

IN-WATER REMEDIAL INVESTIGATION REPORT

WEYERHAEUSER SAWMILL ABERDEEN/SEAPORT LANDING
FACILITY SITE ID 1126, CLEANUP SITE ID 4987,
AGREED ORDER NO. DE 15953
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
AQUATIC LANDS LEASE NO. 22-092275

DRAFT



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Prepared for
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

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*The material and data in this report were prepared
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CONTENTS

TABLES AND ILLUSTRATIONS	V
ACRONYMS AND ABBREVIATIONS	VII
1 INTRODUCTION	1
1.1 REGULATORY FRAMEWORK	1
1.2 PURPOSE AND OBJECTIVES	2
1.3 ORGANIZATION	2
2 BACKGROUND AND PHYSICAL SETTING	3
2.1 LOCATION AND CURRENT SITE CONDITIONS	3
2.2 CURRENT AND FUTURE SITE USE	3
2.3 QUINAUT INDIAN NATION TREATY RIGHTS	4
2.4 SITE HISTORY	4
2.5 PREVIOUS INVESTIGATIONS	7
3 ENVIRONMENTAL CONDITIONS	8
3.1 TOPOGRAPHY AND BATHYMETRY	9
3.2 GEOLOGY AND HYDROGEOLOGY	9
3.3 SURFACE WATER AND STORMWATER	10
3.4 AQUATIC ENVIRONMENT AND BOTTOM SUBSTRATE	10
3.5 SEDIMENTATION AND HYDRAULIC ASSESSMENT	11
3.6 BENEFICIAL WATER AND LAND USES	12
3.7 CRITICAL AREAS REPORT	13
3.8 CLIMATE	13
4 FIELD AND ANALYTICAL METHODS	14
4.1 SEDIMENT FIELD METHODS	14
4.2 ANALYTICAL METHODS	16
4.3 SULFIDE SEEP SURVEY	18
4.4 DEVIATIONS FROM WORK PLAN	18
5 SCREENING LEVELS	19
5.1 SCREENING LEVELS FOR PROTECTION OF BENTHIC ORGANISMS	19
5.2 SCREENING LEVELS FOR PROTECTION OF HUMAN HEALTH AND HIGHER TROPHIC LEVEL ECOLOGICAL RECEPTORS	20
5.3 WOOD WASTE	21
5.4 PRELIMINARY CLEANUP STANDARDS	22
6 ANALYTICAL RESULTS	23
6.1 DATA USABILITY	23
6.2 SEDIMENT CHEMISTRY	25
6.3 RADIOISOTOPES	30
6.4 BIOASSAY	31
6.5 DIFFUSIVE GRADIENTS IN THIN FILM	32
7 CONCEPTUAL SITE MODEL	33
7.1 SOURCE CHARACTERIZATION	33
7.2 FATE AND TRANSPORT OF CONTAMINANTS	36
7.3 POTENTIAL RECEPTORS AND EXPOSURE SCENARIOS	38

CONTENTS (CONTINUED)

8	NATURE AND EXTENT OF CONTAMINATION	40
	8.1 AOCS	41
9	SUMMARY	42
	LIMITATIONS	
	REFERENCES	
	TABLES	
	FIGURES	
	APPENDIX A	
	STUDY AREA INVESTIGATION	
	APPENDIX B	
	SEDIMENTATION AND HYDRAULICS ANALYSIS	
	APPENDIX C	
	CRITICAL AREAS REPORT	
	APPENDIX D	
	GEOLOGIC LOGS	
	APPENDIX E	
	FIELD SAMPLING DATA SHEETS	
	APPENDIX F	
	PHOTOGRAPH LOG	
	APPENDIX G	
	DGT TECHNICAL MEMORANDUM	
	APPENDIX H	
	WOOD WASTE CLEANUP LEVEL DEVELOPMENT TECHNICAL MEMORANDUM	
	APPENDIX I	
	LABORATORY REPORTS	
	APPENDIX J	
	DATA VALIDATION MEMORANDA	

TABLES AND ILLUSTRATIONS

FOLLOWING REPORT:

TABLES

- 4-1 SEDIMENT SAMPLE DESCRIPTIONS AND ANALYSES
- 5-1 SCREENING LEVELS FOR PROTECTION OF BENTHIC ORGANISMS
- 5-2 SCREENING LEVELS FOR PROTECTION OF HUMAN HEALTH AND HIGHER TROPHIC ECOLOGICAL RECEPTORS
- 5-3 PRELIMINARY CLEANUP STANDARDS
- 6-1 ANALYTICAL SUMMARY OF 2013–2020 DATA
- 6-2 2019-2020 SEDIMENT ANALYTICAL RESULTS
- 6-3 2013-2015 SEDIMENT ANALYTICAL RESULTS
- 6-4 WOOD WASTE PARAMETERS AND BIOASSAY RESULTS
- 6-5 SITE-SPECIFIC WOOD WASTE CLEANUP LEVEL SCORING
- 8-1 2013–2020 SEDIMENT ANALYTICAL RESULTS

FIGURES

- 1-1 SITE LOCATION
- 1-2 SITE VICINITY AND AREA OF IN-WATER INVESTIGATION
- 2-1 ZONING DESIGNATIONS
- 2-2 HISTORICAL AND CURRENT SITE FEATURES
- 2-3 HISTORICAL FILL AND SHORELINE CHANGES
- 2-4 PREVIOUS SAMPLE LOCATIONS
- 3-1 BATHYMETRY AND TOPOGRAPHY
- 4-1 SUBSURFACE SEDIMENT SAMPLING LOCATIONS
- 4-2 SURFACE SEDIMENT SAMPLING LOCATIONS
- 6-1 PRELIMINARY SCREENING LEVEL EXCEEDANCES
- 6-2A DOWNRIVER WOOD WASTE PARAMETERS
- 6-2B UPRIVER WOOD WASTE PARAMETERS
- 6-3 BIOASSAY RESULTS
- 7-1 CONCEPTUAL SITE MODEL
- 7-2 VISIBLE PERCENT WOOD WASTE IN SURFACE AND SUBSURFACE SEDIMENT

TABLES AND ILLUSTRATIONS (CONTINUED)

- 7-3A DOWNRIVER ESTIMATED WOOD WASTE THICKNESS
- 7-3B UPRIVER ESTIMATED WOOD WASTE THICKNESS
- 7-4 GEOLOGIC CROSS SECTION A TO A'
- 7-5 GEOLOGIC CROSS SECTION B TO B'
- 8-1 SITE-RELATED IHS EXCEEDANCES

DRAFT

ACRONYMS AND ABBREVIATIONS

AET	apparent effects threshold
agreed order	Agreed Order DE 15953
AOC	area of concern
bml	below mud line
cm	centimeter
COC	contaminant of concern
conventionals	total organic carbon, total volatile solids, total solids, ammonia as nitrogen, total sulfides
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSL	cleanup screening level
CSM	conceptual site model
CUL	cleanup level
DGT	diffusive gradients in thin-films
dioxins/furans	polychlorinated dibenzo-p-dioxins and -furans
DNR	Washington State Department of Natural Resources
DNR lease area	Washington State Department of Natural Resources aquatic land lease number 22-092275
EcoAnalysts	EcoAnalysts, Inc.
Ecology	Department of Ecology (Washington)
EPA	U.S. Environmental Protection Agency
GHSA	Grays Harbor Historical Seaport Authority
HPAH	high-molecular-weight PAH
IHS	indicator hazardous substance
LPAH	low-molecular-weight PAH
MFA	Maul Foster & Alongi, Inc.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTCA	Model Toxics Control Act
NAVD 88	North American Vertical Datum of 1988
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
pg/g	picogram per gram
pH	potential hydrogen
PID	photoionization detector
POC	point of compliance
PQL	practical quantitation limit
Property	500 North Custer Street, Aberdeen, Washington
PSEP	Puget Sound Estuary Protocols
QIN	Quinault Indian Nation
RBC	risk-based concentration
RI	remedial investigation

ACRONYMS AND ABBREVIATIONS (CONTINUED)

RIWP	remedial investigation work plan
Sanborn maps	Sanborn Fire Insurance maps
SCO	sediment cleanup objective
SCUM	Sediment Cleanup User's Manual II
Site	Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site
SM	Standard Methods for the Examination of Water and Wastewater
SMS	Sediment Management Standards
SVOC	semivolatile organic compound
TCDD	2,3,7,8-tetrachloro dibenzo-p-dioxin
TCLP	toxicity characteristic leaching procedure
TEF	toxic equivalent factor
TEQ	toxic equivalent quotient
TOC	total organic carbon
TPH	total petroleum hydrocarbon
TVS	total volatile solids
ug/kg	micrograms per kilogram
UTL	upper tolerance limit
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 sediments of the in-water area of the Weyerhaeuser Company (Weyerhaeuser) Sawmill Aberdeen/Seaport Landing Site (the Site) located at 500 North Custer Street in Aberdeen, Washington (the Property; see Figure 1-1). The Site is defined as the area where hazardous substances have been deposited, stored, disposed of, or placed, or otherwise come to be located as a result from release(s) from the Property. The Site is divided into an upland area and an in-water area, each with a separate RI report; with the two areas separated by the ordinary high water line. The upland area includes the Property, which is owned by GHHSa. The in-water area includes portions of the Chehalis River adjacent to the south bank, the pocket beach area, and Shannon Slough. Within the in-water area Washington State Department of Natural Resources (DNR) leases 16.9 acres of aquatic land to GHHSa (aquatic land lease No. 22-092275) (see Figure 1-2). The Site is listed in the Washington State Department of Ecology's (Ecology) database as Facility Site ID 1126 and Cleanup Site ID 4987. The in-water area that was further characterized as part of this RI include the Chehalis River, pocket beach area, and Shannon Slough, and are shown as the in-water area of investigation in 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 into Agreed Order DE 11225 with Ecology, which required GHHSa to investigate the DNR lease area, evaluate cleanup alternatives for the DNR lease area, and produce a study area investigation and alternatives analysis. On March 28, 2019, GHHSa entered into Agreed Order DE 15953 (Agreed Order) with Ecology that incorporates the remaining tasks from and supersedes the 2015 agreed order. The 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 under Washington Administrative Code (WAC) 173-340. The Agreed Order states that separate RI and FS reports may be prepared for the upland and in-water areas of the Site.

Weyerhaeuser assumed the aquatic land lease at the time it acquired the Property in 1955 (see approximate aquatic lease area on Figure 1-2). On September 13, 2001, DNR signed an aquatic land lease (Aquatic Land Lease No. 22-A02150). This lease permitted Weyerhaeuser to use a portion of the in-water area of the Site for a process mill, chip storage, log storage, and a shipping pier. In 2013 GHHSa acquired the Property from Weyerhaeuser, and on March 26, 2013, GHHSa entered into a sublease agreement with Weyerhaeuser for the DNR lease area, which requires GHHSa to remediate this portion of the Site. On April 14, 2017, the GHHSa entered into Aquatic Land Lease No. 22-092275 with DNR, which permits "moorage of vessels within the harbor area...and for no other purpose". The lease also states that the walkway, pier, dolphins, and batter piles are to be removed by March 10, 2020, if plans for future boat moorage are not realized, and the shed building and ship

loader are to be removed by December 31, 2020.¹ The DNR lease area is located in the Chehalis River adjacent to the Property and extends approximately 250 feet upriver of the Property. As part of the Property acquisition, GHSA assumed responsibility for site investigation and cleanup.

This RI was conducted consistent with MTCA (WAC 173-340-350 through 370), the Sediment Management Standards (SMS) stipulated in WAC 173-204, and applicable guidance documents issued by Ecology (Sediment Cleanup User's Manual [SCUM] II [Ecology, 2021], Wood Waste Cleanup: Identifying, Assessing, and Remediating Wood Waste in Marine and Freshwater Environments [Ecology, 2013]). 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, 2019a and 2020). This RI report was prepared pursuant to the terms of the Agreed Order.

1.2 Purpose and Objectives

This report describes the nature and extent of contamination in sediments within the in-water area of the Site, based on previous environmental investigations (i.e., in 2013 and 2015) and RI data collection activities conducted in September 2019 and July 2020. This RI addresses characterization of the in-water area adjacent to the upland area below ordinary high water (+7.77 North American Vertical Datum of 1988 [NAVD 88]), which includes portions of the Chehalis River adjacent to the south bank, the pocket beach area, and Shannon Slough (Figure 1-2). The portion of Shannon Slough upstream of the Property and outside the boundaries of the upland area was not included as part of the in-water or upland RI. The data collected during the RI informs evaluation of potential risks to benthic organisms as well as human health and higher trophic ecological receptors. An assessment of potential cleanup alternatives will be discussed in the forthcoming FS. The purpose of this RI is to generate data to fulfill data objectives and more thoroughly characterize the nature and extent of contamination in sediment 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 upland and in-water areas, including the history and previous investigations.
- **Section 3** summarizes the environmental conditions of the upland and in-water areas.
- **Section 4** describes the field and analytical methods implemented during the RI.
- **Section 5** presents the applicable screening levels specific to the in-water area.
- **Section 6** presents the analytical results of sampling from previous investigations and the RI.

¹ In coordination with Ecology, the timelines dictated in the Agreed Order have been extended, including for the removal of overwater structures. At the time of this draft report submittal, the structures have not been removed.

- **Section 7** presents the conceptual site model (CSM).
- **Section 8** defines the nature and extent of contamination in the in-water area.
- **Section 9** summarizes the findings of the RI.

2 BACKGROUND AND PHYSICAL SETTING

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

2.1 Location and Current Site Conditions

The Property 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), 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 area consists of 20 tax parcels comprising 23.6 acres. Tax parcels and zoning designations for the Property and surrounding area are provided on Figures 1-2 and 2-1, respectively.

The in-water area encompasses the area of the Site riverward of the line of ordinary high water, which includes 16.9 acres of tidelands leased from DNR. The DNR lease area extends between the inner and outer harbor line (Figure 2-2). The Grays Harbor Navigation Channel is federally maintained to 32 feet deep and extends to the Pacific Ocean (USACE, n.d.).

2.2 Current and Future Site Use

The Site is currently used by the GHSA 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 Property 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 land lease permitted uses include moorage of vessels, public access, and education activities.

2.3 Quinault Indian Nation Treaty Rights

The Quinault Indian Nation (QIN) is a sovereign tribal government with federally protected treaty rights. The Quinault Treaty of 1856 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 set-netting methods. Drift gillnetting consists of deploying a gillnet across the Chehalis River, perpendicular to the shoreline. Setnets are affixed to the Chehalis River riverbank on one end and secured with an anchor in the river at the other end. Additional information on tribal uses is provided in Section 3.6.1.

2.4 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 on Figure 2-2. Sawmills historically operated on both the upland and in-water areas of the Site, beginning before 1900. The south Aberdeen waterfront has been developed for commercial and industrial use since the early 1890s. The pilings (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 Property 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 Property and the northeast adjacent property 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 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. 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, herein referred to as the Former Mill (see Figure 2-2). After the mid-1960s, raw logs were brought to the Property by truck and staged on log decks at various locations on and adjacent to the Property. The Former Mill was originally configured to manufacture shingles and slats for housing construction. During World War II, the Former 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 on the Property and the last upgrade to the Small Log Mill took place in 2003. In 2006, the Former Mill and attached wharf extension were closed; the associated structures were removed between 2006 and 2008. These structures are shown on Figure 2-2. The Small Log Mill continued to operate into early 2009, at which time operations on the Property and in-water area ceased. The GHHSA purchased the Property 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 DNR lease area borders the GHHSA-owned portions of the Property in the Chehalis River and extends upriver approximately 250 feet.

2.4.1 Shoreline Modifications and Historical Fill Events

Historical Sanborn Fire Insurance maps (Sanborn maps) 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 on 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. 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 upland area 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. The shoreline to the east of the upland area 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, including a portion of the DNR lease area. 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.

2.4.2 Former Operations and Areas

Former facility operations with demonstrated or potential environmental impacts to the in-water area are discussed below. Upland facility operations are not included in this discussion but are detailed in

the Level I environmental site assessment and RI for the upland area (PES, 2010; MFA, 2022). The areas identified below are shown on Figure 2-2.

2.4.2.1 Former Mill Area and Pocket Beach

The Former Mill Area, which included the Former Mill and wharf extension (see Figure 2-2), that appeared in the 1928 Sanborn map between Custer and Clark streets was originally constructed on pilings over the Chehalis River and the pocket beach area. Facilities and equipment were installed over plank flooring. Logs were rafted along the shoreline in this area to feed the mill. 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 modified the flooring to prevent releases through the planking. Beginning in approximately 1980, containment pans were installed beneath all mill hydraulic components.

The Former Mill was closed in 2006 and was removed between 2006 and 2008, exposing the Chehalis River and the pocket beach area. More than 1,000 creosoted wood pilings were removed from this area during demolition. 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. Personal communication with Helen Bond, former environmental manager at Weyerhaeuser, suggests these pilings were removed completely during this effort. It is unknown whether these pilings were completely extracted or removed to mudline. This data gap will be addressed as part of future remedy predesign activities, which may include surveys (e.g., sonar surveys) to identify debris.

2.4.2.2 Lumber Shed

The lumber shed located in the northwest corner of the Property was used to store finished dimensional lumber. Historically, an iron fuel-oil tank was used to supply the internal combustion engine powered cranes at the west end of the wharf. According to the GHSA staff, a fire destroyed much of this area in 1965.

2.4.2.3 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 Former Mill. The footprint of the former boiler currently consists of concrete slabs propped on piles. One transformer currently present at the powerhouse does not contain polychlorinated biphenyls (PCBs). The powerhouse has been cleaned, and a vault below the powerhouse has been cleaned and filled with pea gravel. An oil house, which was used to store hydraulic oils used in the Former Mill, was also located next to the powerhouse.

2.4.2.4 Beach Area

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 wood waste (Figure 2-2). See Section 2.4.1 for information detailing what is known, based on historical Sanborn maps, regarding these fill events.

2.4.2.5 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 loader area. The Shannon Slough discharge forms a small deltaic feature. Shannon Slough is a creek that receives stormwater runoff from the Property, upstream residential areas, and U.S. Highway 101. Currently, stormwater passes through catch basins and oil/water separators before discharging through various culverts directly into the Shannon Slough or Chehalis River. Drainage basins, conveyances, and outfall locations are shown on Figure 2-4. The Property's National Pollutant Discharge Elimination System sampling location is at the outfall along the west bank of Shannon Slough. In 1989, releases of paint waste to Shannon Slough resulted in a Clean Water Act enforcement action and conviction, and led to subsequent remediation activities (PES, 2010). Pilings are present in the mudflats along the northeastern portion of Shannon Slough. According to Sanborn maps (provided as part of the study area investigation in Appendix A), the pilings have been on the Site since at least 1906. Field observations of the pilings identified a thick, dark coating, creosote-like odor, and faint sheen on the water surface adjacent to the piles. Given their age and based on field observations of the pilings, it is reasonable to assume that the pilings are creosote-treated. There is potential for localized sediment impacts around the pilings.

