113	35-138%	4	30%	
Phenol	1.47	0.200	0.400	ug/L	1	4.00	---	37	5-120%	7	30%	
2,3,4,6-Tetrachlorophenol	3.92	0.0500	0.100	ug/L	1	4.00	---	98	50-128%	2	30%	
2,3,5,6-Tetrachlorophenol	4.22	0.0500	0.100	ug/L	1	4.00	---	106	50-121%	1	30%	
2,4,5-Trichlorophenol	3.85	0.0500	0.100	ug/L	1	4.00	---	96	53-123%	5	30%	
2,4,6-Trichlorophenol	3.86	0.0500	0.100	ug/L	1	4.00	---	97	50-125%	5	30%	
Bis(2-ethylhexyl)phthalate	4.14	0.200	0.400	ug/L	1	4.00	---	104	55-135%	0.09	30%	
Butyl benzyl phthalate	4.16	0.200	0.400	ug/L	1	4.00	---	104	53-134%	0.02	30%	
Diethylphthalate	3.96	0.200	0.400	ug/L	1	4.00	---	99	55-125%	3	30%	
Dimethylphthalate	3.72	0.200	0.400	ug/L	1	4.00	---	93	45-127%	5	30%	
Di-n-butylphthalate	4.13	0.200	0.400	ug/L	1	4.00	---	103	59-127%	6	30%	
Di-n-octyl phthalate	4.36	0.200	0.400	ug/L	1	4.00	---	109	51-140%	2	30%	
N-Nitrosodimethylamine	1.90	0.0250	0.0500	ug/L	1	4.00	---	47	6-120%	4	30%	
N-Nitroso-di-n-propylamine	3.04	0.0250	0.0500	ug/L	1	4.00	---	76	49-120%	0.5	30%	
N-Nitrosodiphenylamine	3.40	0.0250	0.0500	ug/L	1	4.00	---	85	51-123%	7	30%	
Bis(2-Chloroethoxy) methane	3.12	0.0250	0.0500	ug/L	1	4.00	---	78	48-120%	4	30%	
Bis(2-Chloroethyl) ether	2.94	0.0250	0.0500	ug/L	1	4.00	---	74	43-120%	2	30%	
2,2'-Oxybis(1-Chloropropane)	2.20	0.0250	0.0500	ug/L	1	4.00	---	55	37-130%	2	30%	Q-31
Hexachlorobenzene	3.46	0.0100	0.0200	ug/L	1	4.00	---	87	52-125%	6	30%	
Hexachlorobutadiene	3.29	0.0250	0.0500	ug/L	1	4.00	---	82	22-124%	2	30%	
Hexachlorocyclopentadiene	3.64	0.0500	0.100	ug/L	1	4.00	---	91	5-127%	4	30%	
Hexachloroethane	3.25	0.0250	0.0500	ug/L	1	4.00	---	81	21-120%	0.3	30%	
2-Chloronaphthalene	3.24	0.0100	0.0200	ug/L	1	4.00	---	81	40-120%	3	30%	
1,2-Dichlorobenzene	2.84	0.0250	0.0500	ug/L	1	4.00	---	71	32-120%	0.3	30%	
1,3-Dichlorobenzene	2.91	0.0250	0.0500	ug/L	1	4.00	---	73	28-120%	0.7	30%	
1,4-Dichlorobenzene	2.87	0.0250	0.0500	ug/L	1	4.00	---	72	29-120%	0.3	30%	
1,2,4-Trichlorobenzene	3.12	0.0250	0.0500	ug/L	1	4.00	---	78	29-120%	2	30%	
4-Bromophenyl phenyl ether	3.75	0.0250	0.0500	ug/L	1	4.00	---	94	54-124%	7	30%	
4-Chlorophenyl phenyl ether	3.52	0.0250	0.0500	ug/L	1	4.00	---	88	53-121%	2	30%	
Aniline	2.80	0.0500	0.100	ug/L	1	4.00	---	70	6-120%	7	30%	
4-Chloroaniline	2.55	0.0250	0.0500	ug/L	1	4.00	---	64	33-120%	11	30%	
2-Nitroaniline	3.93	0.200	0.400	ug/L	1	4.00	---	98	54-127%	4	30%	
3-Nitroaniline	3.02	0.200	0.400	ug/L	1	4.00	---	75	41-128%	5	30%	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120690 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9120690-BSD1)			Prepared: 12/10/19 07:10		Analyzed: 12/10/19 16:06							**Q-19**
4-Nitroaniline	2.88	0.200	0.400	ug/L	1	4.00	---	72	35-120%	1	30%	
Nitrobenzene	3.02	0.100	0.200	ug/L	1	4.00	---	76	45-121%	0.9	30%	
2,4-Dinitrotoluene	3.92	0.100	0.200	ug/L	1	4.00	---	98	57-128%	0.6	30%	
2,6-Dinitrotoluene	3.99	0.100	0.200	ug/L	1	4.00	---	100	57-124%	4	30%	
Benzoic acid	3.46	1.25	2.50	ug/L	1	8.00	---	43	5-120%	7	30%	
Benzyl alcohol	2.82	0.100	0.200	ug/L	1	4.00	---	71	31-120%	5	30%	
Isophorone	3.24	0.0250	0.0500	ug/L	1	4.00	---	81	42-124%	5	30%	
Azobenzene (1,2-DPH)	2.95	0.0250	0.0500	ug/L	1	4.00	---	74	61-120%	7	30%	
Bis(2-Ethylhexyl) adipate	4.21	0.250	0.500	ug/L	1	4.00	---	105	40-125%	1	30%	
1,2-Dinitrobenzene	3.84	0.250	0.500	ug/L	1	4.00	---	96	59-120%	3	30%	
1,3-Dinitrobenzene	4.27	0.250	0.500	ug/L	1	4.00	---	107	49-128%	0.8	30%	
1,4-Dinitrobenzene	4.15	0.250	0.500	ug/L	1	4.00	---	104	40-120%	0.9	30%	
Pyridine	1.53	0.100	0.200	ug/L	1	4.00	---	38	5-120%	3	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 76 %*		*Limits: 44-120 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*74 %*		*44-120 %*				*"*			
Phenol-d6 (Surr)			*31 %*		*10-120 %*				*"*			
p-Terphenyl-d14 (Surr)			*100 %*		*50-133 %*				*"*			
2-Fluorophenol (Surr)			*46 %*		*19-120 %*				*"*			
2,4,6-Tribromophenol (Surr)			*98 %*		*43-140 %*				*"*			
LCS Dup (9120690-BSD2)			Prepared: 12/10/19 07:10		Analyzed: 12/11/19 14:34							**Q-19**
EPA 8270D												
3,3'-Dichlorobenzidine	12.4	1.00	2.00	ug/L	2	8.00	---	**154**	**27-129%**	7	30%	Q-29

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 19:25									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitrophenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitrophenol	ND	25.0	25.0	ug/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Phenol	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 19:25							
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	ug/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	**14.2**	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	B-02, J
Dimethylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	**20.3**	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	B-02, J
Di-n-octyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Blank (9120852-BLK1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 19:25									
Benzoic acid	ND	157	312	ug/kg wet	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 75 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*76 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*73 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*89 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*73 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*99 %*		*39-132 %*				*"*			
LCS (9120852-BS1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 20:11									**Q-18**
EPA 8270D												
Acenaphthene	460	2.66	5.34	ug/kg wet	2	533	---	86	40-122%	---	---	
Acenaphthylene	493	2.66	5.34	ug/kg wet	2	533	---	92	32-132%	---	---	
Anthracene	514	2.66	5.34	ug/kg wet	2	533	---	96	47-123%	---	---	
Benz(a)anthracene	544	2.66	5.34	ug/kg wet	2	533	---	102	49-126%	---	---	
Benzo(a)pyrene	546	4.00	8.00	ug/kg wet	2	533	---	102	45-129%	---	---	
Benzo(b)fluoranthene	537	4.00	8.00	ug/kg wet	2	533	---	101	45-132%	---	---	
Benzo(k)fluoranthene	534	4.00	8.00	ug/kg wet	2	533	---	100	47-132%	---	---	
Benzo(g,h,i)perylene	507	2.66	5.34	ug/kg wet	2	533	---	95	43-134%	---	---	
Chrysene	487	2.66	5.34	ug/kg wet	2	533	---	91	50-124%	---	---	
Dibenz(a,h)anthracene	510	2.66	5.34	ug/kg wet	2	533	---	96	45-134%	---	---	
Fluoranthene	554	2.66	5.34	ug/kg wet	2	533	---	104	50-127%	---	---	
Fluorene	500	2.66	5.34	ug/kg wet	2	533	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	490	2.66	5.34	ug/kg wet	2	533	---	92	45-133%	---	---	
1-Methylnaphthalene	455	5.34	10.7	ug/kg wet	2	533	---	85	40-120%	---	---	
2-Methylnaphthalene	465	5.34	10.7	ug/kg wet	2	533	---	87	38-122%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
LCS (9120852-BS1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 20:11							**Q-18**
Naphthalene	456	5.34	10.7	ug/kg wet	2	533	---	86	35-123%	---	---	
Phenanthrene	469	2.66	5.34	ug/kg wet	2	533	---	88	50-121%	---	---	
Pyrene	548	2.66	5.34	ug/kg wet	2	533	---	103	47-127%	---	---	
Carbazole	363	4.00	8.00	ug/kg wet	2	533	---	68	50-122%	---	---	
Dibenzofuran	470	2.66	5.34	ug/kg wet	2	533	---	88	44-120%	---	---	
4-Chloro-3-methylphenol	500	26.6	53.4	ug/kg wet	2	533	---	94	45-122%	---	---	
2-Chlorophenol	497	13.3	26.6	ug/kg wet	2	533	---	93	34-121%	---	---	
2,4-Dichlorophenol	538	13.3	26.6	ug/kg wet	2	533	---	101	40-122%	---	---	
2,4-Dimethylphenol	540	13.3	26.6	ug/kg wet	2	533	---	101	30-127%	---	---	
2,4-Dinitrophenol	767	66.6	133	ug/kg wet	2	533	---	**144**	**5-137%**	---	---	Q-29
4,6-Dinitro-2-methylphenol	692	66.6	133	ug/kg wet	2	533	---	130	29-132%	---	---	
2-Methylphenol	474	6.66	13.3	ug/kg wet	2	533	---	89	32-122%	---	---	
3+4-Methylphenol(s)	481	6.66	13.3	ug/kg wet	2	533	---	90	34-120%	---	---	
2-Nitrophenol	542	26.6	53.4	ug/kg wet	2	533	---	102	36-123%	---	---	Q-41
4-Nitrophenol	590	53.4	53.4	ug/kg wet	2	533	---	111	30-132%	---	---	
Pentachlorophenol (PCP)	666	26.6	53.4	ug/kg wet	2	533	---	125	25-133%	---	---	
Phenol	452	5.34	10.7	ug/kg wet	2	533	---	85	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	553	13.3	26.6	ug/kg wet	2	533	---	104	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	609	13.3	26.6	ug/kg wet	2	533	---	114	40-120%	---	---	Q-41
2,4,5-Trichlorophenol	550	13.3	26.6	ug/kg wet	2	533	---	103	41-124%	---	---	
2,4,6-Trichlorophenol	534	13.3	26.6	ug/kg wet	2	533	---	100	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	624	40.0	80.0	ug/kg wet	2	533	---	117	51-133%	---	---	
Butyl benzyl phthalate	543	26.6	53.4	ug/kg wet	2	533	---	102	48-132%	---	---	
Diethylphthalate	559	26.6	53.4	ug/kg wet	2	533	---	105	50-124%	---	---	B-02
Dimethylphthalate	534	26.6	53.4	ug/kg wet	2	533	---	100	48-124%	---	---	
Di-n-butylphthalate	599	26.6	53.4	ug/kg wet	2	533	---	112	51-128%	---	---	B-02
Di-n-octyl phthalate	642	26.6	53.4	ug/kg wet	2	533	---	120	44-140%	---	---	Q-41
N-Nitrosodimethylamine	405	6.66	13.3	ug/kg wet	2	533	---	76	23-120%	---	---	
N-Nitroso-di-n-propylamine	431	6.66	13.3	ug/kg wet	2	533	---	81	36-120%	---	---	
N-Nitrosodiphenylamine	435	6.66	13.3	ug/kg wet	2	533	---	82	38-127%	---	---	
Bis(2-Chloroethoxy) methane	457	6.66	13.3	ug/kg wet	2	533	---	86	36-121%	---	---	
Bis(2-Chloroethyl) ether	406	6.66	13.3	ug/kg wet	2	533	---	76	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	325	6.66	13.3	ug/kg wet	2	533	---	61	33-131%	---	---	
Hexachlorobenzene	478	2.66	5.34	ug/kg wet	2	533	---	90	44-122%	---	---	

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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
LCS (9120852-BS1)			Prepared: 12/12/19 15:17		Analyzed: 12/12/19 20:11							**Q-18**
Hexachlorobutadiene	507	6.66	13.3	ug/kg wet	2	533	---	95	32-123%	---	---	
Hexachlorocyclopentadiene	411	13.3	26.6	ug/kg wet	2	533	---	77	5-140%	---	---	
Hexachloroethane	485	6.66	13.3	ug/kg wet	2	533	---	91	28-120%	---	---	
2-Chloronaphthalene	490	2.66	5.34	ug/kg wet	2	533	---	92	41-120%	---	---	
1,2-Dichlorobenzene	437	6.66	13.3	ug/kg wet	2	533	---	82	33-120%	---	---	
1,3-Dichlorobenzene	456	6.66	13.3	ug/kg wet	2	533	---	86	30-120%	---	---	
1,4-Dichlorobenzene	445	6.66	13.3	ug/kg wet	2	533	---	83	31-120%	---	---	
1,2,4-Trichlorobenzene	470	6.66	13.3	ug/kg wet	2	533	---	88	34-120%	---	---	
4-Bromophenyl phenyl ether	520	6.66	13.3	ug/kg wet	2	533	---	98	46-124%	---	---	
4-Chlorophenyl phenyl ether	504	6.66	13.3	ug/kg wet	2	533	---	94	45-121%	---	---	
Aniline	150	13.3	26.6	ug/kg wet	2	533	---	28	7-120%	---	---	
4-Chloroaniline	203	6.66	13.3	ug/kg wet	2	533	---	38	16-120%	---	---	
2-Nitroaniline	536	53.4	107	ug/kg wet	2	533	---	100	44-127%	---	---	
3-Nitroaniline	302	53.4	107	ug/kg wet	2	533	---	57	33-120%	---	---	
4-Nitroaniline	238	53.4	107	ug/kg wet	2	533	---	45	35-120%	---	---	
Nitrobenzene	437	26.6	53.4	ug/kg wet	2	533	---	82	34-122%	---	---	
2,4-Dinitrotoluene	500	26.6	53.4	ug/kg wet	2	533	---	94	48-126%	---	---	
2,6-Dinitrotoluene	550	26.6	53.4	ug/kg wet	2	533	---	103	46-124%	---	---	
Benzoic acid	1540	334	666	ug/kg wet	2	1070	---	**145**	**5-140%**	---	---	Q-29
Benzyl alcohol	450	13.3	26.6	ug/kg wet	2	533	---	84	29-122%	---	---	
Isophorone	472	6.66	13.3	ug/kg wet	2	533	---	89	30-122%	---	---	
Azobenzene (1,2-DPH)	439	6.66	13.3	ug/kg wet	2	533	---	82	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	579	66.6	133	ug/kg wet	2	533	---	109	60-121%	---	---	
3,3'-Dichlorobenzidine	220	53.4	107	ug/kg wet	2	1070	---	**21**	**22-121%**	---	---	Q-30
1,2-Dinitrobenzene	513	66.6	133	ug/kg wet	2	533	---	96	44-120%	---	---	
1,3-Dinitrobenzene	566	66.6	133	ug/kg wet	2	533	---	106	42-127%	---	---	
1,4-Dinitrobenzene	578	66.6	133	ug/kg wet	2	533	---	108	37-132%	---	---	
Pyridine	351	13.3	26.6	ug/kg wet	2	533	---	66	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 37-122 %*			*Dilution: 2x*				
2-Fluorobiphenyl (Surr)			*92 %*		*44-115 %*			*"*				
Phenol-d6 (Surr)			*93 %*		*33-122 %*			*"*				
p-Terphenyl-d14 (Surr)			*106 %*		*54-127 %*			*"*				
2-Fluorophenol (Surr)			*93 %*		*35-115 %*			*"*				
2,4,6-Tribromophenol (Surr)			*110 %*		*39-132 %*			*"*				

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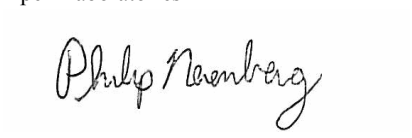

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)				Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20								
QC Source Sample: Non-SDG (A9L0097-17)												
Acenaphthene	**777**	216	435	ug/kg dry	100	---	1140	---	---	**38**	**30%**	Q-04
Acenaphthylene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Anthracene	**231**	216	435	ug/kg dry	100	---	258	---	---	11	30%	J
Benz(a)anthracene	**421**	216	435	ug/kg dry	100	---	366	---	---	14	30%	J
Benzo(a)pyrene	**560**	325	651	ug/kg dry	100	---	451	---	---	22	30%	J
Benzo(b)fluoranthene	**677**	325	651	ug/kg dry	100	---	729	---	---	7	30%	
Benzo(k)fluoranthene	ND	325	651	ug/kg dry	100	---	424	---	---	***	**30%**	Q-04
Benzo(g,h,i)perylene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Chrysene	**589**	216	435	ug/kg dry	100	---	634	---	---	7	30%	
Dibenz(a,h)anthracene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Fluoranthene	**703**	216	435	ug/kg dry	100	---	787	---	---	11	30%	
Fluorene	**558**	216	435	ug/kg dry	100	---	850	---	---	**41**	**30%**	Q-04
Indeno(1,2,3-cd)pyrene	**274**	216	435	ug/kg dry	100	---	ND	---	---		**30%**	Q-04, J
1-Methylnaphthalene	ND	435	867	ug/kg dry	100	---	501	---	---	***	**30%**	Q-04
2-Methylnaphthalene	**530**	435	867	ug/kg dry	100	---	870	---	---	**49**	**30%**	Q-04, J
Naphthalene	ND	435	867	ug/kg dry	100	---	720	---	---	***	**30%**	Q-04
Phenanthrene	**509**	216	435	ug/kg dry	100	---	716	---	---	**34**	**30%**	Q-04
Pyrene	**546**	216	435	ug/kg dry	100	---	633	---	---	15	30%	
Carbazole	ND	325	651	ug/kg dry	100	---	ND	---	---	---	30%	
Dibenzofuran	**350**	216	435	ug/kg dry	100	---	575	---	---	**49**	**30%**	Q-04, J
4-Chloro-3-methylphenol	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
2-Methylphenol	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2-Nitrophenol	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
4-Nitrophenol	ND	4350	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Phenol	ND	435	867	ug/kg dry	100	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: Seaport Tidelands	
2001 NW 19th Ave, STE 200	Project Number: 1044.02.13	Report ID:
Portland, OR 97209	Project Manager: Emily Hess	A9L0191 - 01 30 20 1613

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20									
QC Source Sample: Non-SDG (A9L0097-17)												
2,3,4,6-Tetrachlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	ND	3250	6510	ug/kg dry	100	---	ND	---	---	---	30%	
Butyl benzyl phthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Diethylphthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Dimethylphthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Hexachloroethane	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	216	435	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Aniline	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chloroaniline	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
2-Nitroaniline	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	
3-Nitroaniline	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	
4-Nitroaniline	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	
Nitrobenzene	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120852 - EPA 3546							**Soil**					
Duplicate (9120852-DUP1)			Prepared: 12/12/19 15:17 Analyzed: 12/12/19 21:20									
QC Source Sample: Non-SDG (A9L0097-17)												
2,4-Dinitrotoluene	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	2160	4350	ug/kg dry	100	---	ND	---	---	---	30%	
Benzoic acid	ND	27200	54200	ug/kg dry	100	---	ND	---	---	---	30%	
Benzyl alcohol	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Isophorone	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	542	1090	ug/kg dry	100	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	4350	8670	ug/kg dry	100	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	5420	10900	ug/kg dry	100	---	ND	---	---	---	30%	
Pyridine	ND	1090	2160	ug/kg dry	100	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 64 %*		*Limits: 37-122 %*		*Dilution: 100x*					S-05
2-Fluorobiphenyl (Surr)			*66 %*		*44-115 %*		*"*					S-05
Phenol-d6 (Surr)			*47 %*		*33-122 %*		*"*					S-05
p-Terphenyl-d14 (Surr)			*76 %*		*54-127 %*		*"*					S-05
2-Fluorophenol (Surr)			*53 %*		*35-115 %*		*"*					S-05
2,4,6-Tribromophenol (Surr)			*199 %*		*39-132 %*		*"*					S-05

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
Blank (9120927-BLK2)			Prepared: 12/16/19 07:02 Analyzed: 12/16/19 13:31									
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	1.87	3.75	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitrophenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitrophenol	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Phenol	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
Blank (9120927-BLK2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 13:31							
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	ug/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Dimethylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	ug/kg wet	1	---	---	---	---	---	---	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
Blank (9120927-BLK2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 13:31							
Benzoic acid	ND	157	312	ug/kg wet	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	ug/kg wet	1	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 100 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*89 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*96 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*100 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*91 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*76 %*		*39-132 %*				*"*			
LCS (9120927-BS2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 14:08							**Q-18**
EPA 8270D												
Acenaphthene	464	1.33	2.67	ug/kg wet	1	533	---	87	40-122%	---	---	
Acenaphthylene	488	1.33	2.67	ug/kg wet	1	533	---	91	32-132%	---	---	
Anthracene	505	1.33	2.67	ug/kg wet	1	533	---	95	47-123%	---	---	
Benz(a)anthracene	532	1.33	2.67	ug/kg wet	1	533	---	100	49-126%	---	---	
Benzo(a)pyrene	502	2.00	4.00	ug/kg wet	1	533	---	94	45-129%	---	---	
Benzo(b)fluoranthene	485	2.00	4.00	ug/kg wet	1	533	---	91	45-132%	---	---	
Benzo(k)fluoranthene	517	2.00	4.00	ug/kg wet	1	533	---	97	47-132%	---	---	
Benzo(g,h,i)perylene	519	1.33	2.67	ug/kg wet	1	533	---	97	43-134%	---	---	
Chrysene	496	1.33	2.67	ug/kg wet	1	533	---	93	50-124%	---	---	
Dibenz(a,h)anthracene	520	1.33	2.67	ug/kg wet	1	533	---	97	45-134%	---	---	
Fluoranthene	532	1.33	2.67	ug/kg wet	1	533	---	100	50-127%	---	---	
Fluorene	475	1.33	2.67	ug/kg wet	1	533	---	89	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	501	1.33	2.67	ug/kg wet	1	533	---	94	45-133%	---	---	
1-Methylnaphthalene	476	2.67	5.33	ug/kg wet	1	533	---	89	40-120%	---	---	
2-Methylnaphthalene	477	2.67	5.33	ug/kg wet	1	533	---	89	38-122%	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
LCS (9120927-BS2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 14:08							**Q-18**
Naphthalene	455	2.67	5.33	ug/kg wet	1	533	---	85	35-123%	---	---	
Phenanthrene	465	1.33	2.67	ug/kg wet	1	533	---	87	50-121%	---	---	
Pyrene	534	1.33	2.67	ug/kg wet	1	533	---	100	47-127%	---	---	
Carbazole	564	2.00	4.00	ug/kg wet	1	533	---	106	50-122%	---	---	
Dibenzofuran	472	1.33	2.67	ug/kg wet	1	533	---	89	44-120%	---	---	
4-Chloro-3-methylphenol	562	13.3	26.7	ug/kg wet	1	533	---	105	45-122%	---	---	
2-Chlorophenol	556	6.67	13.3	ug/kg wet	1	533	---	104	34-121%	---	---	
2,4-Dichlorophenol	537	6.67	13.3	ug/kg wet	1	533	---	101	40-122%	---	---	
2,4-Dimethylphenol	534	6.67	13.3	ug/kg wet	1	533	---	100	30-127%	---	---	
2,4-Dinitrophenol	600	33.3	66.7	ug/kg wet	1	533	---	113	5-137%	---	---	
4,6-Dinitro-2-methylphenol	622	33.3	66.7	ug/kg wet	1	533	---	117	29-132%	---	---	Q-41
2-Methylphenol	613	3.33	6.67	ug/kg wet	1	533	---	115	32-122%	---	---	
3+4-Methylphenol(s)	637	3.33	6.67	ug/kg wet	1	533	---	119	34-120%	---	---	Q-41
2-Nitrophenol	513	13.3	26.7	ug/kg wet	1	533	---	96	36-123%	---	---	
4-Nitrophenol	584	13.3	26.7	ug/kg wet	1	533	---	110	30-132%	---	---	
Pentachlorophenol (PCP)	463	13.3	26.7	ug/kg wet	1	533	---	87	25-133%	---	---	
Phenol	639	2.67	5.33	ug/kg wet	1	533	---	120	34-120%	---	---	Q-41
2,3,4,6-Tetrachlorophenol	499	6.67	13.3	ug/kg wet	1	533	---	94	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	515	6.67	13.3	ug/kg wet	1	533	---	97	40-120%	---	---	
2,4,5-Trichlorophenol	536	6.67	13.3	ug/kg wet	1	533	---	100	41-124%	---	---	
2,4,6-Trichlorophenol	517	6.67	13.3	ug/kg wet	1	533	---	97	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	532	20.0	40.0	ug/kg wet	1	533	---	100	51-133%	---	---	
Butyl benzyl phthalate	525	13.3	26.7	ug/kg wet	1	533	---	99	48-132%	---	---	
Diethylphthalate	513	13.3	26.7	ug/kg wet	1	533	---	96	50-124%	---	---	
Dimethylphthalate	494	13.3	26.7	ug/kg wet	1	533	---	93	48-124%	---	---	
Di-n-butylphthalate	546	13.3	26.7	ug/kg wet	1	533	---	102	51-128%	---	---	
Di-n-octyl phthalate	565	13.3	26.7	ug/kg wet	1	533	---	106	44-140%	---	---	
N-Nitrosodimethylamine	466	3.33	6.67	ug/kg wet	1	533	---	87	23-120%	---	---	
N-Nitroso-di-n-propylamine	588	3.33	6.67	ug/kg wet	1	533	---	110	36-120%	---	---	
N-Nitrosodiphenylamine	518	3.33	6.67	ug/kg wet	1	533	---	97	38-127%	---	---	
Bis(2-Chloroethoxy) methane	505	3.33	6.67	ug/kg wet	1	533	---	95	36-121%	---	---	
Bis(2-Chloroethyl) ether	524	3.33	6.67	ug/kg wet	1	533	---	98	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	495	3.33	6.67	ug/kg wet	1	533	---	93	33-131%	---	---	
Hexachlorobenzene	478	1.33	2.67	ug/kg wet	1	533	---	90	44-122%	---	---	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
LCS (9120927-BS2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 14:08							**Q-18**
Hexachlorobutadiene	424	3.33	6.67	ug/kg wet	1	533	---	79	32-123%	---	---	
Hexachlorocyclopentadiene	422	6.67	13.3	ug/kg wet	1	533	---	79	5-140%	---	---	
Hexachloroethane	471	3.33	6.67	ug/kg wet	1	533	---	88	28-120%	---	---	
2-Chloronaphthalene	458	1.33	2.67	ug/kg wet	1	533	---	86	41-120%	---	---	
1,2-Dichlorobenzene	464	3.33	6.67	ug/kg wet	1	533	---	87	33-120%	---	---	
1,3-Dichlorobenzene	445	3.33	6.67	ug/kg wet	1	533	---	83	30-120%	---	---	
1,4-Dichlorobenzene	450	3.33	6.67	ug/kg wet	1	533	---	84	31-120%	---	---	
1,2,4-Trichlorobenzene	438	3.33	6.67	ug/kg wet	1	533	---	82	34-120%	---	---	
4-Bromophenyl phenyl ether	508	3.33	6.67	ug/kg wet	1	533	---	95	46-124%	---	---	
4-Chlorophenyl phenyl ether	468	3.33	6.67	ug/kg wet	1	533	---	88	45-121%	---	---	
Aniline	550	6.67	13.3	ug/kg wet	1	533	---	103	7-120%	---	---	
4-Chloroaniline	328	3.33	6.67	ug/kg wet	1	533	---	61	16-120%	---	---	
2-Nitroaniline	537	26.7	53.3	ug/kg wet	1	533	---	101	44-127%	---	---	
3-Nitroaniline	425	26.7	53.3	ug/kg wet	1	533	---	80	33-120%	---	---	
4-Nitroaniline	587	26.7	53.3	ug/kg wet	1	533	---	110	35-120%	---	---	
Nitrobenzene	593	13.3	26.7	ug/kg wet	1	533	---	111	34-122%	---	---	
2,4-Dinitrotoluene	536	13.3	26.7	ug/kg wet	1	533	---	100	48-126%	---	---	
2,6-Dinitrotoluene	511	13.3	26.7	ug/kg wet	1	533	---	96	46-124%	---	---	
Benzoic acid	586	167	333	ug/kg wet	1	1070	---	55	5-140%	---	---	Q-31
Benzyl alcohol	628	6.67	13.3	ug/kg wet	1	533	---	118	29-122%	---	---	Q-41
Isophorone	528	3.33	6.67	ug/kg wet	1	533	---	99	30-122%	---	---	
Azobenzene (1,2-DPH)	526	3.33	6.67	ug/kg wet	1	533	---	99	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	552	33.3	66.7	ug/kg wet	1	533	---	103	60-121%	---	---	
3,3'-Dichlorobenzidine	1000	26.7	53.3	ug/kg wet	1	1070	---	94	22-121%	---	---	
1,2-Dinitrobenzene	528	33.3	66.7	ug/kg wet	1	533	---	99	44-120%	---	---	
1,3-Dinitrobenzene	542	33.3	66.7	ug/kg wet	1	533	---	102	42-127%	---	---	
1,4-Dinitrobenzene	564	33.3	66.7	ug/kg wet	1	533	---	106	37-132%	---	---	
Pyridine	309	6.67	13.3	ug/kg wet	1	533	---	58	5-120%	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 106 %*	*Limits: 37-122 %*	*Dilution: 1x*
2-Fluorobiphenyl (Surr)	*81 %*	*44-115 %*	*"*
Phenol-d6 (Surr)	*103 %*	*33-122 %*	*"*
p-Terphenyl-d14 (Surr)	*90 %*	*54-127 %*	*"*
2-Fluorophenol (Surr)	*90 %*	*35-115 %*	*"*
2,4,6-Tribromophenol (Surr)	*95 %*	*39-132 %*	*"*

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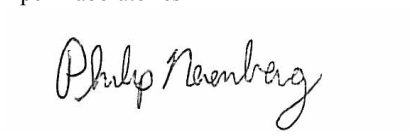

Philip Nerenberg, Lab Director

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
Duplicate (9120927-DUP2)			Prepared: 12/16/19 07:02 Analyzed: 12/16/19 18:24									**R-04**
QC Source Sample: RAU2-09-SO-1.5 (A9L0191-04RE1)												
EPA 8270D												
Acenaphthene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Acenaphthylene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Anthracene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Benzo(a)pyrene	**503**	443	887	ug/kg dry	200	---	528	---	---	5	30%	J
Benzo(b)fluoranthene	**471**	443	887	ug/kg dry	200	---	485	---	---	3	30%	J
Benzo(k)fluoranthene	ND	443	887	ug/kg dry	200	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Chrysene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Fluoranthene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Fluorene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	592	1180	ug/kg dry	200	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	592	1180	ug/kg dry	200	---	ND	---	---	---	30%	
Naphthalene	ND	592	1180	ug/kg dry	200	---	ND	---	---	---	30%	
Phenanthrene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Pyrene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Carbazole	ND	443	887	ug/kg dry	200	---	ND	---	---	---	30%	
Dibenzofuran	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
4-Chloro-3-methylphenol	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
2-Chlorophenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	7380	14800	ug/kg dry	200	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	7380	14800	ug/kg dry	200	---	ND	---	---	---	30%	
2-Methylphenol	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
2-Nitrophenol	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
4-Nitrophenol	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	

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6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
Duplicate (9120927-DUP2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 18:24							**R-04**
QC Source Sample: RAU2-09-SO-1.5 (A9L0191-04RE1)												
Phenol	ND	592	1180	ug/kg dry	200	---	ND	---	---	---	30%	
2,3,4,6-Tetrachlorophenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	ND	4430	8870	ug/kg dry	200	---	ND	---	---	---	30%	
Butyl benzyl phthalate	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
Diethylphthalate	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
Dimethylphthalate	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
Hexachloroethane	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	295	592	ug/kg dry	200	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Aniline	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
4-Chloroaniline	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
2-Nitroaniline	ND	5920	11800	ug/kg dry	200	---	ND	---	---	---	30%	
3-Nitroaniline	ND	5920	11800	ug/kg dry	200	---	ND	---	---	---	30%	
4-Nitroaniline	ND	5920	11800	ug/kg dry	200	---	ND	---	---	---	30%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120927 - EPA 3546							**Soil**					
Duplicate (9120927-DUP2)			Prepared: 12/16/19 07:02		Analyzed: 12/16/19 18:24							**R-04**
QC Source Sample: RAU2-09-SO-1.5 (A9L0191-04RE1)												
Nitrobenzene	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	2950	5920	ug/kg dry	200	---	ND	---	---	---	30%	
Benzoic acid	ND	37000	73800	ug/kg dry	200	---	ND	---	---	---	30%	
Benzyl alcohol	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
Isophorone	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	738	1480	ug/kg dry	200	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	7380	14800	ug/kg dry	200	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	5920	11800	ug/kg dry	200	---	ND	---	---	---	30%	
1,2-Dinitrobenzene	ND	7380	14800	ug/kg dry	200	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	7380	14800	ug/kg dry	200	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	7380	14800	ug/kg dry	200	---	ND	---	---	---	30%	
Pyridine	ND	1480	2950	ug/kg dry	200	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 70 %*		*Limits: 37-122 %*		*Dilution: 200x*					S-05
2-Fluorobiphenyl (Surr)			*87 %*		*44-115 %*		*"*					S-05
Phenol-d6 (Surr)			*74 %*		*33-122 %*		*"*					S-05
p-Terphenyl-d14 (Surr)			*95 %*		*54-127 %*		*"*					S-05
2-Fluorophenol (Surr)			*50 %*		*35-115 %*		*"*					S-05
2,4,6-Tribromophenol (Surr)			*%*		*39-132 %*		*"*					S-05

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A								**Water**				
Blank (9120878-BLK1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:03							
EPA 200.8												
Calcium	**134**	50.0	100	ug/L	1	---	---	---	---	---	---	B
Magnesium	**26.7**	25.0	50.0	ug/L	1	---	---	---	---	---	---	B-02, J
LCS (9120878-BS1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:08							
EPA 200.8												
Calcium	3130	50.0	100	ug/L	1	2780	---	113	85-115%	---	---	B
Magnesium	3040	25.0	50.0	ug/L	1	2780	---	109	85-115%	---	---	B-02
Matrix Spike (9120878-MS1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:17							
QC Source Sample: Non-SDG (A9L0097-16)												
EPA 200.8												
Calcium	13400	50.0	100	ug/L	1	2780	10500	104	70-130%	---	---	B
Matrix Spike (9120878-MS2)			Prepared: 12/13/19 10:12		Analyzed: 12/14/19 01:22							
QC Source Sample: Non-SDG (A9L0520-04)												
EPA 200.8												
Calcium	8790	50.0	100	ug/L	1	2780	6010	100	70-130%	---	---	B
Matrix Spike (9120878-MS3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:11							
QC Source Sample: Non-SDG (A9L0097-16RE1)												
EPA 200.8												
Magnesium	6820	25.0	50.0	ug/L	1	2780	4170	96	70-130%	---	---	B-02, Q-16
Matrix Spike (9120878-MS4)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 01:11							
QC Source Sample: Non-SDG (A9L0520-04RE1)												
EPA 200.8												
Magnesium	3950	25.0	50.0	ug/L	1	2780	1210	99	70-130%	---	---	B-02, Q-16
Matrix Spike Dup (9120878-MSD1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:31							
QC Source Sample: Non-SDG (A9L0097-16)												
Calcium	13600	50.0	100	ug/L	1	2780	10500	111	70-130%	1	20%	B

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A								**Water**				
Matrix Spike Dup (9120878-MSD3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:15							
QC Source Sample: Non-SDG (A9L0097-16RE1)												
Magnesium	6730	25.0	50.0	ug/L	1	2780	4170	92	70-130%	1	20%	B-02, Q-16

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A							**Water**					
Blank (9120878-BLK1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:03							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	Q-41
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	ug/L	1	---	---	---	---	---	---	
LCS (9120878-BS1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:08							
EPA 6020A												
Arsenic	56.2	0.500	1.00	ug/L	1	55.6	---	101	80-120%	---	---	
Cadmium	57.8	0.0400	0.200	ug/L	1	55.6	---	104	80-120%	---	---	
Chromium	57.7	0.500	1.00	ug/L	1	55.6	---	104	80-120%	---	---	
Copper	59.2	0.500	1.00	ug/L	1	55.6	---	107	80-120%	---	---	
Lead	52.6	0.100	0.200	ug/L	1	55.6	---	95	80-120%	---	---	Q-41
Manganese	59.7	0.500	1.00	ug/L	1	55.6	---	107	80-120%	---	---	
Mercury	1.02	0.0400	0.0800	ug/L	1	1.11	---	91	80-120%	---	---	
Nickel	58.5	0.500	1.00	ug/L	1	55.6	---	105	80-120%	---	---	
Zinc	57.0	2.00	4.00	ug/L	1	55.6	---	103	80-120%	---	---	
Matrix Spike (9120878-MS1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:17							
QC Source Sample: Non-SDG (A9L0097-16)												
EPA 6020A												
Arsenic	50.7	0.500	1.00	ug/L	1	55.6	1.20	89	75-125%	---	---	
Cadmium	52.6	0.0400	0.200	ug/L	1	55.6	ND	95	75-125%	---	---	
Chromium	53.5	0.500	1.00	ug/L	1	55.6	2.49	92	75-125%	---	---	
Copper	56.0	0.500	1.00	ug/L	1	55.6	4.54	93	75-125%	---	---	
Manganese	383	0.500	1.00	ug/L	1	55.6	325	105	75-125%	---	---	
Mercury	1.06	0.0400	0.0800	ug/L	1	1.11	ND	95	75-125%	---	---	
Nickel	52.8	0.500	1.00	ug/L	1	55.6	1.35	93	75-125%	---	---	
Zinc	54.7	2.00	4.00	ug/L	1	55.6	3.91	91	75-125%	---	---	

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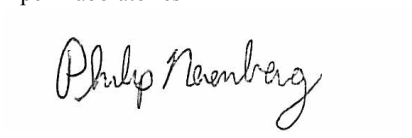

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120878 - EPA 3015A							**Water**					
Matrix Spike (9120878-MS2)			Prepared: 12/13/19 10:12		Analyzed: 12/14/19 01:22							
QC Source Sample: Non-SDG (A9L0520-04)												
EPA 6020A												
Arsenic	55.4	0.500	1.00	ug/L	1	55.6	4.73	91	75-125%	---	---	
Cadmium	53.2	0.0400	0.200	ug/L	1	55.6	ND	96	75-125%	---	---	
Chromium	52.3	0.500	1.00	ug/L	1	55.6	0.951	92	75-125%	---	---	
Copper	71.5	0.500	1.00	ug/L	1	55.6	19.1	94	75-125%	---	---	
Lead	56.1	0.100	0.200	ug/L	1	55.6	1.75	98	75-125%	---	---	
Manganese	176	0.500	1.00	ug/L	1	55.6	121	99	75-125%	---	---	
Mercury	1.05	0.0400	0.0800	ug/L	1	1.11	ND	94	75-125%	---	---	
Nickel	52.8	0.500	1.00	ug/L	1	55.6	1.40	92	75-125%	---	---	
Zinc	257	2.00	4.00	ug/L	1	55.6	202	100	75-125%	---	---	
Matrix Spike (9120878-MS3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:11							
QC Source Sample: Non-SDG (A9L0097-16RE1)												
EPA 6020A												
Lead	54.0	0.100	0.200	ug/L	1	55.6	0.843	96	75-125%	---	---	Q-16
Matrix Spike Dup (9120878-MSD1)			Prepared: 12/13/19 10:12		Analyzed: 12/13/19 23:31							
QC Source Sample: Non-SDG (A9L0097-16)												
Arsenic	51.4	0.500	1.00	ug/L	1	55.6	1.20	90	75-125%	1	20%	
Cadmium	52.2	0.0400	0.200	ug/L	1	55.6	ND	94	75-125%	0.6	20%	
Chromium	53.9	0.500	1.00	ug/L	1	55.6	2.49	93	75-125%	0.7	20%	
Copper	57.0	0.500	1.00	ug/L	1	55.6	4.54	94	75-125%	2	20%	
Manganese	389	0.500	1.00	ug/L	1	55.6	325	116	75-125%	2	20%	
Mercury	1.04	0.0400	0.0800	ug/L	1	1.11	ND	94	75-125%	1	20%	
Nickel	53.2	0.500	1.00	ug/L	1	55.6	1.35	93	75-125%	0.8	20%	
Zinc	55.4	2.00	4.00	ug/L	1	55.6	3.91	93	75-125%	1	20%	
Matrix Spike Dup (9120878-MSD3)			Prepared: 12/13/19 10:12		Analyzed: 12/17/19 00:15							
QC Source Sample: Non-SDG (A9L0097-16RE1)												
Lead	54.2	0.100	0.200	ug/L	1	55.6	0.843	96	75-125%	0.5	20%	Q-16

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120890 - EPA 3051A							**Soil**					
Blank (9120890-BLK1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 17:51									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Manganese	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0385	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (9120890-BS1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 17:56									
EPA 6020A												
Arsenic	48.4	0.500	1.00	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Cadmium	50.1	0.100	0.200	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Chromium	50.0	0.500	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Copper	51.4	0.500	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Lead	52.4	0.100	0.200	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Manganese	51.5	0.500	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Mercury	1.00	0.0400	0.0800	mg/kg wet	10	1.00	---	100	80-120%	---	---	
Nickel	51.2	0.500	1.00	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Zinc	49.8	2.00	4.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Duplicate (9120890-DUP1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 18:19									
QC Source Sample: Non-SDG (A9L0097-35)												
Arsenic	**5.31**	0.608	1.22	mg/kg dry	10	---	6.21	---	---	16	40%	
Cadmium	**0.125**	0.122	0.243	mg/kg dry	10	---	ND	---	---		**40%**	Q-05, J
Chromium	**29.8**	0.608	1.22	mg/kg dry	10	---	23.8	---	---	22	40%	
Copper	**53.5**	0.608	1.22	mg/kg dry	10	---	42.9	---	---	22	40%	
Lead	**10.3**	0.122	0.243	mg/kg dry	10	---	12.4	---	---	19	40%	
Manganese	**257**	0.608	1.22	mg/kg dry	10	---	258	---	---	0.3	40%	
Mercury	ND	0.0487	0.0973	mg/kg dry	10	---	ND	---	---	---	40%	
Nickel	**26.3**	0.608	1.22	mg/kg dry	10	---	24.9	---	---	5	40%	
Zinc	**65.9**	2.43	4.87	mg/kg dry	10	---	61.1	---	---	8	40%	