2.5 Previous Investigations

Previous investigations were conducted on the Site in 1998, 2011, 2013, 2015, 2019, and 2020. The investigations conducted from 1998 through 2015 are summarized in the study area investigation report prepared by MFA (see Appendix A). The 2013 and 2015 investigations are further described below. This RI includes a review of analytical data collected from investigations from 2013 through 2020 and results are further discussed in Sections 6 and 8. The 1998 and 2011 data are not included in this RI, as those data are no longer considered representative of current sediment conditions in the in-water area due to the age of the data and the dynamics of the Chehalis River.

2013 Leased Property Sediment Sampling. In November 2013, MFA collected sediment samples from six locations in the Former Mill Area and in the Chehalis River (see Figure 2-4). The Chehalis River surface sediment samples (CR-01 through CR-03) were analyzed for total organic carbon (TOC), total metals, organic chemicals, phthalates, chlorinated organics, polycyclic aromatic hydrocarbons (PAHs), PCBs, semivolatile organic compounds (SVOCs), polychlorinated dibenzo-p-dioxins and -furans (dioxins/furans), and total petroleum hydrocarbon (TPH). The full suite of conventional analytes (conventionals; TOC, total volatile solids [TVS], total solids, ammonia as nitrogen, total sulfides) were not analyzed in samples CR-01 through CR-03 because wood waste impacts were not observed in those samples.

DNR and Ecology requested core sampling in the pocket beach area to further delineate historical elevated concentrations of butyl benzyl phthalate, pentachlorophenol (PCP), mercury, and dioxins/furans. Samples from three sediment cores (CR-04 through CR-06) were analyzed using a tiered approach, and the list of analytes included mercury, dioxins/furans, PCBs, SVOCs, and TPH.

Analysis for conventionals was conducted on surface sediment samples and select subsurface sediment that included more than 25 percent wood waste by volume.

Results of the 2013 investigation were compared to SMS criteria, and screening level exceedances of several SVOCs and PAHs, total PCBs, and mercury were identified up to 5 feet below mud line (bml). For conventional parameters, up to 49.5 percent TOC and up to 2,910 milligrams per kilogram (mg/kg) sulfide were observed, with the highest concentrations in sediment collected from the Pocket Beach.

2015 Study Area Investigation. MFA conducted a supplemental investigation in 2015 that included characterization of nearshore soil, reconnaissance groundwater, seep water, and stormwater adjacent to the pocket beach, as well as surface and subsurface sediment in the pocket beach area and Chehalis River. Samples were collected to identify sources of hazardous substances that have impacted sediment.

Sample locations included in this investigation are shown on Figure 2-4. Tideland soil samples CR-20 through CR-23 identified impacts of metals, PCBs, SVOCs, TPH, and dioxins/furans in one or more samples. Reconnaissance groundwater samples were also collected from locations CR-20 through CR-23 to identify potential upgradient sources of contamination to the pocket beach. Analyte concentrations in groundwater were compared to surface water screening levels and were generally non-detect or below the surface water screening levels, with the exception of total chromium, 1-methylnaphthalene, and TPH. An opportunistic seep sample (SEEP-01) was also collected from the pocket beach area to assess whether discharge is representative of groundwater. TPH impacts were identified in the seep sample and the water quality signature was found to be more similar to groundwater than to Chehalis River porewater. One stormwater sample was collected (STORM-01) near the pocket beach and results were compared to water quality criteria. Only total arsenic was detected above its water quality criterion. These results indicate that, except for TPH, analytes detected in soil do not appear to leach to groundwater in significant amounts and therefore likely do not contribute to impacts in sediment.

Sediment samples were collected at locations CR-07 through CR-19 and CR-24 through CR-26. This investigation identified presence of wood waste to significant depths (greater than 15 feet in some areas) and exceedances of SMS screening levels in sediment for benzyl alcohol, 4-methylphenol, benzoic acid, mercury, PCBs, phthalates, PAHs, PCP, phenol, SVOCs, and zinc. However, many of these exceedances were observed in one sample only or were slight exceedances of screening levels. These results were used to inform data needs for the fieldwork conducted as part of this RI.

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, aquatic environment and bottom substrate, sedimentation and hydraulic assessment, beneficial water and land uses, critical areas, and climate.

3.1 Topography and Bathymetry

The upland topography and in-water area bathymetry were surveyed to NAVD 88 (Wilson Engineering, 2016; Berglund, Schmidt & Associates, 2016; see Figure 3-1). According to the U.S. Geological Survey Aberdeen, Washington, 7.5-minute series topographic map, the upland is located at elevations near sea level along the shoreline up to approximately 20 feet above mean sea level. The topography of the upland is generally flat, with elevations ranging from approximately 10 to 15 feet NAVD 88 (see Figure 3-1). Steep slopes are present around the upland portion of Shannon Slough with the top of the slope at approximately 10 feet and base of 4 feet NAVD 88.

Bathymetry data indicate that the top of the riverbank is at an elevation of approximately 13 feet NAVD 88. The riverbank then slopes steeply toward the beach, which slopes gently toward the Chehalis River. The shelf of the Chehalis River slopes steeply toward the center of the Chehalis River, where a federally maintained navigation is present, from an elevation of approximately 0 to -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.

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 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 silt and sandstone.

Cross sections from a 1951 map of the Property provided by Weyerhaeuser indicate that much of the area of the main mill facilities was tideland prior to, and during, the early development in the late 1800s and early 1900s. Most of the early 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 beginning at depths of 8 to 9 feet bgs. The silts and silty sands are assumed to represent the original riverbed surface and 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 feet 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 upland area identified dark brown, sandy sawdust 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 area is approximately 4 to 5 feet bgs. MFA evaluated groundwater-to-surface-water as a potential pathway for contaminants to reach and discharge to the Chehalis River or Shannon Slough (see *Draft Upland RI report*; MFA, 2022). Groundwater in the northern and northwestern portion of the upland area discharges directly to the Chehalis River and is tidally influenced. Groundwater in the southern and southeastern portions of the upland area discharges to Shannon Slough, which flows into the Chehalis River at the northeastern corner of the upland area, though does not appear to be influenced by tides. Although available data suggests that the groundwater to surface water pathway is complete at some locations, there is little evidence that surface water in Chehalis River or Shannon Slough interacts with groundwater, as physical advection of surface water into groundwater is limited spatially and seasonally. The 2015 study area investigation and 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 upland area groundwater and do not represent bank storage of river water inundated during high tide (see Appendix A; Floyd|Snider, 2010).

3.3 Surface Water and Stormwater

Surface water bodies in the vicinity of the Site include the Chehalis River to the north and east; the Wishkah River to the west; one small, unnamed drainage channel that enters the Chehalis River beyond the east end of the Site; and Shannon Slough in the southern and eastern portion of the Site, which enters the Chehalis River at an embayment located near the upstream portion of the Site (see 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). According to the Ecology Water Quality Atlas, the line between marine and freshwater coincides with the U.S. Highway 101 bridge, approximately 1,500 feet downstream of the Site (Ecology, n.d.). According to the National Oceanic and Atmospheric Administration, the tidal range in Aberdeen is between -4.3 feet and 10.6 feet NAVD 88 (NOAA, n.d.). During investigations, MFA staff observed that the pocket beach and other beach features are fully inundated at high tide and exposed at low tide.

Shannon Slough is a creek that receives stormwater runoff from the Property, upstream residential areas, and U.S. Highway 101. Currently, after passing through catch basins and oil-water separators, stormwater runoff from the Property flows through a conventional storm sewer pipe network and is discharged, through various culverts, directly into Shannon Slough or into the Chehalis River.

3.4 Aquatic Environment and Bottom Substrate

The Chehalis River is a tidal river that is frequented by commercial and recreational fisherman and provides habitat to multiple fish species including Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and chum (*O. keta*) salmon; steelhead (*O. mykiss*), bull trout (*Salvelinus confluentus*), and eulachon (*Thaleichthys pacificus*), which are all listed under the federal Endangered Species Act as threatened. Moreover, white sturgeon (*Acipenser transmontanus*) are listed under the federal Endangered Species Act as endangered. Following removal of the mill, pilings, and debris in the Former Mill Area, the pocket beach area was colonized by vegetation characteristic of estuarine wetland environments, such as cattail 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 apparent depositional nature of this section of river is further discussed in Section 3.5. Along the Chehalis River, the area between the pocket beach and the mouth of Shannon Slough consists of former tidal flats that were historically filled with unknown types and quantities of debris, including wood waste. Debris from the Former Mill are also present in surface sediment in this area. 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 and are the legacy of a historical salmon cannery.

Salinity data from 2013 Chehalis River sediment samples (e.g., samples CR-01 through CR-03) indicate that the in-water area is estuarine according to SMS guidance (i.e., salinity values of 0.5 to 25 parts per thousand). Samples collected in this area had salinity values ranging from 6.9 to 11 parts per thousand.

Select sediment samples collected in 2013, 2015, and 2019 were analyzed for grain size distribution. Percentages of fines (silt and clay) ranged from 29.7 to 85.1 in surface sediment and from 40.8 to 82.8 in subsurface sediment. Percentages of sand ranged from 11.4 to 46.8 and gravel ranged from 0 to 38.2 percent. Generally, larger grain sizes were observed near the Former Mill Area and finer grain sizes were observed along the shoreline.

3.4.1 Wood Waste

Significant accumulations of wood waste (>25 percent) were observed in the former boiler area and extend eastward from the Former Mill area to, and include, the pocket beach. Surficial sulfide bacterial mats were observed and are generally colocated with areas of significant wood waste accumulation (see Section 4.3). For some samples collected during the study area investigation and RI, wood debris or other debris would obstruct the core liner and necessitate that an additional boring be advanced nearby (typically within 5 to 10 feet) until a sample could be obtained. These investigations demonstrated that wood waste extends from near the surface to significant depths (more than 10 feet), and that, with distance from shore, the wood waste thickness decreases and the sediment layer overlying the wood waste increases. Additional information regarding wood waste nature and extent is provided in Section 8.

3.5 Sedimentation and Hydraulic Assessment

Watershed Science & Engineering prepared a sedimentation and hydraulics analysis in support of this RI (Appendix B). The assessment concluded that the riverbank and channel geometry in the Site has been relatively stable for the past 75 years. Recent survey data identified erosion of up to one foot since 2009 in some nearshore portions of the in-water area, however, this is not considered to be a significant long-term trend. Typical flow velocities during tidal cycles are less than two feet per second, and do not increase substantially during floods. Hydraulic modeling indicates that these velocities are not expected to cause significant erosion of sediment. Radioisotope analysis was also conducted on two sediment cores as part of this RI. Results from the analysis are provided in Section 4.2.

3.6 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 Property. Shallow groundwater under the western portion of the upland area discharges to the Chehalis River and appears tidally influenced. Groundwater under the eastern portion of the upland area 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, found softshell clams (*Mya arenaria*) in the lower intertidal zone.

3.6.1 Tribal Uses

As described in Section 2.3, the QIN tribal fishing operations, including both drift gillnetting and set-netting methods, are conducted at and in the vicinity of the Site. Setnets are occasionally affixed to trees and other features along the shoreline. In addition to these fishing methods, QIN fishers also tie up to dolphins located at the Site when fishing. QIN fishing occurs in April through July for white sturgeon (*A. transmontanus*), late September through November for Chinook (*O. tshawytscha*), coho (*O. kisutch*), and chum (*O. keta*) salmon, and December through April for winter steelhead (*O. mykiss*). Little fishing occurs in the month of August. 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.

The in-water area is habitat for Chinook (*O. tshawytscha*), coho (*O. kisutch*), and chum (*O. keta*) salmon; steelhead (*O. mykiss*), bull trout (*S. confluentus*), white sturgeon (*A. transmontanus*), and eulachon (*T. pacificus*), and is occupied by at least one of these species the entire year:

- **Chinook (*O. tshawytscha*).** Juvenile Chinook salmon migrate downstream through the Chehalis River system continuously and enter estuarine areas approximately March through August. Spring Chinook adults migrate through the Chehalis River early spring through July with the bulk of the migration occurring March through May. Adult fall Chinook migrate through August through November.
- **Coho (*O. kisutch*).** Coho salmon smolts migrate through the Chehalis River primarily in April and May and adult coho move through September through December.

- **Chum (*O. keta*).** Juvenile Chum salmon migrate through the Chehalis River in March and April, and adult chum move through September through December.
- **Steelhead (*O. mykiss*).** Steelhead smolt migrate through the Chehalis River March through May, and adult steelhead move through November through April.
- **Eulachon (*T. pacificus*).** Eulachon juveniles migrate through the Chehalis River January through April, and adult eulachon move through in January and February.

3.7 Critical Areas Report

A critical areas report was prepared by Grette Associates LLC in October 2019 (Appendix C). This report was prepared to document wetlands, fish, and wildlife habitat conservation areas at the Site to meet the requirements defined in Chapter 14.50 of the City of Aberdeen’s Shoreline Master Program. The primary findings of the report include the following:

- Three wetland areas were delineated: Wetland A in the pocket beach area; Wetland B-1 at the mouth of Shannon Slough; and Wetland B-2, in Shannon Slough south of the road crossing and associated tidal flap gate.
- Wetlands A and B-1 were classified as freshwater tidal wetlands, and Wetland B-2 was classified as a riverine wetland.
- Salt-tolerant vegetation was not observed in any of the designated wetlands.
- All three wetlands were classified as Category III, which are defined as wetlands with low habitat value that have generally been disturbed in some ways and are less diverse or more isolated from other natural resources in the landscape (Ecology, 2014b). This determination designates a buffer of 75 feet to each wetland. Aberdeen code states that buffers do not extend through existing developments (i.e., existing developments are grandfathered in and do not need to comply with buffer requirements).
- Shannon Slough was designated as a non-fish habitat natural water feature.
- The Chehalis River is classified as a Water of the State. Buffer determinations assumed high land use and the Industrial and Port Development shoreline environmental designation.
- According to the Washington Department of Fish and Wildlife, the Chehalis River provides habitat for the following salmonid species: chinook (*O. tshawytscha*), coho (*O. kisutch*), and chum (*O. keta*) salmon; steelhead (*O. mykiss*), resident coastal cutthroat trout (*O. clarki*); and bull trout (*S. confluentus*).

3.8 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

Sediment sampling was conducted to refine the lateral and vertical extent of previously identified contamination and to facilitate remedial design for the in-water area. Sampling was conducted between September 23 and 27, 2019, and July 21 and 22, 2020. Sampling was coordinated to occur outside of the designated QIN fishing windows. Final sample locations were generally recorded with a global positioning device and are shown on Figure 4-1 (subsurface sampling locations) and Figure 4-2 (surface locations). Lithologic descriptions and the analytical suite for samples are provided in Table 4-1.

Samples were collected and handled under standard chain-of-custody procedures, consistent with the sampling and analysis plan provided as Appendix A of the RIWP (MFA, 2019a). Sediment core logs were documented in geologic logs (Appendix D). Sample documentation, field measurements, and observations were recorded on field sampling data sheets (Appendix E). A photograph log of the subsurface and surface samples is provided in Appendix F.² Investigation-derived waste consisted of sediment and disposable sampling equipment. Sediment collected during the in-water investigation was returned near the location in which it was collected within the Chehalis River or Shannon Slough. Personal protective equipment, paper towels, and expended core liners generated were disposed of as solid waste.

4.1 Sediment Field Methods

This section describes the surface and subsurface sediment sample field collection, wood waste characterization, and field screening methods.

4.1.1 Sediment Sample Collection

In September 2019, 20 subsurface sediment samples were collected using a Vibracore sampling device deployed from a subcontractor vessel at locations where previous sampling showed contamination was unbounded, or where previous sampling was constrained to shallow depths (e.g., less than 2.5 feet bml; Figure 4-1). Subsurface sediment samples were submitted for select analyses including SMS analytes, conventionals, and grain size as summarized below. Toxicity characteristic leaching

² Usable images that are representative of surface and subsurface samples are provided.

procedure (TCLP) samples to inform waste disposal considerations were collected at two subsurface locations, including locations where the presence of wood waste is known.

Surface (i.e., 0 to 10 centimeters [cm] bml) sediment samples were also collected in September 2019 (Figure 4-2), using a PONAR sampling device, hand auger, or trowel (e.g., nearshore locations during low tide). Surface sediment samples were submitted for select analyses as described below. A composite background surface sediment chemistry sample was collected upstream of the Site (i.e., SE-21), and a discrete surface sediment background sample was collected in Shannon Slough (i.e., SE-20). Surface sediment samples were also collected in July 2020, for conventionals and porewater sulfide.

All sediment samples were transferred to a stainless-steel bowl and homogenized with a stainless-steel spoon before they were placed in laboratory-supplied sample containers. Under standard chain-of-custody procedures, samples were submitted to Apex Laboratories LLC of Tigard, Oregon for archiving or for one or more of the following analyses:

- Ammonia as nitrogen by Plumb (1981)/Standard Methods for the Examination of Water and Wastewater (SM) 4500-NH3 G
- Dioxins/furans by U.S. Environmental Protection Agency (EPA) 1613B
- Diesel- and residual-range (Dx) hydrocarbons by Northwest TPH NWTPH-Dx with silica gel cleanup
- Gasoline-range (Gx) hydrocarbons by NWTPH-Gx
- Grain size by Puget Sound Estuary Protocols (PSEP) 1986 (Ecology et al., 2015)/ASTM D422 modified
- PCBs as Aroclors by EPA 8082A
- Porewater salinity by SM 2520 B-00
- SVOCs by EPA 8270D
- Sulfide and/or porewater sulfide by SM 4500-S2-D-00
- Total metals (including arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc) by EPA 6020A
- Total mercury by EPA 7470A/7471B
- TOC by EPA 9060A-modified/SM 5310C
- Total solids by PSEP 1986
- TCLP mercury by EPA 1311/7470A
- TCLP lead by EPA 1311/6010C
- TVS by SM 2540G

4.1.2 Wood Waste Sample Collection and Screening

Subsurface sediment samples were collected using a Vibracore deployed from a subcontractor vessel. Samples were collected to refine the extent of wood waste, primarily in areas not previously investigated (Figure 4-1). These areas included the vicinity of the chip loader and transects closer to the center of the Chehalis River. Cores were retrieved and visually inspected for wood waste along transects that moved perpendicularly away from the shore or from potential wood waste source(s) until significant wood waste was no longer observed. In some cases, during the study area investigation

and RI, wood debris or other debris would obstruct the core liner and necessitate an additional boring be advanced nearby (typically within 5 to 10 feet) until a sample could be obtained. Wood waste was also commonly observed along the shoreline in the beach area between the pocket beach and Shannon Slough.