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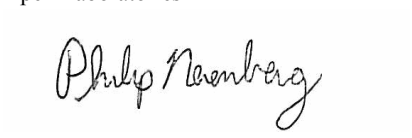

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120890 - EPA 3051A							**Soil**					
Matrix Spike (9120890-MS1)			Prepared: 12/13/19 11:57 Analyzed: 12/13/19 18:28									
QC Source Sample: Non-SDG (A9L0097-35)												
EPA 6020A												
Arsenic	60.1	0.587	1.17	mg/kg dry	10	58.7	6.21	92	75-125%	---	---	
Cadmium	58.0	0.117	0.235	mg/kg dry	10	58.7	ND	99	75-125%	---	---	
Chromium	80.3	0.587	1.17	mg/kg dry	10	58.7	23.8	96	75-125%	---	---	
Copper	154	0.587	1.17	mg/kg dry	10	58.7	42.9	**189**	**75-125%**	---	---	Q-04
Lead	69.7	0.117	0.235	mg/kg dry	10	58.7	12.4	98	75-125%	---	---	
Manganese	274	0.587	1.17	mg/kg dry	10	58.7	258	**28**	**75-125%**	---	---	Q-04
Mercury	1.12	0.0469	0.0939	mg/kg dry	10	1.17	ND	95	75-125%	---	---	
Nickel	79.2	0.587	1.17	mg/kg dry	10	58.7	24.9	93	75-125%	---	---	
Zinc	113	2.35	4.69	mg/kg dry	10	58.7	61.1	89	75-125%	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120937 - EPA 3015A							**Water**					
Blank (9120937-BLK1)			Prepared: 12/16/19 10:02		Analyzed: 12/16/19 19:06							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	ug/L	1	---	---	---	---	---	---	
LCS (9120937-BS1)			Prepared: 12/16/19 10:02		Analyzed: 12/16/19 19:11							
EPA 6020A												
Lead	55.4	0.100	0.200	ug/L	1	55.6	---	100	80-120%	---	---	
Mercury	1.08	0.0400	0.0800	ug/L	1	1.11	---	97	80-120%	---	---	
LCS (9120937-BS2)			Prepared: 12/16/19 10:02		Analyzed: 12/17/19 18:05							
EPA 6020A												
Arsenic	52.3	0.500	1.00	ug/L	1	55.6	---	94	80-120%	---	---	Q-16
Cadmium	53.4	0.0400	0.200	ug/L	1	55.6	---	96	80-120%	---	---	Q-16
Chromium	52.3	0.500	1.00	ug/L	1	55.6	---	94	80-120%	---	---	Q-16
Copper	56.4	0.500	1.00	ug/L	1	55.6	---	102	80-120%	---	---	Q-16
Manganese	52.8	0.500	1.00	ug/L	1	55.6	---	95	80-120%	---	---	Q-16
Nickel	55.7	0.500	1.00	ug/L	1	55.6	---	100	80-120%	---	---	Q-16
Zinc	54.5	2.00	4.00	ug/L	1	55.6	---	98	80-120%	---	---	Q-16
Duplicate (9120937-DUP1)			Prepared: 12/16/19 10:02		Analyzed: 12/16/19 19:53							
QC Source Sample: RAU4-06-GW-4.5 (A9L0191-46)												
EPA 6020A												
Arsenic	**12.1**	2.50	5.00	ug/L	5	---	11.2	---	---	8	20%	
Cadmium	**1.21**	0.200	1.00	ug/L	5	---	1.30	---	---	8	20%	
Chromium	**131**	2.50	5.00	ug/L	5	---	123	---	---	7	20%	
Copper	**259**	2.50	5.00	ug/L	5	---	246	---	---	5	20%	
Lead	**29.5**	0.500	1.00	ug/L	5	---	29.1	---	---	1	20%	

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120937 - EPA 3015A							**Water**					
Duplicate (9120937-DUP1)			Prepared: 12/16/19 10:02		Analyzed: 12/16/19 19:53							
QC Source Sample: RAU4-06-GW-4.5 (A9L0191-46)												
Manganese	**9660**	2.50	5.00	ug/L	5	---	9960	---	---	3	20%	
Mercury	ND	0.200	0.400	ug/L	5	---	ND	---	---	---	20%	R-04
Nickel	**109**	2.50	5.00	ug/L	5	---	96.8	---	---	12	20%	
Zinc	**290**	10.0	20.0	ug/L	5	---	280	---	---	3	20%	
Matrix Spike (9120937-MS1)			Prepared: 12/16/19 10:02		Analyzed: 12/16/19 19:58							
QC Source Sample: RAU4-06-GW-4.5 (A9L0191-46)												
EPA 6020A												
Arsenic	66.0	2.50	5.00	ug/L	5	55.6	11.2	99	75-125%	---	---	
Cadmium	57.9	0.200	1.00	ug/L	5	55.6	1.30	102	75-125%	---	---	
Chromium	201	2.50	5.00	ug/L	5	55.6	123	**139**	**75-125%**	---	---	Q-04
Copper	343	2.50	5.00	ug/L	5	55.6	246	**175**	**75-125%**	---	---	Q-03, Q-04
Lead	85.7	0.500	1.00	ug/L	5	55.6	29.1	102	75-125%	---	---	
Manganese	10100	2.50	5.00	ug/L	5	55.6	9960	**188**	**75-125%**	---	---	Q-03, Q-04
Mercury	1.23	0.200	0.400	ug/L	5	1.11	ND	111	75-125%	---	---	
Nickel	180	2.50	5.00	ug/L	5	55.6	96.8	**149**	**75-125%**	---	---	Q-04
Zinc	361	10.0	20.0	ug/L	5	55.6	280	**145**	**75-125%**	---	---	Q-03
Matrix Spike (9120937-MS2)			Prepared: 12/16/19 10:02		Analyzed: 12/16/19 21:36							
QC Source Sample: Non-SDG (A9L0592-01)												
EPA 6020A												
Lead	55.6	0.100	0.200	ug/L	1	55.6	3.65	93	75-125%	---	---	
Mercury	1.09	0.0400	0.0800	ug/L	1	1.11	ND	98	75-125%	---	---	
Matrix Spike (9120937-MS4)			Prepared: 12/16/19 10:02		Analyzed: 12/18/19 15:37							
QC Source Sample: Non-SDG (A9L0592-01)												
EPA 6020A												
Arsenic	61.6	0.500	1.00	ug/L	1	55.6	7.97	97	75-125%	---	---	Q-16
Cadmium	51.3	0.0400	0.200	ug/L	1	55.6	0.0899	92	75-125%	---	---	Q-16
Chromium	74.9	0.500	1.00	ug/L	1	55.6	17.9	103	75-125%	---	---	Q-16
Copper	72.9	0.500	1.00	ug/L	1	55.6	15.7	103	75-125%	---	---	Q-16
Manganese	119	0.500	1.00	ug/L	1	55.6	62.5	102	75-125%	---	---	Q-16

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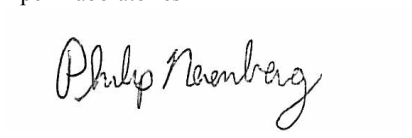

Philip Nerenberg, Lab Director

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120937 - EPA 3015A							**Water**					
Matrix Spike (9120937-MS4)			Prepared: 12/16/19 10:02		Analyzed: 12/18/19 15:37							
QC Source Sample: Non-SDG (A9L0592-01)												
Nickel	59.7	0.500	1.00	ug/L	1	55.6	3.68	101	75-125%	---	---	Q-16
Zinc	64.3	2.00	4.00	ug/L	1	55.6	9.45	99	75-125%	---	---	Q-16

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120960 - EPA 3051A							**Soil**					
Blank (9120960-BLK1)			Prepared: 12/16/19 13:38 Analyzed: 12/17/19 01:44									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Manganese	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0385	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (9120960-BS1)			Prepared: 12/16/19 13:38 Analyzed: 12/17/19 01:49									
EPA 6020A												
Arsenic	48.8	0.500	1.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Cadmium	47.9	0.100	0.200	mg/kg wet	10	50.0	---	96	80-120%	---	---	
Chromium	48.0	0.500	1.00	mg/kg wet	10	50.0	---	96	80-120%	---	---	
Copper	50.2	0.500	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Lead	51.7	0.100	0.200	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Manganese	48.5	0.500	1.00	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Mercury	1.01	0.0400	0.0800	mg/kg wet	10	1.00	---	101	80-120%	---	---	
Nickel	50.1	0.500	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Zinc	47.9	2.00	4.00	mg/kg wet	10	50.0	---	96	80-120%	---	---	
Duplicate (9120960-DUP1)			Prepared: 12/16/19 13:38 Analyzed: 12/17/19 02:12									
QC Source Sample: RAU2-09-SO-1.5 (A9L0191-04)												
EPA 6020A												
Arsenic	**2.44**	0.602	1.20	mg/kg dry	10	---	3.05	---	---	22	40%	
Cadmium	**0.136**	0.120	0.241	mg/kg dry	10	---	0.138	---	---	2	40%	J
Chromium	**17.4**	0.602	1.20	mg/kg dry	10	---	21.0	---	---	19	40%	
Copper	**50.4**	0.602	1.20	mg/kg dry	10	---	49.2	---	---	2	40%	
Lead	**12.5**	0.120	0.241	mg/kg dry	10	---	11.1	---	---	11	40%	
Manganese	**289**	0.602	1.20	mg/kg dry	10	---	316	---	---	9	40%	
Mercury	**0.409**	0.0482	0.0963	mg/kg dry	10	---	0.252	---	---	**48**	**40%**	Q-04, Q-05
Nickel	**21.5**	0.602	1.20	mg/kg dry	10	---	20.7	---	---	4	40%	

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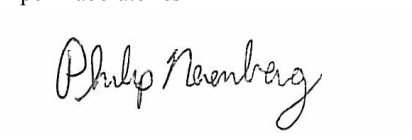

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QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120960 - EPA 3051A							**Soil**					
Duplicate (9120960-DUP1)			Prepared: 12/16/19 13:38		Analyzed: 12/17/19 02:12							
QC Source Sample: RAU2-09-SO-1.5 (A9L0191-04)												
Zinc	**71.4**	2.41	4.82	mg/kg dry	10	---	86.9	---	---	20	40%	
Matrix Spike (9120960-MS1)			Prepared: 12/16/19 13:38		Analyzed: 12/17/19 02:16							
QC Source Sample: RAU2-09-SO-1.5 (A9L0191-04)												
EPA 6020A												
Arsenic	56.3	0.571	1.14	mg/kg dry	10	57.1	3.05	93	75-125%	---	---	
Cadmium	54.6	0.114	0.228	mg/kg dry	10	57.1	0.138	95	75-125%	---	---	
Chromium	75.0	0.571	1.14	mg/kg dry	10	57.1	21.0	94	75-125%	---	---	
Copper	101	0.571	1.14	mg/kg dry	10	57.1	49.2	91	75-125%	---	---	
Lead	134	0.114	0.228	mg/kg dry	10	57.1	11.1	**216**	**75-125%**	---	---	Q-04
Manganese	323	0.571	1.14	mg/kg dry	10	57.1	316	**12**	**75-125%**	---	---	Q-04
Mercury	1.23	0.0457	0.0914	mg/kg dry	10	1.14	0.252	86	75-125%	---	---	
Nickel	72.2	0.571	1.14	mg/kg dry	10	57.1	20.7	90	75-125%	---	---	
Zinc	112	2.28	4.57	mg/kg dry	10	57.1	86.9	**44**	**75-125%**	---	---	Q-04

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120988 - EPA 3051A							**Soil**					
Blank (9120988-BLK1)			Prepared: 12/17/19 08:22 Analyzed: 12/17/19 16:11									
EPA 6020A												
Arsenic	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.0962	0.192	mg/kg wet	10	---	---	---	---	---	---	
Manganese	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0385	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	0.481	0.962	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	1.92	3.85	mg/kg wet	10	---	---	---	---	---	---	
LCS (9120988-BS1)			Prepared: 12/17/19 08:22 Analyzed: 12/17/19 16:26									
EPA 6020A												
Arsenic	49.1	0.500	1.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Cadmium	49.4	0.100	0.200	mg/kg wet	10	50.0	---	99	80-120%	---	---	
Chromium	49.6	0.500	1.00	mg/kg wet	10	50.0	---	99	80-120%	---	---	
Copper	52.3	0.500	1.00	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Lead	52.4	0.100	0.200	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Manganese	50.4	0.500	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Mercury	1.02	0.0400	0.0800	mg/kg wet	10	1.00	---	102	80-120%	---	---	
Nickel	51.1	0.500	1.00	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Zinc	49.4	2.00	4.00	mg/kg wet	10	50.0	---	99	80-120%	---	---	
Duplicate (9120988-DUP1)			Prepared: 12/17/19 08:22 Analyzed: 12/17/19 16:49									
QC Source Sample: Non-SDG (A9L0132-23)												
Arsenic	**5.38**	0.642	1.28	mg/kg dry	10	---	6.15	---	---	13	40%	
Cadmium	**0.575**	0.128	0.257	mg/kg dry	10	---	0.423	---	---	31	40%	
Chromium	**17.2**	0.642	1.28	mg/kg dry	10	---	18.3	---	---	6	40%	
Copper	**24.0**	0.642	1.28	mg/kg dry	10	---	25.5	---	---	6	40%	
Lead	**235**	0.128	0.257	mg/kg dry	10	---	185	---	---	23	40%	
Manganese	**523**	0.642	1.28	mg/kg dry	10	---	586	---	---	11	40%	
Mercury	ND	0.0513	0.103	mg/kg dry	10	---	ND	---	---	---	40%	
Nickel	**13.8**	0.642	1.28	mg/kg dry	10	---	16.7	---	---	19	40%	
Zinc	**190**	2.57	5.13	mg/kg dry	10	---	186	---	---	2	40%	

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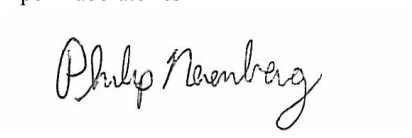

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120988 - EPA 3051A							**Soil**					
Matrix Spike (9120988-MS1)			Prepared: 12/17/19 08:22 Analyzed: 12/17/19 16:53									
QC Source Sample: Non-SDG (A9L0132-23)												
EPA 6020A												
Arsenic	67.0	0.663	1.33	mg/kg dry	10	66.3	6.15	92	75-125%	---	---	
Cadmium	61.3	0.133	0.265	mg/kg dry	10	66.3	0.423	92	75-125%	---	---	
Chromium	80.8	0.663	1.33	mg/kg dry	10	66.3	18.3	94	75-125%	---	---	
Copper	87.1	0.663	1.33	mg/kg dry	10	66.3	25.5	93	75-125%	---	---	
Lead	246	0.133	0.265	mg/kg dry	10	66.3	185	91	75-125%	---	---	
Manganese	686	0.663	1.33	mg/kg dry	10	66.3	586	**151**	**75-125%**	---	---	Q-03,Q-04
Mercury	1.26	0.0530	0.106	mg/kg dry	10	1.33	ND	95	75-125%	---	---	
Nickel	80.1	0.663	1.33	mg/kg dry	10	66.3	16.7	96	75-125%	---	---	
Zinc	240	2.65	5.30	mg/kg dry	10	66.3	186	81	75-125%	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121432 - EPA 3060A							**Solid**					
Blank (9121432-BLK1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:19							
EPA 7196A												
Chromium (VI)	ND	0.225	0.450	mg/kg	1	---	---	---	---	---	---	
LCS (9121432-BS1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:20							
EPA 7196A												
Chromium (VI)	20.2	0.225	0.450	mg/kg	1	20.0	---	101	83-110%	---	---	
Duplicate (9121432-DUP1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:23							
QC Source Sample: Non-SDG (A9L0097-19)												
Chromium (VI)	**0.252**	0.222	0.445	mg/kg	1	---	0.293	---	---	15	20%	J
Matrix Spike (9121432-MS1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:23							
QC Source Sample: Non-SDG (A9L0097-19)												
EPA 7196A												
Chromium (VI)	0.258	0.222	0.444	mg/kg	1	19.7	0.293	**-0.2**	**83-110%**	---	---	Cr6-01, J
Matrix Spike (9121432-MS2)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:24							
QC Source Sample: Non-SDG (A9L0097-19)												
EPA 7196A												
Chromium (VI)	1600	22.2	44.4	mg/kg	100	1580	ND	102	83-110%	---	---	
Post Spike (9121432-PS1)			Prepared: 12/31/19 07:18		Analyzed: 12/31/19 15:25							
QC Source Sample: Post Spike (A9L0097-19)												
EPA 7196A												
Chromium (VI)	348			ug/L	1	398	6.63	86	85-115%		---	

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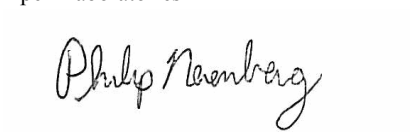

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120643 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120643-DUP1)			Prepared: 12/09/19 07:52		Analyzed: 12/10/19 10:00							
QC Source Sample: Non-SDG (A9L0084-04)												
% Solids	**81.4**	1.00	1.00	%	1	---	80.5	---	---	1	10%	
Duplicate (9120643-DUP2)			Prepared: 12/09/19 07:52		Analyzed: 12/10/19 10:00							
QC Source Sample: Non-SDG (A9L0155-02)												
% Solids	**99.0**	1.00	1.00	%	1	---	99.1	---	---	0.03	10%	
Duplicate (9120643-DUP3)			Prepared: 12/09/19 07:52		Analyzed: 12/10/19 10:00							
QC Source Sample: RAU4-09-SO-2.5 (A9L0191-51)												
EPA 8000C												
% Solids	**91.0**	1.00	1.00	%	1	---	86.8	---	---	5	10%	
Duplicate (9120643-DUP4)			Prepared: 12/09/19 22:38		Analyzed: 12/10/19 10:00							
QC Source Sample: Non-SDG (A9L0260-01)												
% Solids	**84.6**	1.00	1.00	%	1	---	84.7	---	---	0.1	10%	
Duplicate (9120643-DUP5)			Prepared: 12/09/19 22:38		Analyzed: 12/10/19 10:00							
QC Source Sample: Non-SDG (A9L0263-03)												
% Solids	**85.4**	1.00	1.00	%	1	---	83.1	---	---	3	10%	
Duplicate (9120643-DUP6)			Prepared: 12/09/19 22:38		Analyzed: 12/10/19 10:00							
QC Source Sample: Non-SDG (A9L0271-03)												
% Solids	**85.6**	1.00	1.00	%	1	---	82.6	---	---	4	10%	
Duplicate (9120643-DUP7)			Prepared: 12/09/19 22:38		Analyzed: 12/10/19 10:00							
QC Source Sample: Non-SDG (A9L0272-05)												
% Solids	**83.4**	1.00	1.00	%	1	---	83.4	---	---	0.07	10%	

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

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120702 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120702-DUP1)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0097-10)												
% Solids	**83.5**	1.00	1.00	%	1	---	84.2	---	---	0.7	10%	
Duplicate (9120702-DUP2)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0188-02)												
% Solids	**91.1**	1.00	1.00	%	1	---	91.9	---	---	0.8	10%	
Duplicate (9120702-DUP3)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0188-10)												
% Solids	**75.2**	1.00	1.00	%	1	---	77.1	---	---	2	10%	
Duplicate (9120702-DUP4)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: RAU2-07-SO-1.5 (A9L0191-43)												
EPA 8000C												
% Solids	**86.3**	1.00	1.00	%	1	---	87.7	---	---	2	10%	
Duplicate (9120702-DUP5)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0223-01)												
% Solids	**76.6**	1.00	1.00	%	1	---	73.6	---	---	4	10%	
Duplicate (9120702-DUP6)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0230-02)												
% Solids	**75.2**	1.00	1.00	%	1	---	75.7	---	---	0.6	10%	
Duplicate (9120702-DUP7)			Prepared: 12/10/19 10:05		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0287-04)												
% Solids	**91.5**	1.00	1.00	%	1	---	91.3	---	---	0.3	10%	
Duplicate (9120702-DUP8)			Prepared: 12/10/19 18:44		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0335-03)												
% Solids	**93.0**	1.00	1.00	%	1	---	92.8	---	---	0.2	10%	

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120702 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120702-DUP9)			Prepared: 12/10/19 19:21		Analyzed: 12/11/19 08:50							
QC Source Sample: Non-SDG (A9L0339-01)												
% Solids	**74.9**	1.00	1.00	%	1	---	73.8	---	---	2	10%	

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

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120929 - Total Solids (Dry Weight)							**Soil**					
Duplicate (9120929-DUP1)			Prepared: 12/16/19 08:36		Analyzed: 12/17/19 08:32							
QC Source Sample: RAU2-09-SO-8.0 (A9L0191-05)												
EPA 8000C												
% Solids	**38.2**	1.00	1.00	%	1	---	36.4	---	---	5	10%	
Duplicate (9120929-DUP2)			Prepared: 12/16/19 08:36		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0441-01)												
% Solids	**90.9**	1.00	1.00	%	1	---	89.1	---	---	2	10%	
Duplicate (9120929-DUP3)			Prepared: 12/16/19 08:36		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0554-07)												
% Solids	**77.5**	1.00	1.00	%	1	---	78.1	---	---	0.7	10%	
Duplicate (9120929-DUP4)			Prepared: 12/16/19 08:36		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0557-05)												
% Solids	**78.0**	1.00	1.00	%	1	---	78.1	---	---	0.07	10%	
Duplicate (9120929-DUP5)			Prepared: 12/16/19 08:36		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0602-04)												
% Solids	**53.0**	1.00	1.00	%	1	---	53.5	---	---	1	10%	
Duplicate (9120929-DUP6)			Prepared: 12/16/19 19:07		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0645-02)												
% Solids	**74.6**	1.00	1.00	%	1	---	74.6	---	---	0.1	10%	
Duplicate (9120929-DUP7)			Prepared: 12/16/19 19:07		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0662-05)												
% Solids	**91.4**	1.00	1.00	%	1	---	90.2	---	---	1	10%	
Duplicate (9120929-DUP8)			Prepared: 12/16/19 19:07		Analyzed: 12/17/19 08:32							
QC Source Sample: Non-SDG (A9L0670-04)												
% Solids	**77.1**	1.00	1.00	%	1	---	76.9	---	---	0.3	10%	

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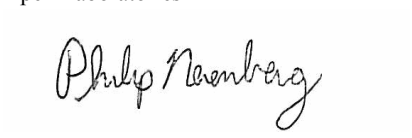

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QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120929 - Total Solids (Dry Weight)							**Soil**					

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

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Analytical Resources, Inc.

QUALITY CONTROL (QC) SAMPLE RESULTS

Wet Chemistry

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch BHL0315 - No Prep Wet Chem							**Water**					
Blank (BHL0315-BLK1)			Prepared: 12/11/19 15:24		Analyzed: 12/17/19 18:58							
SM 4500-S2 D-00												
Sulfide	ND	0.050	0.050	mg/L	1	---	---	---	---	---	---	U
LCS (BHL0315-BS1)			Prepared: 12/11/19 15:24		Analyzed: 12/17/19 18:58							
SM 4500-S2 D-00												
Sulfide	4.85	0.500	0.500	mg/L	10	7.1226	---	**68.1**	**75-125%**	---	---	*, D

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120671							
A9L0191-13	Water	NWTPH-HCID	12/04/19 14:51	12/09/19 13:46	990mL/5mL	1000mL/5mL	1.01
A9L0191-16	Water	NWTPH-HCID	12/04/19 14:49	12/09/19 13:46	920mL/5mL	1000mL/5mL	1.09
A9L0191-30	Water	NWTPH-HCID	12/05/19 18:00	12/09/19 13:46	880mL/5mL	1000mL/5mL	1.14
A9L0191-46	Water	NWTPH-HCID	12/05/19 09:24	12/09/19 17:21	910mL/5mL	1000mL/5mL	1.10
A9L0191-50	Water	NWTPH-HCID	12/05/19 11:14	12/09/19 17:21	840mL/5mL	1000mL/5mL	1.19
A9L0191-52	Water	NWTPH-HCID	12/05/19 13:41	12/09/19 17:21	930mL/5mL	1000mL/5mL	1.08

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120672							
A9L0191-01	Soil	NWTPH-HCID	12/04/19 08:00	12/09/19 13:51	10.67g/10mL	10g/10mL	0.94
A9L0191-12	Soil	NWTPH-HCID	12/04/19 11:40	12/09/19 13:51	10.8g/10mL	10g/10mL	0.93
A9L0191-14	Soil	NWTPH-HCID	12/04/19 12:30	12/09/19 13:51	10.71g/10mL	10g/10mL	0.93
A9L0191-15	Soil	NWTPH-HCID	12/04/19 12:30	12/09/19 13:51	10.85g/10mL	10g/10mL	0.92
A9L0191-17RE1	Soil	NWTPH-HCID	12/04/19 13:05	12/09/19 13:51	10.88g/10mL	10g/10mL	0.92
A9L0191-18RE1	Soil	NWTPH-HCID	12/04/19 13:10	12/09/19 13:51	10.4g/10mL	10g/10mL	0.96
A9L0191-19RE1	Soil	NWTPH-HCID	12/04/19 13:30	12/09/19 13:51	10.56g/10mL	10g/10mL	0.95
A9L0191-20RE1	Soil	NWTPH-HCID	12/04/19 16:15	12/09/19 13:51	10.38g/10mL	10g/10mL	0.96
A9L0191-21RE1	Soil	NWTPH-HCID	12/04/19 16:40	12/09/19 13:51	10.4g/10mL	10g/10mL	0.96
A9L0191-45	Soil	NWTPH-HCID	12/05/19 09:20	12/09/19 13:51	10.89g/10mL	10g/10mL	0.92
A9L0191-47	Soil	NWTPH-HCID	12/05/19 09:40	12/09/19 13:51	10.1g/10mL	10g/10mL	0.99
A9L0191-48	Soil	NWTPH-HCID	12/05/19 10:00	12/09/19 13:51	10.15g/10mL	10g/10mL	0.99
A9L0191-49	Soil	NWTPH-HCID	12/05/19 11:00	12/09/19 13:51	10.83g/10mL	10g/10mL	0.92
A9L0191-51	Soil	NWTPH-HCID	12/05/19 13:40	12/09/19 13:51	10.83g/10mL	10g/10mL	0.92
Batch: 9120779							
A9L0191-02	Soil	NWTPH-HCID	12/04/19 08:15	12/11/19 13:56	10.26g/10mL	10g/10mL	0.98

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120671							
A9L0191-46	Water	NWTPH-Dx	12/05/19 09:24	12/09/19 13:46	910mL/5mL	1000mL/5mL	1.10
Batch: 9120726							
A9L0191-54	Water	NWTPH-Dx	12/05/19 14:14	12/10/19 16:07	980mL/5mL	1000mL/5mL	1.02

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0191-56	Water	NWTPH-Dx	12/05/19 15:45	12/10/19 16:07	980mL/5mL	1000mL/5mL	1.02
Batch: 9120774							
A9L0191-08	Water	NWTPH-Dx	12/04/19 10:26	12/11/19 12:51	960mL/5mL	1000mL/5mL	1.04
A9L0191-11	Water	NWTPH-Dx	12/04/19 11:08	12/11/19 12:51	900mL/5mL	1000mL/5mL	1.11
A9L0191-24	Water	NWTPH-Dx	12/04/19 17:38	12/11/19 12:51	1060mL/5mL	1000mL/5mL	0.94
A9L0191-44	Water	NWTPH-Dx	12/05/19 08:38	12/11/19 12:51	940mL/5mL	1000mL/5mL	1.06
A9L0191-58	Water	NWTPH-Dx	12/05/19 16:31	12/11/19 12:51	960mL/5mL	1000mL/5mL	1.04

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120775							
A9L0191-03	Soil	NWTPH-Dx	12/04/19 08:40	12/11/19 12:54	10.49g/5mL	10g/5mL	0.95
Batch: 9120804							
A9L0191-04RE1	Soil	NWTPH-Dx	12/04/19 09:30	12/12/19 13:04	10.09g/5mL	10g/5mL	0.99
A9L0191-06	Soil	NWTPH-Dx	12/04/19 10:30	12/12/19 13:04	10.98g/5mL	10g/5mL	0.91
A9L0191-10	Soil	NWTPH-Dx	12/04/19 11:00	12/12/19 13:04	10.68g/5mL	10g/5mL	0.94
A9L0191-22RE1	Soil	NWTPH-Dx	12/04/19 17:30	12/12/19 13:04	10.94g/5mL	10g/5mL	0.91
A9L0191-23	Soil	NWTPH-Dx	12/04/19 17:30	12/12/19 13:04	10.44g/5mL	10g/5mL	0.96
A9L0191-41	Soil	NWTPH-Dx	12/05/19 07:50	12/12/19 13:04	10.12g/5mL	10g/5mL	0.99
A9L0191-43	Soil	NWTPH-Dx	12/05/19 08:20	12/12/19 13:04	10.45g/5mL	10g/5mL	0.96
A9L0191-53	Soil	NWTPH-Dx	12/05/19 14:30	12/12/19 13:04	10.1g/5mL	10g/5mL	0.99
A9L0191-55	Soil	NWTPH-Dx	12/05/19 15:55	12/12/19 13:04	10.04g/5mL	10g/5mL	1.00
A9L0191-57	Soil	NWTPH-Dx	12/05/19 16:30	12/12/19 13:04	10.48g/5mL	10g/5mL	0.95
Batch: 9120906							
A9L0191-14	Soil	NWTPH-Dx	12/04/19 12:30	12/13/19 14:20	10.11g/5mL	10g/5mL	0.99
A9L0191-15	Soil	NWTPH-Dx	12/04/19 12:30	12/13/19 14:20	10.57g/5mL	10g/5mL	0.95
A9L0191-45RE1	Soil	NWTPH-Dx	12/05/19 09:20	12/13/19 14:20	10.45g/5mL	10g/5mL	0.96
A9L0191-47	Soil	NWTPH-Dx	12/05/19 09:40	12/13/19 14:20	10.87g/5mL	10g/5mL	0.92
A9L0191-49	Soil	NWTPH-Dx	12/05/19 11:00	12/13/19 14:20	10.7g/5mL	10g/5mL	0.94
Batch: 9121014							
A9L0191-05RE1	Soil	NWTPH-Dx	12/04/19 09:40	12/17/19 12:58	10.34g/5mL	10g/5mL	0.97
A9L0191-07RE1	Soil	NWTPH-Dx	12/04/19 10:40	12/17/19 12:58	10.61g/5mL	10g/5mL	0.94

BTEX Compounds by EPA 8260C

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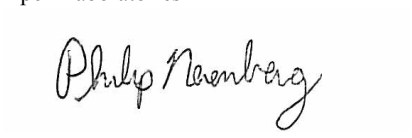

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

BTEX Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120757							
A9L0191-46RE1	Water	EPA 8260C	12/05/19 09:24	12/11/19 13:52	5mL/5mL	5mL/5mL	1.00

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120873							
A9L0191-14	Soil	5035A/8260C	12/04/19 12:30	12/04/19 12:30	4.08g/5mL	5g/5mL	1.23
A9L0191-15	Soil	5035A/8260C	12/04/19 12:30	12/04/19 12:30	4.14g/5mL	5g/5mL	1.21
A9L0191-45	Soil	5035A/8260C	12/05/19 09:20	12/05/19 09:20	6.69g/5mL	5g/5mL	0.75
A9L0191-47	Soil	5035A/8260C	12/05/19 09:40	12/05/19 09:40	5.97g/5mL	5g/5mL	0.84
A9L0191-49	Soil	5035A/8260C	12/05/19 11:00	12/05/19 11:00	5.52g/5mL	5g/5mL	0.91

Volatile Organic Compounds by EPA 5035A/8260C

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120873							
A9L0191-43	Soil	5035A/8260C	12/05/19 08:20	12/05/19 08:20	5.57g/5mL	5g/5mL	0.90

Volatile Organic Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120654							
A9L0191-44	Water	EPA 8260C	12/05/19 08:38	12/09/19 12:34	5mL/5mL	5mL/5mL	1.00
Batch: 9120700							
A9L0191-44RE1	Water	EPA 8260C	12/05/19 08:38	12/10/19 12:32	5mL/5mL	5mL/5mL	1.00
Batch: 9120943							
A9L0191-29	Water	EPA 8260C	12/04/19 00:00	12/16/19 12:46	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120841							
A9L0191-24	Water	EPA 8082A	12/04/19 17:38	12/12/19 12:55	980mL/2mL	1000mL/2mL	1.02

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0191-46	Water	EPA 8082A	12/05/19 09:24	12/12/19 12:55	880mL/2mL	1000mL/2mL	1.14
A9L0191-54	Water	EPA 8082A	12/05/19 14:14	12/12/19 12:55	920mL/2mL	1000mL/2mL	1.09

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120759							
A9L0191-03RE1	Soil	EPA 8082A	12/04/19 08:40	12/11/19 10:16	10.38g/2mL	10g/2mL	0.96
A9L0191-04RE1	Soil	EPA 8082A	12/04/19 09:30	12/11/19 10:16	10.36g/5mL	10g/2mL	2.41
A9L0191-14	Soil	EPA 8082A	12/04/19 12:30	12/11/19 10:16	10.69g/5mL	10g/2mL	2.34
A9L0191-15	Soil	EPA 8082A	12/04/19 12:30	12/11/19 10:16	10.52g/5mL	10g/2mL	2.38
A9L0191-22	Soil	EPA 8082A	12/04/19 17:30	12/11/19 10:16	10.81g/2mL	10g/2mL	0.93
A9L0191-23	Soil	EPA 8082A	12/04/19 17:30	12/11/19 10:16	10.65g/2mL	10g/2mL	0.94
A9L0191-45	Soil	EPA 8082A	12/05/19 09:20	12/11/19 10:16	10.15g/2mL	10g/2mL	0.99
A9L0191-47	Soil	EPA 8082A	12/05/19 09:40	12/11/19 10:16	10.2g/2mL	10g/2mL	0.98
A9L0191-49	Soil	EPA 8082A	12/05/19 11:00	12/11/19 10:20	10.5g/2mL	10g/2mL	0.95
A9L0191-53	Soil	EPA 8082A	12/05/19 14:30	12/11/19 10:16	10.71g/2mL	10g/2mL	0.93
A9L0191-55	Soil	EPA 8082A	12/05/19 15:55	12/11/19 10:16	10.83g/2mL	10g/2mL	0.92
Batch: 9120945							
A9L0191-57	Soil	EPA 8082A	12/05/19 16:30	12/16/19 10:43	10.59g/2mL	10g/2mL	0.94

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D (Large Volume Injection)

Prep: EPA 3511 (Bottle Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120718							
A9L0191-24RE2	Water	EPA 8270D LVI	12/04/19 17:38	12/10/19 12:29	106.42mL/5mL	125mL/5mL	1.17
A9L0191-30	Water	EPA 8270D LVI	12/05/19 18:00	12/10/19 12:29	86.3mL/5mL	125mL/5mL	1.45
A9L0191-44	Water	EPA 8270D LVI	12/05/19 08:38	12/10/19 12:29	103.59mL/5mL	125mL/5mL	1.21
A9L0191-54	Water	EPA 8270D LVI	12/05/19 14:14	12/10/19 12:29	97.88mL/5mL	125mL/5mL	1.28
A9L0191-56	Water	EPA 8270D LVI	12/05/19 15:45	12/10/19 12:29	98.71mL/5mL	125mL/5mL	1.27
A9L0191-58	Water	EPA 8270D LVI	12/05/19 16:31	12/10/19 12:29	85.53mL/5mL	125mL/5mL	1.46
Batch: 9120781							
A9L0191-46	Water	EPA 8270D LVI	12/05/19 09:24	12/11/19 14:58	105.97mL/5mL	125mL/5mL	1.18

Semivolatile Organic Compounds by EPA 8270D

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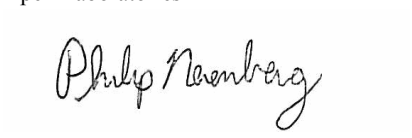

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid/Base Neutral)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120690							
A9L0191-08RE1	Water	EPA 8270D	12/04/19 10:26	12/10/19 07:13	930mL/1mL	1000mL/1mL	1.08
A9L0191-11	Water	EPA 8270D	12/04/19 11:08	12/10/19 10:47	860mL/1mL	1000mL/1mL	1.16

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120660							
A9L0191-22	Soil	EPA 8270D	12/04/19 17:30	12/09/19 11:20	15.97g/2mL	15g/2mL	0.94
A9L0191-23	Soil	EPA 8270D	12/04/19 17:30	12/09/19 11:20	15.1g/2mL	15g/2mL	0.99
A9L0191-41RE1	Soil	EPA 8270D	12/05/19 07:50	12/09/19 11:20	15.39g/2mL	15g/2mL	0.98
A9L0191-43RE2	Soil	EPA 8270D	12/05/19 08:20	12/09/19 11:20	15.6g/2mL	15g/2mL	0.96
A9L0191-53RE1	Soil	EPA 8270D	12/05/19 14:30	12/09/19 11:20	15.37g/2mL	15g/2mL	0.98
A9L0191-55RE2	Soil	EPA 8270D	12/05/19 15:55	12/09/19 11:20	15.81g/2mL	15g/2mL	0.95
A9L0191-57RE2	Soil	EPA 8270D	12/05/19 16:30	12/09/19 11:20	15.57g/2mL	15g/2mL	0.96
Batch: 9120852							
A9L0191-03RE3	Soil	EPA 8270D	12/04/19 08:40	12/12/19 15:50	15.88g/2mL	15g/2mL	0.95
A9L0191-10	Soil	EPA 8270D	12/04/19 11:00	12/12/19 15:17	15.66g/2mL	15g/2mL	0.96
A9L0191-14RE1	Soil	EPA 8270D	12/04/19 12:30	12/12/19 15:17	15.74g/2mL	15g/2mL	0.95
A9L0191-15RE1	Soil	EPA 8270D	12/04/19 12:30	12/12/19 15:17	15.08g/2mL	15g/2mL	1.00
A9L0191-45	Soil	EPA 8270D	12/05/19 09:20	12/12/19 15:17	15.88g/2mL	15g/2mL	0.95
A9L0191-47	Soil	EPA 8270D	12/05/19 09:40	12/12/19 15:17	15.27g/2mL	15g/2mL	0.98
A9L0191-49	Soil	EPA 8270D	12/05/19 11:00	12/12/19 15:17	15.87g/2mL	15g/2mL	0.95
Batch: 9120927							
A9L0191-04RE1	Soil	EPA 8270D	12/04/19 09:30	12/16/19 07:02	15.45g/2mL	15g/2mL	0.97
A9L0191-05	Soil	EPA 8270D	12/04/19 09:40	12/16/19 07:02	15.14g/2mL	15g/2mL	0.99
A9L0191-06	Soil	EPA 8270D	12/04/19 10:30	12/16/19 07:02	15.36g/2mL	15g/2mL	0.98
A9L0191-07	Soil	EPA 8270D	12/04/19 10:40	12/16/19 07:02	15.44g/2mL	15g/2mL	0.97
A9L0191-07RE1	Soil	EPA 8270D	12/04/19 10:40	12/16/19 07:02	15.44g/2mL	15g/2mL	0.97

Total Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120878							
A9L0191-09RE1	Water	EPA 200.8	12/04/19 09:40	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00

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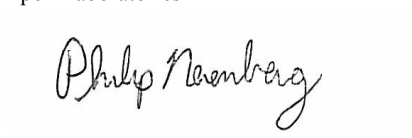

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120878							
A9L0191-08	Water	EPA 6020A	12/04/19 10:26	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0191-11	Water	EPA 6020A	12/04/19 11:08	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0191-11RE1	Water	EPA 6020A	12/04/19 11:08	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0191-13	Water	EPA 6020A	12/04/19 14:51	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0191-13RE1	Water	EPA 6020A	12/04/19 14:51	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0191-16	Water	EPA 6020A	12/04/19 14:49	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
A9L0191-16RE1	Water	EPA 6020A	12/04/19 14:49	12/13/19 10:12	45mL/50mL	45mL/50mL	1.00
Batch: 9120937							
A9L0191-24	Water	EPA 6020A	12/04/19 17:38	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-24RE1	Water	EPA 6020A	12/04/19 17:38	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-30	Water	EPA 6020A	12/05/19 18:00	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-30RE1	Water	EPA 6020A	12/05/19 18:00	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-44RE1	Water	EPA 6020A	12/05/19 08:38	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-46	Water	EPA 6020A	12/05/19 09:24	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-50	Water	EPA 6020A	12/05/19 11:14	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-50RE1	Water	EPA 6020A	12/05/19 11:14	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-50RE2	Water	EPA 6020A	12/05/19 11:14	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-52	Water	EPA 6020A	12/05/19 13:41	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-52RE1	Water	EPA 6020A	12/05/19 13:41	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-54	Water	EPA 6020A	12/05/19 14:14	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-54RE1	Water	EPA 6020A	12/05/19 14:14	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-54RE2	Water	EPA 6020A	12/05/19 14:14	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-56	Water	EPA 6020A	12/05/19 15:45	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-56RE1	Water	EPA 6020A	12/05/19 15:45	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00
A9L0191-58	Water	EPA 6020A	12/05/19 16:31	12/16/19 10:02	45mL/50mL	45mL/50mL	1.00

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120890							
A9L0191-02	Soil	EPA 6020A	12/04/19 08:15	12/13/19 11:57	0.516g/50mL	0.5g/50mL	0.97
Batch: 9120960							
A9L0191-01	Soil	EPA 6020A	12/04/19 08:00	12/16/19 13:38	0.454g/50mL	0.5g/50mL	1.10
A9L0191-03	Soil	EPA 6020A	12/04/19 08:40	12/16/19 13:38	0.463g/50mL	0.5g/50mL	1.08
A9L0191-04	Soil	EPA 6020A	12/04/19 09:30	12/16/19 13:38	0.5g/50mL	0.5g/50mL	1.00
A9L0191-06	Soil	EPA 6020A	12/04/19 10:30	12/16/19 13:38	0.48g/50mL	0.5g/50mL	1.04

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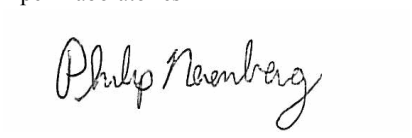

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0191-10	Soil	EPA 6020A	12/04/19 11:00	12/16/19 13:38	0.51g/50mL	0.5g/50mL	0.98
A9L0191-12	Soil	EPA 6020A	12/04/19 11:40	12/16/19 13:38	0.466g/50mL	0.5g/50mL	1.07
A9L0191-14	Soil	EPA 6020A	12/04/19 12:30	12/16/19 13:38	0.475g/50mL	0.5g/50mL	1.05
A9L0191-15	Soil	EPA 6020A	12/04/19 12:30	12/16/19 13:38	0.502g/50mL	0.5g/50mL	1.00
A9L0191-17	Soil	EPA 6020A	12/04/19 13:05	12/16/19 13:38	0.452g/50mL	0.5g/50mL	1.11
A9L0191-18	Soil	EPA 6020A	12/04/19 13:10	12/16/19 13:38	0.487g/50mL	0.5g/50mL	1.03
A9L0191-19	Soil	EPA 6020A	12/04/19 13:30	12/16/19 13:38	0.49g/50mL	0.5g/50mL	1.02
A9L0191-20	Soil	EPA 6020A	12/04/19 16:15	12/16/19 13:38	0.498g/50mL	0.5g/50mL	1.00
A9L0191-21	Soil	EPA 6020A	12/04/19 16:40	12/16/19 13:38	0.481g/50mL	0.5g/50mL	1.04
A9L0191-22	Soil	EPA 6020A	12/04/19 17:30	12/16/19 13:38	0.454g/50mL	0.5g/50mL	1.10
A9L0191-23	Soil	EPA 6020A	12/04/19 17:30	12/16/19 13:38	0.481g/50mL	0.5g/50mL	1.04
A9L0191-41	Soil	EPA 6020A	12/05/19 07:50	12/16/19 13:38	0.451g/50mL	0.5g/50mL	1.11
A9L0191-43	Soil	EPA 6020A	12/05/19 08:20	12/16/19 13:38	0.518g/50mL	0.5g/50mL	0.97
A9L0191-45	Soil	EPA 6020A	12/05/19 09:20	12/16/19 13:38	0.464g/50mL	0.5g/50mL	1.08
A9L0191-47	Soil	EPA 6020A	12/05/19 09:40	12/16/19 13:38	0.493g/50mL	0.5g/50mL	1.01
Batch: 9120988							
A9L0191-48	Soil	EPA 6020A	12/05/19 10:00	12/17/19 08:22	0.474g/50mL	0.5g/50mL	1.05
A9L0191-49	Soil	EPA 6020A	12/05/19 11:00	12/17/19 08:22	0.45g/50mL	0.5g/50mL	1.11
A9L0191-51	Soil	EPA 6020A	12/05/19 13:40	12/17/19 08:22	0.487g/50mL	0.5g/50mL	1.03
A9L0191-53	Soil	EPA 6020A	12/05/19 14:30	12/17/19 08:22	0.5g/50mL	0.5g/50mL	1.00
A9L0191-55	Soil	EPA 6020A	12/05/19 15:55	12/17/19 08:22	0.482g/50mL	0.5g/50mL	1.04
A9L0191-57	Soil	EPA 6020A	12/05/19 16:30	12/17/19 08:22	0.493g/50mL	0.5g/50mL	1.01

Total Hexavalent Chromium by Colorimetric Spectrophotometry

Prep: EPA 3060A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121432							
A9L0191-01RE1	Soil	EPA 7196A	12/04/19 08:00	12/31/19 07:18	2.5498g/111mL	2.5g/111mL	0.98
A9L0191-02RE1	Soil	EPA 7196A	12/04/19 08:15	12/31/19 07:18	2.5299g/111mL	2.5g/111mL	0.99
A9L0191-06RE1	Soil	EPA 7196A	12/04/19 10:30	12/31/19 07:18	2.5612g/111mL	2.5g/111mL	0.98
A9L0191-17	Soil	EPA 7196A	12/04/19 13:05	12/31/19 07:18	2.5371g/111mL	2.5g/111mL	0.99
A9L0191-18RE1	Soil	EPA 7196A	12/04/19 13:10	12/31/19 07:18	2.594g/111mL	2.5g/111mL	0.96
A9L0191-48RE1	Soil	EPA 7196A	12/05/19 10:00	12/31/19 07:18	2.5546g/111mL	2.5g/111mL	0.98
A9L0191-57RE1	Soil	EPA 7196A	12/05/19 16:30	12/31/19 07:18	2.5263g/111mL	2.5g/111mL	0.99

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120643							
A9L0191-01	Soil	EPA 8000C	12/04/19 08:00	12/09/19 07:52			NA
A9L0191-12	Soil	EPA 8000C	12/04/19 11:40	12/09/19 07:52			NA
A9L0191-14	Soil	EPA 8000C	12/04/19 12:30	12/09/19 07:52			NA
A9L0191-15	Soil	EPA 8000C	12/04/19 12:30	12/09/19 07:52			NA
A9L0191-17	Soil	EPA 8000C	12/04/19 13:05	12/09/19 07:52			NA
A9L0191-18	Soil	EPA 8000C	12/04/19 13:10	12/09/19 07:52			NA
A9L0191-19	Soil	EPA 8000C	12/04/19 13:30	12/09/19 07:52			NA
A9L0191-20	Soil	EPA 8000C	12/04/19 16:15	12/09/19 07:52			NA
A9L0191-21	Soil	EPA 8000C	12/04/19 16:40	12/09/19 07:52			NA
A9L0191-45	Soil	EPA 8000C	12/05/19 09:20	12/09/19 07:52			NA
A9L0191-47	Soil	EPA 8000C	12/05/19 09:40	12/09/19 07:52			NA
A9L0191-48	Soil	EPA 8000C	12/05/19 10:00	12/09/19 07:52			NA
A9L0191-49	Soil	EPA 8000C	12/05/19 11:00	12/09/19 07:52			NA
A9L0191-51	Soil	EPA 8000C	12/05/19 13:40	12/09/19 07:52			NA
Batch: 9120702							
A9L0191-02	Soil	EPA 8000C	12/04/19 08:15	12/10/19 18:44			NA
A9L0191-03	Soil	EPA 8000C	12/04/19 08:40	12/10/19 10:05			NA
A9L0191-04	Soil	EPA 8000C	12/04/19 09:30	12/10/19 10:05			NA
A9L0191-06	Soil	EPA 8000C	12/04/19 10:30	12/10/19 10:05			NA
A9L0191-10	Soil	EPA 8000C	12/04/19 11:00	12/10/19 10:05			NA
A9L0191-22	Soil	EPA 8000C	12/04/19 17:30	12/10/19 10:05			NA
A9L0191-23	Soil	EPA 8000C	12/04/19 17:30	12/10/19 10:05			NA
A9L0191-41	Soil	EPA 8000C	12/05/19 07:50	12/10/19 10:05			NA
A9L0191-43	Soil	EPA 8000C	12/05/19 08:20	12/10/19 10:05			NA
A9L0191-53	Soil	EPA 8000C	12/05/19 14:30	12/10/19 10:05			NA
A9L0191-55	Soil	EPA 8000C	12/05/19 15:55	12/10/19 10:05			NA
A9L0191-57	Soil	EPA 8000C	12/05/19 16:30	12/10/19 10:05			NA
Batch: 9120929							
A9L0191-05	Soil	EPA 8000C	12/04/19 09:40	12/16/19 08:36			NA
A9L0191-07	Soil	EPA 8000C	12/04/19 10:40	12/16/19 08:36			NA

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

Analytical Resources, Inc.

SAMPLE PREPARATION INFORMATION

Wet Chemistry

Prep: No Prep Wet Chem

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: BHL0315							
A9L0191-13	Water	SM 4500-S2 D-00	12/04/19 14:51	12/11/19 15:24	100mL/100mL	5mL/5mL	1.00
A9L0191-50	Water	SM 4500-S2 D-00	12/05/19 11:14	12/11/19 15:24	100mL/100mL	5mL/5mL	1.00

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QUALIFIER DEFINITIONS

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

Apex Laboratories

B	Analyte detected in an associated blank at a level above the MRL. (See Notes and Conventions below.)
B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
Cr6-01	Matrix Spike fails due to probable reducing conditions present in the sample. Sample is ND. Data quality is not affected because any hexavalent chromium present in the sample is likely to have been reduced to chromium three.
F-03	The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-15	Results for diesel are estimated due to overlap from the reported oil result.
F-16	Results for oil are estimated due to overlap from the reported diesel result.
F-17	No fuel pattern detected. The Diesel result represents carbon range C12 to C24, and the Oil result represents >C24 to C40.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
P-10	Result estimated due to the presence of multiple PCB Aroclors and/or matrix interference.
Q-03	Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-16	Reanalysis of an original Batch QC sample.
Q-18	Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-30	Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-39	Results for sample duplicate are significantly higher than the sample results. See duplicate results in QC section of the report.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)

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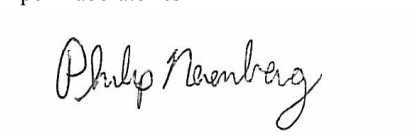

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AMENDED REPORT

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

Q-52	Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.
Q-54	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +1%. The results are reported as Estimated Values.
Q-54a	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +2%. The results are reported as Estimated Values.
Q-54b	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +2.3%. The results are reported as Estimated Values.
Q-54c	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +3%. The results are reported as Estimated Values.
Q-54d	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +5%. The results are reported as Estimated Values.
Q-54e	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +8.1%. The results are reported as Estimated Values.
Q-54f	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +9.6%. The results are reported as Estimated Values.
Q-54g	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -0.7%. The results are reported as Estimated Values.
Q-54h	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -1.6%. The results are reported as Estimated Values.
Q-54i	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -11%. The results are reported as Estimated Values.
Q-54j	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -2%. The results are reported as Estimated Values.
Q-54k	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -2.6%. The results are reported as Estimated Values.
Q-54l	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -8%. The results are reported as Estimated Values.
Q-55	Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260C, however there is adequate sensitivity to ensure detection at the reporting level.
Q-56	Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
S-04	Surrogate recovery is outside of established control limits due to a sample matrix effect.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
TEMP	Sample(s) received outside of recommended temperature. See Case Narrative.

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

Analytical Resources, Inc.

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).

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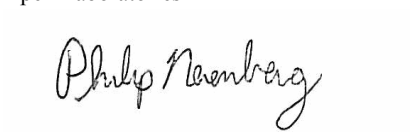

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AMENDED REPORT

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

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

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

NR Result Not Reported

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

Detection Limits: Limit of Detection (LOD)

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

Reporting Limits: Limit of Quantitation (LOQ)

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

Reporting Conventions:

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

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

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

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

QC Source:

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

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

Miscellaneous Notes:

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

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

Blanks:

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

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

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

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

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

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

Soil and Sediment Samples:

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

Sampling and Preservation Notes:

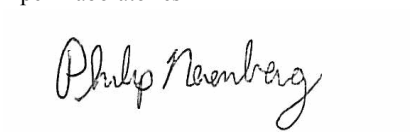
Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site)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

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

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

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

Apex Laboratories



Philip Nerenberg, Lab Director

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AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

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

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

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

Secondary Accreditations

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

Subcontract Laboratory Accreditations

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

Field Testing Parameters

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

Apex Laboratories



Philip Nerenberg, Lab Director

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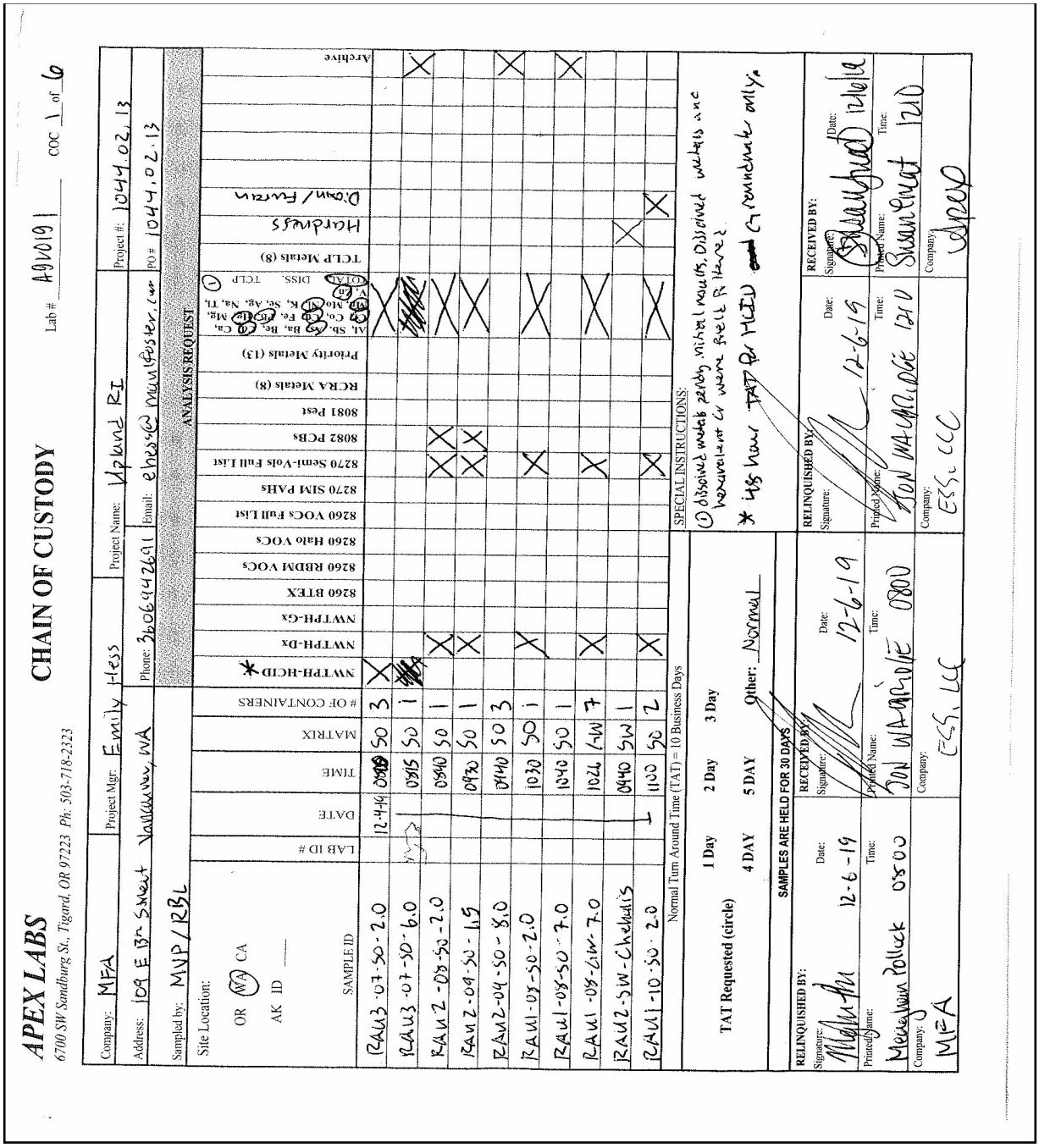
AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**



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

CHAIN OF CUSTODY

Lab # A9L0191 COC 1 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Upland RI | Project #: 1044.02.13
Address: 109 E 13th Street Vancouver WA | Phone: 3606944261 | Email: ehess@maulfoster.com | PO # 1044.02.13
Sampled by: MVP/RBL

Site Location: OR (WA) CA AK ID ____

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID *	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, Ca, Ba, Be, Co, Fe, Mo, K, Se, Ag, Na, Tl, Mg, TCLP (8) DISS TOTAL	TCLP Metals (8)	Hardness	Diam/Furans	Archive
RAU3-07-SO-2.0		12-4-19	0930	SO	3	X														X			
RAU3-07-SO-6.0			0935	SO	1	X														X			
RAU2-05-SO-2.0			0940	SO	1		X							X	X								X
RAU2-04-SO-1.5			0950	SO	1		X							X	X								X
RAU2-04-SO-8.0			0940	SO	3															X			
RAU1-05-SO-2.0			1030	SO	1		X							X						X			
RAU1-05-SO-7.0			1040	SO	1															X			
RAU1-05-SW-7.0			1026	WW	7		X							X						X			
RAU2-SW-Chekalis			0940	SW	1																X		
RAU1-10-SO-2.0		1	1100	SO	2		X							X						X	X		

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
① dissolved metals parameters: mercury, dissolved metals are homogenized in water bath & then filtered.
* 48 hour TAT for MCID and 4 remainder only.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	Date:	Time:	RECEIVED BY:	Date:	Time:
Signature:	12-6-19		Signature:	12-6-19	
Printed Name: Mary Apfelbeck		0800	Printed Name: JON WAGNER/DOE		1210
Company: MFA			Company: ESS, LLC		

RELINQUISHED BY:	Date:	Time:	RECEIVED BY:	Date:	Time:
Signature:	12-6-19		Signature:	12-6-19	
Printed Name: Meredith Pollock		0800	Printed Name: JON WAGNER/DOE		1210
Company: MFA			Company: ESS, LLC		

RELINQUISHED BY:	Date:	Time:	RECEIVED BY:	Date:	Time:
Signature:	12-6-19		Signature:	12-6-19	
Printed Name:			Printed Name: Susan Hiatt		1210
Company:			Company: Apex		

Apex Laboratories

Philip Nerenberg

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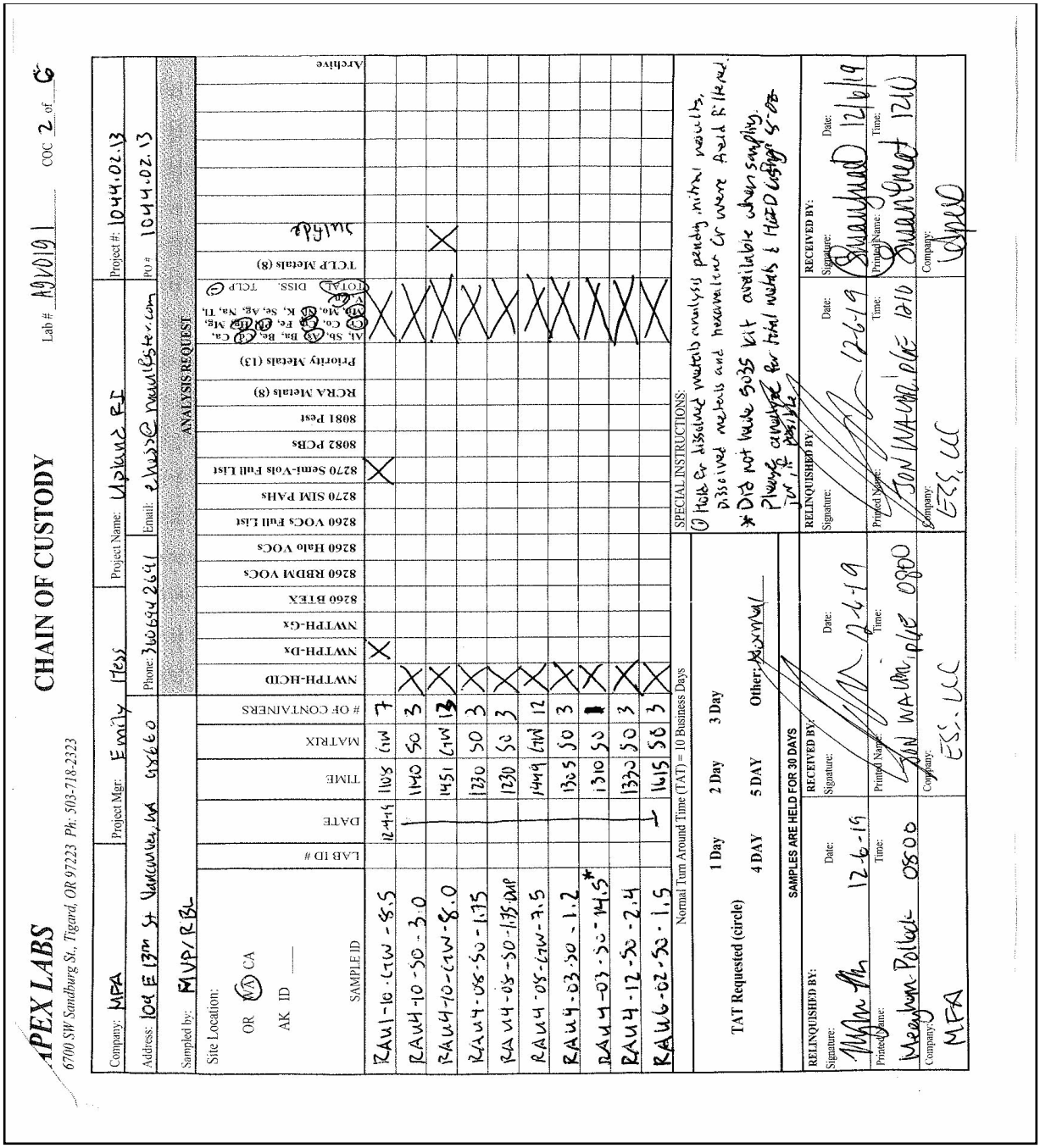
Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**



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

CHAIN OF CUSTODY

Lab # A9L0191 COC 2 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Uplands RE | Project #: 1044.02.13
Address: 104 E 13th St Vancouver, WA 98660 | Phone: 360 694 2691 | Email: ehess@maulfoster.com | PO # 1044.02.13
Sampled by: MVP/RBL

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn (TOTAL / DISS.)	TCLP ⊖	TCLP Metals (8)	Archive
RAU1-10-GW-8.5		12-4-19	1105	GW	7		X							X								
RAU4-10-SO-3.0			1140	SO	3	X																
RAU4-10-GW-8.0			1451	GW	13	X													X			
RAU6-05-SO-1.75			1230	SO	3	X																
RAU4-05-SO-1.35DUP			1230	SO	3	X																
RAU4-05-GW-9.5			1449	GW	12	X																
RAU6-03-SO-1.2			1325	SO	3	X																
RAU4-03-SO-14.5*			1310	SO	1	X																
RAU4-12-SO-2.4			1320	SO	3	X																
RAU6-02-SO-1.5		↓	1415	SO	3	X																

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
① Hold for dissolved metals analysis pending initial results, dissolved metals and hexavalent Cr were Acid & Hexavalent Cr, if positive.
* Did not have 5035 kit available when sampling. Please analyze for total metals & HOLD dissolved 6-02

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Meghan Pollock Date: 12-6-19 Time: 0800 Printed Name: Meghan Pollock Company: MFA

RECEIVED BY: Signature: Jon Walmsley Date: 12-6-19 Time: 0800 Printed Name: Jon Walmsley Company: ESS, LLC

RELINQUISHED BY: Signature: Jon Walmsley Date: 12-6-19 Time: 1010 Printed Name: Jon Walmsley Company: ESS, LLC

RECEIVED BY: Signature: Susan Hurt Date: 12/6/19 Time: 1240 Printed Name: Susan Hurt Company: Apex

Apex Laboratories

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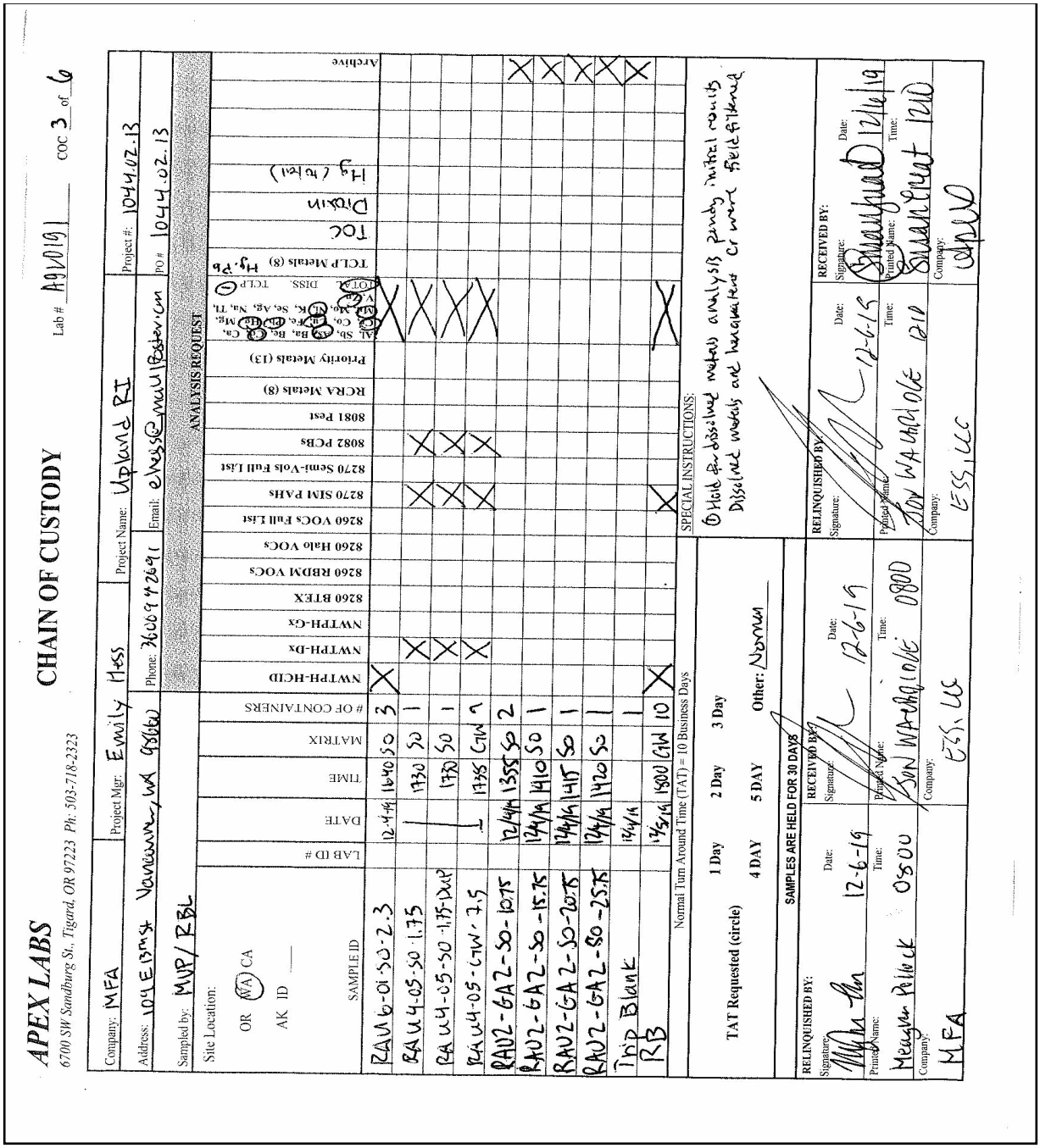
Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**



Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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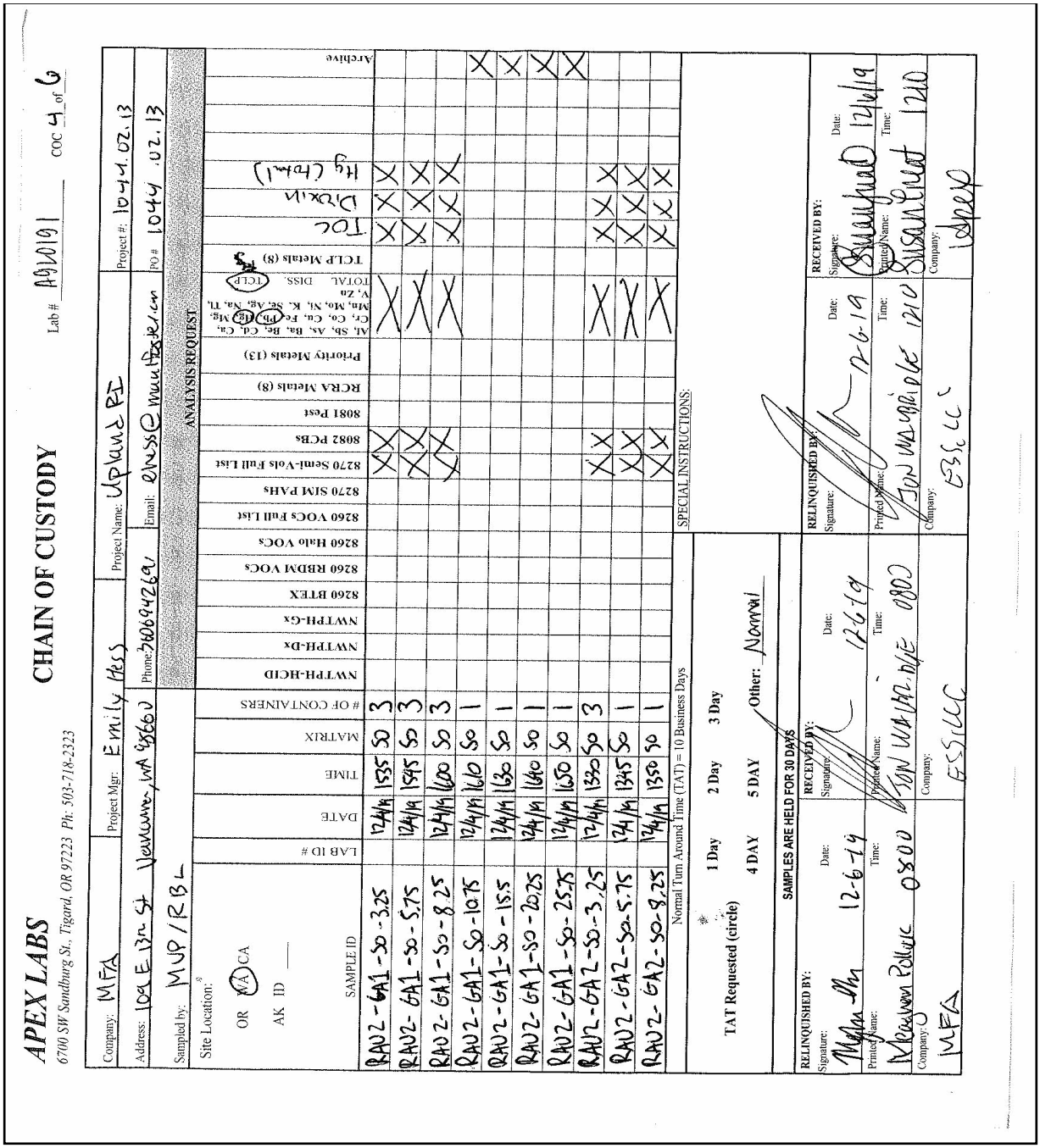
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**



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

CHAIN OF CUSTODY

Lab # A9L0191 COC 4 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Uplands RI | Project #: 1044.02.13
Address: 104 E 13th St Vancouver, WA 98660 | Phone: 7606947269 | Email: emess@maulfoster.com | PO # 1044.02.13
Sampled by: MVP/RBL

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	TOC	Dioxin	Hg (Low)	Archive
RAU2-GA1-SO-3.25		12/4/19	1555	SO	3									X	X				X	X	X	X	
RAU2-GA1-SO-5.75		12/4/19	1545	SO	3									X	X				X	X	X	X	
RAU2-GA1-SO-8.25		12/4/19	1600	SO	3									X	X				X	X	X	X	
RAU2-GA1-SO-10.75		12/4/19	1610	SO	1							X											
RAU2-GA1-SO-15.5		12/4/19	1630	SO	1							X											
RAU2-GA1-SO-20.25		12/4/19	1640	SO	1							X		X									
RAU2-GA1-SO-25.75		12/4/19	1650	SO	1							X		X									
RAU2-GA2-SO-3.25		12/4/19	1330	SO	3									X	X				X	X	X	X	
RAU2-GA2-SO-5.75		12/4/19	1345	SO	1									X	X				X	X	X	X	
RAU2-GA2-SO-8.25		12/4/19	1350	SO	1									X	X				X	X	X	X	

Site Location: OR WA CA AK ID ____

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 10 Business Days

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

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 12-6-19	Date: 12/6/19	Date: 12-6-19	Date: 12/6/19
Time: 0800	Time: 0800	Time: 1210	Time: 1210
Printed Name: Megan Mallahan	Printed Name: Jon Murphy	Printed Name: Jon Murphy	Printed Name: Susan Ewart
Company: MFA	Company: ESS LLC	Company: ESS LLC	Company: Apex

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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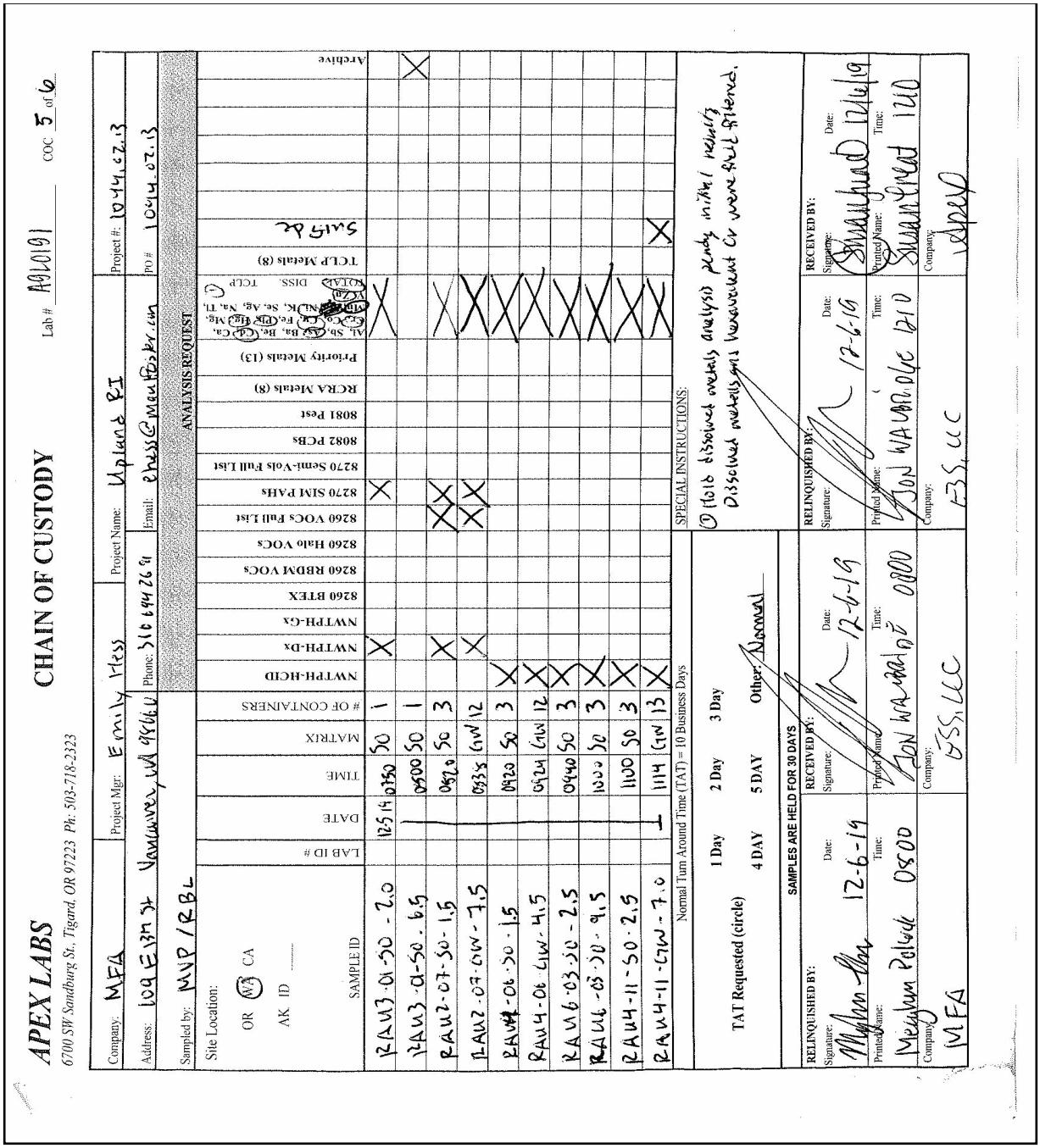
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**



APEX LABS — CHAIN OF CUSTODY
6700 SW Sandburg St, Tigard, OR 97223 Ph: 503-718-2323
Lab # A9L0191 COC 5 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Upland RI | Project #: 1044.02.13
Address: 109 E 13th St Vancouver, WA 98660 | Phone: 360 694 2691 | Email: ehess@maulfoster.com | PO # 1044.02.13
Sampled by: MNP / RBL

Site Location: OR (WA) CA AK ID

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn	TCLP DISS TOTAL	TCLP Metals (8)	5 day BOD	Archive
RAW3-01-SO-2.0		12/5/19	0950	SO	1		X						X									
RAW3-01-SO-6.5			0900	SO	1																	X
RAW2-07-SO-1.5			0820	SO	3		X					XX	XX									
RAW2-07-GW-7.5			0935	GW	12		X					XX	XX									
RAW4-06-SO-1.5			0920	SO	3	X						XX		XX								
RAW4-06-GW-4.5			0924	GW	12	X						XX		XX								
RAW6-03-SO-2.5			0940	SO	3	X						XX		XX								
RAW6-03-SO-9.5			1000	SO	3	X						XX		XX								
RAW4-11-SO-2.5			1100	SO	3	X						XX		XX								
RAW4-11-GW-7.0		↓	1114	GW	13	X						XX		XX								

Normal Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
☐ Hold dissolved metals analysis pending initial results
Dissolved metals measurement for work plan attached.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Meghan Alm Date: 12-6-19 Time: 0800 Printed Name: Meghan Peloquin Company: MFA
RECEIVED BY: Signature: Date: 12-6-19 Time: 0800 Printed Name: Jon Wamboldt Company: ESS, LLC
RELINQUISHED BY: Signature: Date: 12/6/19 Time: 1210 Printed Name: Jon Wamboldt Company: ESS, LLC
RECEIVED BY: Signature: Date: 12/6/19 Time: 1210 Printed Name: Susan Head Company: Apex

Apex Laboratories

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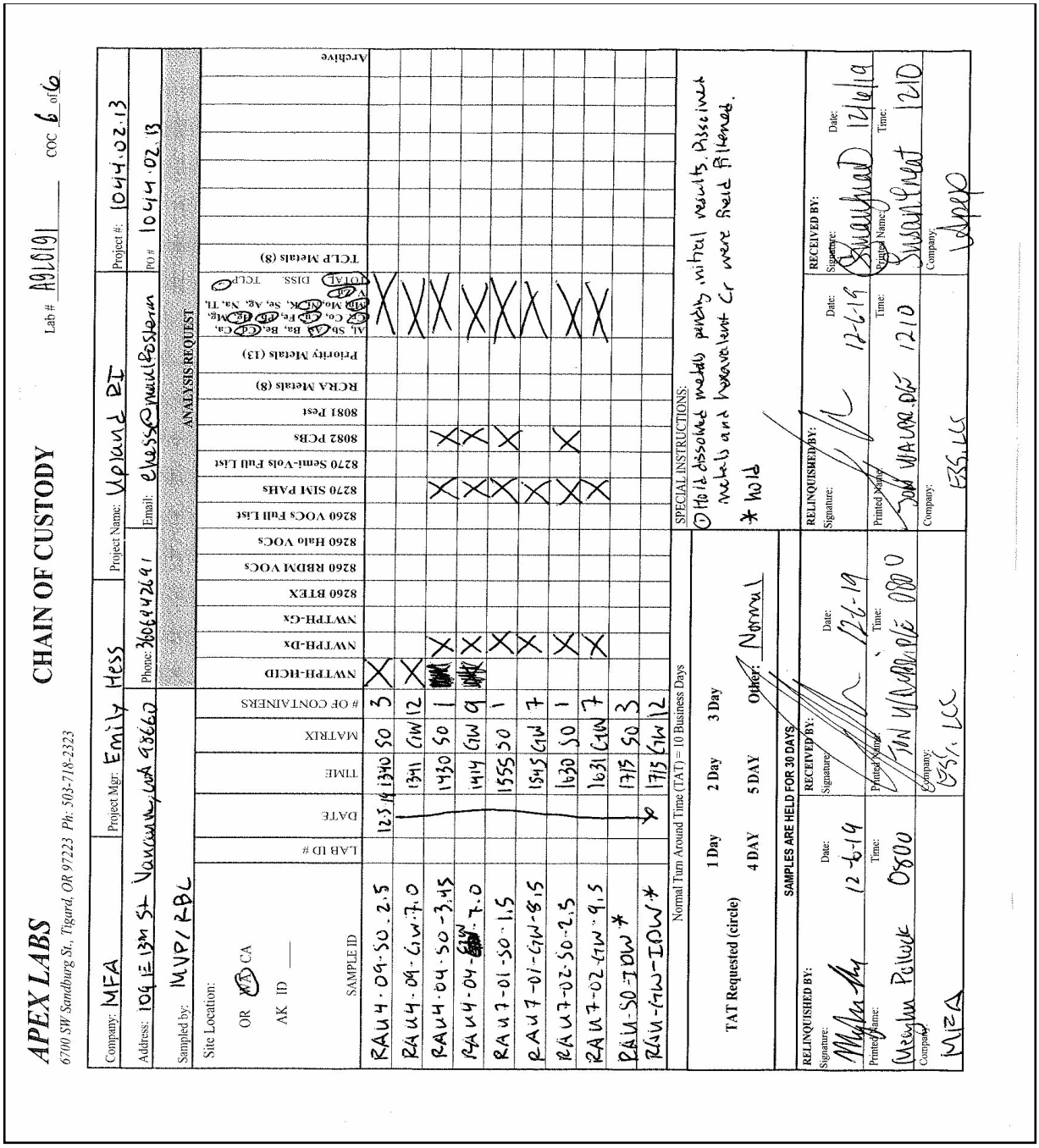
Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**



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

CHAIN OF CUSTODY

Lab # A9L0191 COC 6 of 6

Company: MFA | Project Mgr: Emily Hess | Project Name: Upland DT | Project #: 1044.02.13
Address: 104 E 13th St Vancouver WA 98660 | Phone: 3606426491 | Email: ehess@maulfoster | PO # 1044.02.13
Sampled by: MVP/RBC

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	RCRA Metals (8)	Priority Metals (13)	Al, Sb, Ba, Be, Ca, Co, Fe, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn (circled) TOTAL DISS TCLP	TCLP Metals (8)	Archive
RAU4-09-SO-2.5		12/5	1340	SO	3	X															
RAU4-09-GW-7.0			1311	GW	12	X							X	X	X				X		
RAU4-04-SO-3.45			1420	SO	1		X						X	X	X				X		
RAU4-04-GW-7.0			1414	GW	9		X						X	X	X				X		
RAU7-01-SO-1.5			1555	SO	1		X						X	X							
RAU7-01-GW-8.5			1545	GW	7		X						X	X							
RAU7-02-SO-2.5			1620	SO	1		X						X	X							
RAU7-02-GW-9.5			1631	GW	7		X						X	X							
RAU-SO-IDW*			1715	SO	3																
RAU-GW-IDW*			1715	GW	12																

SPECIAL INSTRUCTIONS:
① Hold dissolved metals pending initial results. Assistant
analysis and headspace if Cr were Reid Filtered.
* Hold

Normal Turn Around Time (TAT) = 10 Business Days

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

SAMPLES ARE HELD FOR 30 DAYS.