Significant wood waste is defined as greater than 25 percent by volume. Wood waste volume was estimated in the field by an MFA environmental scientist or geologist. Subsurface sediment cores were visually inspected for the presence and vertical extent of wood waste impacts. A minimum of one sample was collected for analysis of conventional parameters related to wood waste impacts at each wood waste investigation transect. Twenty samples were submitted to Apex Laboratories LLC for archiving or for one or more of the following analyses:

- Ammonia as nitrogen by Plumb (1981)/SM 4500-NH3-G
- Sulfide and/or porewater sulfide by SM 4500-S2-D-00
- TOC by EPA 9060A-modified/SM 5310C
- Total solids by PSEP 1986
- TVS by SM 2540G

4.1.3 Field Screening

Sediment cores were generally field screened for volatile organic compounds, using a photoionization detector (PID). Sediment 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 D).

4.2 Analytical Methods

4.2.1 Radioisotope Analysis

Samples were collected for radioisotope analysis at two subsurface locations within the previously interpreted boundaries of wood waste (Figure 4-2) to evaluate sediment accumulation rates. One sample location was within the pocket beach inlet (SE-12) and the other sample was located further upstream offshore (SE-08B-RADIO; Figure 4-1). Each core was sectioned every 1 cm in the top 20 cm bml, every 2 cm from 20 to 40 cm bml, and in 5-cm increments below 40 cm bml, as determined in coordination with Flett Research. Samples were collected in clean, heavy-walled, water-tight polypropylene jars and sent to Flett Research in Winnipeg, Manitoba, Canada, for analysis of lead-210, radium-226, and cesium-137.

4.2.2 Sediment Bioassay

As is outlined in Ecology's SCUM II guidance, acute and chronic ecological toxicity testing (i.e., bioassay testing) was performed to assess the effects of sediment contamination on benthic organisms. These data were used as a line of evidence to assess potential adverse effects related to chemical

contamination and/or the presence of wood waste in sediment. Bioassays evaluate the toxicity of sediment to the benthic community more holistically than screening individual chemicals against screening criteria (Ecology, 2021). Specifically, bioassays account for bioavailability of contaminants to benthic organisms, other-than-additive effects of chemical mixtures in sediments, and toxicity of non-chemical stressors such as wood waste (Ecology, 2021).

Eight surface (i.e., 0 to 10 cm bml) sediment samples were collected at sampling locations SE-15 through SE-18, SE-20, SE-24, SE-26, and SE-31 (Figure 4-2) and submitted to EcoAnalysts, Inc. (EcoAnalysts) for standard SMS marine bioassay analysis by PSEP 1986, including a ten-day amphipod test, a 20-day juvenile polychaete survival and growth test, and a benthic larval development test (Ecology et al., 2015). The benthic toxicity surface sediment samples were colocated with select discrete surface sediment chemistry samples described above.

Three standard marine bioassays were conducted at eight locations (i.e., SE-15 through SE-18, SE-20, SE-24, SE-26, and SE-31) spanning the in-water area. EcoAnalysts also collected three reference sediment samples for bioassay control testing from Carr Inlet in Puget Sound, Washington. The reference sediment samples were tested concurrently with each bioassay and used to estimate non-treatment effects due to grain size. All reference sediments were analyzed for total solids, TOC, bulk ammonia, total sulfides, and grain size.

4.2.3 Diffusive Gradients in Thin Film Sampling

Ten diffusive gradients in thin-film (DGT) passive samplers were deployed along the shoreline (Figure 4-1) for approximately 24 hours to obtain the bioavailable fraction of sulfide in sediment. In situ porewater potential hydrogen (pH), temperature, and salinity data were evaluated with a soil probe prior to retrieval of the DGT samplers. These parameters inform calculation of hydrogen sulfide, which represents the toxic portion of sulfides.

Surface sediment samples were collected after DGT passive samplers were retrieved to avoid disturbance of sediment prior to deploying the DGT units. Discrete samples were placed directly into sample collection jars and submitted to Apex Laboratories LLC for analysis by the following methods:

- Ammonia as nitrogen by Plumb (1981)/SM 4500-NH3
- Bulk sulfide by SM 4500-S2-D-00
- Porewater salinity by centrifuge extraction and SM 2520 B-00
- Porewater sulfide by centrifuge extraction and SM 4500-SD-D-00
- TOC by EPA Method 9060A
- Total solids by PSEP 1986
- TVS by SM 2540G

Field measurements of porewater pH, temperature, and salinity were used to inform the calculation of hydrogen sulfide. Laboratory-derived porewater salinity was used for comparison purposes only. A detailed discussion of the DGT sampling methodology and results is provided in Appendix G.

4.3 Sulfide Seep Survey

During the deployment of the DGT, MFA conducted a sulfide seep survey along the shoreline to document and photograph seeps and to document whether and where sulfide bacterial mats³ are present. Seeps were identified as wet areas where light or white filamentous material was observed. Locations of possible sulfide seeps are shown on Figure 4-2 and as part of a photograph log provided in Appendix F.

4.4 Deviations from Work Plan

Modifications to the RIWP sampling regime were coordinated with Ecology. The following sampling locations were modified due to information gained during sampling activities, or due to difficulties encountered during sampling (i.e., tidal conditions, strong currents, debris on river bottom preventing sediment retrieval, time constraints due to fishing windows, or access issues). Final sample locations are shown on Figures 4-1 and 4-2.

- SE-01C: Shifted initial transect to the northwest.
- SE-01D: Shifted initial transect to the northwest.
- SE-04: Canceled due to time constraints.
- SE-07A: Shifted initial transect to the northwest.
- SE-09: Canceled due to time constraints.
- SE-11: Canceled due to time constraints.
- SE-12: Collected radioisotope sample at this location.
- SE-13: Canceled after five failed attempts to retrieve sediment.
- SE-14: Moved to location northeast of concrete slabs.
- SE-15: Moved in line with SE-08 transect.
- SE-17: Moved to vicinity of SE-01A.
- SE-18: Moved to the northwest to be further away from revised SE-17 location.
- SE-22: Collected discrete sample in place of composite sample due to access constraints.
- SE-26: Shifted east from initial location to drainage area of pocket beach.
- SE-27: Shifted west from initial location, further offshore.
- SE-29: Subsurface sediment chemistry sample collected instead of at SE-12.
- SE-30: Collected subsurface sediment sample in place of SE-09 and SE-11.
- SE-31: Added surface sediment sample location between SE-17 and SE-19.

Other sampling notes or deviations include the following:

- Two borings (RAU2-GA1 and RAU2-GA2) were completed as part of upland activities near the pocket beach area. The lithology (including percentage wood waste) of these borings was used to inform the determination of the extent of wood waste at the Site. The analytical data from these borings will be included in the RI for the upland area.

³ Observed mats appeared to consist of sulfide-oxidizing bacterium *Beggiatoa*.

- Mercury was tested in addition to the typical wood waste parameters in a few cases. The mercury data are included for completeness.
- At SE-06A, sulfide analysis was not initially requested, and upon review, the sulfide analysis was not conducted due to hold time exceedance and preservation requirements for sulfide analysis.

5 SCREENING LEVELS

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 POC 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 protective of ecological receptors and human health are further described in this section.

5.1 Screening Levels for Protection of Benthic Organisms

Screening levels for protection of benthic organisms are presented in Table 5-1. Lower-tier sediment cleanup objective (SCO) sediment cleanup standards were established using criteria and procedures presented in the SCUM II guidance (Ecology, 2021). The SCO cleanup standards are the long-term sediment quality goals; they are the lowest chemical concentrations allowed as sediment CULs. Based on salinity measurements collected from the Chehalis River within the in-water area in 2013 (i.e., 6.9 to 11 parts per trillion), both freshwater and marine SMS benthic criteria were incorporated into sediment screening level determinations, consistent with Ecology guidance and common practice (Ecology, 2021).

Marine criteria for benthic organisms are based on either dry-weight or organic carbon-normalized concentrations. Analytical results for data were organic carbon-normalized if the TOC concentration was within the standard 0.5 to 3.5 percent range. Analytical results for data outside of the standard 0.5 to 3.5 percent TOC range were screened against marine sediment apparent effects threshold (AET) values on a dry-weight basis consistent with Table 8-1 in the SCUM II guidance (Ecology, 2021), or against the freshwater benthic criteria if lower (more protective) than the marine AET values.

Two sets of screening levels for benthic organisms were established: one for samples within the standard 0.5 to 3.5 percent TOC range and one for samples outside of that range. The lowest (most protective) benthic screening levels were established as shown in Table 5-1 for each TOC range.

Marine biological criteria for each biological test for sediment bioassay samples are provided in Table 8-2 of the SCUM II guidance (Ecology, 2021). Adverse effects for the amphipod test are based on 10-day mortality, adverse effects for the larval test are based on bivalve or echinoderm abnormality or mortality, and the juvenile polychaete test measures the *Neanthes* 20-day growth. Criteria associated

with SCO and CSL screening levels are provided in Table 8-2 of the SCUM II guidance and in the bioassay laboratory report (Ecology, 2021; Appendix I).

5.2 Screening Levels for Protection of Human Health and Higher Trophic Level Ecological Receptors

Screening levels for the protection of human health and higher trophic ecological receptors are provided in Table 5-2. These screening levels account for potentially complete exposure pathways via human sediment ingestion/dermal contact and aquatic organism ingestion (e.g., fishers and fish-eating ecological receptors) and were established using the following:

Risk-based concentrations (RBCs). Human health RBCs for sediment ingestion/dermal contact for the beach play (child), subsistence clam digging (adult), and subsistence net fishing (adult) scenarios were considered as provided in Table 9-3 in the SCUM II guidance. The lowest (most protective) value was identified as the human health direct contact RBC.

Option 1 in the SCUM II guidance was used to determine screening levels that account for the potentially complete aquatic organism ingestion (bioaccumulation) pathway. Option 1 is a simplified approach where the screening level is established at natural background or the practical quantitation limits (PQL), whichever value is higher. Ecology also provides an alternative (Option 2) for generating criteria to protect against the accumulation of chemicals in tissue and subsequent ingestion by higher trophic levels (i.e., fish, birds, mammals, and humans). Calculating biota-sediment accumulation factors via option 2 is a more time-intensive process that often results in criteria that are unattainable because they are below background concentrations and/or PQLs. Under Option 1, the higher of natural background and PQL was identified as the screening level protective of aquatic organism ingestion (bioaccumulation) for human health and ecological receptors. All chemicals identified as bioaccumulatives in the SCUM II guidance, Appendix K, were considered.

Natural background. Natural background is defined in WAC 173-204-505(11) as “the concentration of a hazardous substance consistently present in the environment that has not been influenced by localized human activities.” Natural background concentrations for selected analytes in marine sediment are provided by Ecology in the SCUM II guidance (Ecology marine site natural background 90/90 upper tolerance limit [UTL]). Natural background concentrations for freshwater sediment have not been developed by Ecology to date; however, background data have been collected immediately upstream of the Site as further described in section 7 and were also considered during nature and extent determinations for the Site (see section 8).

Practical quantitation limits (PQLs). The PQL is defined in WAC 173-204-505(15) as “the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods.” PQLs provided in Table 11-1 of the SCUM II guidance were used for screening level determination (Ecology, 2021).

The bioaccumulation screening levels for protection of human health and higher trophic level ecological receptors were identified as shown in Table 5-2.

5.3 Wood Waste

Wood waste in large volumes can overwhelm the assimilative capacity of sediment and affect the aquatic environment physically, chemically, and biologically. Wood waste impacts can result from the following:

- The physical presence of wood waste, which prevents biota from thriving and recruiting in and on healthy native substrate
- Decreased dissolved oxygen due to microbial decomposition, which can create an unhealthy or toxic environment for biota
- Decomposition by-products such as sulfides, ammonia, and phenols, which can cause or contribute to toxicity

As a result, wood waste is considered a deleterious substance in the environment that is subject to cleanup, consistent with MTCR and SMS rules. Site-specific cleanup levels associated with wood waste informed by multiple line of evidence are provided below and are discussed in greater detail in the site-specific wood waste cleanup level development memorandum included as Appendix H.

Based on the relationship between the wood waste parameters and bioassay test results from samples collected from the in-water area, MFA recommends incorporating TOC, TVS, and wood waste percent into the site-specific wood waste cleanup level. Samples containing higher concentrations of TOC, TVS, and wood waste percent correlated with bioassay failures. Sulfides and ammonia are not incorporated in the site-specific wood waste cleanup level. Bulk sulfides did not correlate with bioassay results, whereas higher concentrations of porewater sulfides did correlate with bioassay failure. However, because bioassay failures associated with high porewater sulfide concentrations correlated well with TOC and TVS, porewater sulfides are thereby accounted for with TOC and TVS. Ammonia concentrations did not correlate well with bioassay results and were therefore excluded from the wood waste scoring matrix. Although there are studies that have evaluated and published concentrations that result in toxic effects for porewater sulfides, those concentrations are widely variable. Podger (2013) summarized sulfide toxicity values ranging from 0.1 to 32 mg/L whereas Berlin et al. (2019) indicated values as low as 1 to 2 mg/L are toxic for numerous marine species. There is significant variability in published toxic concentrations, therefore porewater sulfide was excluded as a parameter for developing a site-specific wood waste cleanup level. Instead, TOC, TVS, and wood waste percentage are used as a proxy for porewater sulfides as indicators of wood waste toxicity. The *Wood Waste Cleanup* guidance document (Ecology, 2013) summarizes site-specific cleanup case studies. Wood waste percentages that required cleanup ranged from 25 percent (Scott Paper Mill) to 50 percent (Hylebos Waterway and Barbee Mill).

Based on the relationship between the wood waste parameters and bioassay test results from site samples, a proposed site-specific wood waste cleanup level has been developed that incorporates TOC, TVS, and wood waste percent, using a three-part scoring matrix, as shown in the table below. Points were assigned based on parameter ranges and summed to assess compliance with the site-specific wood waste cleanup level. Locations that receive a score of two or greater exceed the site-specific wood waste cleanup level. Additional data may be needed for final decision making at some

sample locations where all three parameters are not available. Parameter ranges and associated scoring are presented in the table below (also see Appendix H).

Parameter	0 Point Range	1 Point Range	2 Point Range
TOC (%)	< 6	6 – 7	> 7
TVS (%)	< 14	14 – 16	> 16
Wood waste (% Volume)	< 25	25 – <50	≥ 50
NOTES: Based on parameter ranges, award either zero (0), one (1), or two (2) points. If the total points for a sample location equal or exceed two (2), the sample is not in compliance with the site-specific wood waste cleanup level. The POC is the top 10 cm bml. It is recognized that deeper wood will continue to decompose into by-products such as sulfides, ammonia, and phenols. Deeper wood will be addressed as part of the FS.			

5.4 Preliminary Cleanup Standards

Preliminary cleanup standards were developed based on the screening levels for the protection of benthic organisms and human health and higher trophic level ecological receptors (see Tables 5-1 and 5-2) and by identifying potential POCs. For sediment, the POC is the point or points at which the CUL must be attained for a site to comply with the cleanup standards. The POC for benthic organisms and human health and higher trophic level ecological receptors consists of the biologically active zone in the top 10 cm bml (see Table 5-3). If the CUL is based on the PQL or background (i.e., criteria for bioaccumulation), the POC must be attained over an area-wide average in the top 10 cm bml. For sediment CULs based on benthic criteria, the POC is the top 10 cm bml and must be attained on a point-by-point basis. Preliminary cleanup standards protective of all potential exposure pathways are summarized in Table 5-3. Note that the preliminary cleanup standards are shown to summarize potential CULs and POCs and it is not anticipated that cleanup standards will be developed for all chemicals shown. The SCO based criteria are shown as the presumptive CUL, and a higher CUL may be set (between SCO and CSL-based criteria), if justified by technical feasibility and net adverse environmental impact on natural resources and habitat. 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 substance at the Site
- The chemical and physical characteristics of the hazardous substance that govern its tendency to persist in the environment

- 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 identified and further discussed in section 8.

6 ANALYTICAL RESULTS

This section summarizes the sediment chemistry, radioisotopes, and bioassay data for samples collected during the investigation. Laboratory reports are provided in Appendix I.

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 EPA procedures for evaluating laboratory analytical data (EPA, 2017a,b) and appropriate laboratory and method-specific guidelines. A data validation memorandum summarizing data evaluation procedures, usability of data, and deviations from specific field and/or laboratory methods as they relate to sediment chemistry data is provided as Appendix J. 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 (see Appendix J). 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 are the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260, with non-detected values assigned a value of zero; where all results are non-detect, the highest detection limit is used.

⁴ Available at [Environmental Information Management database - Washington State Department of Ecology](#) (accessed April 12, 2022).

- Total PAHs
 - **Total High-Molecular-Weight PAHs (HPAHs)** are the sum of benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(ghi)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.
 - **Total Low-Molecular-Weight PAHs (LPAHs)** are the sum of 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.
 - **Total PAHs** are the sum of 1-methylnaphthalene; 2-methylnaphthalene; acenaphthene; acenaphthylene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(ghi)perylene; benzo(k)fluoranthene; chrysene; dibenz(a,h)anthracene; fluoranthene; fluorene; 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.
- **Toxic Equivalent Quotients (TEQs).** Consistent with WAC 173-340-708(8), mixtures of dioxins and carcinogenic PAHs (cPAHs) are considered as single hazardous substances in evaluating compliance with preliminary cleanup levels 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-tetrachloro dibenzo-p-dioxin [TCDD] and benzo(a)pyrene, respectively). The toxicity of dioxins and cPAHs as groups was assessed using a toxic equivalent approach. Each congener in the group is assigned a toxic equivalent factor (TEF) describing the toxicity of that congener relative to the toxicity of the reference compound, TCDD or benzo(a)pyrene. Multiplying the concentration of a congener by its TEF produces the concentration of TCDD or cPAH that is equivalent in toxicity to the congener concentration of concern. Summing those values permits expression of all congener concentrations in terms of a total TCDD or cPAH TEQ (i.e., dioxin TEQ and cPAH TEQ, respectively):

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

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

Where C_i = individual TCDD or dioxin-like compounds 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-detect and flagged with a “U” are used in the TEQ calculation at one-half the associated value.
- Congeners qualified as estimated and flagged with a “J” are used without modification in the TEQ calculation.

- Congeners qualified as non-detect with an estimated limit (i.e., flagged with a “UJ”) are used in the TEQ calculation at one-half the associated value.
- If all congeners in a chemical group are undetected, the group sum is reported as the highest detection limit.

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.

6.2 Sediment Chemistry

A summary of analytical results for data collected between 2013 and 2020, including detection frequency, minimum and maximum detected values, and exceedance frequency, is provided in Table 6-1. Sediment analytical results were compared against screening levels protective of benthic organisms and human health and higher trophic ecological receptors. Results for data obtained from the in-water RI conducted in September 2019 and July 2020 are summarized in Table 6-2, results from 2013 and 2015 are summarized in Table 6-3, and results for wood waste parameters (including conventionals, porewater sulfide, and bioassay) are provided in Table 6-4. Screening level exceedances for all samples collected between 2013 and 2020 are shown on Figures 6-1A and 6-1B. Surface sediment includes samples collected between 0 and 10 centimeters bml and subsurface sediment includes samples collected deeper than 10 centimeters bml.