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 12-6-19	Date: 12-6-19	Date: 12-6-19	Date: 12/6/19
Time: 0800	Time: 1210	Time: 1210	Time: 1210
Printed Name: Meaghan Rietveld	Printed Name: JON WAAGBOE	Printed Name: JON WAAGBOE	Printed Name: Susan Frear
Company: MFA	Company: ESS, LLC	Company: ESS, LLC	Company: Apex

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

1/2

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A9 L0191

Project/Project #: Upland RI 1044.02.13

Delivery Info: JS 12/6/19

Date/time received: 12/6/19 @ 1210 By: ~~JS~~ ST

Delivered by: Apex___ Client___ ESS X FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Date/time inspected: 12/6/19 @ 1220 By: JS

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

Signed/dated by client? Yes X No___

Signed/dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	2.9	0.3	0.6	1.8	1.3	1.2	1.4
Received on ice? (Y/N)	y	y	y	y	y	y	y
Temp. blanks? (Y/N)	y	y	y	y	y	y	y
Ice type: (Gel/Real/Other)	real	real	real	real	real	real	real
Condition:	good	good	good	good	good	good	good

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

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

Out of temperature samples form initiated? Yes/No/NA 14 TAG 12-6-19

Samples Inspection: Date/time inspected: 12-6-19 @ 1233 By: TAG

All samples intact? Yes No___ Comments:

Bottle labels/COCs agree? Yes___ No Comments: RAU4-04-SO-345 reads RAU4-~~04~~ 11-SO-345, 1/2 RAU7-02-GW-9.5 1/2 HCL amber no sample ID bagged together

COC/container discrepancies form initiated? Yes___ No___ NA X

Containers/volumes received appropriate for analysis? Yes X No___ Comments:

Do VOA vials have visible headspace? Yes X No___ NA___

Comments 1/3 RAU4-10-GW-8.0 reads 10, 3/3 vials RAU2-07-GW-7.5, RAU4-06-GW-45, RAU-GW-Dup reads sed.

Water samples: pH checked: Yes X No___ NA___ pH appropriate? Yes___ No___ NA___

Comments: RAU4-11-GW-7.0 125 NaOH ph=7

Additional information: No D on 1/2 Plexi vials RAU4-09-SO-2.5, NO D on Jar RAU4-06-SO-1.5.

TB#2194

Labeled by: ST Witness: JS Cooler Inspected by: TAG See Project Contact Form: Y

Apex Laboratories

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Apex Laboratories, LLC
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EPA ID: OR01039

AMENDED REPORT

Maul Foster & Alongi, INC.	Project: **Seaport Tidelands**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0191 - 01 30 20 1613**

APEX LABS COOLER RECEIPT FORM

2/2

Client: MFA Element WO#: A9 L0191

Project/Project #: Upland RI 1044.02.13

Delivery Info:

Date/time received: 12/6/19@ 1210 By: ~~JS~~ 12/6/19 ST

Delivered by: Apex___ Client___ ESS X FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Date/time inspected: 12/6/19@ 1220 By: JS

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

Signed/dated by client? Yes X No___

Signed/dated by Apex? Yes X No___

	Cooler #1 (8)	Cooler #2 (9)	Cooler #3 (10)	Cooler #4 (11)	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	0.6	0.3	0.7	2.1			
Received on ice? (Y/N)	Y	Y	Y	Y			
Temp. blanks? (Y/N)	Y	Y	Y	Y			
Ice type: (Gel/Real/Other)	real	real	real	real			
Condition:	good	good	good	good			

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

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

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

Samples Inspection: Date/time inspected: 12/6/19@ 1433 By: TAG

All samples intact? Yes X No___ Comments: See page 1

Bottle labels/COCs agree? Yes___ No X Comments:

COC/container discrepancies form initiated? Yes___ No___ NA X

Containers/volumes received appropriate for analysis? Yes X No___ Comments:

Do VOA vials have visible headspace? Yes X No___ NA___

Comments See page 1

Water samples: pH checked: Yes X No___ NA___ pH appropriate? Yes___ No X NA___

Comments: See page 1

Additional information:

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

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Tuesday, January 14, 2020

Emily Hess
Maul Foster & Alongi, INC.
2001 NW 19th Ave, STE 200
Portland, OR 97209

RE: A9L0524 - Seaport Upland - 1044.02.13

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

Enclosed are the results of analyses for work order A9L0524, which was received by the laboratory on 12/12/2019 at 12:10:00PM.

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

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

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler#1	0.9 degC	Cooler#2	2.1 degC
Cooler#3	1.7 degC		

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

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
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EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RAU2-08-GW-9	A9L0524-01	Water	12/11/19 14:09	12/12/19 12:10
RAU2-09-GW-9	A9L0524-02	Water	12/11/19 14:37	12/12/19 12:10
RAU3-03-GW-5	A9L0524-03	Water	12/11/19 15:34	12/12/19 12:10
RAU6-02-GW-12	A9L0524-04	Water	12/11/19 16:58	12/12/19 12:10
RAU4-12-GW-9	A9L0524-05	Water	12/11/19 16:27	12/12/19 12:10
Trip Blank	A9L0524-06	Water	12/12/19 00:00	12/12/19 12:10

Apex Laboratories

Philip Nerenberg

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Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-03-GW-5 (A9L0524-03)				**Matrix: Water**		**Batch: 9120896**		
Gasoline Range Organics	ND	0.110	0.110	mg/L	1	12/13/19 23:00	NWTPH-HCID	
Diesel Range Organics	ND	0.275	0.275	mg/L	1	12/13/19 23:00	NWTPH-HCID	
Oil Range Organics	ND	0.275	0.275	mg/L	1	12/13/19 23:00	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 83 %*	*Limits: 50-150 %*	*1*	*12/13/19 23:00*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*54 %*	*10-120 %*	*1*	*12/13/19 23:00*	*NWTPH-HCID*	
RAU6-02-GW-12 (A9L0524-04)				**Matrix: Water**		**Batch: 9120896**		
Gasoline Range Organics	ND	0.106	0.106	mg/L	1	12/13/19 23:23	NWTPH-HCID	
Diesel Range Organics	ND	0.266	0.266	mg/L	1	12/13/19 23:23	NWTPH-HCID	
Oil Range Organics	ND	0.266	0.266	mg/L	1	12/13/19 23:23	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 85 %*	*Limits: 50-150 %*	*1*	*12/13/19 23:23*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*55 %*	*10-120 %*	*1*	*12/13/19 23:23*	*NWTPH-HCID*	
RAU4-12-GW-9 (A9L0524-05)				**Matrix: Water**		**Batch: 9120896**		
Gasoline Range Organics	ND	0.105	0.105	mg/L	1	12/13/19 23:46	NWTPH-HCID	
Diesel Range Organics	ND	0.263	0.263	mg/L	1	12/13/19 23:46	NWTPH-HCID	
Oil Range Organics	ND	0.263	0.263	mg/L	1	12/13/19 23:46	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)			*Recovery: 84 %*	*Limits: 50-150 %*	*1*	*12/13/19 23:46*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*52 %*	*10-120 %*	*1*	*12/13/19 23:46*	*NWTPH-HCID*	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-GW-9 (A9L0524-01)				**Matrix: Water**		**Batch: 9121059**		
Diesel	ND	0.103	0.206	mg/L	1	12/18/19 23:30	NWTPH-Dx	
Oil	ND	0.206	0.412	mg/L	1	12/18/19 23:30	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 104 %*		*Limits: 50-150 %*	*1*	*12/18/19 23:30*	*NWTPH-Dx*	
RAU2-09-GW-9 (A9L0524-02)				**Matrix: Water**		**Batch: 9121059**		
Diesel	ND	0.0952	0.190	mg/L	1	12/18/19 23:52	NWTPH-Dx	
Oil	ND	0.190	0.381	mg/L	1	12/18/19 23:52	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 100 %*		*Limits: 50-150 %*	*1*	*12/18/19 23:52*	*NWTPH-Dx*	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-GW-9 (A9L0524-01)				**Matrix: Water**		**Batch: 9121304**		**C-07**
Aroclor 1016	ND	0.0200	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Aroclor 1221	ND	0.0400	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Aroclor 1232	ND	0.0200	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Aroclor 1242	ND	0.0200	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Aroclor 1248	ND	0.0200	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Aroclor 1254	ND	0.0200	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Aroclor 1260	ND	0.0200	0.0400	ug/L	1	12/27/19 09:34	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 88 %*		*Limits: 40-135 %*	*1*	*12/27/19 09:34*	*EPA 8082A*	
RAU2-09-GW-9 (A9L0524-02)				**Matrix: Water**		**Batch: 9121304**		**C-07**
Aroclor 1016	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Aroclor 1221	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Aroclor 1232	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Aroclor 1242	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Aroclor 1248	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Aroclor 1254	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Aroclor 1260	ND	0.0211	0.0421	ug/L	1	12/27/19 09:51	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 82 %*		*Limits: 40-135 %*	*1*	*12/27/19 09:51*	*EPA 8082A*	

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EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-GW-9 (A9L0524-01RE2)				**Matrix: Water**		**Batch: 9121037**		
Acenaphthene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Acenaphthylene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Anthracene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Benz(a)anthracene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Benzo(a)pyrene	ND	0.0160	0.0319	ug/L	1	12/19/19 19:27	EPA 8270D	
Benzo(b)fluoranthene	**0.0205**	0.0160	0.0319	ug/L	1	12/19/19 19:27	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	0.0160	0.0319	ug/L	1	12/19/19 19:27	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Chrysene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Fluoranthene	**0.0250**	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Fluorene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
1-Methylnaphthalene	ND	0.0213	0.0426	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
2-Methylnaphthalene	ND	0.0213	0.0426	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
Naphthalene	ND	0.0426	0.0426	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
Phenanthrene	**0.0193**	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	**J**
Pyrene	**0.0197**	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	**J**
Carbazole	ND	0.0160	0.0319	ug/L	1	12/19/19 19:27	EPA 8270D	
Dibenzofuran	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
2-Chlorophenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
2,4-Dichlorophenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
2,4-Dimethylphenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
2,4-Dinitrophenol	ND	0.266	0.532	ug/L	1	12/19/19 19:27	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.266	0.532	ug/L	1	12/19/19 19:27	EPA 8270D	
2-Methylphenol	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
3+4-Methylphenol(s)	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
2-Nitrophenol	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
4-Nitrophenol	ND	0.213	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
Phenol	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	

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EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-GW-9 (A9L0524-01RE2)				**Matrix: Water**		**Batch: 9121037**		
2,3,5,6-Tetrachlorophenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**0.765**	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
Butyl benzyl phthalate	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
Diethylphthalate	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
Dimethylphthalate	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
Di-n-butylphthalate	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
Di-n-octyl phthalate	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
N-Nitrosodimethylamine	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.0532	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
Hexachlorobenzene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	
Hexachlorobutadiene	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
Hexachloroethane	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.0106	0.0213	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
1,3-Dichlorobenzene	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
1,4-Dichlorobenzene	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
1,2,4-Trichlorobenzene	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	Q-30
Aniline	ND	0.0532	0.106	ug/L	1	12/19/19 19:27	EPA 8270D	
4-Chloroaniline	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
2-Nitroaniline	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
3-Nitroaniline	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
4-Nitroaniline	ND	0.213	0.426	ug/L	1	12/19/19 19:27	EPA 8270D	
Nitrobenzene	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
2,4-Dinitrotoluene	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-GW-9 (A9L0524-01RE2)				**Matrix: Water**		**Batch: 9121037**		
2,6-Dinitrotoluene	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
Benzoic acid	ND	2.66	2.66	ug/L	1	12/19/19 19:27	EPA 8270D	
Benzyl alcohol	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
Isophorone	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.0266	0.0532	ug/L	1	12/19/19 19:27	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	0.266	0.532	ug/L	1	12/19/19 19:27	EPA 8270D	
3,3'-Dichlorobenzidine	ND	0.532	1.06	ug/L	1	12/19/19 19:27	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	0.266	0.532	ug/L	1	12/19/19 19:27	EPA 8270D	
1,3-Dinitrobenzene	ND	0.266	0.532	ug/L	1	12/19/19 19:27	EPA 8270D	
1,4-Dinitrobenzene	ND	0.266	0.532	ug/L	1	12/19/19 19:27	EPA 8270D	
Pyridine	ND	0.106	0.213	ug/L	1	12/19/19 19:27	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*76 %*	*Limits: 44-120 %*	*1*	*12/19/19 19:27*	*EPA 8270D*	
2-Fluorobiphenyl (Surr)			*63 %*	*44-120 %*	*1*	*12/19/19 19:27*	*EPA 8270D*	
Phenol-d6 (Surr)			*23 %*	*10-120 %*	*1*	*12/19/19 19:27*	*EPA 8270D*	
p-Terphenyl-d14 (Surr)			*87 %*	*50-133 %*	*1*	*12/19/19 19:27*	*EPA 8270D*	
2-Fluorophenol (Surr)			*35 %*	*19-120 %*	*1*	*12/19/19 19:27*	*EPA 8270D*	
2,4,6-Tribromophenol (Surr)			*97 %*	*43-140 %*	*1*	*12/19/19 19:27*	*EPA 8270D*	
RAU2-09-GW-9 (A9L0524-02RE1)				**Matrix: Water**		**Batch: 9121037**		
Acenaphthene	**0.967**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Acenaphthylene	**0.0164**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
Anthracene	**0.0261**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Benz(a)anthracene	**0.0124**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
Benzo(a)pyrene	**0.0168**	0.0143	0.0286	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
Benzo(b)fluoranthene	**0.0178**	0.0143	0.0286	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
Benzo(k)fluoranthene	ND	0.0143	0.0286	ug/L	1	12/18/19 20:28	EPA 8270D	
Benzo(g,h,i)perylene	ND	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Chrysene	**0.0131**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
Dibenz(a,h)anthracene	ND	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Fluoranthene	**0.139**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Fluorene	**0.0805**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
1-Methylnaphthalene	**0.0332**	0.0190	0.0381	ug/L	1	12/18/19 20:28	EPA 8270D	**J, Q-30**
2-Methylnaphthalene	**0.0248**	0.0190	0.0381	ug/L	1	12/18/19 20:28	EPA 8270D	**J, Q-30**

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EPA ID: OR01039

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-GW-9 (A9L0524-02RE1)				**Matrix: Water**		**Batch: 9121037**		
Naphthalene	**0.0647**	0.0190	0.0381	ug/L	1	12/18/19 20:28	EPA 8270D	**B-02, Q-30**
Phenanthrene	**0.0661**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Pyrene	**0.0836**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
Carbazole	**0.0338**	0.0143	0.0286	ug/L	1	12/18/19 20:28	EPA 8270D	
Dibenzofuran	**0.0581**	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.190	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
2-Chlorophenol	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
2,4-Dichlorophenol	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
2,4-Dimethylphenol	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
2,4-Dinitrophenol	ND	0.238	0.476	ug/L	1	12/18/19 20:28	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.238	0.476	ug/L	1	12/18/19 20:28	EPA 8270D	
2-Methylphenol	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
2-Nitrophenol	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
4-Nitrophenol	ND	0.190	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
Pentachlorophenol (PCP)	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
Phenol	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
2,3,5,6-Tetrachlorophenol	**0.0489**	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
2,4,5-Trichlorophenol	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
Bis(2-ethylhexyl)phthalate	**0.345**	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	**J**
Butyl benzyl phthalate	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
Diethylphthalate	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
Dimethylphthalate	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
Di-n-butylphthalate	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
Di-n-octyl phthalate	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
N-Nitrosodimethylamine	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	0.0476	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	0.0476	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
Hexachlorobenzene	ND	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-GW-9 (A9L0524-02RE1)				**Matrix: Water**		**Batch: 9121037**		
Hexachlorobutadiene	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	Q-30
Hexachlorocyclopentadiene	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
Hexachloroethane	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	Q-30
2-Chloronaphthalene	ND	0.00952	0.0190	ug/L	1	12/18/19 20:28	EPA 8270D	Q-30
1,2-Dichlorobenzene	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	Q-30
1,3-Dichlorobenzene	**0.0483**	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	**Q-30**
1,4-Dichlorobenzene	**0.0704**	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	**Q-30**
1,2,4-Trichlorobenzene	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	Q-30
4-Bromophenyl phenyl ether	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	Q-30
Aniline	ND	0.0476	0.0952	ug/L	1	12/18/19 20:28	EPA 8270D	
4-Chloroaniline	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
2-Nitroaniline	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
3-Nitroaniline	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
4-Nitroaniline	ND	0.190	0.381	ug/L	1	12/18/19 20:28	EPA 8270D	
Nitrobenzene	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
2,4-Dinitrotoluene	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
2,6-Dinitrotoluene	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
Benzoic acid	**3.20**	1.19	2.38	ug/L	1	12/18/19 20:28	EPA 8270D	**B-02**
Benzyl alcohol	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	
Isophorone	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
Azobenzene (1,2-DPH)	ND	0.0238	0.0476	ug/L	1	12/18/19 20:28	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	0.238	0.476	ug/L	1	12/18/19 20:28	EPA 8270D	
3,3'-Dichlorobenzidine	ND	0.476	0.952	ug/L	1	12/18/19 20:28	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	0.238	0.476	ug/L	1	12/18/19 20:28	EPA 8270D	
1,3-Dinitrobenzene	ND	0.238	0.476	ug/L	1	12/18/19 20:28	EPA 8270D	
1,4-Dinitrobenzene	ND	0.238	0.476	ug/L	1	12/18/19 20:28	EPA 8270D	
Pyridine	ND	0.0952	0.190	ug/L	1	12/18/19 20:28	EPA 8270D	

Surrogate: Nitrobenzene-d5 (Surr)	*Recovery: 100 %*	*Limits: 44-120 %*	*1*	*12/18/19 20:28*	*EPA 8270D*
2-Fluorobiphenyl (Surr)	*70 %*	*44-120 %*	*1*	*12/18/19 20:28*	*EPA 8270D*
Phenol-d6 (Surr)	*32 %*	*10-120 %*	*1*	*12/18/19 20:28*	*EPA 8270D*
p-Terphenyl-d14 (Surr)	*85 %*	*50-133 %*	*1*	*12/18/19 20:28*	*EPA 8270D*
2-Fluorophenol (Surr)	*47 %*	*19-120 %*	*1*	*12/18/19 20:28*	*EPA 8270D*
2,4,6-Tribromophenol (Surr)	*107 %*	*43-140 %*	*1*	*12/18/19 20:28*	*EPA 8270D*

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503-718-2323
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Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-GW-9 (A9L0524-02RE2)				**Matrix: Water**		**Batch: 9121037**		
3+4-Methylphenol(s)	**0.0733**	0.0238	0.0476	ug/L	1	12/19/19 18:53	EPA 8270D	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-08-GW-9 (A9L0524-01)				**Matrix: Water**				
Batch: 9121327								
Cadmium	ND	0.0400	0.200	ug/L	1	12/26/19 23:08	EPA 6020A	
Lead	**0.176**	0.100	0.200	ug/L	1	12/26/19 23:08	EPA 6020A	**J**
Mercury	ND	0.0400	0.0800	ug/L	1	12/26/19 23:08	EPA 6020A	
RAU2-08-GW-9 (A9L0524-01RE1)				**Matrix: Water**				
Batch: 9121327								
Arsenic	ND	10.0	20.0	ug/L	20	12/27/19 17:59	EPA 6020A	R-04
Chromium	ND	10.0	20.0	ug/L	20	12/27/19 17:59	EPA 6020A	R-04
Copper	ND	10.0	20.0	ug/L	20	12/27/19 17:59	EPA 6020A	R-04
Manganese	**338**	10.0	20.0	ug/L	20	12/27/19 17:59	EPA 6020A	
Nickel	ND	10.0	20.0	ug/L	20	12/27/19 17:59	EPA 6020A	R-04
Zinc	ND	40.0	80.0	ug/L	20	12/27/19 17:59	EPA 6020A	R-04
RAU2-09-GW-9 (A9L0524-02)				**Matrix: Water**				
Batch: 9121327								
Arsenic	**1.58**	0.500	1.00	ug/L	1	12/26/19 23:13	EPA 6020A	
Cadmium	ND	0.0400	0.200	ug/L	1	12/26/19 23:13	EPA 6020A	
Chromium	**0.765**	0.500	1.00	ug/L	1	12/26/19 23:13	EPA 6020A	**J**
Copper	**0.919**	0.500	1.00	ug/L	1	12/26/19 23:13	EPA 6020A	**J**
Lead	ND	0.100	0.200	ug/L	1	12/26/19 23:13	EPA 6020A	
Manganese	**743**	0.500	1.00	ug/L	1	12/26/19 23:13	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/26/19 23:13	EPA 6020A	
Nickel	ND	2.00	2.00	ug/L	1	12/26/19 23:13	EPA 6020A	A-03, B, R-01
Zinc	**2.53**	2.00	4.00	ug/L	1	12/26/19 23:13	EPA 6020A	**J**
RAU3-03-GW-5 (A9L0524-03)				**Matrix: Water**				
Batch: 9121311								
Arsenic	**0.630**	0.500	1.00	ug/L	1	12/26/19 17:55	EPA 6020A	**J**
Copper	**12.6**	0.500	1.00	ug/L	1	12/26/19 17:55	EPA 6020A	
Lead	**1.35**	0.100	0.200	ug/L	1	12/26/19 17:55	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/26/19 17:55	EPA 6020A	
Nickel	**3.38**	0.500	1.00	ug/L	1	12/26/19 17:55	EPA 6020A	
Zinc	**7.26**	2.00	4.00	ug/L	1	12/26/19 17:55	EPA 6020A	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU3-03-GW-5 (A9L0524-03RE1)				**Matrix: Water**				
Batch: 9121311								
Cadmium	ND	0.200	1.00	ug/L	5	12/27/19 15:50	EPA 6020A	R-04
Chromium	**5.39**	2.50	5.00	ug/L	5	12/27/19 15:50	EPA 6020A	
Manganese	**6330**	2.50	5.00	ug/L	5	12/27/19 15:50	EPA 6020A	
RAU6-02-GW-12 (A9L0524-04)				**Matrix: Water**				
Batch: 9121311								
Arsenic	**1.72**	0.500	1.00	ug/L	1	12/26/19 18:00	EPA 6020A	
Copper	**0.967**	0.500	1.00	ug/L	1	12/26/19 18:00	EPA 6020A	**J**
Lead	**0.525**	0.100	0.200	ug/L	1	12/26/19 18:00	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/26/19 18:00	EPA 6020A	
Nickel	**1.43**	0.500	1.00	ug/L	1	12/26/19 18:00	EPA 6020A	
Zinc	**6.72**	2.00	4.00	ug/L	1	12/26/19 18:00	EPA 6020A	
RAU6-02-GW-12 (A9L0524-04RE1)				**Matrix: Water**				
Batch: 9121311								
Cadmium	ND	0.200	1.00	ug/L	5	12/27/19 16:05	EPA 6020A	R-04
Chromium	ND	2.50	5.00	ug/L	5	12/27/19 16:05	EPA 6020A	R-04
Manganese	**4000**	2.50	5.00	ug/L	5	12/27/19 16:05	EPA 6020A	
RAU4-12-GW-9 (A9L0524-05)				**Matrix: Water**				
Batch: 9121311								
Arsenic	**1.35**	0.500	1.00	ug/L	1	12/26/19 18:04	EPA 6020A	
Copper	**21.3**	0.500	1.00	ug/L	1	12/26/19 18:04	EPA 6020A	
Lead	**1.27**	0.100	0.200	ug/L	1	12/26/19 18:04	EPA 6020A	
Mercury	ND	0.0400	0.0800	ug/L	1	12/26/19 18:04	EPA 6020A	
Nickel	**19.2**	0.500	1.00	ug/L	1	12/26/19 18:04	EPA 6020A	
Zinc	**33.1**	2.00	4.00	ug/L	1	12/26/19 18:04	EPA 6020A	
RAU4-12-GW-9 (A9L0524-05RE1)				**Matrix: Water**				
Batch: 9121311								
Cadmium	ND	0.200	1.00	ug/L	5	12/27/19 16:09	EPA 6020A	R-04
Chromium	**14.1**	2.50	5.00	ug/L	5	12/27/19 16:09	EPA 6020A	
RAU4-12-GW-9 (A9L0524-05RE2)				**Matrix: Water**				

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU4-12-GW-9 (A9L0524-05RE2)				**Matrix: Water**				
Batch: 9121311								
Manganese	**17600**	5.00	10.0	ug/L	10	12/27/19 21:29	EPA 6020A	

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ANALYTICAL SAMPLE RESULTS (Subcontracted)

Wet Chemistry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
RAU2-09-GW-9 (A9L0524-02)				**Matrix: Water**			**Batch: BHL0553**	
Batch: BHL0553								
Sulfide	ND	0.050	0.050	mg/L	1	12/26/19 16:50	SM 4500-S2 D-00	U

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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120896 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9120896-BLK1)			Prepared: 12/13/19 12:54 Analyzed: 12/13/19 20:21									
NWTPH-HCID												
Gasoline Range Organics	ND	0.0909	0.0909	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	0.227	0.227	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	0.227	0.227	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 81 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*29 %*	*10-120 %*			*"*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121059 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (9121059-BLK1)			Prepared: 12/18/19 10:55		Analyzed: 12/18/19 22:22							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 102 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS (9121059-BS1)			Prepared: 12/18/19 10:55		Analyzed: 12/18/19 22:44							
NWTPH-Dx												
Diesel	0.984	0.100	0.200	mg/L	1	1.25	---	79	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 102 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS Dup (9121059-BSD1)			Prepared: 12/18/19 10:55		Analyzed: 12/18/19 23:07							**Q-19**
NWTPH-Dx												
Diesel	1.04	0.100	0.200	mg/L	1	1.25	---	83	58-115%	5	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*		*Limits: 50-150 %*		*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121304 - EPA 3510C (Neutral pH)							**Water**					
Blank (9121304-BLK1)			Prepared: 12/26/19 07:12		Analyzed: 12/27/19 08:41							**C-07**
EPA 8082A												
Aroclor 1016	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 81 %*		*Limits: 40-135 %*			*Dilution: 1x*				
LCS (9121304-BS1)			Prepared: 12/26/19 07:12		Analyzed: 12/27/19 08:58							**C-07**
EPA 8082A												
Aroclor 1016	1.77	0.0200	0.0400	ug/L	1	2.50	---	71	46-129%	---	---	
Aroclor 1260	2.13	0.0200	0.0400	ug/L	1	2.50	---	85	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 82 %*		*Limits: 40-135 %*			*Dilution: 1x*				
LCS Dup (9121304-BSD1)			Prepared: 12/26/19 07:12		Analyzed: 12/27/19 09:16							**C-07, Q-19**
EPA 8082A												
Aroclor 1016	1.56	0.0200	0.0400	ug/L	1	2.50	---	62	46-129%	12	30%	
Aroclor 1260	2.09	0.0200	0.0400	ug/L	1	2.50	---	84	45-134%	2	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 84 %*		*Limits: 40-135 %*			*Dilution: 1x*				

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9121037-BLK1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 14:20							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	Q-30
2-Methylnaphthalene	ND	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	Q-30
Naphthalene	**0.0309**	0.0182	0.0364	ug/L	1	---	---	---	---	---	---	B-02, Q-30, J
Phenanthrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9121037-BLK1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 14:20							
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	0.0455	0.0455	ug/L	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
Hexachlorocyclopentadiene	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Hexachloroethane	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
2-Chloronaphthalene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	Q-30
1,2-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
1,3-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
1,4-Dichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
1,2,4-Trichlorobenzene	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
4-Bromophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	Q-30
Aniline	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
4-Chloroaniline	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
2-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
3-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
4-Nitroaniline	ND	0.182	0.364	ug/L	1	---	---	---	---	---	---	
Nitrobenzene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
Blank (9121037-BLK1)			Prepared: 12/18/19 07:06 Analyzed: 12/18/19 14:20									
Benzoic acid	**1.22**	1.14	2.27	ug/L	1	---	---	---	---	---	---	B-02, J
Benzyl alcohol	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Isophorone	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	0.0227	0.0455	ug/L	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	0.455	0.909	ug/L	1	---	---	---	---	---	---	
1,2-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	0.227	0.455	ug/L	1	---	---	---	---	---	---	
Pyridine	ND	0.0909	0.182	ug/L	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 94 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*59 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*26 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*90 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*38 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*85 %*		*43-140 %*			*"*				
LCS (9121037-BS1)			Prepared: 12/18/19 07:06 Analyzed: 12/18/19 14:57									
EPA 8270D												
Acenaphthene	1.97	0.0100	0.0200	ug/L	1	4.00	---	49	47-122%	---	---	
Acenaphthylene	2.32	0.0100	0.0200	ug/L	1	4.00	---	58	41-130%	---	---	
Anthracene	3.66	0.0100	0.0200	ug/L	1	4.00	---	92	57-123%	---	---	
Benz(a)anthracene	4.41	0.0100	0.0200	ug/L	1	4.00	---	110	58-125%	---	---	
Benzo(a)pyrene	4.03	0.0150	0.0300	ug/L	1	4.00	---	101	54-128%	---	---	
Benzo(b)fluoranthene	4.06	0.0150	0.0300	ug/L	1	4.00	---	102	53-131%	---	---	
Benzo(k)fluoranthene	4.23	0.0150	0.0300	ug/L	1	4.00	---	106	57-129%	---	---	
Benzo(g,h,i)perylene	3.51	0.0100	0.0200	ug/L	1	4.00	---	88	50-134%	---	---	
Chrysene	4.12	0.0100	0.0200	ug/L	1	4.00	---	103	59-123%	---	---	
Dibenz(a,h)anthracene	4.20	0.0100	0.0200	ug/L	1	4.00	---	105	51-134%	---	---	
Fluoranthene	4.19	0.0100	0.0200	ug/L	1	4.00	---	105	57-128%	---	---	
Fluorene	2.62	0.0100	0.0200	ug/L	1	4.00	---	66	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.74	0.0100	0.0200	ug/L	1	4.00	---	94	52-133%	---	---	
1-Methylnaphthalene	1.48	0.0200	0.0400	ug/L	1	4.00	---	**37**	**41-120%**	---	---	Q-30
2-Methylnaphthalene	1.42	0.0200	0.0400	ug/L	1	4.00	---	**36**	**40-121%**	---	---	Q-30

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9121037-BS1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 14:57							
Naphthalene	1.46	0.0200	0.0400	ug/L	1	4.00	---	**37**	**40-121%**	---	---	B-02, Q-30
Phenanthrene	3.23	0.0100	0.0200	ug/L	1	4.00	---	81	59-120%	---	---	
Pyrene	4.16	0.0100	0.0200	ug/L	1	4.00	---	104	57-126%	---	---	
Carbazole	4.51	0.0150	0.0300	ug/L	1	4.00	---	113	60-122%	---	---	
Dibenzofuran	2.31	0.0100	0.0200	ug/L	1	4.00	---	58	53-120%	---	---	
4-Chloro-3-methylphenol	3.88	0.100	0.200	ug/L	1	4.00	---	97	52-120%	---	---	
2-Chlorophenol	3.17	0.0500	0.100	ug/L	1	4.00	---	79	38-120%	---	---	
2,4-Dichlorophenol	3.69	0.0500	0.100	ug/L	1	4.00	---	92	47-121%	---	---	Q-41
2,4-Dimethylphenol	2.92	0.0500	0.100	ug/L	1	4.00	---	73	31-124%	---	---	
2,4-Dinitrophenol	4.58	0.250	0.500	ug/L	1	4.00	---	115	23-143%	---	---	Q-41
4,6-Dinitro-2-methylphenol	4.58	0.250	0.500	ug/L	1	4.00	---	115	44-137%	---	---	Q-41
2-Methylphenol	2.98	0.0250	0.0500	ug/L	1	4.00	---	75	30-120%	---	---	
3+4-Methylphenol(s)	2.78	0.0250	0.0500	ug/L	1	4.00	---	69	29-120%	---	---	Q-41
2-Nitrophenol	3.57	0.100	0.200	ug/L	1	4.00	---	89	47-123%	---	---	Q-41
4-Nitrophenol	1.53	0.100	0.200	ug/L	1	4.00	---	38	5-120%	---	---	
Pentachlorophenol (PCP)	3.80	0.100	0.200	ug/L	1	4.00	---	95	35-138%	---	---	
Phenol	1.36	0.200	0.400	ug/L	1	4.00	---	34	5-120%	---	---	Q-41
2,3,4,6-Tetrachlorophenol	3.84	0.0500	0.100	ug/L	1	4.00	---	96	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	4.04	0.0500	0.100	ug/L	1	4.00	---	101	50-121%	---	---	
2,4,5-Trichlorophenol	4.03	0.0500	0.100	ug/L	1	4.00	---	101	53-123%	---	---	
2,4,6-Trichlorophenol	3.84	0.0500	0.100	ug/L	1	4.00	---	96	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	4.38	0.200	0.400	ug/L	1	4.00	---	110	55-135%	---	---	
Butyl benzyl phthalate	4.41	0.200	0.400	ug/L	1	4.00	---	110	53-134%	---	---	
Diethylphthalate	4.12	0.200	0.400	ug/L	1	4.00	---	103	55-125%	---	---	
Dimethylphthalate	3.90	0.200	0.400	ug/L	1	4.00	---	98	45-127%	---	---	
Di-n-butylphthalate	4.43	0.200	0.400	ug/L	1	4.00	---	111	59-127%	---	---	
Di-n-octyl phthalate	4.89	0.200	0.400	ug/L	1	4.00	---	122	51-140%	---	---	Q-41
N-Nitrosodimethylamine	1.72	0.0250	0.0500	ug/L	1	4.00	---	43	6-120%	---	---	
N-Nitroso-di-n-propylamine	4.14	0.0250	0.0500	ug/L	1	4.00	---	104	49-120%	---	---	
N-Nitrosodiphenylamine	3.96	0.0250	0.0500	ug/L	1	4.00	---	99	51-123%	---	---	
Bis(2-Chloroethoxy) methane	3.67	0.0250	0.0500	ug/L	1	4.00	---	92	48-120%	---	---	
Bis(2-Chloroethyl) ether	3.44	0.0250	0.0500	ug/L	1	4.00	---	86	43-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	2.68	0.0250	0.0500	ug/L	1	4.00	---	67	37-130%	---	---	
Hexachlorobenzene	3.11	0.0100	0.0200	ug/L	1	4.00	---	78	52-125%	---	---	

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (9121037-BS1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 14:57							
Hexachlorobutadiene	0.698	0.0250	0.0500	ug/L	1	4.00	---	**17**	**22-124%**	---	---	Q-30
Hexachlorocyclopentadiene	0.531	0.0500	0.100	ug/L	1	4.00	---	13	5-127%	---	---	Q-31
Hexachloroethane	0.743	0.0250	0.0500	ug/L	1	4.00	---	**19**	**21-120%**	---	---	Q-30
2-Chloronaphthalene	1.48	0.0100	0.0200	ug/L	1	4.00	---	**37**	**40-120%**	---	---	Q-30
1,2-Dichlorobenzene	0.962	0.0250	0.0500	ug/L	1	4.00	---	**24**	**32-120%**	---	---	Q-30
1,3-Dichlorobenzene	0.833	0.0250	0.0500	ug/L	1	4.00	---	**21**	**28-120%**	---	---	Q-30
1,4-Dichlorobenzene	0.889	0.0250	0.0500	ug/L	1	4.00	---	**22**	**29-120%**	---	---	Q-30
1,2,4-Trichlorobenzene	0.939	0.0250	0.0500	ug/L	1	4.00	---	**23**	**29-120%**	---	---	Q-30
4-Bromophenyl phenyl ether	2.69	0.0250	0.0500	ug/L	1	4.00	---	67	54-124%	---	---	
4-Chlorophenyl phenyl ether	2.09	0.0250	0.0500	ug/L	1	4.00	---	**52**	**53-121%**	---	---	Q-30
Aniline	2.26	0.0500	0.100	ug/L	1	4.00	---	57	6-120%	---	---	
4-Chloroaniline	2.94	0.0250	0.0500	ug/L	1	4.00	---	73	33-120%	---	---	
2-Nitroaniline	4.24	0.200	0.400	ug/L	1	4.00	---	106	54-127%	---	---	
3-Nitroaniline	4.13	0.200	0.400	ug/L	1	4.00	---	103	41-128%	---	---	
4-Nitroaniline	4.50	0.200	0.400	ug/L	1	4.00	---	113	35-120%	---	---	
Nitrobenzene	3.64	0.100	0.200	ug/L	1	4.00	---	91	45-121%	---	---	
2,4-Dinitrotoluene	4.20	0.100	0.200	ug/L	1	4.00	---	105	57-128%	---	---	
2,6-Dinitrotoluene	3.94	0.100	0.200	ug/L	1	4.00	---	99	57-124%	---	---	
Benzoic acid	4.07	1.25	2.50	ug/L	1	8.00	---	51	5-120%	---	---	B-02, Q-41
Benzyl alcohol	3.40	0.100	0.200	ug/L	1	4.00	---	85	31-120%	---	---	Q-41
Isophorone	3.92	0.0250	0.0500	ug/L	1	4.00	---	98	42-124%	---	---	
Azobenzene (1,2-DPH)	3.51	0.0250	0.0500	ug/L	1	4.00	---	88	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	4.64	0.250	0.500	ug/L	1	4.00	---	116	40-125%	---	---	
3,3'-Dichlorobenzidine	9.35	0.500	1.00	ug/L	1	8.00	---	117	27-129%	---	---	Q-41
1,2-Dinitrobenzene	4.06	0.250	0.500	ug/L	1	4.00	---	101	59-120%	---	---	
1,3-Dinitrobenzene	4.23	0.250	0.500	ug/L	1	4.00	---	106	49-128%	---	---	
1,4-Dinitrobenzene	4.33	0.250	0.500	ug/L	1	4.00	---	108	40-120%	---	---	Q-41
Pyridine	0.849	0.100	0.200	ug/L	1	4.00	---	21	5-120%	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 104 %*	*Limits: 44-120 %*	*Dilution: 1x*
2-Fluorobiphenyl (Surr)	*70 %*	*44-120 %*	*"*
Phenol-d6 (Surr)	*27 %*	*10-120 %*	*"*
p-Terphenyl-d14 (Surr)	*100 %*	*50-133 %*	*"*
2-Fluorophenol (Surr)	*39 %*	*19-120 %*	*"*
2,4,6-Tribromophenol (Surr)	*100 %*	*43-140 %*	*"*