6.2.1 Conventionals

TOC, TVS, ammonia as nitrogen, and bulk sulfide were generally detected in all samples analyzed. Site-specific wood waste cleanup levels—including levels for wood waste percentage, TOC, and TVS—were developed for the Site and are discussed in section 5.3 and Appendix H. Scoring and cleanup level failures for sediment samples collected from the in-water area are provided in Table 6-5. Twenty of the 73 locations (i.e., 27 percent of samples) analyzed for wood waste parameters failed the site-specific wood waste cleanup level. Conventionals results are shown on Figures 6-2A and 6-2B and are summarized here:

- TOC was analyzed and detected in all 70 samples between 0.415 and 49.5 percent. TOC ranged from 1 to 35.6 percent in surface samples and 0.415 to 49.5 percent in subsurface samples. TOC in samples collected from the beach area and further riverward ranged from 1.09 to 13.6 percent, while samples collected in the pocket beach and vicinity of the Former Mill Area ranged from 0.415 to 49.5 percent. Eleven samples collected from nine sample locations exceeded the site-specific wood waste cleanup level of 7 percent TOC. Except for two samples collected in the pocket beach that had TOC concentrations between 16.5 and 49.5 percent (CR-04, CR-06), the remaining exceedances ranged from 7.1 to 13.6 percent.

- TVS was analyzed and detected in 44 samples between 2.51 and 69.2 percent. TVS ranged from 2.51 to 60.5 percent in surface samples and 7.49 to 69.2 percent in subsurface samples. TVS in samples collected from the beach area and further riverward ranged from 5.02 to 36.5 percent, while samples collected in the pocket beach ranged from 2.51 to 69.2 percent. Fourteen samples from 12 sample locations exceeded the site-specific wood waste cleanup level of 16 percent TVS, with exceedances ranging from 18.4 to 69.2 percent.
- Ammonia, as well as bulk sediment (dry weight) and porewater sulfide, can indicate potential toxicity associated with wood waste. Ammonia as nitrogen was analyzed in 44 samples and detected in 43 samples. Ammonia as nitrogen ranged from 0.47 to 26.4 milligrams of nitrogen per kilogram (mg N/kg) in surface samples and 4.76 to 408 mg N/kg in subsurface samples. Two samples collected near the chip loader and beach area exceeded the cleanup level of 230 mg N/kg.
- Bulk sulfide was detected in 41 of the 43 samples analyzed and ranged from 2.7 to 2,110 mg/kg in surface samples and 124 to 4,040 mg/kg in subsurface samples. 39 of the samples exceeded the cleanup level of 39 mg/kg. Porewater sulfide was analyzed by the laboratory in 16 surface samples and detected in 13 samples at concentrations between 0.06 and 0.202 milligrams per liter (mg/L). DGT-calculated porewater sulfide ranged from 0.01 to 7.85 mg/L.

6.2.2 TCLP

Three subsurface samples (two samples in 2019 and one sample in 2015) collected from within and near the pocket beach were analyzed for TCLP lead and mercury to inform potential waste disposal considerations. All three samples were non-detect.

6.2.3 Metals

Up to 54 samples were analyzed for one or more metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc). Copper, lead, mercury, and zinc were the most frequently detected metals (detected in 93 to 100 percent of the samples). Metals detections were generally consistent across locations, with a few exceptions in the pocket beach where individual metals tended to have higher concentrations.

- Arsenic was detected slightly above the bioaccumulation screening level (11 mg/kg) in surface and subsurface samples collected in the Former Mill Area (CR-08A, CR-08B, CR-15C, CR-17D, CR-18B) and the beach area (CR-19F), in a surface sample collected near the mouth of Shannon Slough (CR-10) and riverward of the wharf (CR-26). Arsenic was detected above the screening levels as deep as 20 feet bml. Exceedances ranged from 20 to 30 mg/kg. Note that arsenic was not detected above screening levels in samples collected in 2019.
- Cadmium, chromium, copper, silver, and zinc were not detected above applicable screening levels.

- Lead was detected above the bioaccumulation screening level (21 mg/kg) in surface samples collected in the Former Mill Area (CR-08A) and in surface and subsurface samples collected in the pocket beach (CR-06, SE-10, SE-14, SE-23 through SE-26). Lead was detected above the screening level as deep as 3.7 feet bml. Exceedances ranged from 24 to 110 mg/kg, with the highest concentrations observed in the pocket beach.
- Mercury was detected above the bioaccumulation (0.2 mg/kg) and benthic screening level (0.41 mg/kg) in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06, SE-07A). Mercury was detected above the benthic and bioaccumulation screening levels as deep as 2.5 feet bml. Excluding surface sample CR-04 (6.2 mg/kg), exceedances were slightly above the screening levels and ranged from 0.226 to 0.55 mg/kg.
- Nickel was detected slightly above the benthic screening level (26 mg/kg) in surface samples collected in the pocket beach (SE-14, SE-23, SE-24), near the beach area (SE-16, SE-17, SE-18, SE-27), in Shannon Slough (SE-22), near the chip loader (SE-31), and in subsurface samples collected in the Former Mill Area (SE-29) and near the beach area (SE-30). Exceedances ranged from 26.1 to 40.2 mg/kg. Although nickel was detected above the benthic screening level, the natural background concentration for nickel is 50 mg/kg and no samples exceeded that value.

6.2.4 Organic Chemicals

Up to 52 samples were analyzed for one or more organic chemicals. Except for n-nitrosodiphenylamine (which was not detected in any samples), the remaining organic chemicals were detected at least once, and at least one organic chemical was detected in each sample. Phenol was the most frequently detected organic chemical, detected in 79 percent (41 of the 52) of samples analyzed at concentrations between 8.4 and 980 micrograms per kilogram (ug/kg). The highest concentrations were observed in samples collected in 2013 from the beach area, the pocket beach, and on the downstream end of the wharf.

- 2,4-dimethylphenol reporting limits exceed the screening level in all samples collected in 2019 and in approximately 20 percent of samples collected in 2013 and 2015. The one detected sample had a concentration of 17 ug/kg, below the benthic screening level (29 ug/kg).
- 3- & 4-methylphenol (m,p-cresol) was detected above the benthic screening level (260 ug/kg) in surface sample SE-31 collected on the downstream end of the chip loader and subsurface samples collected in the Former Mill Area (SE-29) and the pocket beach (SE-10). 3- & 4-methylphenol was detected above the benthic screening level as deep as 3.7 feet bml. Excluding subsurface sample SE-29 (1,600 ug/kg), exceedances were minor and ranged from 209 to 267 ug/kg. 3- & 4-methylphenol was not analyzed in samples collected during the 2013 or 2015 investigations.
- Benzoic acid was detected above the benthic screening level (650 ug/kg) in a surface sample collected from the downstream end of the wharf (CR-24), and in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06). Benzoic acid was detected above the benthic screening level as deep as 2.5 feet bml. Exceedances ranged

from 680 to 1,700 ug/kg. Note that the reporting limit exceeds the benthic screening level for samples collected in 2019.

- Benzyl alcohol was detected slightly above the benthic screening level (57 ug/kg) in a surface sample collected from the beach area (CR-09B) and in a subsurface sample collected from riverward of the wharf (CR-26; 0.5 to 1 foot bml). Exceedances were minor and ranged from 58 to 64 ug/kg. Note that the reporting limit exceeds the benthic screening level for nearly all samples collected in 2019.
- Phenol was detected above the benthic screening level (120 ug/kg) in surface samples collected from the beach area (CR-09A, CR-09B), and in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06, SE-29). Phenol was detected above the benthic screening level as deep as 5 feet bml. Exceedances ranged from 130 to 980 ug/kg.
- Dibenzofuran was detected above the benthic screening level (200 ug/kg) in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06). Dibenzofuran was detected above the benthic screening level as deep as 2.5 feet bml. Exceedances ranged from 210 to 490 ug/kg.

6.2.5 Phthalates

Up to 50 samples were analyzed for one or more phthalates. Bis(2-ethylhexyl)phthalate and butylbenzylphthalate were detected in 24 and 20 percent of samples analyzed, respectively. The remaining phthalates were detected in 10 percent or less of samples. The highest concentrations of phthalates were observed in samples collected in the pocket beach. Phthalates were not detected in the 2019 investigation samples. A summary of phthalate exceedances for samples collected in 2013 and 2015 is provided below.

- Bis(2-ethylhexyl)phthalate was detected above the benthic screening level (500 ug/kg) in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06). Bis(2-ethylhexyl)phthalate was detected above the benthic screening level as deep as 2.5 feet bml. Exceedances ranged from 870 to 9,400 ug/kg.
- Butylbenzylphthalate was detected above the organic carbon-normalized benthic screening level (4,900 ug/kg) in the composite surface sample collected in the Former Mill Area (CR-08B) at a concentration of 15,600 ug/kg organic carbon-normalized. Note that the reporting limit exceeds the benthic screening level for nearly all samples collected in 2019.
- Diethylphthalate was detected above the benthic screening level (200 ug/kg) in one subsurface sample collected in the pocket beach (CR-06; 1 to 2.5 feet bml) at a concentration of 270 ug/kg.
- Di-n-octyl phthalate was detected above the benthic screening level (29 ug/kg) in one surface sample collected in the Former Mill Area (CR-08A) at a concentration of 710 ug/kg. Note that the reporting limit exceeds the benthic screening level for samples collected in 2019.

6.2.6 Chlorinated Organics

Up to 50 samples were analyzed for one or more chlorinated organics, which were detected in less than 20 percent of samples. Chlorinated organics were not detected in the 2019 investigation samples. Pentachlorophenol was most frequently detected chlorinated organic, which was detected in 16 percent of the samples at concentrations ranging between 11 and 400 ug/kg. The highest concentrations of chlorinated organics were observed in samples collected in the pocket beach. 1,2,4-trichlorobenzene, 1,4-dichlorobenzene, and PCP were detected above their respective benthic screening levels in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05). Exceedances were observed up to 2.5 feet bml.

6.2.7 PAHs

Up to 49 samples were analyzed for one or more PAHs, and one or more PAHs were generally detected in each sample. Fluoranthene and pyrene were the most frequently detected individual PAHs. The highest concentrations of PAHs are generally limited to the pocket beach.

PAHs exceeded their respective benthic screening levels in subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06). The sample collected from 1 to 2.5 feet bml in boring CR-04 exceeded the benthic screening levels for dibenzo(a,h)anthracene and fluoranthene; the sample collected from 0.33 to 2.5 feet bml in boring CR-05 exceeded the benthic screening levels for fluoranthene and pyrene; and the sample collected from 1 to 2.5 feet bml in boring CR-06 exceeded the benthic screening levels for total PAHs, total LPAHs, 2-methylnaphthalene, fluorene, phenanthrene, total HPAHs, chrysene, fluoranthene, and pyrene. Deeper samples were either not collected in these borings or were not analyzed for PAHs.

Exceedances of the cPAH TEQ bioaccumulation screening level (21 ug/kg) are widespread in surface and subsurface samples collected in the in-water area, with exceedances ranging from 21.3 to 1,610 ug/kg and the highest concentrations observed in the pocket beach. Exceedances were detected as deep as 15 feet bml in the pocket beach.

6.2.8 Pesticides and PCBs

Carbazole was analyzed for in one sample on the downstream end of the wharf and was not detected above the benthic screening level. Up to 49 samples were analyzed for one or more PCB Aroclors, of which only Aroclors 1254 and 1260 were detected. Total PCBs were detected above the bioaccumulation screening level (3.5 ug/kg) in nearly all samples with detections. Exceedances range from 4.16 to 42.4 ug/kg. Several samples collected during the 2013 and 2015 investigations also exceeded the benthic screening level (110 ug/kg) and include surface and/or subsurface samples collected at the pocket beach (CR-04, CR-05, CR-06). Exceedances for these samples range from 180 to 1,170 ug/kg. Benthic screening level exceedances were detected as deep as 4.5 feet bml at the pocket beach and the beach area upstream of the pocket beach.

6.2.9 Additional SVOCs

Up to 31 samples were analyzed for one or more SVOCs, which were detected in less than 40 percent of samples analyzed. The highest concentrations of SVOCs were observed in samples collected in the pocket beach.

There are no screening levels for the SVOCs analyzed. 1,3-dichlorobenzene and 4-methylphenol were detected in samples collected during the 2013 and 2015 investigations at concentrations between 280 and 620 ug/kg, and 26 and 870 ug/kg, respectively.

6.2.10 Dioxins/Furans

Twenty-three samples were analyzed for dioxins/furans. All dioxins/furans were detected at least once, and at least one dioxin or furan congener was detected in each sample. The dioxin/furan TEQ exceeded the bioaccumulation screening level (5 picograms per gram [pg/g]) in nearly all surface and subsurface samples analyzed. Exceedances range from 5.97 to 359 pg/g, with the highest concentrations observed in the pocket beach. Dioxins/furans were detected above the bioaccumulation screening level in sediment up to 8 feet bml in the pocket beach.

6.2.11 TPH

Up to 34 samples were analyzed for TPH, including gasoline-, diesel-, and/or motor-oil-range hydrocarbons.

- There is no screening level identified for gasoline-range hydrocarbons, however, gasoline was not detected in any of the samples analyzed.
- Diesel-range hydrocarbons were detected in 16 samples. Diesel-range hydrocarbons were detected above the benthic screening level (340 ug/kg) in a surface sample collected on the downstream end of the wharf (CR-24), and in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06). Exceedances of the screening level range from 370 to 20,000 mg/kg, with the highest concentration observed from 1 to 2.5 feet bml in the pocket beach. Diesel-range hydrocarbons were generally not detected in samples collected during the 2019 investigation.
- Motor-oil-range hydrocarbons were detected in 30 samples. Motor-oil-range hydrocarbons were detected above the benthic screening level (3,600 mg/kg) in surface and/or subsurface samples collected in the pocket beach (CR-04, CR-05, CR-06). Exceedances range from 4,800 to 60,000 mg/kg, with the highest concentration observed from 1 to 2.5 feet bml in the Former Mill Area.

6.3 Radioisotopes

Sediment cores were collected for radioisotope samples in the vicinity of the former wharf extension (SE-08B) and pocket beach (SE-12) (see locations on Figure 4-1). The cores were longitudinally sectioned and analyzed for Lead-210, Radium-226, and Cesium-137. Lead-210 is a decay product of

volatized atmospheric radon-222 and is generally present in sediment with recent atmospheric deposition. Radium-226 is used to determine background levels of lead-210. Cesium-137 concentrations originate from atmospheric fallout from nuclear weapons testing between 1954 and 1963. Results of radioisotope analysis are provided in Appendix I and summarized below:

SE-08B. Analysis of the 75-cm long sediment core collected at SE-08B suggest that the upper 31 cm of the sampled area indicates variable sediment accumulation rates, while the lower 31 to 75 cm of the sample may have been deposited in a very short period. All sediments in the sample appear to be deposited after 1963, and the overall sediment accumulation rate is high.

SE-12. Analysis of the 60-cm long sediment core collected at SE-12 indicate that the deposition rate at the sampled area is highly variable, the overall sediment accumulation rate is high, and all sediments in the sample appear to be deposited after 1963.

Both samples indicate that the average sediment deposition rate is greater than 1 cm per year (since 1963) and accumulation rates appear to vary over time. However, the date of deposition of the sediments cannot be confidently determined other than to say all sediments appear to be deposited after 1963. These results show that, on average, the areas evaluated are depositional in nature.

6.4 Bioassay

Three standard marine bioassays were conducted at eight locations (i.e., SE-15 through SE-18, SE-20, SE-24, SE-26, and SE-31) spanning the in-water area (Figure 6-3): the ten-day amphipod test, the 20-day juvenile polychaete survival and growth test, and the benthic larval development test (see bioassay lab report in Appendix I). Wood waste in the samples ranged from zero to 80 percent by volume. EcoAnalysts initially analyzed sediment porewater (extracted via centrifugation) for ammonia, sulfides, and water quality parameters (salinity and pH) to inform whether modifications to the testing method were required. Values were below what would be expected to cause toxicity; therefore, no method modifications or supplemental testing was performed. Samples generally met quality assurance criteria for sulfide, ammonia, and water quality parameters, with the following exceptions:

Ten-day amphipod bioassay—Several samples during the ten-day amphipod bioassay salinity measurements fell below the recommended parameter of 28 ± 1 parts per trillion during testing; however, salinity remained within the test organism's acceptable range and was presumed to have no effect on the test results.

20-day juvenile polychaete survival—Two samples (SE-15 and SE-20) contained predatory native fauna that resulted in high mortality rates in the ten-day amphipod, 20-day juvenile polychaete bioassay. EcoAnalysts also noted that these samples had a high percentage of woody debris. These two samples were subsequently press-sieved to remove native fauna and re-tested for the 20-day juvenile polychaete bioassay.

Larval development bioassay—Dissolved oxygen levels were below the acceptable range on day 1 of the test in several samples. The test chambers for these samples were aerated for the remainder of the test. EcoAnalysts indicated that none of the dissolved oxygen measurements were low enough to cause developmental effects, regardless of wood waste percentage. The PSEP guidance provides a

threshold of 5.0 mg/L and the lowest dissolved oxygen in the test was 5.4 mg/L. EcoAnalysts also noted that the resuspension method was used to recover larvae that may be trapped in woody debris, therefore it does not appear that wood waste had an effect on the reliability of the test results. Initial total sulfide concentrations in samples SE-15, SE-16, and SE-26 were above the trigger value of 0.009 milligrams per liter (mg/L), however, undissociated hydrogen sulfide measurements were below the trigger value of 0.003 mg/L in all samples except for SE-26. These sulfide measurements may have contributed to larval development.

Bioassay results are shown on Figure 6-3, Table 6-4, and summarized below:

- All locations passed the SCO and cleanup screening level (CSL) criteria for the ten-day amphipod bioassay.
- All locations passed the SCO and CSL criteria when evaluated on a dry-weight and ash-free dry-weight basis for the 20-day juvenile polychaete bioassay.
- For the benthic larval development bioassay, SE-24 failed the SCO and CSL criteria, and SE-26 failed the SCO criteria, but not the CSL criteria. These locations are in the pocket beach area. All other samples passed both criteria.

The bioassay results indicate that surface sediments within the in-water area, with the exception of the pocket beach area, are not expected to result in adverse effects to benthic organisms. Sediment bioassay samples were not collected at all sample locations, and therefore, surface sediment toxicity has not been fully characterized at the Site. Given the visual observations of sulfide bacterial mats and presence of wood waste along the beach area, it is unlikely that benthic organisms could inhabit surface sediment along the beach without experiencing adverse effects from the degradation of wood waste.

6.5 Diffusive Gradients in Thin Film

The DGT analysis was conducted to quantify the bioavailable fraction of sulfide present in sediment pore water. Sulfide concentrations were quantified using the gray-scale color left on the silver iodide layer of the DGT probe (i.e., the binding gel). The gray-scale intensity on the binding gel was mathematically converted to free sulfide and hydrogen sulfide (see equations in Appendix G). Free sulfide DGT values ranged from 0.0002 to 7.85 mg/L. The highest free sulfide value was at sample location SE-40. Hydrogen sulfide DGT values ranged from 0.0001 to 4.17 mg/L. The highest hydrogen sulfide value was at sample location SE-33.