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9121037-BSD1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 15:33							**Q-19**
EPA 8270D												
Acenaphthene	2.33	0.0100	0.0200	ug/L	1	4.00	---	58	47-122%	17	30%	
Acenaphthylene	2.66	0.0100	0.0200	ug/L	1	4.00	---	67	41-130%	14	30%	
Anthracene	3.73	0.0100	0.0200	ug/L	1	4.00	---	93	57-123%	2	30%	
Benz(a)anthracene	4.30	0.0100	0.0200	ug/L	1	4.00	---	108	58-125%	2	30%	
Benzo(a)pyrene	4.01	0.0150	0.0300	ug/L	1	4.00	---	100	54-128%	0.5	30%	
Benzo(b)fluoranthene	4.04	0.0150	0.0300	ug/L	1	4.00	---	101	53-131%	0.5	30%	
Benzo(k)fluoranthene	4.30	0.0150	0.0300	ug/L	1	4.00	---	107	57-129%	2	30%	
Benzo(g,h,i)perylene	3.53	0.0100	0.0200	ug/L	1	4.00	---	88	50-134%	0.5	30%	
Chrysene	4.05	0.0100	0.0200	ug/L	1	4.00	---	101	59-123%	2	30%	
Dibenz(a,h)anthracene	4.15	0.0100	0.0200	ug/L	1	4.00	---	104	51-134%	1	30%	
Fluoranthene	4.20	0.0100	0.0200	ug/L	1	4.00	---	105	57-128%	0.2	30%	
Fluorene	2.91	0.0100	0.0200	ug/L	1	4.00	---	73	52-124%	10	30%	
Indeno(1,2,3-cd)pyrene	3.74	0.0100	0.0200	ug/L	1	4.00	---	93	52-133%	0.04	30%	
1-Methylnaphthalene	1.87	0.0200	0.0400	ug/L	1	4.00	---	47	41-120%	24	30%	
2-Methylnaphthalene	1.82	0.0200	0.0400	ug/L	1	4.00	---	45	40-121%	24	30%	
Naphthalene	1.85	0.0200	0.0400	ug/L	1	4.00	---	46	40-121%	24	30%	B-02
Phenanthrene	3.35	0.0100	0.0200	ug/L	1	4.00	---	84	59-120%	4	30%	
Pyrene	4.17	0.0100	0.0200	ug/L	1	4.00	---	104	57-126%	0.2	30%	
Carbazole	4.48	0.0150	0.0300	ug/L	1	4.00	---	112	60-122%	0.6	30%	
Dibenzofuran	2.65	0.0100	0.0200	ug/L	1	4.00	---	66	53-120%	13	30%	
4-Chloro-3-methylphenol	3.98	0.100	0.200	ug/L	1	4.00	---	100	52-120%	3	30%	
2-Chlorophenol	3.27	0.0500	0.100	ug/L	1	4.00	---	82	38-120%	3	30%	
2,4-Dichlorophenol	3.79	0.0500	0.100	ug/L	1	4.00	---	95	47-121%	3	30%	Q-41
2,4-Dimethylphenol	3.02	0.0500	0.100	ug/L	1	4.00	---	76	31-124%	3	30%	
2,4-Dinitrophenol	4.63	0.250	0.500	ug/L	1	4.00	---	116	23-143%	0.9	30%	Q-41
4,6-Dinitro-2-methylphenol	4.58	0.250	0.500	ug/L	1	4.00	---	115	44-137%	0.01	30%	Q-41
2-Methylphenol	3.11	0.0250	0.0500	ug/L	1	4.00	---	78	30-120%	4	30%	
3+4-Methylphenol(s)	2.92	0.0250	0.0500	ug/L	1	4.00	---	73	29-120%	5	30%	Q-41
2-Nitrophenol	3.64	0.100	0.200	ug/L	1	4.00	---	91	47-123%	2	30%	
4-Nitrophenol	1.80	0.100	0.200	ug/L	1	4.00	---	45	5-120%	16	30%	
Pentachlorophenol (PCP)	3.88	0.100	0.200	ug/L	1	4.00	---	97	35-138%	2	30%	
Phenol	1.62	0.200	0.400	ug/L	1	4.00	---	40	5-120%	18	30%	Q-41
2,3,4,6-Tetrachlorophenol	3.91	0.0500	0.100	ug/L	1	4.00	---	98	50-128%	2	30%	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9121037-BSD1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 15:33							**Q-19**
2,3,5,6-Tetrachlorophenol	4.05	0.0500	0.100	ug/L	1	4.00	---	101	50-121%	0.2	30%	
2,4,5-Trichlorophenol	4.08	0.0500	0.100	ug/L	1	4.00	---	102	53-123%	1	30%	
2,4,6-Trichlorophenol	3.87	0.0500	0.100	ug/L	1	4.00	---	97	50-125%	0.9	30%	
Bis(2-ethylhexyl)phthalate	4.31	0.200	0.400	ug/L	1	4.00	---	108	55-135%	2	30%	
Butyl benzyl phthalate	4.38	0.200	0.400	ug/L	1	4.00	---	110	53-134%	0.7	30%	
Diethylphthalate	4.11	0.200	0.400	ug/L	1	4.00	---	103	55-125%	0.3	30%	
Dimethylphthalate	3.90	0.200	0.400	ug/L	1	4.00	---	97	45-127%	0.2	30%	
Di-n-butylphthalate	4.38	0.200	0.400	ug/L	1	4.00	---	110	59-127%	1	30%	
Di-n-octyl phthalate	4.89	0.200	0.400	ug/L	1	4.00	---	122	51-140%	0.07	30%	
N-Nitrosodimethylamine	1.94	0.0250	0.0500	ug/L	1	4.00	---	49	6-120%	12	30%	
N-Nitroso-di-n-propylamine	3.95	0.0250	0.0500	ug/L	1	4.00	---	99	49-120%	5	30%	
N-Nitrosodiphenylamine	3.97	0.0250	0.0500	ug/L	1	4.00	---	99	51-123%	0.2	30%	
Bis(2-Chloroethoxy) methane	3.67	0.0250	0.0500	ug/L	1	4.00	---	92	48-120%	0.1	30%	
Bis(2-Chloroethyl) ether	3.36	0.0250	0.0500	ug/L	1	4.00	---	84	43-120%	2	30%	
2,2'-Oxybis(1-Chloropropane)	2.79	0.0250	0.0500	ug/L	1	4.00	---	70	37-130%	4	30%	
Hexachlorobenzene	3.23	0.0100	0.0200	ug/L	1	4.00	---	81	52-125%	4	30%	
Hexachlorobutadiene	1.02	0.0250	0.0500	ug/L	1	4.00	---	25	22-124%	**37**	**30%**	Q-01
Hexachlorocyclopentadiene	0.851	0.0500	0.100	ug/L	1	4.00	---	21	5-127%	**46**	**30%**	Q-24, Q-31
Hexachloroethane	1.10	0.0250	0.0500	ug/L	1	4.00	---	28	21-120%	**39**	**30%**	Q-01
2-Chloronaphthalene	1.88	0.0100	0.0200	ug/L	1	4.00	---	47	40-120%	24	30%	
1,2-Dichlorobenzene	1.34	0.0250	0.0500	ug/L	1	4.00	---	34	32-120%	**33**	**30%**	Q-01
1,3-Dichlorobenzene	1.21	0.0250	0.0500	ug/L	1	4.00	---	30	28-120%	**37**	**30%**	Q-01
1,4-Dichlorobenzene	1.27	0.0250	0.0500	ug/L	1	4.00	---	32	29-120%	**35**	**30%**	Q-01
1,2,4-Trichlorobenzene	1.30	0.0250	0.0500	ug/L	1	4.00	---	33	29-120%	**32**	**30%**	Q-01
4-Bromophenyl phenyl ether	3.04	0.0250	0.0500	ug/L	1	4.00	---	76	54-124%	12	30%	
4-Chlorophenyl phenyl ether	2.50	0.0250	0.0500	ug/L	1	4.00	---	62	53-121%	17	30%	
Aniline	3.34	0.0500	0.100	ug/L	1	4.00	---	84	6-120%	**39**	**30%**	Q-24
4-Chloroaniline	3.37	0.0250	0.0500	ug/L	1	4.00	---	84	33-120%	14	30%	
2-Nitroaniline	4.22	0.200	0.400	ug/L	1	4.00	---	106	54-127%	0.4	30%	
3-Nitroaniline	4.24	0.200	0.400	ug/L	1	4.00	---	106	41-128%	3	30%	
4-Nitroaniline	4.68	0.200	0.400	ug/L	1	4.00	---	117	35-120%	4	30%	
Nitrobenzene	3.60	0.100	0.200	ug/L	1	4.00	---	90	45-121%	1	30%	
2,4-Dinitrotoluene	4.19	0.100	0.200	ug/L	1	4.00	---	105	57-128%	0.2	30%	
2,6-Dinitrotoluene	3.96	0.100	0.200	ug/L	1	4.00	---	99	57-124%	0.5	30%	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121037 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS Dup (9121037-BSD1)			Prepared: 12/18/19 07:06		Analyzed: 12/18/19 15:33							**Q-19**
Benzoic acid	4.23	1.25	2.50	ug/L	1	8.00	---	53	5-120%	4	30%	B-02
Benzyl alcohol	3.47	0.100	0.200	ug/L	1	4.00	---	87	31-120%	2	30%	Q-41
Isophorone	3.93	0.0250	0.0500	ug/L	1	4.00	---	98	42-124%	0.2	30%	
Azobenzene (1,2-DPH)	3.66	0.0250	0.0500	ug/L	1	4.00	---	92	61-120%	4	30%	
Bis(2-Ethylhexyl) adipate	4.59	0.250	0.500	ug/L	1	4.00	---	115	40-125%	0.9	30%	
3,3'-Dichlorobenzidine	9.81	0.500	1.00	ug/L	1	8.00	---	123	27-129%	5	30%	
1,2-Dinitrobenzene	4.05	0.250	0.500	ug/L	1	4.00	---	101	59-120%	0.2	30%	
1,3-Dinitrobenzene	4.21	0.250	0.500	ug/L	1	4.00	---	105	49-128%	0.6	30%	
1,4-Dinitrobenzene	4.36	0.250	0.500	ug/L	1	4.00	---	109	40-120%	0.6	30%	Q-41
Pyridine	1.57	0.100	0.200	ug/L	1	4.00	---	39	5-120%	**59**	**30%**	Q-24
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 99 %*		*Limits: 44-120 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*71 %*		*44-120 %*				*"*			
Phenol-d6 (Surr)			*30 %*		*10-120 %*				*"*			
p-Terphenyl-d14 (Surr)			*98 %*		*50-133 %*				*"*			
2-Fluorophenol (Surr)			*45 %*		*19-120 %*				*"*			
2,4,6-Tribromophenol (Surr)			*101 %*		*43-140 %*				*"*			

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121311 - EPA 3015A							**Water**					
Blank (9121311-BLK1)			Prepared: 12/26/19 09:28		Analyzed: 12/26/19 17:36							
EPA 6020A												
Copper	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	ug/L	1	---	---	---	---	---	---	
Blank (9121311-BLK2)			Prepared: 12/26/19 09:28		Analyzed: 12/27/19 15:41							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	Q-16
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	Q-16
Chromium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	Q-16
LCS (9121311-BS1)			Prepared: 12/26/19 09:28		Analyzed: 12/26/19 17:50							
EPA 6020A												
Arsenic	47.4	0.500	1.00	ug/L	1	55.6	---	85	80-120%	---	---	
Copper	51.0	0.500	1.00	ug/L	1	55.6	---	92	80-120%	---	---	
Lead	49.1	0.100	0.200	ug/L	1	55.6	---	88	80-120%	---	---	
Manganese	48.3	0.500	1.00	ug/L	1	55.6	---	87	80-120%	---	---	
Mercury	1.05	0.0400	0.0800	ug/L	1	1.11	---	95	80-120%	---	---	
Nickel	50.3	0.500	1.00	ug/L	1	55.6	---	91	80-120%	---	---	
Zinc	50.3	2.00	4.00	ug/L	1	55.6	---	90	80-120%	---	---	
LCS (9121311-BS2)			Prepared: 12/26/19 09:28		Analyzed: 12/27/19 15:46							
EPA 6020A												
Cadmium	53.8	0.0400	0.200	ug/L	1	55.6	---	97	80-120%	---	---	Q-16
Chromium	51.9	0.500	1.00	ug/L	1	55.6	---	93	80-120%	---	---	Q-16
Duplicate (9121311-DUP1)			Prepared: 12/26/19 09:28		Analyzed: 12/26/19 18:14							
QC Source Sample: Non-SDG (A9L0525-01)												
Arsenic	ND	2.50	5.00	ug/L	5	---	ND	---	---	---	20%	R-04
Copper	ND	2.50	5.00	ug/L	5	---	ND	---	---	---	20%	R-04

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121311 - EPA 3015A							**Water**					
Duplicate (9121311-DUP1)			Prepared: 12/26/19 09:28		Analyzed: 12/26/19 18:14							
QC Source Sample: Non-SDG (A9L0525-01)												
Lead	ND	0.500	1.00	ug/L	5	---	ND	---	---	---	20%	R-04
Manganese	**1190**	2.50	5.00	ug/L	5	---	1260	---	---	6	20%	
Mercury	ND	0.200	0.400	ug/L	5	---	ND	---	---	---	20%	R-04
Nickel	ND	2.50	5.00	ug/L	5	---	ND	---	---	---	20%	R-04
Zinc	**12.7**	10.0	20.0	ug/L	5	---	13.1	---	---	3	20%	R-04, J
Duplicate (9121311-DUP2)			Prepared: 12/26/19 09:28		Analyzed: 12/27/19 16:19							
QC Source Sample: Non-SDG (A9L0525-01RE1)												
Cadmium	ND	0.200	1.00	ug/L	5	---	ND	---	---	---	20%	Q-16, R-04
Chromium	ND	2.50	5.00	ug/L	5	---	ND	---	---	---	20%	Q-16, R-04
Matrix Spike (9121311-MS1)			Prepared: 12/26/19 09:28		Analyzed: 12/26/19 18:18							
QC Source Sample: Non-SDG (A9L0525-01)												
EPA 6020A												
Arsenic	51.9	2.50	5.00	ug/L	5	55.6	ND	93	75-125%	---	---	
Copper	52.4	2.50	5.00	ug/L	5	55.6	ND	94	75-125%	---	---	
Lead	50.2	0.500	1.00	ug/L	5	55.6	ND	90	75-125%	---	---	
Manganese	1260	2.50	5.00	ug/L	5	55.6	1260	**2**	**75-125%**	---	---	Q-03
Mercury	1.13	0.200	0.400	ug/L	5	1.11	ND	101	75-125%	---	---	
Nickel	50.2	2.50	5.00	ug/L	5	55.6	ND	90	75-125%	---	---	
Zinc	61.8	10.0	20.0	ug/L	5	55.6	13.1	88	75-125%	---	---	
Matrix Spike (9121311-MS2)			Prepared: 12/26/19 09:28		Analyzed: 12/26/19 19:52							
QC Source Sample: Non-SDG (A9L0891-01)												
EPA 6020A												
Copper	52.7	0.500	1.00	ug/L	1	55.6	2.39	91	75-125%	---	---	
Lead	48.3	0.100	0.200	ug/L	1	55.6	0.572	86	75-125%	---	---	
Manganese	61.2	0.500	1.00	ug/L	1	55.6	12.8	87	75-125%	---	---	
Mercury	1.02	0.0400	0.0800	ug/L	1	1.11	ND	92	75-125%	---	---	
Nickel	49.6	0.500	1.00	ug/L	1	55.6	0.507	88	75-125%	---	---	
Zinc	74.1	2.00	4.00	ug/L	1	55.6	24.8	89	75-125%	---	---	

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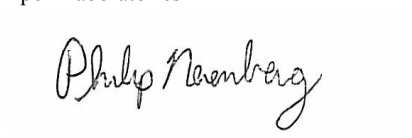

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2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121311 - EPA 3015A							**Water**					
Matrix Spike (9121311-MS3)			Prepared: 12/26/19 09:28		Analyzed: 12/27/19 16:23							
QC Source Sample: Non-SDG (A9L0525-01RE1)												
EPA 6020A												
Cadmium	56.4	0.200	1.00	ug/L	5	55.6	ND	102	75-125%	---	---	Q-16
Chromium	53.3	2.50	5.00	ug/L	5	55.6	ND	96	75-125%	---	---	Q-16
Matrix Spike (9121311-MS4)			Prepared: 12/26/19 09:28		Analyzed: 12/27/19 16:33							
QC Source Sample: Non-SDG (A9L0891-01RE1)												
EPA 6020A												
Arsenic	53.3	0.500	1.00	ug/L	1	55.6	ND	96	75-125%	---	---	Q-16
Cadmium	53.5	0.0400	0.200	ug/L	1	55.6	ND	96	75-125%	---	---	Q-16
Chromium	52.9	0.500	1.00	ug/L	1	55.6	0.964	94	75-125%	---	---	Q-16

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QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121327 - EPA 3015A							**Water**					
Blank (9121327-BLK1)			Prepared: 12/26/19 11:50		Analyzed: 12/26/19 21:39							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	**1.17**	0.500	1.00	ug/L	1	---	---	---	---	---	---	B
Zinc	ND	2.00	4.00	ug/L	1	---	---	---	---	---	---	
LCS (9121327-BS1)			Prepared: 12/26/19 11:50		Analyzed: 12/26/19 21:44							
EPA 6020A												
Arsenic	51.6	0.500	1.00	ug/L	1	55.6	---	93	80-120%	---	---	
Cadmium	51.7	0.0400	0.200	ug/L	1	55.6	---	93	80-120%	---	---	
Chromium	52.1	0.500	1.00	ug/L	1	55.6	---	94	80-120%	---	---	
Copper	54.2	0.500	1.00	ug/L	1	55.6	---	98	80-120%	---	---	
Lead	53.3	0.100	0.200	ug/L	1	55.6	---	96	80-120%	---	---	
Manganese	52.8	0.500	1.00	ug/L	1	55.6	---	95	80-120%	---	---	
Mercury	1.10	0.0400	0.0800	ug/L	1	1.11	---	99	80-120%	---	---	
Nickel	53.8	0.500	1.00	ug/L	1	55.6	---	97	80-120%	---	---	B
Zinc	51.6	2.00	4.00	ug/L	1	55.6	---	93	80-120%	---	---	
Duplicate (9121327-DUP1)			Prepared: 12/26/19 11:50		Analyzed: 12/26/19 22:12							
QC Source Sample: Non-SDG (A9L0503-03)												
Arsenic	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	20%	
Cadmium	ND	0.0400	0.200	ug/L	1	---	ND	---	---	---	20%	
Chromium	**0.881**	0.500	1.00	ug/L	1	---	0.866	---	---	2	20%	J
Copper	**8.68**	0.500	1.00	ug/L	1	---	8.07	---	---	7	20%	
Lead	**1.19**	0.100	0.200	ug/L	1	---	1.17	---	---	2	20%	
Manganese	**4.35**	0.500	1.00	ug/L	1	---	4.43	---	---	2	20%	
Mercury	ND	0.0400	0.0800	ug/L	1	---	ND	---	---	---	20%	
Nickel	ND	0.500	1.00	ug/L	1	---	ND	---	---	---	20%	
Zinc	**45.1**	2.00	4.00	ug/L	1	---	44.1	---	---	2	20%	

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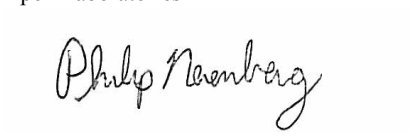

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121327 - EPA 3015A							**Water**					
Matrix Spike (9121327-MS1)				Prepared: 12/26/19 11:50		Analyzed: 12/26/19 22:17						
QC Source Sample: Non-SDG (A9L0503-03)												
EPA 6020A												
Arsenic	52.0	0.500	1.00	ug/L	1	55.6	ND	94	75-125%	---	---	
Cadmium	51.6	0.0400	0.200	ug/L	1	55.6	ND	93	75-125%	---	---	
Chromium	52.4	0.500	1.00	ug/L	1	55.6	0.866	93	75-125%	---	---	
Copper	61.6	0.500	1.00	ug/L	1	55.6	8.07	96	75-125%	---	---	
Lead	54.8	0.100	0.200	ug/L	1	55.6	1.17	97	75-125%	---	---	
Manganese	56.9	0.500	1.00	ug/L	1	55.6	4.43	95	75-125%	---	---	
Mercury	1.09	0.0400	0.0800	ug/L	1	1.11	ND	98	75-125%	---	---	
Nickel	53.7	0.500	1.00	ug/L	1	55.6	ND	97	75-125%	---	---	B
Zinc	97.5	2.00	4.00	ug/L	1	55.6	44.1	96	75-125%	---	---	
Matrix Spike (9121327-MS2)				Prepared: 12/26/19 11:50		Analyzed: 12/26/19 23:55						
QC Source Sample: Non-SDG (A9L0529-01)												
EPA 6020A												
Arsenic	51.5	0.500	1.00	ug/L	1	55.6	0.839	91	75-125%	---	---	
Cadmium	51.5	0.0400	0.200	ug/L	1	55.6	0.415	92	75-125%	---	---	
Chromium	57.6	0.500	1.00	ug/L	1	55.6	5.86	93	75-125%	---	---	
Copper	79.6	0.500	1.00	ug/L	1	55.6	26.2	96	75-125%	---	---	
Lead	60.8	0.100	0.200	ug/L	1	55.6	8.20	95	75-125%	---	---	
Manganese	145	0.500	1.00	ug/L	1	55.6	90.6	99	75-125%	---	---	
Mercury	1.06	0.0400	0.0800	ug/L	1	1.11	ND	96	75-125%	---	---	
Nickel	62.9	0.500	1.00	ug/L	1	55.6	9.75	96	75-125%	---	---	B
Zinc	182	2.00	4.00	ug/L	1	55.6	129	95	75-125%	---	---	

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Analytical Resources, Inc.

QUALITY CONTROL (QC) SAMPLE RESULTS

Wet Chemistry

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch BHL0553 - No Prep Wet Chem							**Water**					
Blank (BHL0553-BLK1)			Prepared: 12/18/19 13:45		Analyzed: 12/26/19 16:49							
SM 4500-S2 D-00												
Sulfide	ND	0.050	0.050	mg/L	1	---	---	---	---	---	---	U
LCS (BHL0553-BS1)			Prepared: 12/18/19 13:45		Analyzed: 12/26/19 16:49							
SM 4500-S2 D-00												
Sulfide	5.73	0.500	0.500	mg/L	10	6.8337	---	83.8	75-125%	---	---	D

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120896							
A9L0524-03	Water	NWTPH-HCID	12/11/19 15:34	12/13/19 12:54	910mL/5mL	1000mL/5mL	1.10
A9L0524-04	Water	NWTPH-HCID	12/11/19 16:58	12/13/19 12:54	940mL/5mL	1000mL/5mL	1.06
A9L0524-05	Water	NWTPH-HCID	12/11/19 16:27	12/13/19 12:54	950mL/5mL	1000mL/5mL	1.05

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121059							
A9L0524-01	Water	NWTPH-Dx	12/11/19 14:09	12/18/19 10:55	970mL/5mL	1000mL/5mL	1.03
A9L0524-02	Water	NWTPH-Dx	12/11/19 14:37	12/18/19 10:55	1050mL/5mL	1000mL/5mL	0.95

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121304							
A9L0524-01	Water	EPA 8082A	12/11/19 14:09	12/26/19 09:38	1000mL/2mL	1000mL/2mL	1.00
A9L0524-02	Water	EPA 8082A	12/11/19 14:37	12/26/19 09:38	950mL/2mL	1000mL/2mL	1.05

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid/Base Neutral)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121037							
A9L0524-01RE2	Water	EPA 8270D	12/11/19 14:09	12/18/19 07:08	940mL/1mL	1000mL/1mL	1.06
A9L0524-02RE1	Water	EPA 8270D	12/11/19 14:37	12/18/19 07:08	1050mL/1mL	1000mL/1mL	0.95
A9L0524-02RE2	Water	EPA 8270D	12/11/19 14:37	12/18/19 07:08	1050mL/1mL	1000mL/1mL	0.95

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121311							
A9L0524-03	Water	EPA 6020A	12/11/19 15:34	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00
A9L0524-03RE1	Water	EPA 6020A	12/11/19 15:34	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9L0524-04	Water	EPA 6020A	12/11/19 16:58	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00
A9L0524-04RE1	Water	EPA 6020A	12/11/19 16:58	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00
A9L0524-05	Water	EPA 6020A	12/11/19 16:27	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00
A9L0524-05RE1	Water	EPA 6020A	12/11/19 16:27	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00
A9L0524-05RE2	Water	EPA 6020A	12/11/19 16:27	12/26/19 09:28	45mL/50mL	45mL/50mL	1.00
Batch: 9121327							
A9L0524-01	Water	EPA 6020A	12/11/19 14:09	12/26/19 11:50	45mL/50mL	45mL/50mL	1.00
A9L0524-01RE1	Water	EPA 6020A	12/11/19 14:09	12/26/19 11:50	45mL/50mL	45mL/50mL	1.00
A9L0524-02	Water	EPA 6020A	12/11/19 14:37	12/26/19 11:50	45mL/50mL	45mL/50mL	1.00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

Analytical Resources, Inc.

SAMPLE PREPARATION INFORMATION

Wet Chemistry

Prep: No Prep Wet Chem

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: BHL0553							
A9L0524-02	Water	SM 4500-S2 D-00	12/11/19 14:37	12/18/19 13:45	100mL/100mL	5mL/5mL	1.00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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QUALIFIER DEFINITIONS

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

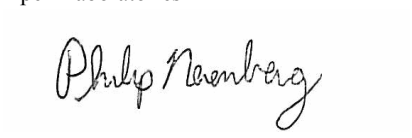
Apex Laboratories

A-03	Reporting Limit raised due to analyte in Blank. Sample can not be reextracted for a lower reporting limit due to sample matrix.
B	Analyte detected in an associated blank at a level above the MRL. (See Notes and Conventions below.)
B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-03	Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-24	The RPD for this spike and spike duplicate is above established control limits. Recoveries for both the spike and spike duplicate are within control limits.
Q-30	Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-52	Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
R-04	Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.

Analytical Resources, Inc.

D	The reported value is from a dilution
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).

Apex Laboratories



Philip Nerenberg, Lab Director

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

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

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

NR Result Not Reported

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

Detection Limits: Limit of Detection (LOD)

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

Reporting Limits: Limit of Quantitation (LOQ)

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

Reporting Conventions:

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

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

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

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

QC Source:

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

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

Miscellaneous Notes:

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

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

Blanks:

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

Apex Laboratories



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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

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

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

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

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

Soil and Sediment Samples:

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

Sampling and Preservation Notes:

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

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

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

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

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LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

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

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

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

Secondary Accreditations

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

Subcontract Laboratory Accreditations

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

Field Testing Parameters

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

Apex Laboratories



Philip Nerenberg, Lab Director

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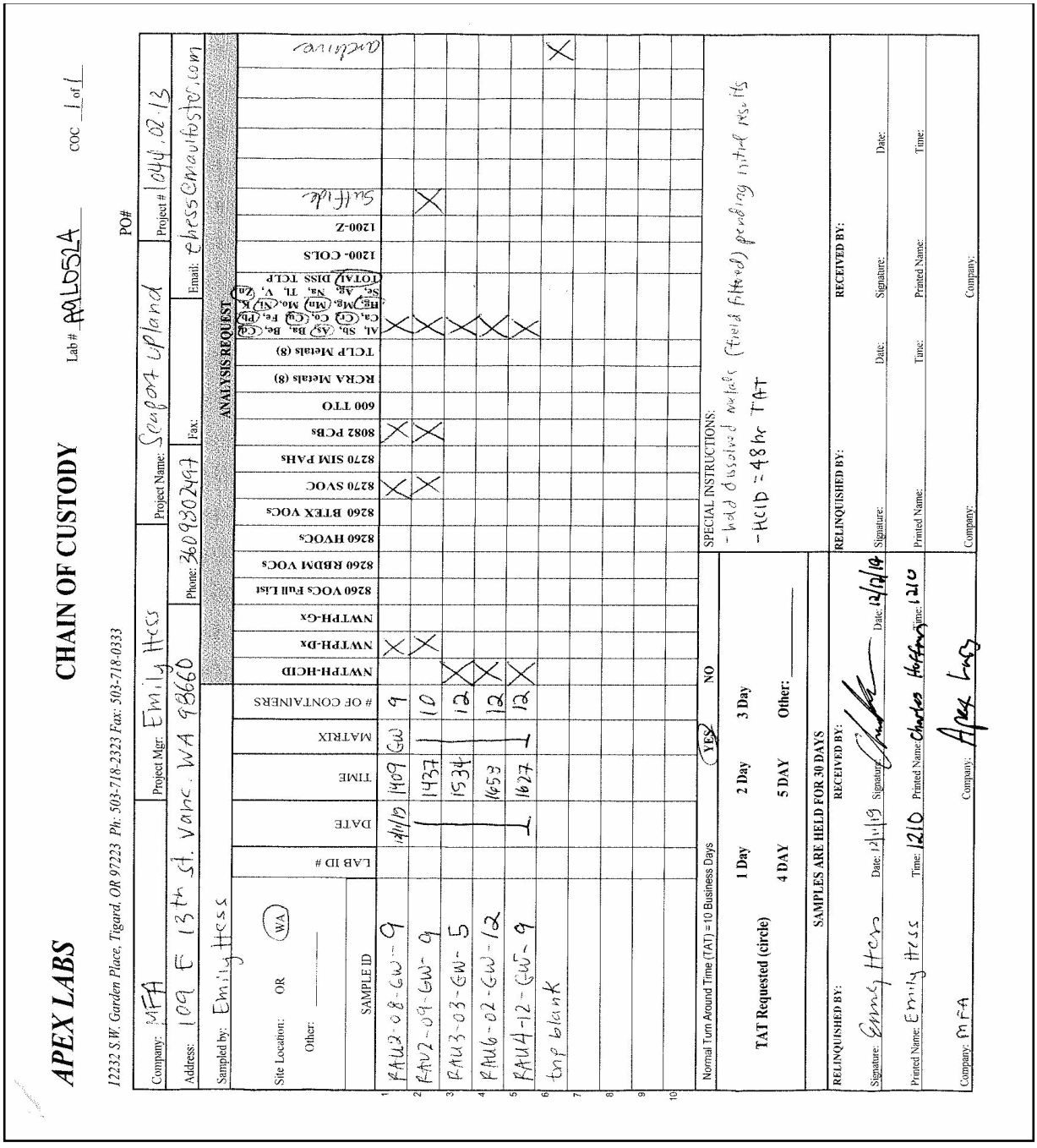

APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A9L0524 COC 1 of 1

PO#

Company: MFA | Project Mgr: Emily Hess | Project Name: Seaport upland | Project # 1044.02.13

Address: 1001 E 13th St. Vanc. WA 98660 | Phone: 3609302497 | Fax: | Email: ehess@maulfoster.com

Sampled by: Emily Hess

Site Location: OR (WA) Other: _____

ANALYSIS REQUEST

	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn	TOTAL/DISS TCLP	1200- COLS	1200-Z	Sulfide	Archive
1	MAU2-08-GW-9		12/11/19	1409	GW	9		X						X		X				X				
2	MAU2-09-GW-9			1437		10		X						X		X				X				
3	MAU3-03-GW-5			1534		12	X													X				
4	MAU6-02-GW-12			1653		12	X													X				
5	MAU4-12-GW-9			1627		12	X													X				
6	trip blank																							X
7																								
8																								
9																								
10																								

Normal Turn Around Time (TAT) =10 Business Days (YES) NO

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

SPECIAL INSTRUCTIONS:
- hold dissolved metals (field filtered) pending initial results
- HCID = 48 hr TAT

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:
Signature: Emily Hess Date: 12/11/19
Printed Name: Emily Hess Time: 1210
Company: MFA

RECEIVED BY:
Signature: [signature] Date: 12/11/19
Printed Name: Charles Hoffman Time: 1210
Company: Apex Labs

RELINQUISHED BY:
Signature: _____ Date: _____
Printed Name: _____ Time: _____
Company: _____

RECEIVED BY:
Signature: _____ Date: _____
Printed Name: _____ Time: _____
Company: _____

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

Maul Foster & Alongi, INC.	Project: **Seaport Upland**	
2001 NW 19th Ave, STE 200	Project Number: **1044.02.13**	**Report ID:**
Portland, OR 97209	Project Manager: **Emily Hess**	**A9L0524 - 01 14 20 0956**

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A9L0524

Project/Project #: Seaport Upland 1044.02.13

Delivery Info:

Date/time received: 12/12/19 @ 1210 By: CFH

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Date/time inspected: 12/12/19 @ 1707 By: CFH

Chain of Custody included? Yes X No ___ Custody seals? Yes ___ No X

Signed/dated by client? Yes X No ___

Signed/dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	0.9	2.1	1.7				
Received on ice? (Y/N)	Y	Y	Y				
Temp. blanks? (Y/N)	Y	Y	Y				
Ice type: (Gel/Real/Other)	Real	Real	Real				
Condition:	Good	Good	Good				

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

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

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

Samples Inspection: Date/time inspected: 12-12-19 @ 19:40 By: TAT

All samples intact? Yes X No ___ Comments:

Bottle labels/COCs agree? Yes ___ No X Comments: 1/3 unpreserved amber RAU2-08-GW-9 reads T of 14.11

COC/container discrepancies form initiated? Yes ___ No X NA ___

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

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

Comments All vials have zero

Water samples: pH checked: Yes X No ___ NA ___ pH appropriate? Yes X No ___ NA ___ TAT 12-12-19

Comments: RAU2-09-GW-9 NaOH poly pH=8

Additional information:

TB# 2194

Labeled by: TAT Witness: [illegible] Cooler Inspected by: CFH See Project Contact Form: Y

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

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

December 30, 2019

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

Re: DXN & PCB Subcontract
Work Order: 15921
SDG: A9L0097

Dear Mr. Nerenberg:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 06, 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

problem solved

SUBCONTRACT ORDER NPP 12/5/19 WAD 12/5/19

Apex Laboratories

A9L0097

SENDING LABORATORY:

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

RECEIVING LABORATORY:

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

CFA WO #15921

Sample Name: RAU1-04-SO-0.25 **Soil** **Sampled: 12/02/19 14:20** (A9L0097-26)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/17/19 17:00	05/30/20 14:20	Cape Fear
Containers Supplied:			
(A)8 oz Glass Jar			

Sample Name: RAU1-05-SO-0.25 **Soil** **Sampled: 12/02/19 14:40** (A9L0097-27)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/17/19 17:00	05/30/20 14:40	Cape Fear
Containers Supplied:			
(A)8 oz Glass Jar			

Sample Name: RAU1-06-SO-1.75 **Soil** **Sampled: 12/03/19 08:05** (A9L0097-32)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/17/19 17:00	05/31/20 08:05	Cape Fear
Containers Supplied:			
(A)8 oz Glass Jar			

Standard TAT

temp. = 2.7°

[signature]	12-5-19	Fed Ex (Shipper)	
Released By	Date	Received By	Date
Fed Ex (Shipper)	06DEC19	Cyrde Larkins	06DEC19 @ 1000
Released By	Date	Received By	Date

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: APEX	Work Order: 15921
Shipping Company: FedEx	Date/Time Received: 06 DEC 19 1000

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 2.6° + 0.1 = 2.7°
5	Aqueous samples found to have visible solids?		✓		Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: 1-8oz. clear soil jar per sample. 3 total
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: CL Date: 06 DEC 19

CF-UD-F-7

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Apex Laboratories (APEX)
SDG A9L0097
Work Order 15921

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3540C
Analytical Batch Number:	42622
Clean Up Batch Number:	42621
Extraction Batch Number:	42620

Sample Analysis

Samples were received at 2.7°C (15921001, 15921002, 15921003). The following samples were analyzed using the analytical protocol as established in Method 1613B:

Sample ID	Client ID
12025574	Method Blank (MB)
12025575	Laboratory Control Sample (LCS)
12025576	Laboratory Control Sample Duplicate (LCSD)
15921001	RAU1-04-SO-0.25
15921002	RAU1-05-SO-0.25
15921003	RAU1-06-SO-1.75

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

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

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

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

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

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
The samples were re-extracted using a 1g aliquot due to matrix interference. Batch 42622.

Miscellaneous Information

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

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

Sample preparation
No difficulties were encountered during sample preparation.

Electronic Packaging Comment

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

Sample Data Summary

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

Qualifier Definition Report
for

APEX001 Apex Laboratories

Client SDG: A9L0097 CFA Work Order: 15921

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

J Value is estimated

K Estimated Maximum Possible Concentration

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

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

Review/Validation

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

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

Signature:  **Name: Heather Patterson**

Date: 30 DEC 2019 **Title: Group Leader**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**15921001**	**Date Collected:**	**12/02/2019 14:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/06/2019 10:00**	**%Moisture:**	**20.9**
Client ID:	**RAU1-04-SO-0.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/20/2019 23:26**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-4**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**1.04 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.13	pg/g	1.13	12.2
40321-76-4	1,2,3,7,8-PeCDD	U	2.75	pg/g	2.75	60.8
39227-28-6	1,2,3,4,7,8-HxCDD	JK	5.45	pg/g	3.55	60.8
57653-85-7	1,2,3,6,7,8-HxCDD	J	27.4	pg/g	3.23	60.8
19408-74-3	1,2,3,7,8,9-HxCDD	J	9.85	pg/g	3.43	60.8
35822-46-9	1,2,3,4,6,7,8-HpCDD		764	pg/g	8.46	60.8
3268-87-9	1,2,3,4,6,7,8,9-OCDD		9120	pg/g	18.4	122
51207-31-9	2,3,7,8-TCDF	JK	2.31	pg/g	1.45	12.2
57117-41-6	1,2,3,7,8-PeCDF	J	2.12	pg/g	1.08	60.8
57117-31-4	2,3,4,7,8-PeCDF	J	4.11	pg/g	1.05	60.8
70648-26-9	1,2,3,4,7,8-HxCDF	J	7.30	pg/g	2.10	60.8
57117-44-9	1,2,3,6,7,8-HxCDF	JK	3.60	pg/g	2.11	60.8
60851-34-5	2,3,4,6,7,8-HxCDF	J	4.55	pg/g	2.08	60.8
72918-21-9	1,2,3,7,8,9-HxCDF	U	2.8	pg/g	2.80	60.8
67562-39-4	1,2,3,4,6,7,8-HpCDF		73.2	pg/g	2.60	60.8
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	4.43	pg/g	3.19	60.8
39001-02-0	1,2,3,4,6,7,8,9-OCDF		196	pg/g	4.06	122
41903-57-5	Total TeCDD	JK	3.67	pg/g	1.13	12.2
36088-22-9	Total PeCDD	JK	6.83	pg/g	2.75	60.8
34465-46-8	Total HxCDD	JK	159	pg/g	3.23	60.8
37871-00-4	Total HpCDD		1790	pg/g	8.46	60.8
30402-14-3	Total TeCDF	JK	6.27	pg/g	1.45	12.2
30402-15-4	Total PeCDF	JK	54.8	pg/g	0.530	60.8
55684-94-1	Total HxCDF	JK	126	pg/g	2.08	60.8
38998-75-3	Total HpCDF	J	273	pg/g	2.60	60.8
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		18.6	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		20.6	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1940	2430	pg/g	79.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		1980	2430	pg/g	81.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1780	2430	pg/g	73.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1980	2430	pg/g	81.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2380	2430	pg/g	97.9	(23%-140%)
13C-OCDD		4380	4860	pg/g	90.1	(17%-157%)
13C-2,3,7,8-TCDF		1950	2430	pg/g	80.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		2020	2430	pg/g	83.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		1850	2430	pg/g	76.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1610	2430	pg/g	66.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1760	2430	pg/g	72.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1790	2430	pg/g	73.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1830	2430	pg/g	75.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**15921001**	**Date Collected:**	**12/02/2019 14:20**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/06/2019 10:00**	**%Moisture:**	**20.9**
Client ID:	**RAU1-04-SO-0.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/20/2019 23:26**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-4**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**1.04 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1930	2430	pg/g	79.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2190	2430	pg/g	90.2	(26%-138%)
37Cl-2,3,7,8-TCDD		228	243	pg/g	93.7	(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:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**15921002**	**Date Collected:**	**12/02/2019 14:40**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/06/2019 10:00**	**%Moisture:**	**26.4**
Client ID:	**RAU1-05-SO-0.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/21/2019 00:14**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-5**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**1.05 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.967	pg/g	0.967	12.9
40321-76-4	1,2,3,7,8-PeCDD	U	0.996	pg/g	0.996	64.7
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.47	pg/g	1.47	64.7
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.25	pg/g	1.48	64.7
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.5	pg/g	1.50	64.7
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	62.1	pg/g	3.29	64.7
3268-87-9	1,2,3,4,6,7,8,9-OCDD		695	pg/g	6.93	129
51207-31-9	2,3,7,8-TCDF	U	1.38	pg/g	1.38	12.9
57117-41-6	1,2,3,7,8-PeCDF	U	1.11	pg/g	1.11	64.7
57117-31-4	2,3,4,7,8-PeCDF	U	1.08	pg/g	1.08	64.7
70648-26-9	1,2,3,4,7,8-HxCDF	JK	1.16	pg/g	0.797	64.7
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.817	pg/g	0.817	64.7
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.957	pg/g	0.792	64.7
72918-21-9	1,2,3,7,8,9-HxCDF	U	1.15	pg/g	1.15	64.7
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	7.53	pg/g	1.13	64.7
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.51	pg/g	1.51	64.7
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	11.7	pg/g	2.64	129
41903-57-5	Total TeCDD	U	0.967	pg/g	0.967	12.9
36088-22-9	Total PeCDD	JK	1.89	pg/g	0.996	64.7
34465-46-8	Total HxCDD	J	22.8	pg/g	1.47	64.7
37871-00-4	Total HpCDD	J	150	pg/g	3.29	64.7
30402-14-3	Total TeCDF	JK	4.71	pg/g	1.38	12.9
30402-15-4	Total PeCDF	JK	7.11	pg/g	0.460	64.7
55684-94-1	Total HxCDF	JK	12.1	pg/g	0.792	64.7
38998-75-3	Total HpCDF	J	22.1	pg/g	1.13	64.7
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		1.35	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2.83	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		2100	2590	pg/g	81.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		2200	2590	pg/g	85.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1890	2590	pg/g	72.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		2060	2590	pg/g	79.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2310	2590	pg/g	89.4	(23%-140%)
13C-OCDD		4210	5170	pg/g	81.3	(17%-157%)
13C-2,3,7,8-TCDF		2090	2590	pg/g	80.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		2200	2590	pg/g	85.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		2000	2590	pg/g	77.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1740	2590	pg/g	67.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1840	2590	pg/g	71.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1930	2590	pg/g	74.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1980	2590	pg/g	76.5	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**15921002**	**Date Collected:**	**12/02/2019 14:40**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/06/2019 10:00**	**%Moisture:**	**26.4**
Client ID:	**RAU1-05-SO-0.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/21/2019 00:14**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-5**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**1.05 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		1900	2590	pg/g	73.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2170	2590	pg/g	83.8	(26%-138%)
37Cl-2,3,7,8-TCDD		254	259	pg/g	98.2	(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:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**15921003**	**Date Collected:**	**12/03/2019 08:05**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/06/2019 10:00**	**%Moisture:**	**21.3**
Client ID:	**RAU1-06-SO-1.75**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/21/2019 01:03**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-6**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**1.02 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.56	pg/g	1.56	12.4
40321-76-4	1,2,3,7,8-PeCDD	U	2.17	pg/g	2.17	62.2
39227-28-6	1,2,3,4,7,8-HxCDD	U	2.32	pg/g	2.32	62.2
57653-85-7	1,2,3,6,7,8-HxCDD	U	2.2	pg/g	2.20	62.2
19408-74-3	1,2,3,7,8,9-HxCDD	U	2.29	pg/g	2.29	62.2
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	4.86	pg/g	4.86	62.2
3268-87-9	1,2,3,4,6,7,8,9-OCDD	JK	20.3	pg/g	7.35	124
51207-31-9	2,3,7,8-TCDF	U	1.65	pg/g	1.65	12.4
57117-41-6	1,2,3,7,8-PeCDF	U	1.81	pg/g	1.81	62.2
57117-31-4	2,3,4,7,8-PeCDF	U	1.79	pg/g	1.79	62.2
70648-26-9	1,2,3,4,7,8-HxCDF	U	1.8	pg/g	1.80	62.2
57117-44-9	1,2,3,6,7,8-HxCDF	U	1.74	pg/g	1.74	62.2
60851-34-5	2,3,4,6,7,8-HxCDF	U	1.83	pg/g	1.83	62.2
72918-21-9	1,2,3,7,8,9-HxCDF	U	2.54	pg/g	2.54	62.2
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	4.23	pg/g	4.23	62.2
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5.25	pg/g	5.25	62.2
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	7.42	pg/g	7.42	124
41903-57-5	Total TeCDD	U	1.56	pg/g	1.56	12.4
36088-22-9	Total PeCDD	U	2.17	pg/g	2.17	62.2
34465-46-8	Total HxCDD	U	2.2	pg/g	2.20	62.2
37871-00-4	Total HpCDD	U	4.86	pg/g	4.86	62.2
30402-14-3	Total TeCDF	U	1.65	pg/g	1.65	12.4
30402-15-4	Total PeCDF	JK	1.47	pg/g	0.837	62.2
55684-94-1	Total HxCDF	U	1.74	pg/g	1.74	62.2
38998-75-3	Total HpCDF	U	4.23	pg/g	4.23	62.2
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.00608	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		3.06	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1880	2490	pg/g	75.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		1750	2490	pg/g	70.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		2070	2490	pg/g	83.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		2080	2490	pg/g	83.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		2230	2490	pg/g	89.8	(23%-140%)
13C-OCDD		3720	4980	pg/g	74.6	(17%-157%)
13C-2,3,7,8-TCDF		1970	2490	pg/g	78.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		1800	2490	pg/g	72.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		1560	2490	pg/g	62.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1900	2490	pg/g	76.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1790	2490	pg/g	71.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1960	2490	pg/g	78.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1830	2490	pg/g	73.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**15921003**	**Date Collected:**	**12/03/2019 08:05**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/06/2019 10:00**	**%Moisture:**	**21.3**
Client ID:	**RAU1-06-SO-1.75**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/21/2019 01:03**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-6**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**1.02 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		1890	2490	pg/g	76.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		2040	2490	pg/g	82.1	(26%-138%)
37Cl-2,3,7,8-TCDD		210	249	pg/g	84.5	(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.**