Free sulfide and hydrogen sulfide values did not correlate with laboratory-derived bulk sulfide or porewater sulfide results, or with visual observations of wood waste (i.e., the samples with the highest percentage of wood waste had some of the lowest concentrations of free sulfide and hydrogen sulfide). Additional factors contributing to uncertainty with the DGT sulfide measurements include variability of in situ pH, conductivity, and temperature measurements, iron oxide precipitate on the binding gels, and non-uniform gray-scale intensity on the binding gels. Due to these factors, this sampling method may not provide a reliable predictor of benthic toxicity at the Site. A memorandum summarizing the field methods, data analysis, and results for DGT analysis—including samples collected for conventionals and porewater sulfide—is provided as Appendix G.

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 (e.g., sediment ingestion) at the exposure point.

The CSM describes potential exposure scenarios, based on information collected during site investigations. 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 from the Site. The Site includes any area where a hazardous substance from a release originating from the Property has come to be located. 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 (see Appendix A). Suspected historical sources of sediment impacts at the Site include releases from the over-water former Mill and upland operations related to wood processing, and include the following:

- Spills from the over-water sawmill hydraulic equipment previously located on the Site.
- Releases to sediment from over-water structures currently and formerly located on the Site.
- Releases from upland historical site operations that migrated to the in-water area of the Site land via stormwater or groundwater transport. Petroleum products, antifreeze, various oils and lubricants, boiler treatment chemicals, anti-sapstain mixtures (which contained PCP until approximately 1987),⁵ 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).

⁵ PCP use was prohibited indoors in 1984 and was restricted to certified applicators in 1987 (EPA, 2010).

- Wood-fired boilers and two wood-refuse burners were identified at the 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. 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).
- Timbers and piles associated with historical and current over-water structures may be treated with creosote or other wood preservatives. These preservatives may contain PAHs that have the possibility to leach into surrounding sediment (DNR, 2018).
- Background sources (further described below), including stormwater discharge to Shannon Slough.
- Accumulations of wood waste from historical sawmill operations, including the chip loader and various processes in the Former Mill Area, as well as the use of wood waste as fill material (see Figure 2-3). Impacts from wood waste include the physical presence of the wood waste; decreased dissolved oxygen concentrations in sediment; 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 wood waste visually confirmed in sediment cores at 2-foot depth intervals. Wood waste was identified at depths up to 22 feet bml and is most extensive in the area east of the wharf and at the pocket beach. Figures 7-3a and 7-3b depict the modeled extent of wood waste laterally and by depth using the nearest-neighbor spatial approach. Figures 7-4 and 7-5 present cross-sectional lithology of the in-water area of the Site, with 25 percent or more wood waste by volume identified as a lithological unit. Section lines for the two cross sections are shown on Figure 7-3a. Seeps observed along the northeastern portion of the beach area (see Figure 4-2), also coincide with sulfide bacterial mats and accumulations of wood waste. However, because no borings were advanced in the vicinity of these features, the vertical extent of wood waste in this area is uncertain.

7.1.2 Sediment Background Conditions

In addition to former site-related sources, upstream or ubiquitous sources of chemicals and deleterious substances have the potential to impact the Site. The Chehalis River has a long history of industrial activity that could result in the release of contaminants similar to what has been observed at the in-water area of the Site. Shannon Slough, which discharges to the Chehalis River, receives considerable stormwater input from roads and neighborhoods upgradient of the Site. A stormwater study conducted on the upland area by MFA in 2016 identified stormwater drainage features in poor condition, with significant solids and sediment accumulation and cracked or eroded pipes. The stormwater pipes were jetted to remove solids and sediment and were subsequently inspected. The inspection found that in places where pipes were compromised, stormwater is in direct contact with soil (MFA, 2016a). Drainage basins, stormwater conveyances, and outfall locations on the Site are shown on Figure 2-4.

Persistent organic pollutants such as dioxins/furans, PAHs, PCBs, and metals are known to be widespread in the environment.

Dioxins/furans and PAHs can result from both natural and anthropogenic sources. The area around the 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 (EPA, 2006). Therefore, low levels are commonly present in sediment because of natural and/or non-point anthropogenic activities. The highest concentrations of dioxin/furans associated with site activities are observed in the pocket beach/Former Mill area (see Section 6.2.10); outside of this area concentrations of dioxin/furan TEQ are lower than those observed in the pocket beach/Former Mill area and no similar pattern of hot spots are observed.

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 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. The highest concentrations of PCBs in sediment are found in the pocket beach (see Section 6.2.8), with concentrations decreasing riverward and upstream of the pocket beach.

Metals, including arsenic and 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. Due to naturally high occurrences in the Cascade Mountains, arsenic concentrations are commonly elevated above risk-based concentrations in sediment in Western Washington. Section 10.2 of the SCUM II guidance provides a regional background concentration for the North Olympic Peninsula of 14 mg/kg (Ecology, 2021).

During the 2019 investigation, MFA collected composite surface sample SE-21 upstream of the chip loader and discrete surface sample SE-22 from the Shannon Slough in an effort to understand background concentrations. Sample CR-03 was collected upstream of the chip loader in 2013 and is considered a background sample. In addition, existing Chehalis River sediment data collected within 1 mile of the DNR lease area were previously queried from Ecology's EIM database (see Appendix A) to determine potential contribution from diffuse background sources. Taken together, the sample data show background inputs to the Site from upstream areas (Chehalis River and Shannon Slough) to the Site can exceed the Ecology marine site natural background 90/90 UTL for total PCBs and dioxin/furan TEQ. There is not an area background concentration for total PCBs or dioxin/furan TEQ, however, these background inputs should be considered in identification of sample locations with Site-related impacts and ultimately in development of final cleanup standards for the Site as part of forthcoming evaluations and Ecology determination.

- **Total PCBs (Chehalis River).** The total PCBs concentrations for background samples collected in 2019 were higher than the Ecology marine site natural background 90/90 UTL of

3.5 ug/kg (i.e., 4.16 ug/kg upstream in the Chehalis River [sample SE-21] and non-detect at 46 ug/kg [sample CR-03]). These results indicate concentrations up to at least 4.16 ug/kg may not reflect site-related impacts.

- **Total PCBs (Shannon Slough).** The total PCBs concentrations for background samples collected in 2019 were higher than the Ecology marine site natural background 90/90 UTL of 3.5 ug/kg at 8.17 ug/kg in Shannon Slough (sample SE-22). The concentration of total PCBs in the sample located further downstream in Shannon Slough (sample SE-20; 4.7 ug/kg) further indicates that the concentration in the background sample is due to inputs from offsite sources. These results indicate that upstream inputs related to offsite sources up to at least 8.17 ug/kg may not reflect site-related impacts and PCBs observed at SE-20 are likely not related to historical site operations.
- **Dioxin/Furan TEQ (Chehalis River).** The dioxin/furan TEQ for the Chehalis River background surface sediment sample SE-21 was consistent with typical background concentrations, at 1.52 pg/g TEQ, and was more elevated at CR-03 at 12.2 pg/g dioxin/furan TEQ. Review of data in the vicinity of the Site also show concentrations of up to 13 pg/g dioxin/furan TEQ (see Appendix A). These results indicate background concentrations are variable and can be significantly elevated up to 13 pg/g, well above the Ecology marine site natural background 90/90 UTL of 4 pg/g.
- **Dioxin/Furan TEQ (Shannon Slough).** The dioxin/furan TEQ for the Shannon Slough background surface sediment sample SE-22 was elevated at 18.8 pg/g dioxin/furan TEQ. These results indicate background concentrations can be significantly elevated above the Ecology marine site natural background 90/90 UTL of 4 pg/g and upstream inputs related to offsite sources up to at least 18.8 pg/g dioxin TEQ may not reflect site-related impacts.

7.2 Fate and Transport of Contaminants

The primary potential contaminant transport mechanisms to site sediments include historical pathways, potentially complete historical and current pathways, and secondary transportation mechanisms as described below.

- **Historical pathways** include the following:
 - Over-water spills and releases directly to the Chehalis River and sediment
 - Stormwater discharges via outfalls
 - Airborne deposition (e.g., from waste burners, incinerators)
- **Potentially complete historical and current pathways** include the following:
 - Surface water and stormwater runoff through outfalls and/or the Shannon Slough
 - Erosion of contaminated upland riverbanks into the beach area
 - Contaminated groundwater from fill and surface spills seepage to the intertidal zone

Former facility operations are described in Section 2.4.2. Potential mechanisms of contaminant transport to the in-water area include stormwater flow from the upland area (i.e., in the Former Mill Area and in the vicinity of the pocket beach) to surface water and sediment. Stormwater discharges to 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.

Contaminated soil within 10 feet landward of the line of ordinary high water may erode to the riverbank. Potentially erodible soils are discussed further and screened against applicable sediment screening levels in the *Draft Upland Remedial Investigation Report* (MFA 2022).

Groundwater on the western portion of the upland area discharges to the Chehalis River and, on the eastern portion of the upland area, to the Shannon Slough (see Section 3.2). Contaminated groundwater from the upland area may discharge to surface water, and is therefore considered a potentially complete transport pathway.

- **Additional transport mechanisms** are erosion of contaminated sediment and repositioning via currents, waves, propeller wash scour, and anchoring. Biological transport mechanisms include bioturbation of contaminated sediment in the biologically active zone, as well as bioaccumulation via food chain transfer.

In sediments, physical transport of contaminants can be upward (advection or diffusion, ebullition), downward (advection or 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 or from sediments resuspended by currents or scour events, or via bioturbation (e.g., releases from sediment to the water column). The relative importance of these 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, propeller wash, and anchoring, have the potential to impact sediment transport in the Chehalis River. As this reach of the Chehalis River is tidally influenced, some sediment resuspension likely occurs during the ebb and flood of the tides. Though 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 in-water area within 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 area, where presence of fines indicates a depositional environment.

Based on the CSM and river dynamics, impacts to sediment are unlikely to extend upriver or downriver past the wharf to sediment adjacent to neighboring properties. In addition, MFA reviewed data collected in 2015 from the Pakonen Boatyard site, which is located adjacent to the downstream end

of the wharf on the Site (MFA, 2016b). Sediment at the Pakonen Boatyard site is generally characterized by a different group of chemicals and includes widespread elevated mercury impacts. Mercury concentrations at the Site are generally consistent with background and minor exceedances are highly localized to the pocket beach. Further, the two samples collected on the downstream end of the wharf (i.e., CR-07 and CR-24) did not exceed the screening level for mercury, which indicates that the downriver extent of sediment impacts at the Site is defined.

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. A complete pathway requires the following:

- 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 Property is part of a new maritime heritage facility called Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. The GHSA staff currently occupies the office building and use other structures remaining on the Site. Public use and access to the Property 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 Chehalis River is frequented by industrial marine users, recreational and tribal fishers, and recreationists.

The exposure pathways considered potentially complete for human health and ecological receptors are summarized below and presented in Figure 7-1.

On-site Workers and Visitors—Current and future users of the Property, such as occupational workers and public visitors, may come into contact with the soils. Occupational workers may come into contact with the Chehalis River while maintaining the area. Future visitors may come into contact with the soils while touring and exploring the Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site. While these groups may also come into direct contact with sediment and surface water, the exposure is anticipated to be occasional and incidental. Current and future workers and future visitors may occasionally and incidentally be exposed to chemically impacted sediment through the following pathways:

- Direct skin contact with, and incidental ingestion of, surface water, sediment, or porewater.

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 chemicals present, 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 in the future when the Site is developed for visitor use. Recreationists, including the child/beach play scenario, could potentially be exposed to chemicals through the following pathways:

- Direct skin contact with, and incidental ingestion of, surface water, sediment, or pore water.

Fishers—Areas at the Site are in the QIN’s usual and accustomed tribal fishing area. Fishers generally angle 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 chemicals present, 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 organisms. Other exposure pathways relevant to fishers could include contact with sediment during net fishing or harvesting shellfish. Current or future recreational and subsistence fishers, including tribal fishers of the QIN, could potentially be exposed to chemicals by the following pathways:

- Direct skin contact with, and incidental ingestion of, surface water, sediment, or porewater.
- Ingestion of chemicals bioaccumulated in the tissue of fish from impacted surface water or sediment. While this scenario provides a complete pathway in current and future scenarios, it likely would pose an insignificant risk to recreational and subsistence fishers from chemicals present at the Site. The likely insignificant risk is due to the anadromous nature of the fishable species potentially present at the in-water area of the Site. These nonresident fish are typically present only when transiting from the ocean to rearing habitat during spawning season or from rearing habitat to the ocean after a short residence after hatching. Rearing habitat is not present at the Site, and indeed typically occurs in tributaries off the main stem of the Chehalis River higher up in the Chehalis River system where appropriate bed material is present (Williams, Laramie, and Ames, 1975). Despite the likely insignificant risk, this pathway was retained for evaluation of its protectiveness for all potential future uses and receptors.

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

- Direct contact with, and ingestion of, surface water or sediment.
- Ingestion of chemicals bioaccumulated in the tissue of fish from chemically impacted surface water or sediment at the Site. Chemicals at the Site are unlikely to bioaccumulate in significant amounts because of the anadromous nature of the fish species that may be present at the Site. Despite the likelihood that this risk is insignificant, this pathway was retained for evaluation of its protectiveness for all potential future uses and receptors.

8 NATURE AND EXTENT OF CONTAMINATION

This section delineates areas of contamination based on the information presented in this RI, including the extent of wood waste and areas with chemical screening level exceedances, as well as the areas of concern (AOCs) for further evaluation during the FS. Chemical exceedances are summarized in Table 8-1. Figure 8-1 presents a summary of sample locations with both wood waste and chemical exceedances as well as the boundaries for the AOCs.

Woodwaste—Up to 90 percent wood waste by volume was observed in surface samples and up to 80 percent was observed in subsurface samples (see Figures 7-2 through 7-5 and Tables 6-4 and 6-5). Significant accumulations of wood waste (>25 percent) were observed in the former boiler area and extend eastward from the Former Mill Area to (and include) the beach area. Further, sulfide bacterial mats and seeps associated with accumulations of wood waste were visually observed along the northeastern portion of the beach area and mouth of Shannon Slough (see Figures 4-2 and 8-1). The visual observations of wood waste along the shoreline are captured within the beach area AOC (see Figure 8-1). The thickest deposits of wood waste (up to 19 feet) are in the pocket beach where wood was historically used as fill. RI investigations demonstrated that wood waste extends from near the surface to significant depths, and that, with distance from shore, the wood waste thickness decreases significantly and the sediment layer overlying the wood waste increases. As shown in Figures 7-3A, 7-3B, and 8-1, with the exception of the northeast portion of the beach area and in the vicinity of the mouth of Shannon Slough, the lateral extent of wood waste has been defined. The vertical extent of wood waste is greatest in the pocket beach and Former Mill Area, and decreases to shallower depths riverward, in the beach area, and in the Chehalis River adjacent to the chip loader. Based on field observations of sulfide seeps and associated bacterial mats (see Figure 4-2), areas proximal to the shoreline along the beach near the mouth of Shannon Slough likely exhibit elevated levels of sulfides and significant wood waste accumulations. However, because no borings were advanced along the northeastern portion of the beach or near the mouth of Shannon Slough, the depth of wood waste in this area is uncertain.

Chemical—The pocket beach and Former Mill Area also exhibit the highest frequency of chemical exceedances including metals; organic chemicals (benzoic acid, phenol, dibenzofuran, bis(2-

ethylhexyl)phthalate, 3- & 4-methylphenol [m,p-cresol]), PAHs (fluoranthene, cPAH TEQ), total PCBs, and dioxin/furan TEQ. Exceedances were observed up to 23 feet bml, the maximum depth explored. In addition, the bioassay tests from this area (i.e., SE-24 and SE-26) failed the larval development SCO or CSL.

Chemical exceedances in other areas are more infrequent and limited to fewer chemicals. Exceedances in the beach area were observed up to 2 feet bml and are limited to arsenic, cPAH TEQ, total PCBs, and dioxin/furan TEQ. Samples collected near the chip loader had chemical exceedances of ammonia as nitrogen, m,p-cresol, cPAH TEQ, total PCBs, and dioxin/furan TEQ up to 1.5 feet bml. Chemical exceedances in Shannon Slough are limited to total PCBs, however concentrations are lower than those detected in the upstream background sample. In summary, chemical exceedances are generally low-level and bioassay tests in these areas show no failures, indicating toxicity to benthic organisms is not anticipated.

The screening approach described above supports identification of IHSs in Site sediments. WAC 173-340-703 states that when cleanup requirements are being defined for a site that is contaminated with a large number of 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 for all samples are provided in Table 6-1.

Wood waste is considered an IHS. Conventional parameters exceed screening levels in up to 91 percent of samples. As discussed in Appendix G, conventionals are associated with wood waste and are accounted for at locations where there are exceedances of site-specific wood waste cleanup levels, which include TOC, TVS, and wood waste percentage.

In addition, the following chemicals frequently exceeded applicable screening levels and are considered IHSs: arsenic, cPAH TEQ, total PCBs, and dioxin/furan TEQ. Lead, mercury, organic chemicals, phthalates, chlorinated organics, and individual PAHs are not included as IHSs as less than 20 percent of samples exceed screening levels and locations with exceedances are accounted for by the identified IHSs. Exceedances of TPH were observed in the pocket beach and are colocated with areas of significant wood waste. These locations are therefore accounted for by the presence of wood waste which is identified as an IHS. There are some spatial differences for cPAH TEQ, total PCBs, and dioxin/furan TEQ exceedances, and they are carried forward as IHSs at the Site as they generally account for remaining chemical exceedances. Arsenic is identified as an IHS due to different chemical characteristics compared to other IHSs.

In summary the IHSs at the Site include wood waste, arsenic, cPAH TEQ, total PCBs, and dioxin/furan TEQ. See figure 8-1 for the extent of IHSs at the Site.

8.1 AOCs

AOCs were identified based on a combination of sediment chemistry screening, bioassay results, and field observations. AOCs are areas that will be further evaluated as part of the FS for additional

assessment and/or cleanup options. The AOCs identified include the pocket beach/Former Mill Area, the beach area, and the chip loader area (Figure 8-1):

- Pocket beach/Former Mill Area—Chemical and bioassay exceedances are common in this area. The site-specific wood waste cleanup level is also commonly exceeded and the thickest accumulation of wood waste is present. This AOC includes the two samples located downstream of the wharf (i.e., CR-07 and CR-24).
- Beach area—Chemical exceedances are limited in the beach area and the bioassay sample (SE-17) showed impacts to benthic organisms are not expected. However, field observations of sulfide seeps and significant accumulations of wood waste were noted along the shoreline. Chemical exceedances in combination with field observations establish the nearshore beach area as an AOC.
- Chip loader area—The chip loader is a large, dilapidated metal structure in the Chehalis River and derelict creosote-treated piles remain in the sediment adjacent to the chip loader. Based on some limited chemical exceedances, potential for chemical and physical impacts associated with the degrading structure, and presence of tens of creosote-treated pilings that have the potential for localized sediment impacts, this area is considered an AOC.

Other areas with chemical or wood waste exceedances that aren't considered AOCs include the Shannon Slough and the area riverward of the beach area. Although there are chemical exceedances in the two samples collected from Shannon Slough, the downstream sample concentrations were less than those in the upstream sample. This indicates that upstream inputs related to offsite sources are contributing to sediment conditions in the Shannon Slough. Further, the bioassay sample (SE-20) showed impacts to benthic organisms are not expected. The area riverward of the beach areas is excluded as an AOC as there are limited sporadic chemical exceedances, limited wood waste was observed, and the two bioassay samples (i.e., SE-16 and SE-18) showed impacts to benthic organisms are not expected.

9 SUMMARY

This RI was conducted as part of the work to be performed under the agreed order. Suspected historical sources of sediment impacts at the Site include releases from the over-water mill (i.e., the Former Mill Area) and upland operations related to wood processing and include over-water spills, upland spills conveyed to the in-water area of the Site via stormwater or riverbank erosion, and background or ambient sources, including stormwater runoff and outfall discharges to Shannon Slough and the Chehalis River. These background inputs are likely contributing to sediment conditions on the Site. Potential receptors include upland construction workers and visitors, as well as recreationists (including children), fishers (including tribal fishers), and aquatic ecological receptors. The purpose of the RI was to evaluate the nature and extent of contamination in the in-water area of the Site. Wood waste is a primary IHS in sediments, which is further impacted by chemical IHSs

including arsenic, cPAH TEQ, total PCBs, and dioxin/furan TEQ. Three AOCs have been identified at the Site and include the pocket beach/Former Mill Area, the beach area, and the chip loader. The most significant wood waste and chemical impacts are observed in the pocket beach and the Former Mill Area. Other areas show significantly decreased wood waste accumulations and chemical and bioassay data indicate toxic effects are not suspected; an exception is areas proximal to the beach shoreline where data and observations indicate potential for elevated sulfides due to sulfide seeps and wood waste in sediments and/or in upland fill areas. The dilapidated chip loader and adjacent creosote-treated piles present environment and physical risks. The results of this RI will be used to support an evaluation of potential cleanup actions under a future FS.

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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 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
Surface Samples					
SE-14	0-2 cm: Silt with sand (ML); black; 80% fines; 10% sand; 10% gravel.	0-10	0-0.33	Total Metals PCB Aroclors Dioxins/furans TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
	2-10 cm: wood waste; 15% fines; 85% wood waste, chips, shreds.				
SE-15	Silt (ML); dark gray; 60% fines; 10% sand; 30% wood waste, chips; trace masonry debris; strong sulfur odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals	0-0.33
SE-16	Silt (ML); dark gray; 90% fines, soft; 10% sand; trace wood waste; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-17	Silt with sand (ML); dark gray with orange mottling; 85% fines; 15% sand; trace organic debris; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals	0-0.33
SE-18	Silt (ML); black; 85% fines; 10% sand, fine; 5% wood waste; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals Pore Water Sulfide	0-0.33

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-19	0-3 cm: Silt (ML); brown; 100% fines, soft.	0-10	0-0.33	Mercury Conventionals Pore Water Sulfide	0-0.33
	3-10 cm: Silt (ML); dark gray; 90% fines; 10% sand; no odor.				
SE-20	Silt (ML); 100% fines, soft; trace benthic organisms; faint organic-like odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-21A	Silt with sand (ML); brown; 70% fines; 15% sand, fine; 15% wood waste, 1-inch to 4-inch chunks; no odor.	0-10	0-0.33	Total Metals PCB Aroclors Dioxins/furans TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-21B	Silt (ML); dark gray; 85% fines; 10% sand, fine; 5% wood waste, fine chips; no odor.	0-10	0-0.33	Total Metals PCB Aroclors Dioxins/furans TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-21C	0-1 cm: Silt (ML); brown; 100% fines, soft.	0-10	0-0.33	Total Metals PCB Aroclors Dioxins/furans TPH SVOCs Conventionals Conventionals in Pore Water	0-0.33
	1-10 cm: Sand (SP); dark gray; 90% sand, coarse; 10% wood waste, chunks.				

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-21D	0-1 cm: Silt (ML); brown; 100% fines, soft.	0-10	0-0.33	Total Metals PCB Aroclors Dioxins/furans TPH SVOCs Conventionals Conventionals in Pore Water	0-0.33
	1-10 cm: Sand (SP); dark gray; 95% sand, coarse; 5% wood waste, chunks; no odor.				
SE-22	Silt (ML); 80% fines, soft; 10% wood waste, chips; 10% riprap.	0-10	0-0.33	Total Metals PCB Aroclors Dioxins/furans TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-23	Silt (ML); dark gray; 80% fines; 5% sand, fine; 15% wood waste, chips; trace masonry pieces; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-24	Silt (ML); gray; 70% fines; 5% sand, fine; 25% wood waste, chips and chunks; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals Pore Water Sulfide	0-0.33

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**

Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-25	Wood waste; gray to black; 20% fines; 80% wood waste, chips, pulp, chunks; faint hydrocarbon-like odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals	0-0.33
SE-26	wood waste; gray; 20% fines; 80% wood waste, shreds, pulp, chunks; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals Pore Water Sulfide	0-0.33
SE-27	0-2 cm: Silt (ML); brown; 80% fines; 10% sand, fine; 10% wood waste; no odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals	0-0.33
	2-10 cm: wood waste; 100% wood waste, chips and shreds.				
SE-28	Wood waste; 25% fines; 75% wood waste, pulp, chips, chunks; organic-like odor.	0-10	0-0.33	Mercury Conventionals Pore Water Sulfide	0-0.33
SE-31	Silt with sand (ML); 50% fines; 15% sand; 35% wood waste, chips and fibers; sulfur-like odor.	0-10	0-0.33	Total Metals PCB Aroclors TPH SVOCs Conventionals	0-0.33
SE-32	Silt (ML); 90% fines, low plasticity; 10% sand, fine; trace woody material.	0-10	0-0.33	Conventionals	0-0.33
SE-33	Silt with sand (ML); 70% fines, low plasticity; 30% sand, fine; rootlets.	0-10	0-0.33	Conventionals	0-0.33
SE-34	Silt (ML); 90% fines, low plasticity; 10% sand, fine; wood twigs and chunks (5%).	0-10	0-0.33	Conventionals	0-0.33

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-35	Silt (ML); 95% fines, low plasticity; 5% sand, fine; trace rootlets and woody debris (chunks).	0-10	0-0.33	Conventionals	0-0.33
SE-36	Silt with sand (ML); 80% fines, low plasticity; 20% sand, fine; twigs and wood chunks (5-10%).	0-10	0-0.33	Conventionals	0-0.33
SE-37	Silt (ML); 95% fines, low plasticity; 5% sand, fine; wood waste chunks (25%).	0-10	0-0.33	Conventionals	0-0.33
SE-38	Silt with sand (ML); 85% fines, low plasticity; 15% sand, fine to medium; wood waste chips, chunks, and sawdust (50%); strong sulfur-like odor.	0-10	0-0.33	Conventionals	0-0.33
SE-39	Wood waste; 90% wood chunks, chips, twigs, rootlets; 5% fines; 5% sand, fine.	0-10	0-0.33	Conventionals	0-0.33
SE-40	Sandy gravel with silt (GP-GM); 15% fines; 15% sand; 70% gravel, fine to medium, subangular to subrounded; black and white material coating gravel; sulfur-like odor.	0-10	0-0.33	Conventionals	0-0.33
SE-41	Silt (ML); 90% fines, low plasticity; 10% sand, fine; trace gravel; wood twigs and chunks (5%); sulfur-like odor.	0-10	0-0.33	Conventionals	0-0.33
Subsurface Samples					
SE-01A	0 to 3.3 feet: Silt (ML); black; 75% fines, low plasticity, firm; 5% sand, fine; 20% wood waste, fibers, chips, chunks.	0-7.2	1-2	Conventionals	1-2
	3.3 to 7.2 feet: Silt (ML); dark gray; 95% fines, low plasticity, firm 5% wood waste, fibers, chips.				
SE-01B	0 to 0.6 feet: Silt (ML); dark gray; 90% fines, low plasticity, soft; 10% wood waste, fibers, small chips (<0.5 inches);.	0-1.6	0.5-1.5	Archive Only	0.5-1.5
	0.6 to 1.4 feet: wood waste; brown to gray; 20% fines; 80% wood waste, fibers, chips, chunks (<3 inches).				
	1.4 to 1.6 feet: Silt (ML); dark gray; 80% fines, low plasticity, firm; 20% wood waste, fibers, chips (<0.5 inches);.				

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-01C	0 to 4.6 feet: Silt (ML); dark gray; 90% fines, low plasticity, firm, 10% sand, fine; trace wood waste.	2-3	2-3	Archive Only	2-3
	2.6 to 2.9 feet: Increase in wood waste fibers up to 15%.				
SE-01D	0 to 1.6 feet: Silt (ML); gray; 80% fines, low plasticity, firm; 5%, 1.6 to 4.7 feet: SILT (ML); gray; 95% fines; low plasticity; firm; 5% wood waste; fibers.	0-4.7	0-1	Archive Only	0-1
SE-02A	0 to 2.4 feet: Silt (ML); black; 90% fines, low plasticity, soft; 10% sand, fine; trace wood waste.	0-5.1	2.5-3.5	Mercury Conventionals	2.5-3.5
	2.4 to 5.1 feet: Silt (ML); 90% fines, low plasticity, firm; 10% wood waste, fibers, chips.				
	3.4 feet: Decrease in wood waste to 5%.				
SE-03A	0 to 2 feet: Silt (ML); dark gray; 80% fines, low plasticity, soft; 10% sand, fine; 10% wood waste, shreds.	0-5.5	0-1	Conventionals	0-1
	0.3 feet to 0.4 feet: Lens of 20% wood waste.				
	2 to 4.5 feet: Silt (ML); gray; 90% fines, low plasticity, soft; 5% sand, fine; 5% wood waste, fibers.				
	4.5 to 5.5 feet: No wood waste observed.				
SE-03B	0 to 5.1 feet: Silt (ML); dark gray; 80% fines, low plasticity, soft; 10% sand, fine; 10% wood waste, shreds.	0-5.1	1-2	Archive Only	1-2
SE-05A	0 to 2.3 feet: Silt with sand(ML); gray; 80% fines, low plasticity; 20% sand, fine to medium; trace organic debris and wood waste.	0-9.7	2-3	Conventionals	2-3
	2.3 to 9.7 feet: No wood waste observed.				
SE-05B	0 to 6 feet: Silt (ML); dark gray; 95% fines, low plasticity, firm; 5% sand; trace organic debris and wood waste.	0-7.2	2.5-3.5	Archive Only	2.5-3.5
	3 to 3.2 feet: Increase in wood waste to 5%.				
	6 to 7.2 feet: Sand with silt (SP-SM); gray; 10% fines, firm; 90% sand, fine to medium.				

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-06A	0 to 4.7 feet: Silt (ML); dark gray; 75% fines, low plasticity, firm; 5% sand, fine; 20% wood waste, chunks (1 to 3 inches).	0-7.5	0.5-1.5	Conventionals	0.5-1.5
	4.7 to 7.5 feet: No wood waste observed.				
SE-06B	0 to 1.5 feet: Silt (ML); black; 90% fines, low plasticity, soft; 10% sand, fine; trace wood waste.	0-5.2	3-4	Archive Only	3-4
	1.5 to 5.2 feet: Sand (SW); gray; 5% fines; 95% sand; moderate to coarse; trace wood waste.				
	3 to 3.2 feet: Interval of 10% wood waste chips.				
SE-07A	0 to 4 feet: Silt (ML); black; 60% fines, low plasticity, soft; 40% wood waste, pulp, chips, chunks (<2 inches); wet; free product (petroleum) impacts.	0-4	0-1	Mercury Conventionals	0-1
SE-07B	0 to 6.5 feet: Silt (ML); dark gray; 90% fines, low plasticity, firm; 5% sand, fine; 5% wood waste, chips; no odor; moist.	0-6.5	0-1	Archive Only	0-1
	0.3 feet: Decrease to trace wood waste, fine chips; increase to 10% sand.				
SE-08A	0 to 1.3 feet: wood waste; gray; 15% fines; 85% wood waste, pulp to fine chips.	0-1.3	0-1	Conventionals	0-1
SE-08B	0 to 5.3 feet: Silt (ML); grayish black; 75% fines, low plasticity, soft; 10% sand, fine; 15% wood waste, pulp to fine chips.	0-5.3	0-1	Archive Only	0-1
SE-08C	0 to 3.9 feet: Silt (ML); grayish black; 85% fines, low plasticity, firm; 10% sand, fine; 5% wood waste, chips, chunks (1 to 3 inches).	0-4.2	3.2-4.2	Conventionals	3.2-4.2
	0.9 to 4 feet: wood waste; 100% wood waste; chips, chunks.				
	4 to 4.1 feet: Lens of silt; gray; 90% fines; low plasticity; 10% wood waste; pulp, chips.				

**Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**



Boring / Surface Sample Location	Lithologic Description (bgs/bml)	Depth (cm bml)	Collection Depth (ft bml)	Analytical Suite	Archive Sample Depths (ft bml)
SE-08D	0 to 2 feet: Silt with sand (ML): dark gray; 80% fines, low plasticity, firm; 15% sand; 5% wood waste, chunks (1 to 3 inches).	0-5.8	2-3	Archive Only	2-3
	2 to 2.75 feet: wood waste; brown with gray; 10% fines; 90% wood waste, shreds, chips, chunks (<4 inches).				
	2.75 to 5.75 feet: Silt (ML): dark gray; 90% fines, low plasticity, firm; 5% sand, fine; 5% wood waste, fibers, shreds, chips (<1 inch).				
SE-10	0 to 2 feet: wood waste (ML): brown; 20% fines; 80% wood waste, fibers, chips.	0-3.7	2-3.7	Total Metals TCLP PCB Aroclors TPH SVOCs Conventionals	2-3.7
	2 to 3.7 feet: Silt (ML): gray; 70% fines, low plasticity, firm; 30% wood waste.				
SE-29	0 to 2.3 feet: wood waste; gray; 20% fines, soft; 80% wood waste, pulp to chips.	0-2.5	0-2	Total Metals PCB Aroclors TPH SVOCs Conventionals	0-2
	2.3 to 2.5 feet: Silt (ML); gray; 75% fines, low plasticity, soft; 25% wood waste, chips.				
SE-30	0 to 2.5 feet: wood waste; black; 20% fines; 80% wood waste, chips, chunks (<2 inches).	0-6.1	2.5-4.5	Total Metals TCLP PCB Aroclors TPH SVOCs Conventionals	0-2 2.5-4.5 4.5-5.5
	2.5 to 3.4 feet: Silt (ML); gray; 75% fines, low plasticity, firm; 5% sand, fine; 20% wood waste, shreds, chips.				
	2.9 to 3 feet: Lens of 100% solid wood waste.				
	3.4 to 6.1 feet: Silt (ML); gray; 90% fines; 5% sand, fine; 5% wood waste, chips.				

Table 4-1
Sediment Sample Descriptions and Analyses
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site



Notes

bgs = below ground surface.

bml = below mudline.

cm = centimeter.

conventionals = total organic carbon, total volatile solids, total solids, ammonia as nitrogen, total sulfides.

ft = foot or feet.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

TCLP = toxicity characteristic leaching procedure.

TPH = total petroleum hydrocarbon.

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Table 5-1
Screening Levels for Protection of Benthic Organisms
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Contaminant of Concern	Criteria for Protection of Benthic Organisms ⁽¹⁾				Screening Level for Protection of Benthic Organisms			
	SMS Freshwater Sediment Criteria	SMS Marine Sediment Criteria		SMS Marine Sediment AETs ^{(a),(4)}	Organic Carbon (0.5% to 3.5%) ^(b)	Units	Organic Carbon (<0.5% or >3.5%) ^(c)	Units
	dry weight	dry weight	OC-normalized	dry weight				
	SCO	SCO	SCO	SCO				
Conventional Parameters								
Ammonia as Nitrogen	230	--	--	--	230	mg/kg	230	mg/kg
Sulfide	39	--	--	--	39		39	
Total Metals (mg/kg)								
Arsenic	14	57	--	57	14	mg/kg	14	mg/kg
Cadmium	2.1	5.1	--	5.1	2.1		2.1	
Chromium	72	260	--	260	72		72	
Copper	400	390	--	390	390		390	
Lead	360	450	--	450	360		360	
Mercury	0.66	0.41	--	0.41	0.41		0.41	
Nickel	26	--	--	--	26		26	
Selenium	11	--	--	--	11		11	
Silver	0.57	6.1	--	6.1	0.57		0.57	
Zinc	3,200	410	--	410	410		410	
Organic Chemicals (ug/kg)								
2,4-Dimethylphenol	--	29	--	29	29	ug/kg	29	ug/kg
2-Methylphenol	--	63	--	63	63		63	
3- & 4-Methylphenol (m,p-cresol) ^(d)	260	670	--	670	260		260	
Benzoic acid	2,900	650	--	650	650		650	
Benzyl alcohol	--	57	--	57	57		57	
Phenol	120	420	--	420	120		120	
Dibenzofuran	200	--	15,000	540	200		200	
N-Nitrosodiphenylamine	--	--	11,000	28	11,000	ug/kg-OC normalized	28	
Phthalates (ug/kg)								
Bis(2-ethylhexyl)phthalate	500	--	47,000	1,300	500	ug/kg	500	ug/kg
Butylbenzylphthalate	--	--	4,900	63	4,900	ug/kg-OC normalized	63	
Diethyl phthalate	--	--	61,000	200	61,000		200	
Dimethyl phthalate	--	--	53,000	71	53,000		71	
Di-n-butyl phthalate	380	--	220,000	1,400	380	ug/kg	380	
Di-n-octyl phthalate	39	--	58,000	6,200	39		39	
Chlorinated Organics (ug/kg)								
1,2,4-Trichlorobenzene	--	--	810	31	810	ug/kg-OC normalized	31	ug/kg
1,2-Dichlorobenzene	--	--	2,300	35	2,300		35	
1,4-Dichlorobenzene	--	--	3,100	110	3,100		110	
Hexachlorobenzene	--	--	380	22	380		22	
Hexachlorobutadiene	--	--	3,900	11	3,900		11	
Pentachlorophenol	1,200	360	--	360	360		ug/kg	