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0097

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12025575	LCS for batch 42620	13C-2,3,7,8-TCDD		84.8	(20%-175%)
		13C-1,2,3,7,8-PeCDD		91.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		75.1	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		86.1	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		87.4	(22%-166%)
		13C-OCDD		78.6	(13%-199%)
		13C-2,3,7,8-TCDF		80.1	(22%-152%)
		13C-1,2,3,7,8-PeCDF		92.0	(21%-192%)
		13C-2,3,4,7,8-PeCDF		80.7	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		67.8	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		73.7	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		78.0	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		76.4	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		72.4	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		79.8	(20%-186%)
		37Cl-2,3,7,8-TCDD		93.2	(31%-191%)
12025576	LCSD for batch 42620	13C-2,3,7,8-TCDD		86.5	(20%-175%)
		13C-1,2,3,7,8-PeCDD		91.3	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		71.0	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		87.2	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		86.8	(22%-166%)
		13C-OCDD		73.0	(13%-199%)
		13C-2,3,7,8-TCDF		84.8	(22%-152%)
		13C-1,2,3,7,8-PeCDF		95.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		85.9	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		69.9	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		75.9	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		78.7	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		77.2	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		74.3	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		79.3	(20%-186%)
		37Cl-2,3,7,8-TCDD		100	(31%-191%)
12025574	MB for batch 42620	13C-2,3,7,8-TCDD		91.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		92.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		73.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		83.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.8	(23%-140%)
		13C-OCDD		76.2	(17%-157%)
		13C-2,3,7,8-TCDF		81.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		97.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		68.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		73.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		78.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		106	(35%-197%)
15921001	RAU1-04-SO-0.25	13C-2,3,7,8-TCDD		79.7	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0097

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15921001	RAU1-04-SO-0.25	13C-1,2,3,7,8-PeCDD		81.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		73.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		81.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		97.9	(23%-140%)
		13C-OCDD		90.1	(17%-157%)
		13C-2,3,7,8-TCDF		80.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		76.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		66.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		90.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		93.7	(35%-197%)
15921002	RAU1-05-SO-0.25	13C-2,3,7,8-TCDD		81.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		85.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		72.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		89.4	(23%-140%)
		13C-OCDD		81.3	(17%-157%)
		13C-2,3,7,8-TCDF		80.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		85.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		77.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		67.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		71.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		76.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		73.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		83.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		98.2	(35%-197%)
15921003	RAU1-06-SO-1.75	13C-2,3,7,8-TCDD		75.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		70.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		83.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		83.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		89.8	(23%-140%)
		13C-OCDD		74.6	(17%-157%)
		13C-2,3,7,8-TCDF		78.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		72.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		62.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		76.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		71.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		73.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		82.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.5	(35%-197%)

* Recovery outside Acceptance Limits

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0097

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits

* 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: A9L0097 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 42620 **Matrix:** SOIL

Lab Sample ID: 12025575

Instrument: HRP750 **Analysis Date:** 12/20/2019 21:03 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42620

Batch ID: 42622

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	20.0	19.1	95.5	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	99.5	99.5	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	99.5	99.5	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	96.7	96.7	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	100	100	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	87.9	87.9	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	189	94.5	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	16.7	83.6	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	84.9	84.9	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	97.4	97.4	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	94.7	94.7	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	99.3	99.3	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	92.9	92.9	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	91.3	91.3	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	101	101	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	90.4	90.4	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	175	87.4	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A9L0097 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 42620 **Matrix:** SOIL

Lab Sample ID: 12025576

Instrument: HRP750 **Analysis Date:** 12/20/2019 21:50 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42620

Batch ID: 42622

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	19.1	95.6	67-158	0.0523	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	102	102	70-142	2.04	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	104	104	70-164	4.05	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	93.4	93.4	76-134	3.48	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	104	104	64-162	4.02	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	87.9	87.9	70-140	0.0637	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	193	96.6	78-144	2.25	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	17.3	86.5	75-158	3.37	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	86.7	86.7	80-134	2.05	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	98.1	98.1	68-160	0.763	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	95.3	95.3	72-134	0.566	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	96.7	96.7	84-130	2.63	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	92.9	92.9	70-156	0.0258	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	91.8	91.8	78-130	0.566	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	97.3	97.3	82-122	3.82	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	89.3	89.3	78-138	1.22	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	177	88.3	63-170	1.01	0-20

Method Blank Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 42620**	**Instrument ID:**	**HRP750**	**Data File:**	**A20DEC19A_2-3**
Lab Sample ID:	**12025574**	**Prep Date:**	**16-DEC-19**	**Analyzed:**	**12/20/19 22:38**
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 42620	12025575	A20DEC19A_2-1	12/20/19	2103
02	LCSD for batch 42620	12025576	A20DEC19A_2-2	12/20/19	2150
03	RAU1-04-SO-0.25	15921001	A20DEC19A_2-4	12/20/19	2326
04	RAU1-05-SO-0.25	15921002	A20DEC19A_2-5	12/21/19	0014
05	RAU1-06-SO-1.75	15921003	A20DEC19A_2-6	12/21/19	0103

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**12025574**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42620**				
Client ID:	**MB for batch 42620**			**Prep Basis:**	**As Received**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/20/2019 22:38**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-3**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.0884	pg/g	0.0884	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.096	pg/g	0.096	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.0982	pg/g	0.0982	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.0946	pg/g	0.0946	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.0978	pg/g	0.0978	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	0.149	pg/g	0.149	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	JK	0.252	pg/g	0.170	10.0
51207-31-9	2,3,7,8-TCDF	J	0.136	pg/g	0.0936	1.00
57117-41-6	1,2,3,7,8-PeCDF	JK	0.066	pg/g	0.0552	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	0.0552	pg/g	0.0552	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.0704	pg/g	0.0704	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.0722	pg/g	0.0722	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.0698	pg/g	0.0698	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.11	pg/g	0.110	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.130	pg/g	0.0734	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.0966	pg/g	0.0966	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	0.146	pg/g	0.146	10.0
41903-57-5	Total TeCDD	U	0.0884	pg/g	0.0884	1.00
36088-22-9	Total PeCDD	U	0.096	pg/g	0.096	5.00
34465-46-8	Total HxCDD	U	0.0946	pg/g	0.0946	5.00
37871-00-4	Total HpCDD	U	0.149	pg/g	0.149	5.00
30402-14-3	Total TeCDF	J	0.136	pg/g	0.0936	1.00
30402-15-4	Total PeCDF	JK	0.066	pg/g	0.0478	5.00
55684-94-1	Total HxCDF	U	0.0698	pg/g	0.0698	5.00
38998-75-3	Total HpCDF	J	0.130	pg/g	0.0734	5.00
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.017	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.149	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		182	200	pg/g	91.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		185	200	pg/g	92.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		146	200	pg/g	73.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		167	200	pg/g	83.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		174	200	pg/g	86.8	(23%-140%)
13C-OCDD		305	400	pg/g	76.2	(17%-157%)
13C-2,3,7,8-TCDF		162	200	pg/g	81.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		194	200	pg/g	97.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		166	200	pg/g	82.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		136	200	pg/g	68.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		150	200	pg/g	75.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		154	200	pg/g	77.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		146	200	pg/g	73.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**12025574**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42620**				
Client ID:	**MB for batch 42620**			**Prep Basis:**	**As Received**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/20/2019 22:38**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-3**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-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		143	200	pg/g	71.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		157	200	pg/g	78.7	(26%-138%)
37Cl-2,3,7,8-TCDD		21.2	20.0	pg/g	106	(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:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**12025575**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42620**				
Client ID:	**LCS for batch 42620**			**Prep Basis:**	**As Received**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/20/2019 21:03**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-1**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.1	pg/g	0.120	1.00
40321-76-4	1,2,3,7,8-PeCDD		99.5	pg/g	0.272	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		99.5	pg/g	0.500	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		96.7	pg/g	0.450	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		100	pg/g	0.480	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		87.9	pg/g	0.738	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		189	pg/g	1.01	10.0
51207-31-9	2,3,7,8-TCDF		16.7	pg/g	0.131	1.00
57117-41-6	1,2,3,7,8-PeCDF		84.9	pg/g	0.336	5.00
57117-31-4	2,3,4,7,8-PeCDF		97.4	pg/g	0.320	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		94.7	pg/g	0.552	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		99.3	pg/g	0.578	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		92.9	pg/g	0.528	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		91.3	pg/g	0.762	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		101	pg/g	0.498	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		90.4	pg/g	0.692	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		175	pg/g	1.24	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		170	200	pg/g	84.8	(20%-175%)
13C-1,2,3,7,8-PeCDD		184	200	pg/g	91.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		150	200	pg/g	75.1	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		172	200	pg/g	86.1	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		175	200	pg/g	87.4	(22%-166%)
13C-OCDD		315	400	pg/g	78.6	(13%-199%)
13C-2,3,7,8-TCDF		160	200	pg/g	80.1	(22%-152%)
13C-1,2,3,7,8-PeCDF		184	200	pg/g	92.0	(21%-192%)
13C-2,3,4,7,8-PeCDF		161	200	pg/g	80.7	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		136	200	pg/g	67.8	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		147	200	pg/g	73.7	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		156	200	pg/g	78.0	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		153	200	pg/g	76.4	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		145	200	pg/g	72.4	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		160	200	pg/g	79.8	(20%-186%)
37Cl-2,3,7,8-TCDD		18.6	20.0	pg/g	93.2	(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:	**A9L0097**	**Client:**	**APEX001**	**Project:**	**APEX00319**
Lab Sample ID:	**12025576**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42620**				
Client ID:	**LCSD for batch 42620**			**Prep Basis:**	**As Received**
Batch ID:	**42622**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/20/2019 21:50**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A20DEC19A_2-2**			**Dilution:**	**1**
Prep Batch:	**42620**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**16-DEC-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.1	pg/g	0.102	1.00
40321-76-4	1,2,3,7,8-PeCDD		102	pg/g	0.178	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		104	pg/g	0.502	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		93.4	pg/g	0.478	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		104	pg/g	0.496	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		87.9	pg/g	0.524	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		193	pg/g	1.14	10.0
51207-31-9	2,3,7,8-TCDF		17.3	pg/g	0.108	1.00
57117-41-6	1,2,3,7,8-PeCDF		86.7	pg/g	0.348	5.00
57117-31-4	2,3,4,7,8-PeCDF		98.1	pg/g	0.348	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		95.3	pg/g	0.474	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		96.7	pg/g	0.464	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		92.9	pg/g	0.454	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		91.8	pg/g	0.666	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		97.3	pg/g	0.506	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		89.3	pg/g	0.710	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		177	pg/g	0.718	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		173	200	pg/g	86.5	(20%-175%)
13C-1,2,3,7,8-PeCDD		183	200	pg/g	91.3	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		142	200	pg/g	71.0	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		174	200	pg/g	87.2	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		174	200	pg/g	86.8	(22%-166%)
13C-OCDD		292	400	pg/g	73.0	(13%-199%)
13C-2,3,7,8-TCDF		170	200	pg/g	84.8	(22%-152%)
13C-1,2,3,7,8-PeCDF		191	200	pg/g	95.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		172	200	pg/g	85.9	(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		152	200	pg/g	75.9	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		157	200	pg/g	78.7	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		154	200	pg/g	77.2	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		149	200	pg/g	74.3	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		159	200	pg/g	79.3	(20%-186%)
37Cl-2,3,7,8-TCDD		20.0	20.0	pg/g	100	(31%-191%)

Comments:

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

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

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

January 03, 2020

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

Re: 2018 DXN & PCB IDIQ
Work Order: 15951
SDG: A9L0191

Dear Mr. Nerenberg:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 11, 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

problem solved

SUBCONTRACT ORDER

Apex Laboratories

A9L0191

12/9/19

SENDING LABORATORY:

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

RECEIVING LABORATORY:

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

CFA WO#15951

Sample Name: RAU1-10-SO-2.0 **Soil** **Sampled: 12/04/19 11:00** (A9L0191-10)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 11:00	Cape Fear
Containers Supplied:			
(B)8 oz Glass Jar			

Sample Name: RAU2-GA1-SO-3.25 **Sedimen** **Sampled: 12/04/19 15:35** (A9L0191-31)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 15:35	Cape Fear
Containers Supplied:			
(C)8 oz Glass Jar			

Sample Name: RAU2-GA1-SO-5.75 **Sedimen** **Sampled: 12/04/19 15:45** (A9L0191-32)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 15:45	Cape Fear
Containers Supplied:			
(C)8 oz Glass Jar			

Sample Name: RAU2-GA1-SO-8.25 **Sedimen** **Sampled: 12/04/19 16:00** (A9L0191-33)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 16:00	Cape Fear
Containers Supplied:			
(C)8 oz Glass Jar			

Standard TAT

temp. = 1.5°

Released By	Date	Received By	Date
	12/10/19 1530	Fed Ex (Shipper)	
Fed Ex (Shipper)			
Released By	Date	Received By	Date
			12/11/19 10:10

SUBCONTRACT ORDER

Apex Laboratories

A9L0191

CFA NO #15951

Sample Name: RAU2-GA2-SO-3.25 **Sedimen** **Sampled: 12/04/19 13:30** (A9L0191-38)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 13:30	Cape Fear
Containers Supplied:			
(C)8 oz Glass Jar			

Sample Name: RAU2-GA2-SO-5.75 **Sedimen** **Sampled: 12/04/19 13:45** (A9L0191-39)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 13:45	Cape Fear
Containers Supplied:			
(B)2 oz Glass Jar			

Sample Name: RAU2-GA2-SO-8.25 **Sedimen** **Sampled: 12/04/19 13:50** (A9L0191-40)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	12/19/19 17:00	06/01/20 13:50	Cape Fear
Containers Supplied:			
(B)2 oz Glass Jar			

Standard TAT

Released By	Date	Received By	Date
	12/10/19 1530	Fed Ex (Shipper)	
Fed Ex (Shipper)			
Released By	Date	Received By	Date
			12/11/19 10:10

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: Apex	Work Order: 15951
Shipping Company: FedEx	Date/Time Received: 12/11/19 10:10

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) 1.3+0.2 = 1.50
5	Aqueous samples found to have visible solids?		✓		Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: received 5-8oz clear, 2-20z clear
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: _____ Date: 12/11/19

CF-UD-F-7

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Apex Laboratories (APEX)
SDG A9L0191
Work Order 15951

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3540C
Analytical Batch Number:	42598
Clean Up Batch Number:	42596
Extraction Batch Number:	42595

Sample Analysis

Samples were received at 1.5°C (15951001, 15951002, 15951003, 15951004, 15951005, 15951006, 15951007). The following samples were analyzed using the analytical protocol as established in EPA Method 1613B:

Sample ID	Client ID
12025551	Method Blank (MB)
12025552	Laboratory Control Sample (LCS)
12025553	Laboratory Control Sample Duplicate (LCSD)
15951001	RAU1-10-SO-2.0
15951002	RAU2-GA1-SO-3.25
15951003	RAU2-GA1-SO-5.75
15951004	RAU2-GA1-SO-8.25
15951005	RAU2-GA2-SO-3.25
15951006	RAU2-GA2-SO-5.75
15951007	RAU2-GA2-SO-8.25

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

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

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

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

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information

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

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

Sample Dilutions
Sample 15951005 (RAU2-GA2-SO-3.25)- Batch 42598 was diluted due to the presence of over-range target analytes.

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

Miscellaneous Information

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

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

Sample preparation
No difficulties were encountered during sample preparation.

Electronic Packaging Comment

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

Sample Data Summary

Cape Fear Analytical, LLC

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

Qualifier Definition Report
for

APEX001 Apex Laboratories

Client SDG: A9L0191 CFA Work Order: 15951

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

B The target analyte was detected in the associated blank.

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: 03 JAN 2020 **Title: Group Leader**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951001**	**Date Collected:**	**12/04/2019 11:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**10.6**
Client ID:	**RAU1-10-SO-2.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 20:05**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-5**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**11.65 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	JK	0.177	pg/g	0.130	0.961
40321-76-4	1,2,3,7,8-PeCDD	U	0.254	pg/g	0.254	4.80
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.231	pg/g	0.231	4.80
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.26	pg/g	0.223	4.80
19408-74-3	1,2,3,7,8,9-HxCDD	BJ	0.563	pg/g	0.231	4.80
35822-46-9	1,2,3,4,6,7,8-HpCDD		20.9	pg/g	0.398	4.80
3268-87-9	1,2,3,4,6,7,8,9-OCDD		189	pg/g	0.549	9.61
51207-31-9	2,3,7,8-TCDF	U	0.207	pg/g	0.207	0.961
57117-41-6	1,2,3,7,8-PeCDF	U	0.189	pg/g	0.189	4.80
57117-31-4	2,3,4,7,8-PeCDF	U	0.179	pg/g	0.179	4.80
70648-26-9	1,2,3,4,7,8-HxCDF	BJK	0.238	pg/g	0.138	4.80
57117-44-9	1,2,3,6,7,8-HxCDF	BJK	0.169	pg/g	0.142	4.80
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.227	pg/g	0.139	4.80
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.159	pg/g	0.159	4.80
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	4.31	pg/g	0.298	4.80
55673-89-7	1,2,3,4,7,8,9-HpCDF	JK	0.409	pg/g	0.371	4.80
39001-02-0	1,2,3,4,6,7,8,9-OCDF		13.9	pg/g	0.450	9.61
41903-57-5	Total TeCDD	JK	1.25	pg/g	0.130	0.961
36088-22-9	Total PeCDD	BJ	0.519	pg/g	0.254	4.80
34465-46-8	Total HxCDD	J	6.72	pg/g	0.223	4.80
37871-00-4	Total HpCDD		38.0	pg/g	0.398	4.80
30402-14-3	Total TeCDF	JK	1.25	pg/g	0.207	0.961
30402-15-4	Total PeCDF	BJ	1.69	pg/g	0.0636	4.80
55684-94-1	Total HxCDF	JK	6.22	pg/g	0.138	4.80
38998-75-3	Total HpCDF	JK	22.9	pg/g	0.298	4.80
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.739	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.925	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		145	192	pg/g	75.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		137	192	pg/g	71.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		153	192	pg/g	79.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		144	192	pg/g	75.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		169	192	pg/g	88.2	(23%-140%)
13C-OCDD		311	384	pg/g	80.9	(17%-157%)
13C-2,3,7,8-TCDF		152	192	pg/g	79.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		129	192	pg/g	67.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		125	192	pg/g	65.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		134	192	pg/g	70.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		130	192	pg/g	67.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		138	192	pg/g	72.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		143	192	pg/g	74.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951001**	**Date Collected:**	**12/04/2019 11:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**10.6**
Client ID:	**RAU1-10-SO-2.0**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 20:05**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-5**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**11.65 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		134	192	pg/g	69.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		153	192	pg/g	79.7	(26%-138%)
37Cl-2,3,7,8-TCDD		13.7	19.2	pg/g	71.2	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951002**	**Date Collected:**	**12/04/2019 15:35**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**57.5**
Client ID:	**RAU2-GA1-SO-3.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 19:17**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-4**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**23.58 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.261	pg/g	0.135	0.997
40321-76-4	1,2,3,7,8-PeCDD	BJK	0.566	pg/g	0.315	4.98
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.287	pg/g	0.287	4.98
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.61	pg/g	0.279	4.98
19408-74-3	1,2,3,7,8,9-HxCDD	BJK	0.869	pg/g	0.287	4.98
35822-46-9	1,2,3,4,6,7,8-HpCDD		18.5	pg/g	0.365	4.98
3268-87-9	1,2,3,4,6,7,8,9-OCDD		120	pg/g	0.540	9.97
51207-31-9	2,3,7,8-TCDF	J	0.347	pg/g	0.255	0.997
57117-41-6	1,2,3,7,8-PeCDF	U	0.265	pg/g	0.265	4.98
57117-31-4	2,3,4,7,8-PeCDF	BJ	1.28	pg/g	0.259	4.98
70648-26-9	1,2,3,4,7,8-HxCDF	BJ	0.610	pg/g	0.154	4.98
57117-44-9	1,2,3,6,7,8-HxCDF	BJ	0.457	pg/g	0.165	4.98
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.700	pg/g	0.163	4.98
72918-21-9	1,2,3,7,8,9-HxCDF	BJ	0.223	pg/g	0.175	4.98
67562-39-4	1,2,3,4,6,7,8-HpCDF		14.6	pg/g	0.271	4.98
55673-89-7	1,2,3,4,7,8,9-HpCDF	JK	0.415	pg/g	0.333	4.98
39001-02-0	1,2,3,4,6,7,8,9-OCDF		14.3	pg/g	0.343	9.97
41903-57-5	Total TeCDD	JK	3.80	pg/g	0.135	0.997
36088-22-9	Total PeCDD	JK	5.48	pg/g	0.315	4.98
34465-46-8	Total HxCDD	JK	12.1	pg/g	0.279	4.98
37871-00-4	Total HpCDD		34.5	pg/g	0.365	4.98
30402-14-3	Total TeCDF	JK	21.7	pg/g	0.255	0.997
30402-15-4	Total PeCDF	JK	19.7	pg/g	0.0756	4.98
55684-94-1	Total HxCDF	J	17.0	pg/g	0.154	4.98
38998-75-3	Total HpCDF	JK	36.3	pg/g	0.271	4.98
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		2.07	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2.09	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		145	199	pg/g	72.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		134	199	pg/g	67.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		162	199	pg/g	81.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		142	199	pg/g	71.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		172	199	pg/g	86.1	(23%-140%)
13C-OCDD		312	399	pg/g	78.3	(17%-157%)
13C-2,3,7,8-TCDF		155	199	pg/g	77.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		131	199	pg/g	65.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		123	199	pg/g	61.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		139	199	pg/g	69.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		126	199	pg/g	63.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		140	199	pg/g	70.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		143	199	pg/g	71.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951002**	**Date Collected:**	**12/04/2019 15:35**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**57.5**
Client ID:	**RAU2-GA1-SO-3.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 19:17**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-4**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**23.58 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		134	199	pg/g	67.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		155	199	pg/g	77.6	(26%-138%)
37Cl-2,3,7,8-TCDD		14.2	19.9	pg/g	71.4	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951003**	**Date Collected:**	**12/04/2019 15:45**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**50.5**
Client ID:	**RAU2-GA1-SO-5.75**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 18:29**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-3**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**20.72 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.240	pg/g	0.0924	0.974
40321-76-4	1,2,3,7,8-PeCDD	BJ	0.703	pg/g	0.161	4.87
39227-28-6	1,2,3,4,7,8-HxCDD	BJK	0.162	pg/g	0.160	4.87
57653-85-7	1,2,3,6,7,8-HxCDD	BJ	1.13	pg/g	0.162	4.87
19408-74-3	1,2,3,7,8,9-HxCDD	BJ	0.604	pg/g	0.163	4.87
35822-46-9	1,2,3,4,6,7,8-HpCDD		7.57	pg/g	0.185	4.87
3268-87-9	1,2,3,4,6,7,8,9-OCDD		46.4	pg/g	0.249	9.74
51207-31-9	2,3,7,8-TCDF	J	0.388	pg/g	0.177	0.974
57117-41-6	1,2,3,7,8-PeCDF	BJK	0.183	pg/g	0.116	4.87
57117-31-4	2,3,4,7,8-PeCDF	J	1.78	pg/g	0.110	4.87
70648-26-9	1,2,3,4,7,8-HxCDF	BJ	0.772	pg/g	0.113	4.87
57117-44-9	1,2,3,6,7,8-HxCDF	BJK	0.583	pg/g	0.121	4.87
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.887	pg/g	0.118	4.87
72918-21-9	1,2,3,7,8,9-HxCDF	BJ	0.259	pg/g	0.137	4.87
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.95	pg/g	0.168	4.87
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.322	pg/g	0.189	4.87
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	6.00	pg/g	0.184	9.74
41903-57-5	Total TeCDD	JK	3.56	pg/g	0.0924	0.974
36088-22-9	Total PeCDD	JK	7.36	pg/g	0.161	4.87
34465-46-8	Total HxCDD	JK	10.1	pg/g	0.160	4.87
37871-00-4	Total HpCDD		13.6	pg/g	0.185	4.87
30402-14-3	Total TeCDF	JK	24.3	pg/g	0.177	0.974
30402-15-4	Total PeCDF	JK	26.1	pg/g	0.0548	4.87
55684-94-1	Total HxCDF	JK	15.5	pg/g	0.113	4.87
38998-75-3	Total HpCDF	J	17.9	pg/g	0.168	4.87
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		2.11	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2.11	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		153	195	pg/g	78.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		151	195	pg/g	77.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		154	195	pg/g	78.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		151	195	pg/g	77.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		186	195	pg/g	95.4	(23%-140%)
13C-OCDD		339	390	pg/g	87.0	(17%-157%)
13C-2,3,7,8-TCDF		159	195	pg/g	81.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		142	195	pg/g	72.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		132	195	pg/g	67.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		136	195	pg/g	69.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		132	195	pg/g	67.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		140	195	pg/g	72.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		146	195	pg/g	75.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951003**	**Date Collected:**	**12/04/2019 15:45**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**50.5**
Client ID:	**RAU2-GA1-SO-5.75**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 18:29**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-3**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**20.72 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		141	195	pg/g	72.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		170	195	pg/g	87.1	(26%-138%)
37Cl-2,3,7,8-TCDD		14.7	19.5	pg/g	75.3	(35%-197%)

Comments:

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

J **Value is estimated**

K **Estimated Maximum Possible Concentration**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951004**	**Date Collected:**	**12/04/2019 16:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**48.2**
Client ID:	**RAU2-GA1-SO-8.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 17:41**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-2**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**19.8 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	JK	0.333	pg/g	0.0984	0.974
40321-76-4	1,2,3,7,8-PeCDD	BJK	0.505	pg/g	0.0941	4.87
39227-28-6	1,2,3,4,7,8-HxCDD	BJK	0.111	pg/g	0.108	4.87
57653-85-7	1,2,3,6,7,8-HxCDD	BJ	0.994	pg/g	0.106	4.87
19408-74-3	1,2,3,7,8,9-HxCDD	BJ	1.07	pg/g	0.109	4.87
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	4.47	pg/g	0.136	4.87
3268-87-9	1,2,3,4,6,7,8,9-OCDD		20.8	pg/g	0.247	9.74
51207-31-9	2,3,7,8-TCDF	J	0.370	pg/g	0.108	0.974
57117-41-6	1,2,3,7,8-PeCDF	BJK	0.119	pg/g	0.114	4.87
57117-31-4	2,3,4,7,8-PeCDF	BJK	0.323	pg/g	0.114	4.87
70648-26-9	1,2,3,4,7,8-HxCDF	BJ	0.115	pg/g	0.0787	4.87
57117-44-9	1,2,3,6,7,8-HxCDF	BJK	0.127	pg/g	0.0789	4.87
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.191	pg/g	0.0737	4.87
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.0904	pg/g	0.0904	4.87
67562-39-4	1,2,3,4,6,7,8-HpCDF	BJ	1.36	pg/g	0.0666	4.87
55673-89-7	1,2,3,4,7,8,9-HpCDF	JK	0.103	pg/g	0.0828	4.87
39001-02-0	1,2,3,4,6,7,8,9-OCDF	BJ	1.83	pg/g	0.131	9.74
41903-57-5	Total TeCDD	JK	3.05	pg/g	0.0984	0.974
36088-22-9	Total PeCDD	JK	3.52	pg/g	0.0941	4.87
34465-46-8	Total HxCDD	JK	7.88	pg/g	0.106	4.87
37871-00-4	Total HpCDD	J	8.74	pg/g	0.136	4.87
30402-14-3	Total TeCDF	JK	2.72	pg/g	0.108	0.974
30402-15-4	Total PeCDF	JK	3.44	pg/g	0.0353	4.87
55684-94-1	Total HxCDF	BJK	2.50	pg/g	0.0737	4.87
38998-75-3	Total HpCDF	JK	4.30	pg/g	0.0666	4.87
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		1.30	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		1.31	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		141	195	pg/g	72.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		158	195	pg/g	80.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		150	195	pg/g	77.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		151	195	pg/g	77.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		177	195	pg/g	90.7	(23%-140%)
13C-OCDD		306	390	pg/g	78.5	(17%-157%)
13C-2,3,7,8-TCDF		149	195	pg/g	76.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		137	195	pg/g	70.4	(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		132	195	pg/g	67.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		131	195	pg/g	67.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		142	195	pg/g	72.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		151	195	pg/g	77.5	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951004**	**Date Collected:**	**12/04/2019 16:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**48.2**
Client ID:	**RAU2-GA1-SO-8.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 17:41**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-2**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**19.8 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		146	195	pg/g	74.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		169	195	pg/g	86.5	(26%-138%)
37Cl-2,3,7,8-TCDD		13.2	19.5	pg/g	67.5	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951005**	**Date Collected:**	**12/04/2019 13:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**72.5**
Client ID:	**RAU2-GA2-SO-3.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 22:30**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-8**			**Dilution:**	**10**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**25.12 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.51	pg/g	1.51	14.5
40321-76-4	1,2,3,7,8-PeCDD	J	6.96	pg/g	2.70	72.3
39227-28-6	1,2,3,4,7,8-HxCDD	J	9.26	pg/g	3.96	72.3
57653-85-7	1,2,3,6,7,8-HxCDD	J	60.4	pg/g	4.02	72.3
19408-74-3	1,2,3,7,8,9-HxCDD	J	12.9	pg/g	4.05	72.3
35822-46-9	1,2,3,4,6,7,8-HpCDD		1940	pg/g	7.70	72.3
3268-87-9	1,2,3,4,6,7,8,9-OCDD		20400	pg/g	10.3	145
51207-31-9	2,3,7,8-TCDF	J	3.78	pg/g	2.63	14.5
57117-41-6	1,2,3,7,8-PeCDF	JK	2.86	pg/g	2.18	72.3
57117-31-4	2,3,4,7,8-PeCDF	J	6.70	pg/g	2.05	72.3
70648-26-9	1,2,3,4,7,8-HxCDF	J	10.7	pg/g	2.92	72.3
57117-44-9	1,2,3,6,7,8-HxCDF	U	3.21	pg/g	3.21	72.3
60851-34-5	2,3,4,6,7,8-HxCDF	JK	7.24	pg/g	3.01	72.3
72918-21-9	1,2,3,7,8,9-HxCDF	U	3.24	pg/g	3.24	72.3
67562-39-4	1,2,3,4,6,7,8-HpCDF		165	pg/g	4.22	72.3
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	8.30	pg/g	5.76	72.3
39001-02-0	1,2,3,4,6,7,8,9-OCDF		621	pg/g	3.53	145
41903-57-5	Total TeCDD	JK	3.07	pg/g	1.51	14.5
36088-22-9	Total PeCDD	JKQ	33.9	pg/g	2.70	72.3
34465-46-8	Total HxCDD	J	435	pg/g	3.96	72.3
37871-00-4	Total HpCDD	J	4730	pg/g	7.70	72.3
30402-14-3	Total TeCDF	JK	7.00	pg/g	2.63	14.5
30402-15-4	Total PeCDF	JKQ	150	pg/g	2.05	72.3
55684-94-1	Total HxCDF	JK	260	pg/g	2.92	72.3
38998-75-3	Total HpCDF	J	704	pg/g	4.22	72.3
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		46.9	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		48.0	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		227	289	pg/g	78.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		219	289	pg/g	75.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		274	289	pg/g	94.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		221	289	pg/g	76.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		289	289	pg/g	99.9	(23%-140%)
13C-OCDD		535	579	pg/g	92.4	(17%-157%)
13C-2,3,7,8-TCDF		232	289	pg/g	80.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		199	289	pg/g	68.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		196	289	pg/g	67.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		232	289	pg/g	80.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		209	289	pg/g	72.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		212	289	pg/g	73.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		215	289	pg/g	74.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951005**	**Date Collected:**	**12/04/2019 13:30**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**72.5**
Client ID:	**RAU2-GA2-SO-3.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 22:30**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-8**			**Dilution:**	**10**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**25.12 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		223	289	pg/g	77.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		259	289	pg/g	89.5	(26%-138%)
37Cl-2,3,7,8-TCDD		20.9	28.9	pg/g	72.3	(35%-197%)

Comments:

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:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951006**	**Date Collected:**	**12/04/2019 13:45**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**87.4**
Client ID:	**RAU2-GA2-SO-5.75**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 20:53**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-6**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**25.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.528	pg/g	0.528	3.16
40321-76-4	1,2,3,7,8-PeCDD	BJ	1.21	pg/g	0.822	15.8
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.904	pg/g	0.904	15.8
57653-85-7	1,2,3,6,7,8-HxCDD	J	7.08	pg/g	0.942	15.8
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.16	pg/g	0.936	15.8
35822-46-9	1,2,3,4,6,7,8-HpCDD		148	pg/g	1.56	15.8
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1340	pg/g	2.10	31.6
51207-31-9	2,3,7,8-TCDF	J	1.34	pg/g	0.765	3.16
57117-41-6	1,2,3,7,8-PeCDF	BJK	1.16	pg/g	0.753	15.8
57117-31-4	2,3,4,7,8-PeCDF	JK	1.59	pg/g	0.759	15.8
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.14	pg/g	0.517	15.8
57117-44-9	1,2,3,6,7,8-HxCDF	BJK	1.18	pg/g	0.486	15.8
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.85	pg/g	0.516	15.8
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.639	pg/g	0.639	15.8
67562-39-4	1,2,3,4,6,7,8-HpCDF		34.4	pg/g	1.11	15.8
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.69	pg/g	1.30	15.8
39001-02-0	1,2,3,4,6,7,8,9-OCDF		68.6	pg/g	1.06	31.6
41903-57-5	Total TeCDD	JK	3.63	pg/g	0.528	3.16
36088-22-9	Total PeCDD	JK	10.6	pg/g	0.822	15.8
34465-46-8	Total HxCDD	J	37.7	pg/g	0.904	15.8
37871-00-4	Total HpCDD	J	284	pg/g	1.56	15.8
30402-14-3	Total TeCDF	JK	18.3	pg/g	0.765	3.16
30402-15-4	Total PeCDF	JK	23.7	pg/g	0.216	15.8
55684-94-1	Total HxCDF	JK	44.6	pg/g	0.486	15.8
38998-75-3	Total HpCDF	J	131	pg/g	1.11	15.8
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		5.66	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		6.00	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		474	633	pg/g	74.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		421	633	pg/g	66.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		504	633	pg/g	79.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		476	633	pg/g	75.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		568	633	pg/g	89.8	(23%-140%)
13C-OCDD		997	1270	pg/g	78.8	(17%-157%)
13C-2,3,7,8-TCDF		504	633	pg/g	79.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		414	633	pg/g	65.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		380	633	pg/g	60.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		463	633	pg/g	73.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		421	633	pg/g	66.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		450	633	pg/g	71.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		468	633	pg/g	73.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951006**	**Date Collected:**	**12/04/2019 13:45**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**87.4**
Client ID:	**RAU2-GA2-SO-5.75**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/17/2019 20:53**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-6**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**25.11 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		441	633	pg/g	69.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		514	633	pg/g	81.2	(26%-138%)
37Cl-2,3,7,8-TCDD		45.4	63.3	pg/g	71.7	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951007**	**Date Collected:**	**12/04/2019 13:50**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**79.5**
Client ID:	**RAU2-GA2-SO-8.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/18/2019 00:54**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-11**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**25 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	JK	0.550	pg/g	0.365	1.95
40321-76-4	1,2,3,7,8-PeCDD	U	0.983	pg/g	0.983	9.76
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.683	pg/g	0.683	9.76
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.21	pg/g	0.679	9.76
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.06	pg/g	0.691	9.76
35822-46-9	1,2,3,4,6,7,8-HpCDD		33.1	pg/g	0.901	9.76
3268-87-9	1,2,3,4,6,7,8,9-OCDD		258	pg/g	0.937	19.5
51207-31-9	2,3,7,8-TCDF	JK	0.804	pg/g	0.503	1.95
57117-41-6	1,2,3,7,8-PeCDF	U	0.628	pg/g	0.628	9.76
57117-31-4	2,3,4,7,8-PeCDF	U	0.62	pg/g	0.620	9.76
70648-26-9	1,2,3,4,7,8-HxCDF	BJK	0.503	pg/g	0.418	9.76
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.464	pg/g	0.464	9.76
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.570	pg/g	0.445	9.76
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.589	pg/g	0.589	9.76
67562-39-4	1,2,3,4,6,7,8-HpCDF		10.2	pg/g	0.823	9.76
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.913	pg/g	0.913	9.76
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	15.5	pg/g	0.644	19.5
41903-57-5	Total TeCDD	JK	3.80	pg/g	0.365	1.95
36088-22-9	Total PeCDD	J	3.41	pg/g	0.983	9.76
34465-46-8	Total HxCDD	J	16.2	pg/g	0.679	9.76
37871-00-4	Total HpCDD	JK	62.3	pg/g	0.901	9.76
30402-14-3	Total TeCDF	JK	7.13	pg/g	0.503	1.95
30402-15-4	Total PeCDF	JK	8.46	pg/g	0.204	9.76
55684-94-1	Total HxCDF	JK	12.0	pg/g	0.418	9.76
38998-75-3	Total HpCDF		34.2	pg/g	0.823	9.76
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		1.68	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2.37	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		292	390	pg/g	74.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		255	390	pg/g	65.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		311	390	pg/g	79.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		293	390	pg/g	75.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		357	390	pg/g	91.4	(23%-140%)
13C-OCDD		609	780	pg/g	78.1	(17%-157%)
13C-2,3,7,8-TCDF		316	390	pg/g	80.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		258	390	pg/g	66.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		232	390	pg/g	59.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		286	390	pg/g	73.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		254	390	pg/g	65.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		282	390	pg/g	72.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		289	390	pg/g	74.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**15951007**	**Date Collected:**	**12/04/2019 13:50**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**12/11/2019 10:10**	**%Moisture:**	**79.5**
Client ID:	**RAU2-GA2-SO-8.25**			**Prep Basis:**	**Dry Weight**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/18/2019 00:54**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A17DEC19A_2-11**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**25 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		275	390	pg/g	70.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		323	390	pg/g	82.9	(26%-138%)
37Cl-2,3,7,8-TCDD		28.0	39.0	pg/g	71.7	(35%-197%)

Comments:

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

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0191

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12025552	LCS for batch 42595	13C-2,3,7,8-TCDD		76.7	(20%-175%)
		13C-1,2,3,7,8-PeCDD		82.8	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		76.0	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		72.8	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		78.9	(22%-166%)
		13C-OCDD		63.5	(13%-199%)
		13C-2,3,7,8-TCDF		85.3	(22%-152%)
		13C-1,2,3,7,8-PeCDF		86.9	(21%-192%)
		13C-2,3,4,7,8-PeCDF		79.0	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		72.8	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		68.5	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		74.3	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		76.4	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.7	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		76.2	(20%-186%)
		37Cl-2,3,7,8-TCDD		83.4	(31%-191%)
12025553	LCSD for batch 42595	13C-2,3,7,8-TCDD		81.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		82.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		77.5	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		74.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		78.2	(22%-166%)
		13C-OCDD		65.7	(13%-199%)
		13C-2,3,7,8-TCDF		87.6	(22%-152%)
		13C-1,2,3,7,8-PeCDF		86.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		78.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		73.3	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		67.8	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		74.6	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		76.3	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.7	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		75.4	(20%-186%)
		37Cl-2,3,7,8-TCDD		85.8	(31%-191%)
12025551	MB for batch 42595	13C-2,3,7,8-TCDD		80.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		80.5	(23%-140%)
		13C-OCDD		65.8	(17%-157%)
		13C-2,3,7,8-TCDF		86.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		84.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		75.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		74.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.5	(35%-197%)
15951004	RAU2-GA1-SO-8.25	13C-2,3,7,8-TCDD		72.4	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0191

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15951004	RAU2-GA1-SO-8.25	13C-1,2,3,7,8-PeCDD		80.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.7	(23%-140%)
		13C-OCDD		78.5	(17%-157%)
		13C-2,3,7,8-TCDF		76.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		70.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		65.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		67.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		77.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		86.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		67.5	(35%-197%)
15951003	RAU2-GA1-SO-5.75	13C-2,3,7,8-TCDD		78.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		77.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		95.4	(23%-140%)
		13C-OCDD		87.0	(17%-157%)
		13C-2,3,7,8-TCDF		81.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		72.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		67.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		87.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		75.3	(35%-197%)
15951002	RAU2-GA1-SO-3.25	13C-2,3,7,8-TCDD		72.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		67.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		81.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.1	(23%-140%)
		13C-OCDD		78.3	(17%-157%)
		13C-2,3,7,8-TCDF		77.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		65.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		61.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		63.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		70.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		71.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		77.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		71.4	(35%-197%)
15951001	RAU1-10-SO-2.0	13C-2,3,7,8-TCDD		75.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		71.5	(25%-181%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0191

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15951001	RAU1-10-SO-2.0	13C-1,2,3,4,7,8-HxCDD		79.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.2	(23%-140%)
		13C-OCDD		80.9	(17%-157%)
		13C-2,3,7,8-TCDF		79.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		67.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		65.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		70.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		74.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		71.2	(35%-197%)
15951006	RAU2-GA2-SO-5.75	13C-2,3,7,8-TCDD		74.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		66.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		89.8	(23%-140%)
		13C-OCDD		78.8	(17%-157%)
		13C-2,3,7,8-TCDF		79.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		65.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		60.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		66.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		73.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		81.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		71.7	(35%-197%)
15951005	RAU2-GA2-SO-3.25	13C-2,3,7,8-TCDD		78.6 D	(25%-164%)
		13C-1,2,3,7,8-PeCDD		75.6 D	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		94.6 D	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.4 D	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		99.9 D	(23%-140%)
		13C-OCDD		92.4 D	(17%-157%)
		13C-2,3,7,8-TCDF		80.2 D	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.6 D	(24%-185%)
		13C-2,3,4,7,8-PeCDF		67.9 D	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		80.0 D	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.4 D	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.4 D	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		74.3 D	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		77.2 D	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		89.5 D	(26%-138%)
		37Cl-2,3,7,8-TCDD		72.3 D	(35%-197%)
15951007	RAU2-GA2-SO-8.25	13C-2,3,7,8-TCDD		74.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		65.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.7	(32%-141%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A9L0191

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
15951007	RAU2-GA2-SO-8.25	13C-1,2,3,6,7,8-HxCDD		75.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		91.4	(23%-140%)
		13C-OCDD		78.1	(17%-157%)
		13C-2,3,7,8-TCDF		80.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		66.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		59.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		65.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		74.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		82.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		71.7	(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: A9L0191 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 42595 **Matrix:** SOIL

Lab Sample ID: 12025552

Instrument: HRP750 **Analysis Date:** 12/16/2019 16:05 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42595

Batch ID: 42598

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	20.1	100	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	102	102	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	98.4	98.4	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	99.4	99.4	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	102	102	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	91.1	91.1	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	196	98	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	17.8	89	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	92.0	92	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	96.8	96.8	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	101	101	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	96.0	96	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	96.7	96.7	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	99.0	99	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	92.7	92.7	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	188	94.1	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A9L0191 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 42595 **Matrix:** SOIL

Lab Sample ID: 12025553

Instrument: HRP750 **Analysis Date:** 12/16/2019 16:53 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 42595

Batch ID: 42598

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	20.1	101	67-158	0.129	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	107	107	70-142	4.67	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	103	103	70-164	4.43	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	99.6	99.6	76-134	0.179	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	105	105	64-162	2.44	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	94.7	94.7	70-140	3.80	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	197	98.7	78-144	0.637	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	18.1	90.4	75-158	1.56	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	94.2	94.2	80-134	2.44	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	105	105	68-160	4.01	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	101	101	72-134	4.05	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	103	103	84-130	2.51	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	98.4	98.4	70-156	2.44	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	101	101	78-130	4.07	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	104	104	82-122	4.97	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	98.3	98.3	78-138	5.83	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	192	96.2	63-170	2.21	0-20

Method Blank Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 42595**	**Instrument ID:**	**HRP750**	**Data File:**	**A16DEC19B-4**
Lab Sample ID:	**12025551**	**Prep Date:**	**12-DEC-19**	**Analyzed:**	**12/16/19 17:41**
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 42595	12025552	A16DEC19B-2	12/16/19	1605
02	LCSD for batch 42595	12025553	A16DEC19B-3	12/16/19	1653
03	RAU2-GA1-SO-8.25	15951004	A17DEC19A_2-2	12/17/19	1741
04	RAU2-GA1-SO-5.75	15951003	A17DEC19A_2-3	12/17/19	1829
05	RAU2-GA1-SO-3.25	15951002	A17DEC19A_2-4	12/17/19	1917
06	RAU1-10-SO-2.0	15951001	A17DEC19A_2-5	12/17/19	2005
07	RAU2-GA2-SO-5.75	15951006	A17DEC19A_2-6	12/17/19	2053
08	RAU2-GA2-SO-3.25	15951005	A17DEC19A_2-8	12/17/19	2230
09	RAU2-GA2-SO-8.25	15951007	A17DEC19A_2-11	12/18/19	0054

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12025551**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42595**				
Client ID:	**MB for batch 42595**			**Prep Basis:**	**As Received**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/16/2019 17:41**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A16DEC19B-4**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.141	pg/g	0.141	1.00
40321-76-4	1,2,3,7,8-PeCDD	J	0.130	pg/g	0.101	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	JK	0.122	pg/g	0.0968	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	JK	0.122	pg/g	0.0978	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.152	pg/g	0.0988	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	0.153	pg/g	0.153	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	0.362	pg/g	0.171	10.0
51207-31-9	2,3,7,8-TCDF	U	0.121	pg/g	0.121	1.00
57117-41-6	1,2,3,7,8-PeCDF	J	0.160	pg/g	0.066	5.00
57117-31-4	2,3,4,7,8-PeCDF	J	0.148	pg/g	0.0714	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	JK	0.106	pg/g	0.104	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.148	pg/g	0.114	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.109	pg/g	0.109	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	JK	0.152	pg/g	0.147	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.186	pg/g	0.071	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.0958	pg/g	0.0958	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	0.260	pg/g	0.242	10.0
41903-57-5	Total TeCDD	U	0.141	pg/g	0.141	1.00
36088-22-9	Total PeCDD	J	0.130	pg/g	0.101	5.00
34465-46-8	Total HxCDD	JK	0.396	pg/g	0.0968	5.00
37871-00-4	Total HpCDD	U	0.153	pg/g	0.153	5.00
30402-14-3	Total TeCDF	U	0.121	pg/g	0.121	1.00
30402-15-4	Total PeCDF	J	0.308	pg/g	0.0484	5.00
55684-94-1	Total HxCDF	JK	0.406	pg/g	0.104	5.00
38998-75-3	Total HpCDF	J	0.186	pg/g	0.071	5.00
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.261	pg/g		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		0.345	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		162	200	pg/g	80.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		160	200	pg/g	80.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		150	200	pg/g	75.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		150	200	pg/g	75.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		161	200	pg/g	80.5	(23%-140%)
13C-OCDD		263	400	pg/g	65.8	(17%-157%)
13C-2,3,7,8-TCDF		172	200	pg/g	86.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		169	200	pg/g	84.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		151	200	pg/g	75.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		146	200	pg/g	72.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		136	200	pg/g	67.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		150	200	pg/g	74.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		149	200	pg/g	74.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12025551**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42595**				
Client ID:	**MB for batch 42595**			**Prep Basis:**	**As Received**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/16/2019 17:41**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A16DEC19B-4**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-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		140	200	pg/g	69.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		153	200	pg/g	76.5	(26%-138%)
37Cl-2,3,7,8-TCDD		16.9	20.0	pg/g	84.5	(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:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12025552**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42595**				
Client ID:	**LCS for batch 42595**			**Prep Basis:**	**As Received**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/16/2019 16:05**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A16DEC19B-2**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.1	pg/g	0.195	1.00
40321-76-4	1,2,3,7,8-PeCDD		102	pg/g	0.191	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		98.4	pg/g	0.240	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		99.4	pg/g	0.266	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		102	pg/g	0.256	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		91.1	pg/g	0.352	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		196	pg/g	0.550	10.0
51207-31-9	2,3,7,8-TCDF		17.8	pg/g	0.162	1.00
57117-41-6	1,2,3,7,8-PeCDF		92.0	pg/g	0.184	5.00
57117-31-4	2,3,4,7,8-PeCDF		101	pg/g	0.182	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		96.8	pg/g	0.372	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		101	pg/g	0.392	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		96.0	pg/g	0.398	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		96.7	pg/g	0.506	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		99.0	pg/g	0.332	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		92.7	pg/g	0.460	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		188	pg/g	0.400	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		153	200	pg/g	76.7	(20%-175%)
13C-1,2,3,7,8-PeCDD		166	200	pg/g	82.8	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		152	200	pg/g	76.0	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		146	200	pg/g	72.8	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		158	200	pg/g	78.9	(22%-166%)
13C-OCDD		254	400	pg/g	63.5	(13%-199%)
13C-2,3,7,8-TCDF		171	200	pg/g	85.3	(22%-152%)
13C-1,2,3,7,8-PeCDF		174	200	pg/g	86.9	(21%-192%)
13C-2,3,4,7,8-PeCDF		158	200	pg/g	79.0	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		146	200	pg/g	72.8	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		137	200	pg/g	68.5	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		149	200	pg/g	74.3	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		153	200	pg/g	76.4	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		139	200	pg/g	69.7	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		152	200	pg/g	76.2	(20%-186%)
37Cl-2,3,7,8-TCDD		16.7	20.0	pg/g	83.4	(31%-191%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A9L0191**	**Client:**	**APEX001**	**Project:**	**APEX00217**
Lab Sample ID:	**12025553**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 42595**				
Client ID:	**LCSD for batch 42595**			**Prep Basis:**	**As Received**
Batch ID:	**42598**	**Method:**	**EPA Method 1613B**		
Run Date:	**12/16/2019 16:53**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A16DEC19B-3**			**Dilution:**	**1**
Prep Batch:	**42595**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**12-DEC-19**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.1	pg/g	0.160	1.00
40321-76-4	1,2,3,7,8-PeCDD		107	pg/g	0.202	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		103	pg/g	0.372	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		99.6	pg/g	0.346	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		105	pg/g	0.364	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		94.7	pg/g	0.426	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		197	pg/g	0.684	10.0
51207-31-9	2,3,7,8-TCDF		18.1	pg/g	0.167	1.00
57117-41-6	1,2,3,7,8-PeCDF		94.2	pg/g	0.288	5.00
57117-31-4	2,3,4,7,8-PeCDF		105	pg/g	0.308	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		101	pg/g	0.362	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		103	pg/g	0.374	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		98.4	pg/g	0.348	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		101	pg/g	0.466	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		104	pg/g	0.434	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		98.3	pg/g	0.602	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		192	pg/g	0.636	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		162	200	pg/g	81.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		166	200	pg/g	82.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		155	200	pg/g	77.5	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		149	200	pg/g	74.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		156	200	pg/g	78.2	(22%-166%)
13C-OCDD		263	400	pg/g	65.7	(13%-199%)
13C-2,3,7,8-TCDF		175	200	pg/g	87.6	(22%-152%)
13C-1,2,3,7,8-PeCDF		173	200	pg/g	86.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		157	200	pg/g	78.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		147	200	pg/g	73.3	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		136	200	pg/g	67.8	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		149	200	pg/g	74.6	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		153	200	pg/g	76.3	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		139	200	pg/g	69.7	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		151	200	pg/g	75.4	(20%-186%)
37Cl-2,3,7,8-TCDD		17.2	20.0	pg/g	85.8	(31%-191%)

Comments:

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

APPENDIX L

DATA VALIDATION MEMORANDA



DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 1044.02.13 | DECEMBER 30, 2019 | GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater and soil samples collected at the upland portion of the Seaport Landing Site. The samples were collected on December 4 and 5, 2019.

Apex Laboratories, LLC (Apex), Analytical Resources, Inc. (ARI), Cape Fear Analytical (CFA), and ALS Environmental performed the analyses. Apex report numbers A9L0097, A9L0191 01 30 20 1613, A9L0524; CFA reports WO15921 and WO16303; ARI reports 19L0091 and 19L0152; and ALS Environmental report 957456 were reviewed. Some samples originally submitted to Apex for report A9L0191 were later identified as sediment and were reported in a separate split report at the request of the MFA project manager. The associated sub-contract CFA lab report WO16303 had been similarly reissued as a split report. The report timestamps are referenced below to distinguish them from the split laboratory report containing sediment data, which are validated in a separate memorandum. The analyses performed, and samples analyzed are listed below.

Analysis	Reference
BTEX Compounds	USEPA 8260C USEPA 5035A/8260C
Dioxin and Furans	USEPA 1613B
Diesel- and Oil-Range-Hydrocarbons	NWTPH-Dx
Gasoline-Range Hydrocarbons	NWTPH-Gx
Hydrocarbon Identification	NWTPH-HCID
Dry Weight	USEPA 8000C
Polychlorinated Biphenyls as Aroclors	USEPA 8082A
Polycyclic Aromatic Hydrocarbons	USEPA 8270D LVI
Semivolatile Organic Compounds	USEPA 8270D
Sulfide	SM 4500-S2-D-00
Total Hardness	SM 2340B
Total Hexavalent Chromium	Colorometric Spectrophotometry (218.6)
Total Metals	USEPA 200.8 USEPA 6020A
Volatile Organic Compounds	USEPA 8260C USEPA 5035A/8260C

NOTES:
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes.
HCID = Hydrocarbon Identification.
NWTPH = Northwest Total Petroleum Hydrocarbon.
LVI = Large Volume Injection.
SM = Standard Methods for the Treatment of Water and Wastewater.
USEPA = United States Environmental Protection Agency.

Samples Analyzed			
Report A9L0097/19L0091/WO15921		**Report A9L0191 01 30 20 1613 / 19L0152 / 957456/WO16303**	
RAU2-SO-2.5	RAU1-03-GW-7.5	RAU3-07-SO-2.0	RAU2-07-SO-1.5
RAU2-03-GW-7.5	RAU1-06-SO-1.75	RAU3-07-SO-6.0	RAU2-07-GW-7.5
RAU2-03-SO-3	RAU1-06-SO-3.5	RAU2-08-SO-2.0	RAU4-06-SO-1.5
RAU2-04-SO-4.5	RAU1-06-GW-7.5	RAU2-09-SO-1.5	RAU4-06-GW-4.5
RAU2-04-GW-7.5	RAU1-03-SO-2.2	RAU2-09-SO-8.0	RAU4-11-SO-2.5
RAU3-05-SO-1.6	RAU1-11-SO-3.5	RAU1-08-SO-2.0	RAU4-11-GW-7.0
RAU3-05-GW-8.0	RAU1-11-GW-7.0	RAU1-08-SO-7.0	RAU4-09-SO-2.5
RAU2-01-SO-3.5	RAU1-03-GW-7.5-DUP	RAU1-07-GW-7.0	RAU4-09-GW-7.0
RAU2-01-GW-7.5	RAU1-12-SO-2.7	RAU2-SW-Chehalis	RAU4-04-SO-3.45
RAU3-05-SO-3	RAU1-12-GW-7.0	RAU1-10-SO-2.0	RAU4-04-GW-7.0
RAU2-05-SO-2.5	RAU3-06-SO-3	RAU1-10-GW-8.5	RAU7-01-SO-1.5
RAU2-05-GW-7.5	RAU3-06-GW-6.5	RAU4-10-SO-3.0	RAU7-01-GW-8.5
RAU2-05-SO-1.3	RAU3-04-SO-2.5	RAU4-10-GW-8.0	RAU7-02-SO-2.5
RAU2-05-GW-6.5	RAU3-04-SO-6.5	RAU4-08-SO-1.75	RAU7-02-GW-9.5
RAU1-07-SO-1.8	RAU3-03-SO-2.5	RAU4-08-SO-1.75-DUP	**Report A9L0524**
RAU1-07-GW-7.5	RAU5-02-SO-2	RAU4-08-GW-7.5	RAU2-08-GW-9
RAU1-04-SO-1.3	RAU5-02-SO-7.5	RAU4-03-SO-1.2	RAU2-09-GW-9
RAU1-04-GW-7.5	RAU3-02-SO-2.5	RAU4-03-SO-14.5	RAU3-03-GW-5
RAU1-01-SO-2.4	RAU5-01-SO-4.5	RAU4-12-SO-2.4	RAU6-02-GW-12
RAU1-01-GW-7.5	RAU5-01-GW-7.0	RAU6-02-SO-1.5	RAU4-12-GW-9
RAU1-05-SO-1.5	RAU1-09-SO-1.5	RAU6-03-SO-2.5	-
RAU1-05-GW-6.5	RAU1-09-GW-7.0	RAU6-03-SO-9.5	-
RAU1-02-SO-1	RAU4-01-SO-2	RAU6-01-SO-2.3	-
RAU1-02-GW-6	RAU4-01-GW-6.5	RAU4-05-SO-1.75	-
RAU2-02-GW-6	RAU4-02-SO-2.5	RAU4-05-SO-1.75-DUP	-
RAU1-04-SO-0.25	RAU4-02-GW-7	RAU4-05-GW-7.5	-
RAU1-05-SO-0.25	RAU4-07-SO-3.5	Trip Blank	-
Trip Blank	RAU4-07-GW-7.0	RB	-
RAU2-05-SO-2.5-DUP	RAU4-02-GW-7-DUP	RAU3-01-SO-2.0	-

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2014, 2016, 2017a,b) and appropriate laboratory and method-specific guidelines (ALS, 2018; Apex, 2019; ARI, 2018; CFA, 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).

Apex noted that, to minimize matrix interference, USEPA Method 8082A samples and associated batch quality control samples were processed with sulfuric acid cleanup by USEPA Method 3665A, sulfur cleanup by USEPA Method 3660B, and florisil cleanup by USEPA Method 3620B. No action was required.

According to reports A9L0097 and A9L0191 01 30 20 1613, Apex qualified the NWTPH-Dx diesel-range hydrocarbon results for samples RAU1-11-GW-7.0, RAU1-12-GW-7.0, and RAU1-10-SO-2.0 as an elevated result due to overlap from the reported oil-range hydrocarbon result. Apex flagged the oil-range hydrocarbon results as estimated due to overlap from the reported diesel-range hydrocarbon results. The results have been qualified by the reviewer with a "J" as estimated in the table below.

Report	Sample	Component	Unit	Original Result	Qualified Result
A9L0097	RAU1-11-GW-7.0	Diesel	mg/L	0.781	0.781 J
		Oil		1.99	1.99 J
	RAU1-12-GW-7.0	Diesel		0.683	0.683 J
		Oil		1.29	1.29 J
A9L0191 01 30 20 1613	RAU1-10-SO-2.0	Diesel	mg/kg	180	180 J
		Oil		489	489 J

NOTES:
J = Result is estimated.
mg/L = milligram per liter.
mg/kg = milligram per kilogram.

According to reports A9L0097 and A9L0191 01 30 20 1613, the NWTPH-Dx oil-range hydrocarbon results from samples RAU1-06-SO-3.5 and RAU4-04-SO-3.45 were elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported. The associated results were reported as oil-range hydrocarbons; thus, qualification was not required.

According to report A9L0097, the NWTPH-Gx gasoline-range organic result from sample RAU1-12-SO-2.7 was primarily due to overlap from a heavier fuel hydrocarbon product. The validator qualified the detected oil range hydrocarbon result with "J" as estimated in the table below.

Report	Sample	Component	Original Result	Qualified Result
A9L0097	RAU1-12-SO-2.7	Gasoline Range Organics	118	118 J

NOTES:
J = Result is estimated.
mg/L = milligram per liter.
mg/kg = milligram per kilogram.

According to reports A9L0097 and A9L0191 01 30 20 1613, the NWTPH-Dx diesel range hydrocarbon results from samples RAU1-01-GW-7.5, RAU1-10-GW-8.5 and RAU2-07-GW-

7.5 had no fuel pattern detected. The associated results were reported as diesel-range hydrocarbons; thus, qualification was not required.

According to report A9L0097, the USEPA 5035A/8260C n-butylbenzene and naphthalene results from sample RAU1-12-SO-2.7 were flagged by Apex as estimated due to matrix interference. The results have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-12-SO-2.7	n-Butylbenzene	113	113 J
		Naphthalene	204	204 J

NOTES:
J = Result is estimated.
ug/kg = micrograms per kilogram.

According to reports A9L0097 and A9L0191 01 30 20 1613, some USEPA Method 8082A Aroclor 1254 and Aroclor 1260 results were flagged by Apex as estimated due to the presence of overlapping polychlorinated biphenyl Aroclors. The results have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU3-05-SO-1.6	Aroclor 1254	32.7	32.7 J
		Aroclor 1260	8.87	8.87 J
A9L0191 01 30 20 1613	RAU6-03-SO-2.5	Aroclor 1254	158	158 J
		Aroclor 1260	46.8	46.8 J

NOTES:
J = Result is estimated.
ug/kg = micrograms per kilogram.

According to reports A9L0097 and A9L0191 01 30 20 1613, the USEPA Method 8270D result for samples RAU5-02-SO-2, RAU7-02-GW-9.5, RAU1-08-SO-7.0, and RAU2-GA2-SO-3.25 were flagged by Apex as estimated due to matrix interference. Some results were flagged by Apex as estimated due to insufficient chromatographic peak separation and have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Units	Original Result	Qualified Result
A9L0097	RAU5-02-SO-2	Benzo(k)fluoranthene	ug/kg	45.9	45.9 J
	RAU3-02-SO-2.5			114	114 J
	RAU1-09-SO-1.5			457	457 J
A9L0191 01 30 20 1613	RAU7-02-GW-9.5	Chrysene	ug/L	0.0269	0.0269 J
	RAU1-08-SO-7.0	Benzo(a)anthracene	ug/kg	162	162 J
	RAU2-GA2-SO-3.25	Benzo(k)fluoranthene		1340	1340 J

NOTES:
J = Result is estimated.
ug/kg = milligrams per kilogram.
ug/L = micrograms per liter.

In report A9L0524, the USEPA 8270D 3,3'-dichlorobenzidine results from sample RAU2-08-GW-9 and RAU2-09-GW-9 were flagged by Apex due to erratic or low blank spike recoveries. The validator confirmed that the 3,3'-diclorobenzidiene recovery was within acceptable limits; thus, no qualifications were necessary.

USEPA Method 1613B laboratory-flagged estimated maximum potential concentration (EMPC) results were qualified by the reviewer as estimated and not detected, at the reported concentration, in accordance with USEPA Region 10 guidance for data validation of polychlorinated dibenzodioxins and polychlorinated dibenzo-furans (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 and non-detect, at the reported concentration when all associated congeners were reported by the laboratory as either EMPCs or as 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 detection below the reporting limit did not require additional qualification. The reviewer qualified the following results:

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
WO15921	RAU1-04-SO-0.25	1,2,3,4,7,8-HxCDD	5.45 JK	5.45 UJK
		2,3,7,8-TCDF	2.31 JK	2.31 UJK
		1,2,3,6,7,8-HxCDF	3.6 JK	3.6 UJK
		Total TeCDD	3.67 JK	3.67 UJK
		Total PeCDD	6.83 JK	6.83 UJK
		Total HxCDD	159 JK	159 UJK
		Total TeCDF	6.27 JK	6.27 UJK
		Total PeCDF	54.8 JK	54.8 UJK
		Total HxCDF	126 JK	126 UJK
	RAU1-05-SO-0.25	1,2,3,4,7,8-HxCDF	1.16 JK	1.16 UJK
		2,3,4,6,7,8-HxCDF	0.957 JK	0.957 UJK
		Total PeCDD	1.89 JK	1.89 UJK
		Total TeCDF	4.71 JK	4.71 UJK
		Total PeCDF	7.11 JK	7.11 UJK
		Total HxCDF	12.1 JK	12.1 UJK
	RAU1-06-SO-1.75	1,2,3,4,6,7,8,9-OCDD	20.3 JK	20.3 UJK
		Total PeCDF	1.47 JK	1.47 UJK

Report	Sample	Component	Original Result (pg/g)	Qualified Result (pg/g)
WO16303	RAU1-10-SO-2.0	2,3,7,8-TCDD	0.177 JK	0.177 UJK
		1,2,4,6,7,8-HxCDF	0.227 JK	0.227 UJK
		1,2,3,4,7,8,9-HpCDF	0.409 JK	0.409 UJK
		Total TeCDD	1.25 JK	1.25 UJK
		Total TeCDF	1.25 JK	1.25 UJK
		Total HxCDF	6.22 JK	6.22 UJK
		Total HpCDF	22.9 JK	22.9 UJK

NOTES:
J = Result is estimated.
K = Result is an estimated maximum potential concentration.
pg/g = picograms per gram.
Q = Result is estimated due to quantitative interference.
U = Result is non-detect.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

In report A9L0097, the USEPA Method 5035A/8260C batch 9120608 matrix spike (MS) (9120608-MS1) was flagged by the laboratory as subsampled from the sample container after the USEPA-recommended 48-hour hold time. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to reports A9L0097 and A9L0191 01 30 20 1613, the USEPA Method 8082A batch 9120759 MS (9120759-MS1) was flagged by the laboratory as received outside of the USEPA-recommended temperature range. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

In reports A9L0097 and A9L0191 01 30 20 1613, Apex noted on the cooler receipt form that one of the three volatile organic analysis (VOA) vials from sample RAU5-01-GW-7.0 and RAU4-10-GW-8.0 had head space, and that all VOA vials for samples RAU1-06-GW-7.5, RAU1-11-GW-7.0, RAU1-12-GW-7.0, RAU5-01-GW-7.0, RAU1-09-GW-7.0, RAU4-01-GW-6.5, RAU4-02-GW-7, RAU4-07-GW-7.0, RAU4-02-GW-7-DUP, RAU1-02-GW-6, RAU1-07-GW-7.5, RAU2-07-GW-7.5, RAU4-06-GW-4.5 and RAU-GW-IDW (on hold) had sediment. Apex also noted that samples RAU1-02-GW-6, RAU1-02-GW-7.5 and RAU4-11-GW-7.0 had a pH of 8 when they should have been greater than 9 standard units. The validator confirmed with the lab that the samples without headspace were used, and the pH was adjusted upon receipt; thus, no qualifications were necessary.

In report A9L0191 01 30 20 1613, sample RAU4-04-SO-3.45 read RAU4-11-S-3.45 on the bottle. Through the process of elimination and the sample time, the lab was able to fix the naming error. No qualifications were necessary.

In report 19L0152, ARI noted that samples RAU4-10-GW-8.0 and RAU4-11-GW-7.0 failed the preservation confirmation assessment. ARI adjusted the pH when the samples were received; thus, no qualifications were necessary.

BLANKS

Method Blanks

Method blank results are used to demonstrate a lack of contamination from laboratory processes. 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 above the method reporting limit (MRL), the sample result was qualified if the concentration was less than ten times the USEPA Method 200.8 and 6020A method blank concentration or five times the method blank concentration for all other methods. MRLs were elevated to the concentration detected in the samples, and results were qualified as not detected "U" at the elevated MRL. Where an analyte was detected below the MRL in both the sample and the method blank, the sample result was qualified as not detected "U" at the MRL or practical quantitation level for USEPA 1613B. Where associated results were above the MRL and less than ten times the method blank concentration, results were qualified with "J" as estimated.

In report A9L0097, the USEPA Method 5035A/8260C batch 9120813 laboratory method blank (9120813-BLK1) had a methylene chloride detection between the detection limit and MRL at 94.9 ug/kg. Methylene chloride was not detected in the associated samples; thus, no qualifications were necessary.

In report A9L0097, the USEPA Method 8270D batch 9120673 laboratory method blank (9120673-BLK1) had a naphthalene detection between the detection limit and MRL at 0.0183 ug/L. The associated samples were either non-detect or detected at a concentration greater than five times the concentration of the detected blank with the exception of RAU2-03-GW-7.5, which was detected above the MRL at 0.0420 ug/L. The validator qualified the associated sample result with "J" in the table below.

Report	Sample	Component	Laboratory Method Blank (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU2-03-GW-7.5	Naphthalene	0.0183 J	0.0420	0.0420 J

NOTES:
J = Result is estimated.
ug/L = micrograms per liter.

In report A9L0097 and A9L0191 01 30 20 1613, the USEPA Method 8270D batch 9120690 laboratory method blank (9120690-BLK1) had a naphthalene detection between the detection

limit and MRL at 0.0237 ug/L. The associated samples were either non-detect or detected at a concentration greater than five times the concentration of the laboratory method blank; thus, no qualifications were necessary.

In reports A9L0097 and A9L0191 01 30 20 1613, the USEPA Method 8270D batch 9120852 laboratory method blank (9120852-BLK1) diethylphthalate and di-n-butylphthalate were detected between the detection limit and MRL at 14.2 ug/kg and 20.3 ug/kg, respectively. Diethylphthalate and di-n-butylphthalate were not detected in the associated samples; thus, no qualifications were necessary.

In report A9L0191 01 30 20 1613, the USEPA 200.8 batch 9120878 laboratory method blank (9120878-BLK1) had total calcium and total magnesium detection of 134 ug/L and 26.7 ug/L, respectively. The associated sample results were detected at concentrations greater than ten times the associated concentrations of the detected blank; thus, no qualifications were necessary.

In report A9L0524, the USEPA Method 8270D batch 9121037 laboratory method blank had naphthalene and benzoic acid detections of 0.0309 ug/L and 1.22 ug/L, respectively. The associated samples were either non-detect or detected at a concentration greater than five times the concentration of the detected blank except for RAU2-09-GW-9, which had detections above the MRL. The validator qualified the associated sample result with "J" in the table below

Report	Sample	Component	Laboratory Method Blank (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
A9L0524	RAU2-09-GW-9	Benzoic Acid	1.22 J	3.20	3.20 J
		Naphthalene	0.0309 J	0.0647	0.0647 J

NOTES:
J = Result is estimated.
ug/L = micrograms per liter.

In report A9L0524, the USEPA 6020A batch 9121327 laboratory method blank (9121327-BLK1) had a nickel detection of 1.17 ug/L. Nickel was non-detect or not reported from the associated samples; thus, no qualifications are necessary.

According to report WO15921, the USEPA Method 1613B batch 42622 laboratory method blank had some detections below MRLs. Associated sample results were either non-detect or detected at concentrations greater than five times the method blank detections; thus, no qualifications were necessary.

According to report WO16303, the USEPA Method 1613B batch 42595 laboratory method blank had some detections below MRLs. Associated sample results less than five times the method blank detections were qualified as follows:

Report	Sample	Component	Method Blank Result (pg/g)	Original Result (pg/g)	Qualified Result (pg/g)
WO16303	RAU1-10-SO-2.0	1,2,3,7,8,9-HxCDD	0.152 J	0.563 J	0.563 UJ
	RAU1-10-SO-2.0	1,2,3,4,7,8-HxCDF	0.106 JK	0.238 JK	0.238 UJ
	RAU1-10-SO-2.0	1,2,3,6,7,8-HxCDF	0.148 J	0.169 JK	0.169 UJ
	RAU1-10-SO-2.0	Total PeCDD	0.13 J	0.519 J	0.519 UJ

NOTES:
U = Result is non-detect.
pg/g = picograms per gram.

Several of the USEPA 1613B sample results in the bullet items above were qualified as EMPCs by the laboratory. Since these results were qualified as not detected "U" due to method blank contamination, no additional action was required. Due to the high resolution of USEPA 1613B, results less than five times the method blank detections were "UJ" qualified at the detected value, rather than the reporting limit.

All remaining laboratory method blank results were non-detect.

Trip Blanks

Two trip blanks (sample names TRIP BLANK and TRIP BLANK) were submitted with lab report A9L0097 and A9L0191 01 30 20 1613 for USEPA 8260C analysis. All trip blank results were non-detect to detection limits.

Equipment Rinsate Blanks

One equipment rinsate blank (sample name RB) was submitted with lab report A9L0191 01 30 20 1613 for USEPA Method 6020A, USEPA Method 8270D, and NWTPH-HCID analysis. The equipment rinsate blank is associated with only the groundwater samples from this sampling event and was collected to evaluate new single-use equipment used during groundwater collection for both reports. Field quality control results may be qualified as a result of laboratory instrument or batch information, but original or unvalidated laboratory results associated with field quality control samples are used to assess impact on field samples.

Naphthalene, total lead, chromium, and copper were detected at concentrations of 0.0568 ug/L, 0.495 ug/L, 0.678 ug/L, and 0.513 ug/L, respectively. The associated sample results less than five times the blank detection (or ten times for USEPA 6020A analysis) are qualified in the table below as follows: compounds detected in both the equipment rinsate blank and associated samples below MRLs resulted in sample qualification with "U" as non-detect at the sample MRL. Equipment rinsate blank results that were below the MRL and associated with sample results above the MRL resulted in sample qualification with "J" as estimated at the sample result value. Equipment rinsate blank results that were above the MRL and associated with sample results above the MRL resulted in sample qualification with "U" as non-detect at the sample result value.

Report	Sample	Component	Rinse Blank (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
A9L0191 01 30 20 1613	RAU4-04-GW-7.0	Naphthalene	0.0568 J	0.0843	0.0843 J
	RAU4-05-GW-7.5			0.102	0.102 J
A9L0097	RAU2-03-GW-7.5			0.042	0.042 J
A9L0097	RAU1-01-GW-7.5	Lead	0.495	2.66	2.66 U
A9L0097	RAU1-03-GW-7.5			2.22	2.22 U
A9L0097	RAU1-03-GW-7.5-DUP			2.53	2.53 U
A9L0097	RAU1-06-GW-7.5			1.5	1.5 U
A9L0097	RAU1-07-GW-7.5			0.843	0.843 U
A9L0097	RAU1-11-GW-7.0			3.63	3.63 U
A9L0097	RAU2-05-GW-7.5			2.93	2.93 U
A9L0097	RAU2-06-GW-6.5			2.1	2.1 U
A9L0097	RAU4-02-GW-7			3.84	3.84 U
A9L0097	RAU4-02-GW-7-DUP			3.84	3.84 U
A9L0097	RAU5-01-GW-7.0			0.738 J	1.00 U
A9L0191 01 30 20 1613	RAU1-08-GW-7.0			1.01	1.01 U
	RAU1-10-GW-8.5			1.97	1.97 U
A9L0097	RAU3-05-GW-8.0			0.640	0.640 U
A9L0097	RAU3-06-GW-6.5			1.56	1.56 U
A9L0191 01 30 20 1613	RAU4-04-GW-7.0			0.265	0.265 U
	RAU4-08-GW-7.5			3.12	3.12 U
	RAU4-09-GW-7.0			0.378	0.378 U
	RAU4-10-GW-8.0			1.89	1.89 U
	RAU4-11-GW-7.0			1.23	1.23 U
	RAU7-01-GW-8.5			1.45	1.45 U
	RAU7-02-GW-9.5			0.741	0.741 U
	RAU1-08-GW-7.0	Chromium	0.678 J	0.591 J	1.00 U
	RAU4-04-GW-7.0			0.725 J	1.00 U
	RAU4-09-GW-7.0			1.12	1.12 J
	RAU4-11-GW-7.0			5.68	5.68 J
	RAU7-01-GW-8.5			6.32	6.32 J
	RAU7-02-GW-9.5			3.58	3.58 J
A9L0097	RAU3-05-GW-8.0			1.58	1.58 J
A9L0097	RAU3-06-GW-6.5			1.31	1.31 J
A9L0097	RAU4-07-GW-7.0			2.87	2.87 J
A9L0097	RAU1-03-GW-7.5			2.25	2.25 J
A9L0097	RAU1-03-GW-7.5-DUP			2.44	2.44 J
A9L0097	RAU1-04-GW-7.5			0.967 J	1.00 U
A9L0097	RAU1-06-GW-7.5			5.12	5.12 J
A9L0097	RAU1-07-GW-7.5			2.49	2.49 J
A9L0097	RAU4-01-GW-6.5			1.86	1.86 J
A9L0097	RAU5-01-GW-7.0			4.13	4.13 J

Report	Sample	Component	Rinse Blank (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU1-03-GW-7.5	Copper	0.513 J	4.58	4.58 J
A9L0097	RAU1-04-GW-7.5			1.83	1.83 J
A9L0097	RAU1-07-GW-7.5			4.54	4.54 J
A9L0097	RAU4-01-GW-6.5			3.12	3.12 J
A9L0097	RAU5-01-GW-7.0			3.97	3.97 J
A9L0097	RAU3-05-GW-8.0			4.48	4.48 J
A9L0191 01 30 20 1613	RAU1-08-GW-7.0			1.78	1.78 J
	RAU4-04-GW-7.0			0.959 J	1.00 U
	RAU4-09-GW-7.0			2.68	2.68 J

NOTES:
J = Result is estimated.
U = Result is non-detect.
ug/L = micrograms per liter.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples.

The reviewer took no action based on surrogate percent recoveries that were outside of acceptance criteria due to dilutions necessary to quantify high concentrations of target analytes present in the samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance/quality control for samples with surrogate outliers was within acceptance criteria.

In report A9L0097, the USEPA Method 8270D base/neutral surrogate compounds nitrobenzene-d5 and 2-fluorobiphenyl fell below the lower acceptance limit of 44 percent, at 41 percent and 39 percent, respectively for sample RAU1-07-GW-7.5. The analytes associated with these basic surrogate compounds are "J" qualified as estimated in the table below.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU1-07-GW-7.5	1,2,4-Trichlorobenzene	0.0248 U	0.0248 UJ
		1,2-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,2-Dinitrobenzene	0.248 U	0.248 UJ
		1,3-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,3-Dinitrobenzene	0.248 U	0.248 UJ
		1,4-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,4-Dinitrobenzene	0.248 U	0.248 UJ
		1-Methylnaphthalene	0.0198 U	0.0198 UJ
		2,4-Dinitrotoluene	0.00990 U	0.00990 UJ
		2,6-Dinitrotoluene	0.0990 U	0.0990 UJ
		2-Chloronaphthalene	0.00990 U	0.00990 UJ
		2-Methylnaphthalene	0.0198 U	0.0198 UJ
		2,2'-Oxybis(1-Chloropropane)	0.0248 U	0.0248 UJ

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
		2-Nitroaniline	0.198 U	0.198 UJ
		3-Nitroaniline	0.198 U	0.198 UJ
		3,3'-Dichlorobenzidine	0.495 U	0.495 UJ
		4-Bromophenyl-phenylether	0.0248 U	0.0248 UJ
		4-Chloroaniline	0.0248 U	0.0248 UJ
		4-Chloro-phenyl-phenyl ether	0.248 U	0.248 UJ
		4-Nitroaniline	0.198 U	0.198 UJ
		Acenaphthene	0.00990 U	0.00990 UJ
		Acenaphthylene	0.00990 U	0.00990 UJ
		Aniline	0.0495 U	0.0495 UJ
		Anthracene	0.0104	0.0104 J
		Azobenzene	0.0248 U	0.0248 UJ
		Benzo(a)anthracene	0.0115	0.0115 J
		Benzo(a)pyrene	0.0149 U	0.0149 UJ
		Benzo(b)fluoranthene	0.0149 U	0.0149 UJ
		Benzo(g,h,i)perylene	0.00990 U	0.00990 UJ
		Benzo(k)fluoranthene	0.0149 U	0.0149 UJ
		bis(2-Chloroethoxy)methane	0.0248 U	0.0248 UJ
		bis(2-Chloroethyl)ether	0.0248 U	0.0248 UJ
		Bis(2-Ethylhexyl) adipate	0.248 U	0.248 UJ
		bis(2-Ethylhexyl)phthalate	0.198 U	0.198 UJ
		Butylbenzylphthalate	0.198 U	0.198 UJ
		Carbazole	0.0149 U	0.0149 UJ
		Chrysene	0.0100	0.0100 J
		Dibenzo(a,h)anthracene	0.00990 U	0.00990 UJ
		Dibenzofuran	0.00990 U	0.00990 UJ
		Diethylphthalate	0.198 U	0.198 UJ
		Dimethylphthalate	0.198 U	0.198 UJ
		Di-n-butylphthalate	0.198 U	0.198 UJ
		Di-n-octylphthalate	0.198 U	0.198 UJ
		Fluoranthene	0.0104	0.0104 J
		Fluorene	0.00990 U	0.00990 UJ
		Hexachlorobenzene	0.00990 U	0.00990 UJ
		Hexachlorobutadiene	0.0248 U	0.0248 UJ
		Hexachlorocyclopentadiene	0.0495 U	0.0495 UJ
		Hexachloroethane	0.0248 U	0.0248 UJ
		Indeno(1,2,3-Cd)Pyrene	0.00990 U	0.00990 UJ
		Isophorone	0.0248 U	0.0248 UJ
		Naphthalene	0.0396 U	0.0396 UJ
		Nitrobenzene	0.0990 U	0.0990 UJ

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
		N-Nitrosodimethylamine	0.0248 U	0.0248 UJ
		n-Nitroso-di-n-propylamine	0.0248 U	0.0248 UJ
		n-Nitrosodiphenylamine	0.0248 U	0.0248 UJ
		Phenanthrene	0.0268	0.0268 J
		Pyrene	0.0140	0.0140 J
		Pyridine	0.00990 U	0.00990 UJ

NOTES:
U = Result is non-detect.
ug/L = micrograms per liter.
UJ = Result is non-detect and estimated.

In report A9L0191 01 30 20 1613, the USEPA 8082A surrogate compound decachlorobiphenyl recovery fell below the lower acceptance limit of 40 percent, at 35 percent for RAU4-06-GW-4.5. The validator "J" qualified the non-detect USEPA 8082A results from sample RAU4-06-GW-4.5 as estimated for the final qualification of "UJ" as non-detect and estimated in the table below.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0191 01 30 20 1613	RAU4-06-GW-4.5	Aroclor 1016	0.0568 U	0.0568 UJ
		Aroclor 1221	0.0455 U	0.0455 UJ
		Aroclor 1232	0.0682 U	0.0682 UJ
		Aroclor 1242	0.0795 U	0.0795 UJ
		Aroclor 1248	0.102 U	0.102 UJ
		Aroclor 1254	0.0568 U	0.0568 UJ
		Aroclor 1260	0.0227 U	0.0227 UJ

NOTES:
U = Result is non-detect.
ug/L = micrograms per liter.
UJ = Result is non-detect and estimated.

All remaining surrogate recoveries were within acceptance criteria.

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 criteria because of high concentrations of analyte in the sample and when the laboratory flagged MS/MSD exceedances because of high concentrations of analyte, no qualifications were made by the reviewer. Where MS/MSD results were not reported, batch precision was evaluated with laboratory duplicate or laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sample results.

According to report A9L0097, the USEPA 5035A/8260C batch 9120603 MS (9120603-MS1) chloroethane recovery exceeded the upper acceptance limit of 139 percent, at 157 percent. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0097, the USEPA 5053A/8260C batch 9120608 MS (9120608-MS1) 1,1-dichloroethane recovery exceeded the upper acceptance limit of 125 percent, at 128 percent. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0097, the USEPA 8260C batch 9120593 MS (9120593-MS1) and MSD (9120593-MSD1) bromochloromethane recoveries exceeded the upper acceptance limit of 123 percent, both at 132 percent; and MS/MSD dibromochloromethane recovery exceeded the upper acceptance limit of 126 percent, both at 131 percent. Bromochloromethane and dibromochloromethane were not detected in the associated sample; thus, no qualifications were necessary.

According to report A9L0097, the USEPA 8260C batch 9120635 MS (9120635-MS1) bromochloromethane (131 percent) and dibromochloromethane (134 percent) exceeded the upper acceptance limit of 123 percent and 126 percent, respectively. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0097 and A9L0191 01 30 20 1613, the USEPA 8260C batch 9120654 MS (9120654-MS1) bromochloromethane recovery exceeded the upper control limit of 123 percent, at 126 percent and dibromochloromethane recovery exceeded the upper acceptance limit of 126 percent, at 128 percent. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0097, the USEPA 8270D batch 9120673 MS (9120673-MS1) and MSD (9120673-MSD1) 3+4-methylphenol (2 percent, -7 percent) and pyridine (0 percent, 16 percent) recoveries were below the lower acceptance of 29 percent, and 5 percent, respectively. Additionally, phenol and 3,3'-dichlorobenzidine were non-detect in the MS and MSD. Bis(2-chloroethyl)ether recovery fell below the lower acceptance limit of 43 percent, at 41 percent, and azobenzene fell below the lower acceptance limit of 61 percent, at 56 percent in the MSD. Bis(2-chloroethyl)ether and azobenzene had acceptable recovery in the MS; thus, no additional qualifications were necessary. Sample RAU2-05-GW-7.5 used to prepare the MS/MSD had a detection of 3+4-methylphenol(s), and the validator qualified this result with "J" as estimated. The associated sample result for pyridine was non-detect, and "J" qualified as estimated for a final qualification of "UJ" as estimated and non-detect. The associated sample results for phenol and 3,3'-dichlorobenzidine were non-detect; thus, were qualified by the reviewer with "R" as rejected based to the low recovery.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU2-05-GW-7.5	3+4-Methylphenol(s)	2.78	2.78 J
		Phenol	0.851 U	0.851 R
		3,3'-Dichlorobenzidine	2.13 U	2.13 R
		Pyridine	0.426 U	0.426 UJ

NOTES:
J = Result is estimated.
R = Result is rejected.
U = Result is non-detect.
ug/L = micrograms per liter.
UJ = Result is estimated and non-detect.