Table 5-1
Screening Levels for Protection of Benthic Organisms
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Contaminant of Concern	Criteria for Protection of Benthic Organisms ⁽¹⁾				Screening Level for Protection of Benthic Organisms			
	SMS Freshwater Sediment Criteria	SMS Marine Sediment Criteria		SMS Marine Sediment AETs ^{(a)(4)}	Organic Carbon (0.5% to 3.5%) ^(b)	Units	Organic Carbon (<0.5% or >3.5%) ^(c)	Units
	dry weight	dry weight	OC-normalized	dry weight				
	SCO	SCO	SCO	SCO				
PAHs (ug/kg)								
Total PAHs ^(e)	17,000	--	--	--	17,000	ug/kg	17,000	ug/kg
2-Methylnaphthalene	--	--	38,000	670	38,000	ug/kg-OC normalized	670	ug/kg
Total LPAH ^(f)	--	--	370,000	5,200	370,000		5,200	
Acenaphthene	--	--	16,000	500	16,000		500	
Acenaphthylene	--	--	66,000	1,300	66,000		1,300	
Anthracene	--	--	220,000	960	220,000		960	
Fluorene	--	--	23,000	540	23,000		540	
Naphthalene	--	--	99,000	2,100	99,000		2,100	
Phenanthrene	--	--	100,000	1,500	100,000		1,500	
Total HPAH ^(g)	--	--	960,000	12,000	960,000		12,000	
Benzo(a)anthracene	--	--	110,000	1,300	110,000		1,300	
Benzo(a)pyrene	--	--	99,000	1,600	99,000		1,600	
Benzo(ghi)perylene	--	--	31,000	670	31,000		670	
Chrysene	--	--	110,000	1,400	110,000		1,400	
Dibenzo(a,h)anthracene	--	--	12,000	230	12,000		230	
Fluoranthene	--	--	160,000	1,700	160,000		1,700	
Indeno(1,2,3-cd)pyrene	--	--	34,000	600	34,000		600	
Pyrene	--	--	1,000,000	2,600	1,000,000		2,600	
Total Benzofluoranthenes ^(h)	--	--	230,000	3,200	230,000	3,200		
cPAH ⁽ⁱ⁾⁽¹⁾	--	--	--	--	--	--	--	--
Pesticides and PCBs (ug/kg)								
Total PCBs ^(k)	110	--	12,000	130	110	ug/kg	110	ug/kg
Carbazole	900	--	--	--	900		900	
TPH (mg/kg)								
Diesel-Range Hydrocarbons	340	--	--	--	340	mg/kg	340	mg/kg
Lube-Oil-Range Hydrocarbons	3,600	--	--	--	3,600		3,600	

Notes	
Shading indicates the chosen screening level based on the SMS framework for establishing sediment cleanup levels.	
Screening level for sediment inside standard 0.5 to 3.5 percent TOC range. Shading also applies to screening levels that are the same for sediment inside and outside of the standard total organic carbon range.	
Screening level for sediment outside standard 0.5 to 3.5 percent total organic carbon range.	
Bold values are those selected as preliminary cleanup standards. Refer to Table 5-3.	
-- = not applicable or not available.	SCO = sediment cleanup objective.
< = less than.	SCUM = Washington State Department of Ecology Sediment Cleanup User's Manual.
> = greater than.	SMS = Washington State Department of Ecology Sediment Management Standards.
AET = apparent effects threshold.	SVOC = semivolatile organic compound.
cPAH = carcinogenic PAH.	TEQ = toxic equivalent quotient.
HPAH = high-molecular-weight PAH.	TEF = toxicity equivalence factor
LPAH = low-molecular-weight PAH.	TOC = total organic carbon
mg/kg = milligrams per kilogram.	TPH = total petroleum hydrocarbons.
ng/kg = nanograms per kilogram.	ug/kg = micrograms per kilogram.
OC = organic carbon.	
PAH = polycyclic aromatic hydrocarbon.	
PCB = polychlorinated biphenyl.	
^(a) When TOC results are outside 0.5-3.5%; samples are evaluated against dry-weight-based marine sediment AETs instead of organic carbon-normalized-based SMS marine sediment SCO/CSLs (Barrick et al. 1988).	
^(b) Screening level for sediment within the standard 0.5 to 3.5 percent TOC range is equivalent to the lowest of the SMS freshwater and SMS marine criteria.	
^(c) Screening level for sediment outside the standard 0.5 to 3.5 percent TOC range is equivalent to the lowest of the SMS freshwater and SMS marine criteria and SMS marine AETs.	
^(d) Screened against SMS criteria for 4-methylphenol.	
^(e) Total PAHs is the sum of 1-methylnaphthalene; 2-methylnaphthalene; acenaphthene; acenaphthylene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(ghi)perylene; benzo(j+k)fluoranthene; chrysene; dibenz(a,h)anthracene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; naphthalene; phenanthrene; and pyrene.	
^(f) Total LPAH is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene.	
^(g) Total HPAH is the sum of benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(ghi)perylene; benzo(j+k)fluoranthene; chrysene; dibenzo(a,h)anthracene; fluoranthene; indeno(1,2,3-cd)pyrene; and pyrene.	
^(h) Total benzofluoranthenes is the sum of benzo(b)fluoranthene and benzo(j+k)fluoranthene.	
⁽ⁱ⁾ cPAH TEQ is calculated with 2005 California EPA toxicity equivalence factors provided in table 6-1 of SCUM (Ecology, 2021).	
^(j) Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260.	
^(k) Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.	
Reference	
⁽¹⁾ Ecology, 2021. Sediment cleanup user's manual (SCUM), guidance for implementing cleanup provisions of the sediment management standards, Chapter 173-204 WAC. Publication no. 12-09-057. Washington State Department of Ecology. Revised December 2021.	

**Table 5-2
Screening Levels for Protection of Human Health and Higher Trophic Ecological Receptors
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site**

Contaminant of Concern	Human Health Direct Contact ^{(a)(1)}			Bioaccumulation via Consumption of Aquatic Organisms ^(d)		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(e)
	Beach Play	Subsistence Clam Digging (Adult)	Subsistence Net Fishing (Adult)	Ecology Marine Site Natural Background 90/90 UTL ^{(b)(1)}	PQL ^{(c)(1)}	
Total Metals (mg/kg—dry)						
Arsenic	2.1	0.82	1.9	11	0.3	11
Cadmium	220	1,100	2,500	0.8	0.07	0.8
Lead	--	--	--	21	0.1	21
Mercury ^(f)	67	230	460	0.2	0.02	0.2
Nickel	--	--	--	50	--	50
PAHs (ug/kg—dry)						
cPAH ^{(g)(1)}	170	120	150	21	9	21
PCBs (ug/kg—dry)						
PCBs ^(h)	--	--	--	3.5	--	3.5
Dioxins and Furans (pg/g—dry)						
Dioxin/Furan TEQ ⁽ⁱ⁾⁽¹⁾	29	12	29	4	5	5
Notes						
Selected screening level protective of human health and higher trophic ecological receptors.						
Bold values are those selected as preliminary cleanup standards. Refer to Table 5-3.						
-- = not applicable or not available.						
cPAH = carcinogenic polycyclic aromatic hydrocarbon.						
mg/kg = milligrams per kilogram.						
PCB = polychlorinated biphenyl.						
pg/g = picograms per gram.						
PQL = practical quantitation limit.						
TEQ = toxic equivalent quotient.						
TPH = total petroleum hydrocarbons.						
UTL = upper tolerance limit.						
^(a) Sediment Cleanup User's Manual II Table 9-3 Human health risk-based sediment concentrations for ingestion of sediment and direct contact with sediment. Concentration is the lowest of the three scenarios (Ecology, 2021).						
^(b) Sediment Cleanup User's Manual II Table 10-1 Natural background 90/90 UTL (dry weight) (Ecology, 2021).						
^(c) Sediment Cleanup User's Manual II Table 11-1 Programmatic sediment and tissue PQLs used to establish the PQL-based SCO and CSL (Ecology, 2021).						
^(d) Bioaccumulation via consumption of aquatic organisms is the higher value of Ecology Marine Site Natural Background 90/90 UTL and the PQL.						
^(e) Human health and higher trophic level ecological receptor screening levels are chosen from lowest of bioaccumulative and direct contact pathways. If the risk-based value is lower than natural background or PQL, the cleanup level defaults to						
^(f) Human health risk-based concentrations are calculated using methylmercury.						
^(g) cPAH TEQ is calculated with 2005 California EPA toxicity equivalence factors provided in table 6-1 of SCUM (Ecology, 2021).						
^(h) Bioaccumulative risk based on dioxin-like PCB Congeners TEQ; the corresponding background value is based on total PCBs.						
⁽ⁱ⁾ Dioxin/furan TEQ is calculated with 2005 World Health Organization toxic equivalence factors provided in table 6-2 of SCUM (Ecology, 2021).						
Reference						
⁽¹⁾ Ecology, 2021. Sediment cleanup user's manual (SCUM), guidance for implementing cleanup provisions of the sediment management standards, Chapter 173-204 WAC. Publication no. 12-09-057. Washington State Department of Ecology. Revised						

Preliminary Cleanup Standards						
Contaminant of Concern	Organic Carbon (0.5% to 3.5%) ^(a)	Units	Organic Carbon (<0.5% or >3.5%) ^(b)	Units	Point of Compliance	Basis
Conventional Parameters						
Ammonia as Nitrogen	230	mg/kg	230	mg/kg	BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Sulfide	39		39		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Total Metals						
Arsenic	11	mg/kg	11	mg/kg	BAZ (10 cm) areawide average	Ecology Marine Site Natural Background 90/90 UTL
Cadmium	0.8		0.8		BAZ (10 cm) point by point	Ecology Marine Site Natural Background 90/90 UTL
Chromium	72		72		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Copper	390		390		BAZ (10 cm) areawide average	Ecology Marine Site Natural Background 90/90 UTL
Lead	21		21		BAZ (10 cm) areawide average	Ecology Marine Site Natural Background 90/90 UTL
Mercury	0.2		0.2		BAZ (10 cm) point by point	Ecology Marine Site Natural Background 90/90 UTL
Nickel	50		50		BAZ (10 cm) areawide average	Ecology Marine Site Natural Background 90/90 UTL
Selenium	11		11		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Silver	0.57		0.57		BAZ (10 cm) point by point	Ecology Marine Site Natural Background 90/90 UTL
Zinc	410		410		BAZ (10 cm) areawide average	Ecology Marine Site Natural Background 90/90 UTL
Organic Chemicals						
2,4-Dimethylphenol	29	ug/kg	29	ug/kg	BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
2-Methylphenol	63		63		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
3- & 4-Methylphenol (m,p-cresol) ^(c)	260		260		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Benzoic acid	650		650		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Benzyl alcohol	57		57		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Phenol	120		120		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Dibenzofuran	200		200		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
N-Nitrosodiphenylamine	11,000		ug/kg-OC-normalized		28	BAZ (10 cm) point by point
Phthalates						
Bis(2-ethylhexyl)phthalate	500	ug/kg	500	ug/kg	BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Butylbenzylphthalate	4,900	ug/kg-OC-normalized	63		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Diethyl phthalate	61,000		200		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Dimethyl phthalate	53,000		71		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Di-n-butyl phthalate	380	ug/kg	380		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Di-n-octyl phthalate	39		39		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Chlorinated Organics						
1,2,4-Trichlorobenzene	810	ug/kg-OC-normalized	31	ug/kg	BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
1,2-Dichlorobenzene	2,300		35		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
1,4-Dichlorobenzene	3,100		110		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Hexachlorobenzene	380		22		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Hexachlorobutadiene	3,900		11		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Pentachlorophenol	360	ug/kg	360	BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET	

Preliminary Cleanup Standards						
Contaminant of Concern	Organic Carbon (0.5% to 3.5%) ^(a)	Units	Organic Carbon (<0.5% or >3.5%) ^(b)	Units	Point of Compliance	Basis
PAHs						
Total PAHs ^(d)	17,000	ug/kg	17,000	ug/kg	BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Total LPAH ^(e)	370,000	ug/kg-OC-normalized	5,200	ug/kg	BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
2-Methylnaphthalene	38,000	ug/kg-OC-normalized	670	ug/kg	BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Acenaphthene	16,000		500		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Acenaphthylene	66,000		1,300		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Anthracene	220,000		960		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Fluorene	23,000		540		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Naphthalene	99,000		2,100		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Phenanthrene	100,000		1,500		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Total HPAH ^(f)	960,000		12,000		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Benzo(a)anthracene	110,000		1,300		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Benzo(a)pyrene	99,000		1,600		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Benzo(ghi)perylene	31,000		670		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Chrysene	110,000		1,400		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Dibenzo(a,h)anthracene	12,000		230		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Fluoranthene	160,000		1,700		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Indeno(1,2,3-cd)pyrene	34,000		600		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Pyrene	1,000,000		2,600		BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET
Total Benzofluoranthenes ^(g)	230,000	3,200	BAZ (10 cm) point by point	SMS Marine Sediment Criteria SCO/AET		
cPAH ^{(h)(1)}	21	ug/kg	21	ug/kg	BAZ (10 cm) areawide average	Ecology Marine Site Natural Background 90/90 UTL
Pesticides and PCBs (ug/kg)						
Total PCBs ^(j)	3.5	ug/kg	3.5	ug/kg	BAZ (10 cm) point by point	Ecology Marine Site Natural Background 90/90 UTL
Carbazole	900		900		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Dioxins and Furans (ng/kg)						
Dioxin/Furan TEQ ^{(k)(1)}	5	ng/kg	5	ng/kg	BAZ (10 cm) areawide average	PQL
TPH (mg/kg)						
Diesel-Range Hydrocarbons	340	mg/kg	340	mg/kg	BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO
Lube-Oil-Range Hydrocarbons	3,600		3,600		BAZ (10 cm) point by point	SMS Freshwater Sediment Criteria SCO

Notes	
Shading indicates the chosen preliminary cleanup standard based on the SMS framework for establishing sediment cleanup levels.	
Preliminary cleanup standards for sediment inside standard 0.5 to 3.5 percent total organic carbon range. Shading also applies to Preliminary cleanup standards that are the same for sediment inside and outside of the standard TOC	
Preliminary cleanup standards for sediment outside standard 0.5 to 3.5 percent total organic carbon range.	
<p>< = less than. > = greater than. AET = apparent effects threshold. BAZ = biologically active zone. cm = centimeter. cPAH = carcinogenic PAH. HPAH = high-molecular-weight PAH. LPAH = low-molecular-weight PAH. mg/kg = milligrams per kilogram. ng/kg = nanograms per kilogram. OC = organic carbon.</p>	<p>PAH = polycyclic aromatic hydrocarbon. PCB = polychlorinated biphenyl. PQL = practical quantitation limit. SCO = sediment cleanup objective. SCUM = Washington State Department of Ecology Sediment Cleanup User's Manual. SMS = Washington State Department of Ecology Sediment Management Standards. SVOC = semivolatile organic compound. TEQ = toxic equivalent quotient. TPH = total petroleum hydrocarbons. ug/kg = micrograms per kilogram. UTL = upper tolerance limit.</p>
<p>^(a)Preliminary cleanup standard for sediment within the standard 0.5 to 3.5 percent TOC range is equivalent to the highest of natural background, PQL, or risk-based concentrations. Risk-based concentrations are the lowest of SMS freshwater, SMS marine, and human health and higher trophic ecological receptors risk criteria.</p> <p>^(b)Preliminary cleanup standards for sediment outside of the standard 0.5 to 3.5 percent TOC range is equivalent to the highest of natural background, PQL, or risk-based concentrations. Risk-based concentrations are the lowest of SMS freshwater, SMS marine, SMS marine AETs, and human health and higher trophic ecological receptors risk criteria.</p> <p>^(c)Screened against SMS criteria for 4-methylphenol.</p> <p>^(d)Total PAHs is the sum of 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene.</p> <p>^(e)Total LPAH is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene.</p> <p>^(f)Total HPAH is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(j+k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene.</p> <p>^(g)Total Benzofluoranthenes is the sum of benzo(b)fluoranthene and benzo(j+k)fluoranthene.</p> <p>^(h)cPAH TEQ is calculated with 2005 California EPA toxicity equivalence factors provided in table 6-1 of SCUM (Ecology, 2021).</p> <p>⁽ⁱ⁾Total PCB Aroclors for freshwater sediment evaluation is the sum of detected Aroclors 1016, 1221, 1242, 1248, 1254, and 1260.</p> <p>^(j)Total PCB Aroclors for marine sediment evaluation is the sum of detected Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.</p> <p>^(k)Dioxin/furan TEQ is calculated with 2005 World Health Organization toxic equivalence factors provided in table 6-2 of SCUM (Ecology, 2021).</p>	
Reference	
⁽¹⁾ Ecology. 2021. Sediment cleanup user's manual (SCUM), guidance for implementing cleanup provisions of the sediment management standards, Chapter 173-204 WAC. Publication no. 12-09-057. Washington State Department of Ecology. Revised December 2021.	