According to report A9L0097, the USEPA 8270D batch 9120673 MS results for 1,2-dichlorobenzene, 4-chloroaniline, 3-nitroaniline, and 4-nitroaniline were below lower percent recovery acceptance limits, ranging from 27 percent to 34 percent. The MSD result for 4-chloroaniline and 3-nitroaniline were below lower percent recovery acceptance limits, at 22 percent and 39 percent, respectively. The MS/MSD had no recovery for 3,3'-dichlorobenzene. Additionally, several MS/MSD RPD exceeded control limits, ranging from 31 percent to 48 percent. Sample RAU1-07-GW-7.5 used to prepare the MS/MSD, did not require qualification based on RPD exceedances as all associated results were non-detect. Sample RAU1-07-GW-7.5 1,2-dichlorobenzene and 4-nitroaniline results did not require qualification, as they were associated with acceptable MSD percent recoveries. Results for 4-chloroaniline and 3-nitroaniline were previously qualified in the surrogate section for sample RAU1-07-GW-7.5 and require no further qualification except for the 3,3'-dichlorobenzidine result, which was non-detect and qualified with "R" as rejected.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU1-07-GW-7.5	3,3-Dichlorobenzendine	0.495 U	0.495 R

NOTES:
R = Result is rejected.
U = Result is non-detect.
ug/L = micrograms per liter.

According to report A9L0097, the USEPA Method 8270D batch 9120708 MS (9120708-MS2) compounds had numerous exceedances of both upper and lower acceptance limits. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0097, the USEPA Method 6020A batch 9120890 MS (9120890-MS1) copper recovery exceeded the upper control limit of 125 percent, at 189 percent. The validator qualified the detected copper result in the sample used to prepare the MS with "J" as estimated in the table below.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0097	RAU1-11-SO-3.5	Copper	42.9	42.9 J

NOTES:
J = Result is estimated.
mg/kg = milligram per kilogram.

According to report A9L0191 01 30 20 1613, the USEPA Method 8260C batch 9120943 MS (9120943-MS1) chloroethane recovery exceeded the upper control limit of 138 percent, at 147 percent. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0191 01 30 20 1613, the USEPA Method 6020A batch 9120890 MS (9120890-MS1) copper recovery exceeded the upper acceptance limit of 125 percent, at 189 percent; and the manganese recovery fell below the lower acceptance limit of 75 percent at 28 percent. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0191 01 30 20 1613, the USEPA Method 6020A batch 9120937 MS (9120937-MS1) chromium, copper, manganese, nickel, and zinc recoveries exceeded the upper acceptance range of 125 percent, at 139 percent, 175 percent, 188 percent, 149 percent, and 145 percent, respectively. The validator qualified associated results that were less than four times the concentration of the MS in the table below. The remaining associated sample results did not require qualification.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0191	RAU4-06-GW-4.5	Chromium	123	123 J
		Nickel	96.8	96.8 J

NOTES:
J = Result is estimated.
ug/L = micrograms per liter.

According to report A9L0191 01 30 20 1613, the USEPA Method 6020A batch 9120960 MS (9120960-MS1) lead recovery exceeded the upper acceptance limit of 125 percent, at 216 percent; and manganese and zinc fell below the lower acceptance limit of 75 percent, at 12 percent and 44 percent, respectively. The validator qualified results in the sample used to prepare the MS that were less than four times the concentration of the MS with "J" as estimated in the table below.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0191	RAU2-09-SO-1.5	Lead	11.1	11.1 J
		Zinc	86.9	86.9 J

NOTES:
J = Result is estimated.
mg/kg = milligram per kilogram.

According to report A9L0191 01 30 20 1613, the USEPA 6020A batch 9120988 MS (9120988-MS1) manganese recovery exceeded the upper acceptance limit of 125 percent, at 151 percent. The MS was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0524, the USEPA 6020A batch 9121311 MS (9121311-MS1) manganese recovery fell below the lower acceptance limit of 75 percent, at 2 percent. The MS was prepared with a sample from an unrelated project; thus, no further qualification was necessary.

According to report A9L0097, batch 9121432 MS (9212432-MS1) hexavalent chromium recovery grossly exceeded the lower acceptance limits of 83 percent, at -0.2 percent. The post dilution spike preformed on the same source sample was within acceptance recovery. The validator qualified result in the sample used to prepare the MS with "J" as estimated in the table below.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0097	RAU1-01-SO-2.4	Hexavalent Chromium	0.293	0.293 J

NOTES:
J = Result is estimated.
mg/kg = milligram per kilogram.

According to report 957456, batch 232617 MS (3067892) and MSD (3067893) hexavalent chromium recovery grossly exceeded the lower acceptance limits of 90 percent, at 8.16 percent and 2.64 percent, respectively. Additionally, the RPD between the MS and MSD exceeded the maximum RPD of 20 percent, at 102 percent. The validator rejected the hexavalent chromium result in the sample used to prepare the MS with "R" in the table below.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
957456	RAU4-06-GW-4.5	Hexavalent Chromium	0.25 U	0.25 R

NOTES:
R = Result is rejected.
ug/L = micrograms per liter.

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. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results within five times the MRL were not evaluated for precision.

According to report A9L0097, the NWTPH-Gx batch 9120608 laboratory duplicate (9120608-DUP1) exceeded the RPD control limit of 30 percent for gasoline range organics, at 96 percent. The validator qualified the detected gasoline range organic result with "J" as estimated in the table below.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0097	RAU1-12-SO-2.7	Gasoline Range Organics	118	118 J

NOTES:
J = Result is estimated.
mg/kg = milligram per kilogram.

According to reports A9L0097 and A9L0191 01 30 20 1613, some USEPA Method 8082A batch 9120759 laboratory duplicate (9120759-DUP1) Aroclor 1254 and Aroclor 1260 results were flagged by Apex as estimated, due to the presence of overlapping polychlorinated biphenyl Aroclors. Results are qualified in the data qualifications section.

According to report A9L0097, the USEPA Method 6020A batch 9120880 laboratory duplicate (9120880-DUP1) exceeded the RPD control limit of 40 percent for mercury, at 66 percent. The validator qualified the detected gasoline range organic result for the sample used to prepare the laboratory duplicate with "J" as estimated in the table below.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0097	RAU1-07-SO-1.8	Mercury	0.261	0.261 J

NOTES:
J = Result is estimated.
mg/kg = milligram per kilogram.

According to report A9L0191 01 30 20 1613, the NWTPH-Dx batch 9120775 laboratory duplicate (9120775-DUP2) oil result was flagged by the laboratory due to elevation of the oil-range hydrocarbon range from the presence of individual analyte peaks that were not representative of the fuel pattern reported. The laboratory duplicate was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0191 01 30 20 1613, the NWTPH-Dx batch 9120804 laboratory duplicate (9120804-DUP1) exceeded the RPD control limit of 30 percent for diesel, at 143 percent. The laboratory duplicate was prepared with a sample from an unrelated project; thus, qualification was not required.

According to report A9L0191 01 30 20 1613, the USEPA 6020B batch 9120960 laboratory duplicate (9120960-DUP1) exceeded the RPD control limit of 40 percent for mercury, at 48

percent. The validator qualified the mercury result in the sample used to prepare the laboratory duplicate with "J" as estimated in the table below.

Report	Sample	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0191 01 30 20 1613	RAU2-09-SO-1.5	Mercury	0.252	0.252 J

NOTES:
J = Result is estimated.
mg/kg = milligram per kilogram.

All remaining laboratory duplicate RPDs were within acceptance criteria.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

According to report A9L0097, the USEPA 5035A/8260C batch 9120603 LCS (9120603-BS1) chloroethane recovery exceeded the upper acceptance limit of 120 percent, at 126 percent; and the chloromethane and dichlorodifluoromethane recoveries fell below the lower acceptance limit of 80 percent, at 74 percent and 73 percent, respectively. Chloroethane was not detected in the associated samples and required no qualifications. Chloromethane and dichlorodifluoromethane were not detected in the associated sample; thus, the validator qualified the results from the associated sample with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-04-SO-1.3	Chloromethane	625 U	625 UJ
		Dichlorodifluoromethane	250 U	250 UJ

NOTES:
U = Result is non-detect.
ug/kg = microgram per kilogram.
UJ = Result is non-detect and estimated.

According to report A9L0097, the USEPA 5035A/8260C batch 9120608 LCS (9120608-BS1) bromomethane, chloroethane, and trichlorofluoromethane recoveries exceeded the upper acceptance limit of 120 percent, at 122 percent, 147 percent, and 122 percent, respectively. Bromomethane, chloroethane, and trichlorofluoromethane were non-detect in the associated sample; thus, no qualifications were necessary for those results.

According to report A9L0097, the USEPA 5035A/8260C batch 9120751 LCS (9120751-BS1) chloroethane, chloromethane, and trichlorofluoromethane recoveries fell below the lower acceptance limit of 80 percent, at 72 percent, 73 percent, and 75 percent, respectively. Chloromethane, chloroethane, and trichlorofluoromethane were non-detect in the associated

samples; thus, the validator qualified the results from the associated samples with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-07-SO-1.8	Chloroethane	740 U	740 UJ
		Chloromethane	370 U	370 UJ
		Dichlorodifluoromethane	74.0 U	74.0 UJ
	RAU1-01-SO-2.4	Chloroethane	549 U	549 UJ
		Chloromethane	275 U	275 UJ
		Dichlorodifluoromethane	54.9 U	54.9 UJ
	RAU1-05-SO-1.5	Chloroethane	620 U	620 UJ
		Chloromethane	310 U	310 UJ
		Dichlorodifluoromethane	62.0 U	62.0 UJ
	RAU1-02-SO-1	Chloroethane	588 U	588 UJ
		Chloromethane	294 U	294 UJ
		Dichlorodifluoromethane	58.8 U	58.8 UJ
	RAU1-06-SO-3.5	Chloroethane	929 U	929 UJ
		Chloromethane	464 U	464 UJ
		Dichlorodifluoromethane	92.9 U	92.9 UJ
	RAU1-11-SO-3.5	Chloroethane	645 U	645 UJ
		Chloromethane	323 U	323 UJ
		Dichlorodifluoromethane	64.5 U	64.5 UJ

NOTES:
U = Result is non-detect.
ug/kg = microgram per kilogram.
UJ = Result is non-detect and estimated.

According to report A9L0097, the USEPA 5035A/8260C batch 9120813 LCS (9120813-BS1) chloroethane, chloromethane, and dichlorodifluoromethane recoveries fell below the lower acceptance limit of 80 percent, at 77 percent, 76 percent, and 78 percent, respectively. Chloroethane, chloromethane, and dichlorodifluoromethane were non-detect in the associated samples; thus, the validator qualified the results from the associated samples with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-09-SO-1.5	Chloroethane	261 U	261 UJ
		Chloromethane	130 U	130 UJ
		Dichlorodifluoromethane	52.2 U	52.2 UJ
	RAU4-01-SO-2	Chloroethane	283 U	283 UJ
		Chloromethane	142 U	142 UJ
		Dichlorodifluoromethane	56.7 U	56.7 UJ
	RAU4-02-SO-2.5	Chloroethane	289 U	289 UJ
		Chloromethane	144 U	144 UJ
		Dichlorodifluoromethane	57.7 U	57.7 UJ

NOTES:
U = Result is non-detect.
ug/kg = microgram per kilogram.
UJ = Result is non-detect and estimated.

According to report A9L0097, the USEPA 8260C batch 9120593 LCS (9120593-BS1) bromochloromethane, bromoform, bromomethane, and dibromochloromethane recoveries exceeded the upper acceptance limit of 120 percent, at 127 percent, 130 percent, 123 percent, and 130 percent, respectively. Additionally, the 2-hexanone recovery fell below the lower acceptance limit of 80 percent, at 79 percent. Bromochloromethane, bromoform, bromomethane, and dibromochloromethane were non-detect in the associated samples; qualification of these results was not required. The associated sample results for 2-hexanone were non-detect; the validator qualified the results with "J" as estimated for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU1-07-GW-7.5	2-Hexanone	10.0 U	10.0 UJ
	RAU1-04-GW-7.5		10.0 U	10.0 UJ
	RAU1-01-GW-7.5		10.0 U	10.0 UJ
	RAU1-05-GW-6.5		10.0 U	10.0 UJ
	Trip Blank		10.0 U	10.0 UJ
	RAU1-06-GW-7.5		10.0 U	10.0 UJ

NOTES:
U = Result is non-detect.
ug/L = microgram per liter.
UJ = Result is non-detect and estimated.

According to report A9L0097, the USEPA 8260C batch 9120635 LCS (9120635-BS1) bromochloromethane, bromoform, and dibromochloromethane recoveries exceeded the upper acceptance limit of 120 percent at 123 percent, 126 percent, and 128 percent, respectively; Additionally, the naphthalene recovery fell below the lower acceptance limit of 80 percent, at 78 percent. Bromochloromethane, bromoform, and dibromochloromethane were non-detect in the associated samples, therefore, qualification was not required. The validator qualified naphthalene results from the associated samples with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU1-02-GW-6	Naphthalene	2.00 U	2.00 UJ
	RAU1-09-GW-7.0		2.00 U	2.00 UJ
	RAU4-01-GW-6.5		2.00 U	2.00 UJ
	RAU4-02-GW-7		2.00 U	2.00 UJ
	RAU4-02-GW-7-DUP		2.00 U	2.00 UJ

NOTES:
U = Result is non-detect.
ug/L = microgram per liter.
UJ = Result is non-detect and estimated.

According to report A9L0097, the USEPA 8260C batch 9120654 LCS (9120654-BS1) acetone, 2-hexanone, and naphthalene recoveries fell below the lower acceptance limit of 80 percent, at 78 percent, 77 percent, and 79 percent, respectively. Additionally, bromochloromethane, bromoform, and dibromochloromethane recoveries exceeded the upper acceptance limit of 120 percent, at 122 percent, 128 percent, and 130 percent, respectively. Bromochloromethane, bromoform, and dibromochloromethane were non-detect in the associated samples and the

naphthalene result from sample RAU1-12-GW-7.0 was re-analyzed and reported in a different batch; therefore, qualification was not required for these analytes. The associated sample results for acetone, 2-hexanone, and naphthalene were non-detect; therefore , the validator qualified the acetone, 2-hexanone, and naphthalene results from the associated samples with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-11-GW-7.0	Acetone	20.0 U	20.0 UJ
		2-Hexanone	10.0 U	10.0 UJ
		Naphthalene	2.00 U	2.00 UJ
	RAU1-12-GW-7.0	Acetone	20.0 U	20.0 UJ
		2-Hexanone	10.0 U	10.0 UJ

NOTES:
U = Result is non-detect.
ug/kg = microgram per kilogram.
UJ = Result is non-detect and estimated.

According to report A9L0097 and A9L0191 01 30 20 1613, the USEPA 8260C batch 9120700 LCS (9120700-BS1) chloroethane, 2,2-dichloropropane, and 1,2,3-trichlorobenzene recoveries exceeded the upper acceptance limit of 120 percent, at 121 percent, 122 percent, and 125 percent respectively. Additionally, the chloromethane recovery fell below the lower acceptance limit of 80 percent, at 69 percent. Only naphthalene results were reported from this batch in both lab reports; thus, no qualifications were necessary.

According to report A9L0097, the USEPA 8270D batch 9120673 LCS (9120673-BS1) 1-methylnapthalene (35 percent), 2-methylnapthalene (34 percent), naphthalene (35 percent), hexachlorobutadiene (20 percent), hexachloroethane (19 percent), 2-chloronaphthalene (39 percent), 1,2-dichlorobenzene (23 percent), 1,3-dichlorobenzene (21 percent), 1,4-dichlorobenzene (22 percent), and 1,2,4-trichlrobenzene (25 percent) recoveries fell below the lower acceptance limit. Additionally, in a second LCS analyzed for batch 9120673 (9120673-BS2) 3,3'-dichlorobenzidiene recovery exceeded the upper acceptance limit of 129 percent, at 134 percent. Associated sample results were non-detect for 3,3'-dichlorobenzidine; thus, qualification of 3,3'-dichlorobenzidine was no required. The remaining LCS percent recovery exceedances were associated with only non-detect sample results; all associated sample results were qualified by the reviewer with "J" as estimated, for final qualification of "UJ" as non-detect and estimated. The qualified results are indicated in the following table:

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0097	RAU2-03-GW-7.5	1-Methylnaphthalene	0.0198 U	0.0198 UJ
		Naphthalene	0.0420	0.0420 J
		Hexachlorobutadiene	0.0248 U	0.0248 UJ
		Hexachloroethane	0.0248 U	0.0248 UJ
		2-Chloronaphthalene	0.00990 U	0.00990 UJ
		1,2-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,3-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,4-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,2,4-Trichlorobenzene	0.0248 U	0.0248 UJ
	RAU2-04-GW-7.5	1-Methylnaphthalene	0.945	0.945 J
		2-Methylnaphthalene	1.41	1.41 J
		Naphthalene	2.41	2.41 J
		Hexachlorobutadiene	0.105 U	0.105 UJ
		Hexachloroethane	0.105 U	0.105 UJ
		2-Chloronaphthalene	0.0421 U	0.0421 UJ
		1,2-Dichlorobenzene	0.105 U	0.105 UJ
		1,3-Dichlorobenzene	0.105 U	0.105 UJ
		1,4-Dichlorobenzene	0.105 U	0.105 UJ
		1,2,4-Trichlorobenzene	0.105 U	0.105 UJ
	RAU2-01-GW-7.5	1-Methylnaphthalene	0.0792 U	0.0792 UJ
		2-Methylnaphthalene	0.0792 U	0.0792 UJ
		Naphthalene	0.158 U	0.158 UJ
		Hexachlorobutadiene	0.0990 U	0.0990 UJ
		Hexachloroethane	0.0990 U	0.0990 UJ
		2-Chloronaphthalene	0.0396 U	0.0396 UJ
		1,2-Dichlorobenzene	0.0990 U	0.0990 UJ
		1,3-Dichlorobenzene	0.0990 U	0.0990 UJ
		1,4-Dichlorobenzene	0.0990 U	0.0990 UJ
		1,2,4-Trichlorobenzene	0.0990 U	0.0990 UJ
	RAU2-05-GW-7.5	1-Methylnaphthalene	0.0851 U	0.0851 UJ
		2-Methylnaphthalene	0.0851 U	0.0851 UJ
		Naphthalene	0.0851U	0.0851UJ
		Hexachlorobutadiene	0.106 U	0.106 UJ
		Hexachloroethane	0.106 U	0.106 UJ
		2-Chloronaphthalene	0.0426 U	0.0426 UJ
		1,2-Dichlorobenzene	0.106 U	0.106 UJ
		1,3-Dichlorobenzene	0.106 U	0.106 UJ
		1,4-Dichlorobenzene	0.106 U	0.106 UJ
		1,2,4-Trichlorobenzene	0.106 U	0.106 UJ
	RAU2-06-GW-6.5	1-Methylnaphthalene	0.0222 U	0.0222 UJ
		2-Methylnaphthalene	0.0222 U	0.0222 UJ
		Naphthalene	0.0444 U	0.0444 UJ
		Hexachlorobutadiene	0.0278 U	0.0278 UJ
		Hexachloroethane	0.0278 U	0.0278 UJ
		2-Chloronaphthalene	0.0111 U	0.0111 UJ
		1,2-Dichlorobenzene	0.0278 U	0.0278 UJ
		1,3-Dichlorobenzene	0.0278 U	0.0278 UJ
		1,4-Dichlorobenzene	0.0278 U	0.0278 UJ
		1,2,4-Trichlorobenzene	0.0278 U	0.0278 UJ
	RAU1-07-GW-7.5	1-Methylnaphthalene	0.0198 U	0.0198 UJ
		2-Methylnaphthalene	0.0198 U	0.0198 UJ

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
		Naphthalene	0.0396 U	0.0396 UJ
		Hexachlorobutadiene	0.0248 U	0.0248 UJ
		Hexachloroethane	0.0248 U	0.0248 UJ
		2-Chloronaphthalene	0.00990 U	0.00990 UJ
		1,2-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,3-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,4-Dichlorobenzene	0.0248 U	0.0248 UJ
		1,2,4-Trichlorobenzene	0.0248 U	0.0248 UJ
	RAU1-04-GW-7.5	1-Methylnaphthalene	0.0860 U	0.0860 UJ
		2-Methylnaphthalene	0.0860 U	0.0860 UJ
		Naphthalene	0.0860 U	0.0860 UJ
		Hexachlorobutadiene	0.108 U	0.108 UJ
		Hexachloroethane	0.108 U	0.108 UJ
		2-Chloronaphthalene	0.0430 U	0.0430 UJ
		1,2-Dichlorobenzene	0.108 U	0.108 UJ
		1,3-Dichlorobenzene	0.108 U	0.108 UJ
		1,4-Dichlorobenzene	0.108 U	0.108 UJ
		1,2,4-Trichlorobenzene	0.108 U	0.108 UJ
	RAU1-01-GW-7.5	1-Methylnaphthalene	0.668 J	0.668 J
		2-Methylnaphthalene	0.471 U	0.471 UJ
		Naphthalene	2.50	2.50 J
		Hexachlorobutadiene	0.588 U	0.588 UJ
		Hexachloroethane	0.588 U	0.588 UJ
		2-Chloronaphthalene	0.235 U	0.235 UJ
		1,2-Dichlorobenzene	0.588 U	0.588 UJ
		1,3-Dichlorobenzene	0.588 U	0.588 UJ
		1,4-Dichlorobenzene	0.588 U	0.588 UJ
		1,2,4-Trichlorobenzene	0.588 U	0.588 UJ
	RAU1-05-GW-6.5	1-Methylnaphthalene	2.12	2.12 J
		2-Methylnaphthalene	1.75	1.75 J
		Naphthalene	0.435 U	0.435 UJ
		Hexachlorobutadiene	0.543 U	0.543 UJ
		Hexachloroethane	0.543 U	0.543 UJ
		2-Chloronaphthalene	0.217 U	0.217 UJ
		1,2-Dichlorobenzene	0.543 U	0.543 UJ
		1,3-Dichlorobenzene	0.543 U	0.543 UJ
		1,4-Dichlorobenzene	0.543 U	0.543 UJ
		1,2,4-Trichlorobenzene	0.543 U	0.543 UJ
	RAU1-02-GW-6	1-Methylnaphthalene	0.0860 U	0.0860 UJ
		2-Methylnaphthalene	0.0860 U	0.0860 UJ
		Naphthalene	0.0860 U	0.0860 UJ
		Hexachlorobutadiene	0.108 U	0.108 UJ
		Hexachloroethane	0.108 U	0.108 UJ
		2-Chloronaphthalene	0.0430 U	0.0430 UJ
		1,2-Dichlorobenzene	0.108 U	0.108 UJ
		1,3-Dichlorobenzene	0.108 U	0.108 UJ
		1,4-Dichlorobenzene	0.108 U	0.108 UJ
		1,2,4-Trichlorobenzene	0.108 U	0.108 UJ
	RAU2-02-GW-6	1-Methylnaphthalene	0.808 U	0.808 UJ
		2-Methylnaphthalene	0.808 U	0.808 UJ
		Naphthalene	0.808 U	0.808 UJ

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
		Hexachlorobutadiene	1.01 U	1.01 UJ
		Hexachloroethane	1.01 U	1.01 UJ
		2-Chloronaphthalene	0.404 U	0.404 UJ
		1,2-Dichlorobenzene	1.01 U	1.01 UJ
		1,3-Dichlorobenzene	1.01 U	1.01 UJ
		1,4-Dichlorobenzene	1.01 U	1.01 UJ
		1,2,4-Trichlorobenzene	1.01 U	1.01 UJ

NOTES:
J = Result is estimated.
U = Result is non-detect.
ug/L = micrograms per liter.
UJ = Result is non-detect and estimated.

According to reports A9L0097 and A9L0191 01 30 20 1613, the USEPA 8270D batch 9120690 LCS (9120690-BS2) and LCSD (9120690-BSD2) 3,3'-dichlorobenzidine recovery exceeded the upper acceptance limit of 129 percent, at 166 percent and 159 percent, respectively. 3,3'-Dichlorobenzidine results from the associated samples were non-detect; thus, no qualifications were necessary.

According to report A9L0097, the USEPA 8270D batch 9120708 LCS (9120708-BS2) 4-chloro-3-methylphenol recovery exceeded the upper acceptance limit of 122 percent, at 125 percent. 4-Chloro-3-methylphenol results from the associated samples were non-detect; thus, no qualifications were necessary.

According to report A9L0097 and A9L0191 01 30 20 1613, the USEPA 8270D batch 9120852 LCS (9120852-BS1) 2,4-dinitrophenol recovery exceeded the upper acceptance limit of 137 percent, at 144 percent; benzoic acid recovery exceeded the upper acceptance limit of 140 percent, at 145 percent; and 3,3'-dichlorobenzidine recovery fell below the lower acceptance limit of 22 percent, at 21 percent. 2,4-Dinitrophenol and benzoic acid were not detected in the associated samples; thus, qualification for these two compounds were not required. 3,3'-Dichlorobenzidine results from report A9L0191 01 30 20 1613 were reported off a different batch; thus, no qualifications were necessary. The validator qualified associated 3,3'-dinitrophenol results from report A9L0097, which were all non-detect with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-04-SO-1.3	3,3'-Dichlorobenzidine	4350 U	4350 UJ
	RAU1-01-SO-2.4		31.8 U	31.8 UJ
	RAU1-05-SO-1.5		5890 U	5890 UJ
	RAU1-02-SO-1		1200 U	1200 UJ
	RAU2-05-SO-2.5-DUP		31.0 U	31.0 UJ
	RAU1-03-SO-2.2		29.9 U	29.9 UJ
	RAU1-06-SO-3.5		689 U	689 UJ
	RAU1-11-SO-3.5		1160 U	1160 UJ
	RAU1-12-SO-2.7		578 U	578 UJ
	RAU1-09-SO-1.5		2820 U	2820 UJ

NOTES:
U = Result is non-detect.
ug/kg = micrograms per kilogram.
UJ = Result is non-detect and estimated.

According to report A9L0191 01 30 20 1613, the USEPA Method 5035A/8260C batch 9120873 LCS (9120873-BS1) chloroethane and trichlorofluoromethane recoveries fell below the lower acceptance limit of 80 percent, at 78 percent and 72 percent, respectively. The validator qualified the non-detect chloroethane and trichlorofluoromethane results from the associated sample with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0191	RAU2-07-SO-1.5	Chloroethane	291 U	291 UJ
		Trichlorofluoromethane	58.2 U	58.2 UJ

NOTES:
U = Result is non-detect.
ug/kg = micrograms per kilogram.
UJ = Result is non-detect and estimated.

According to report A9L0191 01 30 20 1613, the USEPA Method 8260C batch 9120654 LCS (9120654-BS1) acetone, 2-hexanone, and naphthalene recoveries fell below the lower acceptance limit of 80 percent, at 78 percent, 77 percent, and 79 percent, respectively. Additionally, bromochloromethane, bromoform, and dibromochloromethane recoveries exceeded the upper acceptance limit of 120 percent, at 122 percent, 128 percent, and 130 percent, respectively. Bromochloromethane, bromoform, and dibromochloromethane results were non-detect in the associated sample, and the naphthalene result for the associated sample was reported from a separate batch; thus, no qualifications were necessary for those results. The validator qualified the acetone and 2-hexanone results from the associated sample with "J" as estimated in the table below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
	RAU2-07-GW-7.5	Acetone	20.0 U	20.0 UJ

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0191 01		2-Hexanone	10.0 U	10.0 UJ

NOTES:
U = Result is non-detect.
ug/L = micrograms per liter.
UJ = Result is non-detect and estimated.

According to report A9L0191 01 30 20 1613, the USEPA 8260C batch 9120943 LCS (9120943-BS1) chloroethane and 2,2-dichloropropane recoveries exceeded the upper acceptance limit of 120 percent, at 123 percent and 122 percent, respectively. Chloroethane and 2,2-dichloropropane were non-detect in the associated samples; thus, no qualifications were necessary.

According to report A9L0524, the USEPA 8270D batch 9121037 LCS (9121037-BS1) had numerous of recoveries below the lower acceptance limits. Additionally, several LCS/LCSD RPD exceeded control limits, ranging from 32 percent to 46 percent. The sample results associated with the RPD exceedances are non-detect and, thus, require no qualification. All associated sample results were qualified by the reviewer with "J" as estimated. The qualified results are indicated in the following table:

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
A9L0524	RAU2-08-GW-9	1-Methylnaphthalene	0.0213 U	0.0213 UJ
	RAU2-09-GW-9		0.0332 J	0.0332 J
	RAU2-08-GW-9	2-Methylnaphthalene	0.0213 U	0.0213 UJ
	RAU2-09-GW-9		0.0248 J	0.0248 J
	RAU2-08-GW-9	Naphthalene	0.0426 U	0.0426 UJ
	RAU2-09-GW-9		0.0647	0.0647 J
	RAU2-08-GW-9	Hexachlorobutadiene	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0238 U	0.0238 UJ
	RAU2-08-GW-9	Hexachloroethane	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0238 U	0.0238 UJ
	RAU2-08-GW-9	2-Chloronaphtalene	0.0106 U	0.0106 UJ
	RAU2-09-GW-9		0.00952 U	0.00952 UJ
	RAU2-08-GW-9	1,2-Dichlorobenzene	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0238 U	0.0238 UJ
	RAU2-08-GW-9	1,3-Dichlorobenzene	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0483	0.0483 J
	RAU2-08-GW-9	1,4-Dichlorobenzene	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0704	0.0704 J
	RAU2-08-GW-9	1,2,4-Trichlorobenzene	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0238 U	0.0238 UJ
	RAU2-08-GW-9	4-Chlorophenyl phenyl ether	0.0266 U	0.0266 UJ
	RAU2-09-GW-9		0.0238 U	0.0238 UJ

NOTES:
J = Result is estimated.
U = Result is non-detect.
ug/L = micrograms per liter.
UJ = Result is non-detect and estimated.

According to report 19L0152, the SM 4500-S2 D-00 batch BHL0315 LCS fell below the lower acceptance limits of 75 percent, at 68.1 percent. The associated sample result for sulfide was non-detect and has been qualified by the reviewer as estimated with "J," with final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (mg/L)	Qualified Result (mg/L)
19L0152	RAU4-10-GW-8.0	Sulfide	0.050 U	0.050 UJ
	RAU4-11-GW-7.0		0.050 U	0.050 UJ

NOTES:
mg/L = milligrams per liter.
U = Result is non-detect.
UJ = Result is estimated and non-detect.

All remaining LCS/LCSD results were within acceptance limit for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. One field duplicate was submitted with report A9L0097 (RAU4-05-SO-1.75/RAU4-05-SO-1.75-DUP) and one field duplicate was submitted with report A9L0191 01 30 20 1613 (RAU4-08-SO-1.75/ RAU4-08-SO-1.75-DUP) for analysis. MFA uses acceptance limit 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 are not used in the evaluation of field duplicate results.

In report A9L0097, the USEPA Method 6020B lead results for sample RAU2-05-SO-2.5 and its field duplicate RAU2-05-SO-2.5-DUP exceeded the RPD control limit of 50 percent, at 129 percent. The validator qualified the detected lead results from the associated samples with "J" as estimated in the table below.

Report	Sample	Component	RPD (%)	Original Result (mg/kg)	Qualified Result (mg/kg)
A9L0097	RAU2-05-SO-2.5	Lead	129	3.44	3.44 J
	RAU2-05-SO-2.5-DUP			16.0	16.0 J

NOTES:
% = percent.
J = result is estimated.
mg/kg = milligram per kilogram.

All remaining analytes were within the acceptance criteria.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. Quality control results that were flagged by the laboratory based on CCV exceedances required no action from the reviewer when the results met percent recovery and RPD acceptance criteria. In report A9L0097, some USEPA 8082A results from samples RAU1-02-SO-1 and RAU3-06-SO-3 were flagged by Apex as estimated results due to associated CCV recoveries below the lower

control limits. The validator qualified the associated non-detect results with "J" as estimated in the table, below for a final qualification of "UJ" as non-detect and estimated.

Report	Sample	Component	Original Result (ug/kg)	Qualified Result (ug/kg)
A9L0097	RAU1-02-SO-1	Aroclor 1016	2.33 U	2.33 UJ
		Aroclor 1221	2.33 U	2.33 UJ
		Aroclor 1232	2.33 U	2.33 UJ
		Aroclor 1242	2.33 U	2.33 UJ
		Aroclor 1248	2.33 U	2.33 UJ
	RAU3-06-SO-3	Aroclor 1016	2.00 U	2.00 UJ
		Aroclor 1221	2.00 U	2.00 UJ
		Aroclor 1232	2.00 U	2.00 UJ
		Aroclor 1242	2.00 U	2.00 UJ
		Aroclor 1248	2.00 U	2.00 UJ

NOTES:
U = Result is non-detect.
Ug/kg = microgram per kilogram.
UJ = Result is non-detect and estimated.

All remaining CCVs were within acceptance criteria for percent recovery.

REPORTING LIMITS

Apex reported non-detect results to detection limits. CFA reported non-detect results to estimated detection limits. Samples requiring dilutions because of high analyte concentrations and/or matrix interferences were reported with raised detection limits and reporting limits. Results between the detection limit and the reporting limit were qualified by Apex with "J" as estimated.

The reviewer confirmed that USEPA 5035A/8260C results were reported with a base dilution factor of 1:50 due to a dilution required for analysis.

Some reporting limits and detection limits were raised by Apex due to matrix interference or the lab was confident of the response to report above the MRL. Results were flagged appropriately or confirmed with the lab, and qualification was not required.

In report A9L0097 and A9L0191 01 30 20 1613, some of the USEPA Methods 8260C, 8082A, 8270D large volume injection, and 8270D results were flagged by Apex as having raised detection limits and reporting limits due to interferences from coeluting organic compounds in the samples. No qualifications were necessary.

In report A9L0097, A9L0191 01 30 20 1613, and A9L0524, some of the USEPA Methods 8270D USEPA 6020A and colorometric spectrophotometry results were flagged by Apex as having raised detection limits due to the preparation and/or analytical dilution necessary for analysis. No qualifications were necessary.

In report A9L0097, the USEPA 6020A mercury result from sample RAU1-03-GW-7.5 was flagged by Apex as the MDL was raised to the MRL due to possible carryover. No qualifications were necessary.

In report A9L0524, the USEPA 6020A nickel result from sample RAU2-09-GW-9 was flagged by Apex as the reporting limit being raised due to the analyte in the blank. The sample cannot be reextracted for a lower reporting limit due to the sample matrix. No qualifications were necessary.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

In report A9L0097, the chain of custody/container discrepancies states that the chain of custody (COC) mentioned one trip blank when three trip blanks were sent with the coolers. Additionally, sample RAU-03-GW-7.5-DUP did not include a date on the hydrochloric acid amber. It is best practice for the sample labels to match the COC and for the COC to be fully filled out, but no qualifications were necessary.

Report A9L0191 01 30 20 1613 and WO16303 were reissued as split reports from original reports A0L0191 and WO15951 at the request of the MFA project manager. Split reports containing sediment data are validated in a separate memorandum

In report A9L0191 01 30 20 1613, the cooler receipt form states that RAU4-04-SO-3.45 read as RAU4-11-SO-3.45 and RAU7-02-GW-9.5 had no sample ID on the second bottle. The lab was able to accurately match the COC with the sample labels. Additionally, sample RAU04-09-SO-2.5 did not include a date on the methanol VOAs amber and sample RAU4-06-SO-1.5 did not include a date on the sample jar. It is best practice for the sample labels to match the COC, but no sample qualifications were necessary.

No additional errors were found.

REFERENCES

ALS. 2018. Quality Assurance Manual. Revision 26.1 ALS Environmental – Kelso Facility Kelso, WA, July.

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ARI. 2018. Quality assurance plan. Revision 16.1. Analytical Resources Inc., Tukwila, Washington. November 12.

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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.

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 1044.02.13 | DECEMBER 7, 2020 | GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater and soil samples collected at the upland portion of the Seaport Landing Site. The samples were collected on July 21 and 22, 2020.

Apex Laboratories, LLC (Apex) performed the analyses. Apex report number A0G0634, was reviewed. The analyses performed and samples analyzed are listed below.

Analysis	Reference
Diesel- and Oil-Range Hydrocarbons	NWTPH-Dx
Diesel- and Oil-Range Hydrocarbons with Acid/Silica-Gel Cleanup	NWTPH-Dx-SG
Dry Weight	EPA 8000C
Total and Dissolved Metals	EPA 6020A

NOTES:
EPA = United States Environmental Protection Agency.
NWTPH = Northwest Total Petroleum Hydrocarbon.
SG = silica-gel treatment.

Samples Analyzed			
Report A0G0634			
RAU4-17-SO-2.5	RAU4-15-SO-3	RAU4-17-GW-4.5	RAU4-14-GW-6.0
RAU4-19-SO-2.5	RAU4-14-SO-3.5	RAU4-19-GW-5.0	RAU4-13-GW-6.5
RAU4-16-SO-3	RAU4-13-SO-4.5	RAU4-16-GW-4.0	RAU1-13-GW-7
RAU4-20-SO-2.5	RAU1-13-SO-3.5	RAU4-20-GW-10.5	RAU1-13-GW-7-DUP
RAU4-18-SO-3	RAU1-14-SO-3.5	RAU4-18-GW-5.0	RAU1-14-GW-6.0
RAU4-21-SO-3.5	RAU5-03-SO-2.5	RAU4-21-GW-13.0	RAU5-03-GW-6.5
RAU4-21-SO-11	RAU5-03-SO-2.5-DUP	RAU4-15-GW-5.0	--

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of EPA procedures (EPA, 2017a,b) and appropriate laboratory and method-specific guidelines (Apex, 2019; EPA, 1986).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the EPA procedures (e.g., NWTPH-Dx).

NWTPH-Dx diesel- and oil-range hydrocarbon results were evaluated with respect to the associated NWTPH-Dx-SG acid/silica-gel cleanup diesel- and oil-range hydrocarbon results. Acid/silica-gel cleanup diesel- and oil-range hydrocarbon results greater than associated

standard diesel- and oil-range hydrocarbon results were not qualified if the relative percent difference (RPD) was less than 20 percent. No qualification was required.

Total and dissolved metals results were also evaluated with respect to each other. Dissolved results greater than associated total results were not qualified if the RPD was less than 20 percent. No qualification was required.

According to report A0G0634, Apex flagged NWTPH-Dx and NWTPH-Dx-SG diesel- and oil-range hydrocarbon results for sample RAU4-14-SO-35 as estimated due to overlap from the associated diesel- or oil-range hydrocarbon results. The results have been qualified by the reviewer with a "J" as estimated in the table below.

Report	Sample	Method	Component	Original Result (mg/kg)	Qualified Result (mg/kg)
A0G0634	RAU4-14-SO-3.5	NWTPH-Dx	Diesel-Range Hydrocarbons	206	206 J
			Oil-Range Hydrocarbons	769	769 J
		NWTPH-Dx-SG	Diesel-Range Hydrocarbons	173	173 J
			Oil-Range Hydrocarbons	630	630 J

NOTES:
J = result is estimated.
mg/kg = milligram per kilogram.

According to report A0G0634, Apex flagged NWTPH-Dx diesel-range hydrocarbon results for samples RAU4-14-SO-3.5, RAU4-19-GW-5.0, RAU4-20-GW-10.5, and RAU4-14-GW-6.0 because the chromatographic patterns either did not resemble the diesel fuel standard used for quantification or indicated possible weathered diesel, mineral oil, or contribution from a related product. Results were reported as hydrocarbon range instead of a specific hydrocarbon product; thus, qualification was not required.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

According to report A0G0634, samples RAU4-20-GW-10.5, RAU4-18-GW-5.0, RAU4-21-GW-13.0, and RAU4-14-GW-6.0 were incompletely preserved for NWTPH-Dx analysis. Apex completed preservation and performed the NWTPH-Dx extraction within recommended holding times; thus, qualification was not required.

The remaining samples were preserved and stored appropriately.

BLANKS

Method Blanks

Method blank results are used to demonstrate a lack of contamination from laboratory processes. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples in the analytical batch. All laboratory method blank results were non-detect to method reporting limits for all target analytes.

Trip Blanks

Trip blank samples were not submitted for analysis as volatile analyses were not performed.

Equipment Rinsate Blanks

Equipment rinsate blank samples were not submitted for analysis.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples.

The reviewer took no action based on surrogate percent recoveries that were outside of acceptance criteria due to dilutions necessary to quantify high concentrations of target analytes present in the samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance/quality control for samples with surrogate outliers was within acceptance criteria.

All remaining surrogate recoveries were within acceptance criteria.

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 RPDs were outside acceptance criteria because of high concentrations of analyte in the sample and when the laboratory flagged MS/MSD exceedances because of high concentrations of analyte, no qualifications were made by the reviewer. Where MS/MSD results were not reported, batch precision was evaluated with laboratory duplicate or laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sample results.

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. All duplicate samples were extracted and analyzed at the required frequency with the exceptions listed below. Laboratory duplicate results within five times the MRL were not evaluated for precision.

According to report A0G0634, the NWTPH-Dx-SG acid/silica-gel cleanup soil batches 0070845 and 0070888 did not include results for the laboratory duplicates from the original NWTPH-Dx batches. The reviewer confirmed that the laboratory duplicates were not included because the source samples were not selected for acid/silica-gel cleanup. Batch precision could not be evaluated for NWTPH-Dx-SG batches 0070845 and 0070888.

According to report A0G0634, the NWTPH-Dx batch 0070845 laboratory duplicate (0070845-DUP2) exceeded the RPD control limit of 30 percent for diesel, at 35 percent. The laboratory duplicate was prepared with a sample from an unrelated project; thus, qualification was not required.

All remaining laboratory duplicate RPDs were within acceptance criteria.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

All LCS/LCSD results were within acceptance limit for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. Two field duplicates were submitted with report A0G0634 (RAU5-03-SO-2.5/RAU5-03-SO-2.5-DUP and RAU1-13-GW-7/RAU1-13-GW-7-DUP) for analysis. MFA uses acceptance limit 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 are not used in the evaluation of field duplicate results.

All field duplicate results met within the RPD acceptance criteria.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. Quality control results that were flagged by the laboratory based on CCV exceedances required no action from the reviewer when the results met percent recovery and RPD acceptance criteria.

REPORTING LIMITS

Apex reported non-detect results to reporting limits. Samples requiring dilutions because of high analyte concentrations and/or matrix interferences were reported with raised reporting limits.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

In report A0G0634, Apex noted on the cooler receipt form that the collection dates recorded on container labels for sample RAU4-13-S0-4.5 were incomplete, written as "7/ /20" and missing the collection day. Apex also noted that sample collection time was not recorded on the nitric acid-preserved containers for sample RAU4-14-GW-6.0. The reviewer confirmed that the sample collection date and time were reported by Apex based on information recorded on the chain of custody. No qualification was required.

No additional issues were found.

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