Table 6-1
Analytical Summary of 2013–2020 Data
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

	Preliminary Cleanup Standards		Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Detected Samples Exceeding Preliminary Cleanup Standards	Frequency of Detected Exceedances for All Samples
	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or >3.5%)								
Conventional Parameters										
Total Organic Carbon (%)	--	--	70	70	0	100%	0.415	49.5	--	--
Total Volatile Solids (%)	--	--	44	44	0	100%	2.51	69.23	--	--
Ammonia as Nitrogen (mg N/kg)	230	230	44	43	1	98%	0.783	408	2	5%
Sulfide (mg/kg)	39	39	43	41	2	95%	6.46	4,040	39	91%
Porewater Sulfide (mg/L)										
Sulfide	--	--	16	13	2	81%	0.06	0.202	--	--
TCLP Metals (mg/L)										
Lead	--	--	3	0	3	0%	NV	NV	--	--
Mercury	--	--	3	0	3	0%	NV	NV	--	--
Metals (mg/kg-dry)										
Arsenic	11	11	45	32	13	71%	4.49	30	21	47%
Cadmium	0.8	0.8	45	20	25	44%	0.118	0.725	0	0%
Chromium	72	72	45	29	16	64%	19.1	52	0	0%
Copper	390	390	44	44	0	100%	40.8	134	0	0%
Lead	21	21	45	44	1	98%	6.35	110	8	18%
Mercury	0.2	0.2	54	50	4	93%	0.0244	6.2	6	11%
Nickel	50	50	18	18	0	100%	21.8	40.2	0	0%
Selenium	11	11	18	16	2	89%	0.63	1.01	0	0%
Silver	0.57	0.57	44	9	35	20%	0.0854	0.26	0	0%
Zinc	410	410	44	44	0	100%	64	237	0	0%

Table 6-1
Analytical Summary of 2013–2020 Data
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

	Preliminary Cleanup Standards		Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Detected Samples Exceeding Preliminary Cleanup Standards	Frequency of Detected Exceedances for All Samples
	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or >3.5%)								
Organic Chemicals (ug/kg-dry)										
2,4-Dimethylphenol	29	29	49	1	48	2%	17	17	0	0%
2-Methylphenol	63	63	49	9	40	18%	3.3	45	0	0%
3- & 4-Methylphenol (m,p-Cresol)	260	260	18	12	6	67%	28.4	1,600	3	17%
Benzoic acid	650	650	49	27	22	55%	110	1,700	4	8%
Benzyl alcohol	57	57	49	15	34	31%	15	64	2	4%
Dibenzofuran	120	120	49	28	21	57%	12	490	4	8%
Phenol	200	200	52	41	11	79%	8.4	980	10	19%
N-Nitrosodiphenylamine	11,000	28	49	0	49	0%	NV	NV	0	0%
Phthalates (ug/kg-dry)										
Bis(2-ethylhexyl)phthalate	500	500	49	12	37	24%	29	9,400	4	8%
Butylbenzylphthalate	4,900	63	50	10	40	20%	2.8	320	1	2%
Diethylphthalate	61,000	200	49	5	44	10%	20	270	1	2%
Dimethyl phthalate	53,000	71	49	2	47	4%	2.5	3.1	0	0%
Di-n-butyl phthalate	380	380	49	2	47	4%	130	213	0	0%
Di-n-octyl phthalate	39	39	49	1	48	2%	710	710	1	2%
Chlorinated Organics (ug/kg-dry)										
1,2,4-Trichlorobenzene	810	31	49	4	45	8%	3	74	2	4%
1,2-Dichlorobenzene	2,300	35	49	3	46	6%	1.6	3.3	0	0%
1,4-Dichlorobenzene	3,100	110	49	5	44	10%	3.7	1,000	2	4%
Hexachlorobenzene	380	22	49	1	48	2%	3.3	3.3	0	0%
Hexachlorobutadiene	3,900	11	49	1	48	2%	2.8	2.8	0	0%
Pentachlorophenol	360	360	50	8	42	16%	11	400	1	2%

Table 6-1
Analytical Summary of 2013–2020 Data
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

	Preliminary Cleanup Standards		Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Detected Samples Exceeding Preliminary Cleanup Standards	Frequency of Detected Exceedances for All Samples
	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or >3.5%)								
PAHs (ug/kg-dry)										
Total PAHs ^(a)	17,000	17,000	49	48	1	98%	16.3	22,700	1	2%
Total LPAHs ^(b)	370,000	5,200	49	45	4	92%	13.6	7,810	1	2%
1-Methylnaphthalene	--	--	41	18	23	44%	9.5	76.7	--	--
2-Methylnaphthalene	38,000	670	49	16	33	33%	10	780	1	2%
Acenaphthene	16,000	500	49	32	17	65%	12	490	0	0%
Acenaphthylene	66,000	1,300	49	23	26	47%	9.7	520	0	0%
Anthracene	220,000	960	49	31	18	63%	11	750	0	0%
Fluorene	23,000	540	49	30	19	61%	11	650	1	2%
Naphthalene	99,000	2,100	49	35	14	71%	13	1,800	0	0%
Phenanthrene	100,000	1,500	49	44	5	90%	13.6	3,600	1	2%
Total HPAHs ^(c)	960,000	12,000	49	48	1	98%	16.3	14,100	1	2%
Benzo(a)anthracene	110,000	1,300	49	37	12	76%	11	1,300	0	0%
Benzo(a)pyrene	99,000	1,600	49	29	20	59%	12	1,200	0	0%
Benzo(ghi)perylene	31,000	670	49	27	22	55%	13	660	0	0%
Chrysene	110,000	1,400	49	38	11	78%	8.6	1,600	1	2%
Dibenzo(a,h)anthracene	12,000	230	49	23	26	47%	2.3	360	1	2%
Fluoranthene	160,000	1,700	49	47	2	96%	13.8	3,900	3	6%
Indeno(1,2,3-cd)pyrene	34,000	600	49	24	25	49%	8.8	490	0	0%
Pyrene	1,000,000	2,600	49	48	1	98%	13	3,600	2	4%
Benzo(b)fluoranthene	--	--	18	9	9	50%	20.8	180	--	--
Benzo(k)fluoranthene	--	--	18	3	15	17%	36.5	75.8	--	--
Total Benzofluoranthenes ^(d)	230,000	3,200	49	39	10	80%	12	2,000	0	0%
cPAH TEQ ^{(e)(1)}	21	21	49	42	7	86%	12.9	1,610	29	59%

Table 6-1
Analytical Summary of 2013–2020 Data
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

	Preliminary Cleanup Standards		Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Detected Samples Exceeding Preliminary Cleanup Standards	Frequency of Detected Exceedances for All Samples
	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or >3.5%)								
Pesticides and PCBs (ug/kg-dry)										
Aroclor 1016	--	--	49	0	49	0%	NV	NV	--	--
Aroclor 1221	--	--	49	0	49	0%	NV	NV	--	--
Aroclor 1232	--	--	49	0	49	0%	NV	NV	--	--
Aroclor 1242	--	--	49	0	49	0%	NV	NV	--	--
Aroclor 1248	--	--	49	0	49	0%	NV	NV	--	--
Aroclor 1254	--	--	49	9	40	18%	2.38	490	--	--
Aroclor 1260	--	--	49	18	31	37%	2.31	730	--	--
Aroclor 1268	--	--	23	0	23	0%	NV	NV	--	--
Total PCBs ^(f)	3.5	3.5	49	22	28	45%	4.16	1,170	22	45%
Carbazole	900	900	1	1	0	100%	24	24	0	0%
Additional SVOCs (ug/kg-dry)										
1,3-Dichlorobenzene			9	2	7	22%	280	620	--	--
4-Methylphenol			31	12	19	39%	26	870	--	--
Hexachlorocyclopentadiene			19	0	19	0%	NV	NV	--	--
Dioxins/Furans (pg/g-dry)										
1,2,3,4,6,7,8-HpCDD	--	--	23	16	7	70%	6.640	12,200	--	--
1,2,3,4,6,7,8-HpCDF	--	--	23	14	9	61%	1.260	1,170	--	--
1,2,3,4,7,8,9-HpCDF	--	--	23	12	11	52%	0.096	81.3	--	--
1,2,3,4,7,8-HxCDD	--	--	23	15	8	65%	0.589	32.5	--	--
1,2,3,4,7,8-HxCDF	--	--	23	6	17	26%	0.032	4.39	--	--
1,2,3,6,7,8-HxCDD	--	--	23	21	2	91%	0.850	1,020	--	--
1,2,3,6,7,8-HxCDF	--	--	23	18	5	78%	0.140	51.7	--	--
1,2,3,7,8,9-HxCDD	--	--	23	23	0	100%	1.140	98.1	--	--
1,2,3,7,8,9-HxCDF	--	--	23	11	12	48%	0.268	62.9	--	--

Table 6-1
Analytical Summary of 2013–2020 Data
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

	Preliminary Cleanup Standards		Number of Samples	Number of Detects	Number of Non-Detects	Frequency of Detection	Minimum Detected Value	Maximum Detected Value	Number of Detected Samples Exceeding Preliminary Cleanup Standards	Frequency of Detected Exceedances for All Samples
	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or >3.5%)								
Dioxins/Furans (pg/g-dry) cont.										
1,2,3,7,8-PeCDD	--	--	23	22	1	96%	0.643	34.1	--	--
1,2,3,7,8-PeCDF	--	--	23	13	10	57%	0.141	41.4	--	--
2,3,4,6,7,8-HxCDF	--	--	23	18	5	78%	0.105	69.3	--	--
2,3,4,7,8-PeCDF	--	--	23	16	7	70%	0.070	43.5	--	--
2,3,7,8-TCDD	--	--	23	20	3	87%	0.936	5.26	--	--
2,3,7,8-TCDF	--	--	23	8	15	35%	0.088	2.48	--	--
OCDD	--	--	23	22	1	96%	33.1	68,300	--	--
OCDF	--	--	23	22	1	96%	1.08	3,100	--	--
Total HpCDDs	--	--	23	23	0	100%	15.5	21,300	--	--
Total HpCDFs	--	--	23	10	13	43%	17.4	3,910	--	--
Total HxCDDs	--	--	23	7	16	30%	11.3	4,840	--	--
Total HxCDFs	--	--	23	5	18	22%	64.7	2,130	--	--
Total PeCDDs	--	--	23	9	14	39%	3.71	88.7	--	--
Total PeCDFs	--	--	23	1	22	4%	40.4	40.4	--	--
Total TCDDs	--	--	23	2	21	9%	14.1	14.1	--	--
Total TCDFs	--	--	23	2	21	9%	14.1	16.8	--	--
Dioxin/Furan TEQ ^{(g)(2)}	5	5	23	23	0	100%	1.52	359	20	87%
TPH (mg/kg-dry)										
Gasoline-Range Hydrocarbons	--	--	19	0	19	0%	NV	NV	--	--
Diesel-Range Hydrocarbons	340	340	34	16	18	47%	18.5	20,000	6	18%
Motor-Oil Range Hydrocarbons	3,600	3,600	34	30	4	88%	19	60,000	5	15%

Table 6-1
Analytical Summary of 2013–2020 Data
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Notes	
Cleanup standard derived from criteria for protection of benthic organisms. Refer to Tables 5-1 and 5-3.	
Cleanup standard derived from criteria for protection of human health and higher trophic ecological receptors. Refer to Tables 5-2 and 5-3.	
<p>-- = not applicable.</p> <p>% = percent.</p> <p>cPAH = carcinogenic PAH.</p> <p>HPAH = high-molecular-weight PAH.</p> <p>HpCDD = heptachlorodibenzo-p-dioxin</p> <p>HpCDF = heptachlorodibenzofuran</p> <p>HxCDD = hexachlorodibenzo-p-dioxin</p> <p>HxCDF = hexachlorodibenzofuran</p> <p>LPAH = low-molecular-weight PAH.</p> <p>mg N/kg = milligrams of nitrogen per kilogram.</p> <p>mg/kg = milligrams per kilogram.</p> <p>mg/kg-dry = milligrams per kilogram, dry weight.</p> <p>mg/L = milligrams per liter.</p> <p>NV = no value.</p> <p>^(a)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.</p> <p>^(b)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.</p> <p>^(c)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.</p> <p>^(d)Total benzofluoranthenes are the sum of concentrations of the b, j, and k isomers and are reported by the laboratory. Their calculation method was not provided.</p> <p>^(e)cPAH TEQ is calculated with 2005 California EPA toxic equivalence factors presented in Table 708-2 (Washington Administrative Code 173-340-900). Non-detect results are included at one-half the detection limit. When all cPAHs are non-detect, the highest reported detection limit is shown.</p> <p>^(f)Total PCBs is the sum of all detected recolors. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.</p> <p>^(g)Dioxin/furan TEQ is calculated with 2005 World Health Organization toxic equivalence factors as presented in Table 708-1 (Washington Administrative Code 173-340-900). Non-detect results are included at one-half the detection limit.</p>	<p>OCDD = octochlorodibenzo-p-dioxin</p> <p>OCDF = octochlorodibenzofuran</p> <p>PAH = polycyclic aromatic hydrocarbon.</p> <p>PCB = polychlorinated biphenyl.</p> <p>PeCDD = pentachlorodibenzo-p-dioxin</p> <p>PeCDF = pentachlorodibenzofuran</p> <p>pg/g-dry = picograms per gram (parts per trillion), dry weight.</p> <p>SVOC = semivolatile organic compound.</p> <p>TCDD = tetrachlorodibenzo-p-dioxin</p> <p>TCDF = tetrachlorodibenzofuran</p> <p>TEQ = toxic equivalent quotient.</p> <p>TPH = total petroleum hydrocarbon.</p> <p>ug/kg-dry = micrograms per kilogram, dry weight.</p>
References	
<p>⁽¹⁾ EPA. 2010. Development of a relative potency factor (RPF) approach for polycyclic aromatic hydrocarbon (PAH) mixtures. EPA/635/R-08/012A. U.S. Environmental Protection Agency. February.</p> <p>⁽²⁾ van den Berg, M., L.S. Birnbaum, M. Denison, M. De Vito, W. Farland, M. Feeley, H. Fiedler, H. Hakansson, A. Hanberg, L. Haws, M. Rose, S. Safe, D. Schrenk, C. Tohyama, A. Tritscher, J. Tuomisto, M. Tysklind, N. Walker, R.E. Peterson. 2006. The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds. July 7.</p>	

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-01A	SE-02A	SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14
Sample Name:				SE-01A-1.0-	SE-02A-2.5-	SE-03A-0-1.0	SE-05A-2.0-	SE-06A-0.5-	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-	SE-10-2.0-3.7	SE-14-0-0.33
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/25/2019	09/26/2019	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019
Collection Depth (ft bml):				1-2	2-3.5	0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33
Type:				Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			20	10	10	Trace	20	40	85	25	30	85	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside	Outside		
Conventional Parameters													
Total Organic Carbon (%)	NV	NV	NV	4.4	3.3	2.3	2.3	3.2	6.3	6.8	7.1	7.9 J	5.5
Total Solids (%)	NV	NV	NV	51.9	55.5	45.6	47.8	55.6	34	35.8	44	38.3	34.8
Total Volatile Solids (%)	NV	NV	NV	11.9 J	7.94 J	8.11 J	7.49	9.92 J	20.7 J	31.7	19.8	30.1	12.5
Ammonia as Nitrogen (mg/kg)	230	230	NV	290 J	230 J	168 J	47.1	408 J	7.73 J	8.65	36.3	5.37 J	15.2
Sulfide (mg/kg)	39	39	NV	865 J	977	856 J	4,040 J	--	639	153 J	124 J	228 J	409
Grain Size (%)													
Clay	NV	NV	NV	--	--	--	--	--	--	--	--	15.7	9.2
Silt	NV	NV	NV	--	--	--	--	--	--	--	--	39.5	41.2
Sand	NV	NV	NV	--	--	--	--	--	--	--	--	29.4	27.3
Gravel	NV	NV	NV	--	--	--	--	--	--	--	--	15.5	22.4
TCLP Metals (mg/L)													
Lead	NV	NV	NV	--	--	--	--	--	--	--	--	0.0065 U	--
Mercury	NV	NV	NV	--	--	--	--	--	--	--	--	0.000007 U	--
Metals (mg/kg-dry)													
Arsenic	14	14	11	--	--	--	--	--	--	--	--	5.47	8.63
Cadmium	2.1	2.1	0.8	--	--	--	--	--	--	--	--	0.595	0.139 U
Chromium	72	72	NV	--	--	--	--	--	--	--	--	25.2	33.9
Copper	390	390	NV	--	--	--	--	--	--	--	--	56.1	85.5
Lead	360	360	21	--	--	--	--	--	--	--	--	24.0	47.3
Mercury	0.41	0.41	0.2	--	0.103	--	--	--	0.226	--	--	0.129	0.0882
Nickel	26	26	NV	--	--	--	--	--	--	--	--	25.1	27.9
Selenium	11	11	NV	--	--	--	--	--	--	--	--	0.667 J	0.716 J
Silver	0.57	0.57	NV	--	--	--	--	--	--	--	--	0.138 J	0.139 U
Zinc	410	410	NV	--	--	--	--	--	--	--	--	71.9	82.2
Organic Chemicals (ug/kg-dry)													
2,4-Dimethylphenol	29	29	NV	--	--	--	--	--	--	--	--	341 U	75.7 U
2-Methylphenol	63	63	NV	--	--	--	--	--	--	--	--	170 U	37.8 U
3- & 4-Methylphenol (m,p-Cresol)	260	260	NV	--	--	--	--	--	--	--	--	309 J	37.8 U
Benzoic acid	650	650	NV	--	--	--	--	--	--	--	--	8,550 U	1,900 U
Benzyl alcohol	57	57	NV	--	--	--	--	--	--	--	--	341 U	75.7 U
Dibenzofuran	200	200	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Phenol	120	120	NV	--	--	--	--	--	--	--	--	137 U	71.5
N-Nitrosodiphenylamine	NV	28	NV	--	--	--	--	--	--	--	--	170 U	37.8 U
Organic Chemicals (ug/kg-OC)													
N-Nitrosodiphenylamine	11,000	NV	NV	--	--	--	--	--	--	--	--	2,150 U	687 U
Phthalates (ug/kg-dry)													
Bis(2-ethylhexyl)phthalate	500	500	NV	--	--	--	--	--	--	--	--	1,020 U	227 U
Butylbenzylphthalate	NV	63	NV	--	--	--	--	--	--	--	--	341 U	75.7 U
Diethyl phthalate	NV	200	NV	--	--	--	--	--	--	--	--	341 U	75.7 U
Dimethyl phthalate	NV	71	NV	--	--	--	--	--	--	--	--	341 U	75.7 U
Di-n-butyl phthalate	380	380	NV	--	--	--	--	--	--	--	--	341 U	75.7 U
Di-n-octyl phthalate	39	39	NV	--	--	--	--	--	--	--	--	548 U	121 U

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location: Sample Name: Collection Date: Collection Depth (ft bml): Type: Percent Wood waste: TOC:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-01A	SE-02A	SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14
	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		SE-01A-1.0-09/25/2019	SE-02A-2.5-09/26/2019	SE-03A-0-1.0-09/25/2019	SE-05A-2.0-09/23/2019	SE-06A-0.5-09/25/2019	SE-07A-0-1.0-09/26/2019	SE-08A-0-1.0-09/24/2019	SE-08C-3.2-09/24/2019	SE-10-2.0-3.7-09/26/2019	SE-14-0-0.33-09/27/2019
				1-2	2-3.5	0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33
				Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Surface
				20	10	10	Trace	20	40	85	25	30	85
				Outside	Inside	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside
Phthalates (ug/kg-OC)													
Butylbenzylphthalate	4,900	NV	NV	--	--	--	--	--	--	--	--	4,320 U	1,380 U
Diethyl phthalate	61,000	NV	NV	--	--	--	--	--	--	--	--	4,320 U	1,380 U
Dimethyl phthalate	53,000	NV	NV	--	--	--	--	--	--	--	--	4,320 U	1,380 U
Chlorinated Organics (ug/kg-dry)													
1,2,4-Trichlorobenzene	NV	31	NV	--	--	--	--	--	--	--	--	170 U	37.8 U
1,2-Dichlorobenzene	NV	35	NV	--	--	--	--	--	--	--	--	170 U	37.8 U
1,4-Dichlorobenzene	NV	110	NV	--	--	--	--	--	--	--	--	170 U	37.8 U
Hexachlorobenzene	NV	22	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Hexachlorobutadiene	NV	11	NV	--	--	--	--	--	--	--	--	170 U	37.8 U
Pentachlorophenol	360	360	NV	--	--	--	--	--	--	--	--	681 U	151 U
Chlorinated Organics (ug/kg-OC)													
1,2,4-Trichlorobenzene	810	NV	NV	--	--	--	--	--	--	--	--	2,150 U	687 U
1,2-Dichlorobenzene	2,300	NV	NV	--	--	--	--	--	--	--	--	2,150 U	687 U
1,4-Dichlorobenzene	3,100	NV	NV	--	--	--	--	--	--	--	--	2,150 U	687 U
Hexachlorobenzene	380	NV	NV	--	--	--	--	--	--	--	--	862 U	275 U
Hexachlorobutadiene	3,900	NV	NV	--	--	--	--	--	--	--	--	2,150 U	687 U
PAHs (ug/kg-dry)													
Total PAH ^(d)	17,000	17,000	NV	--	--	--	--	--	--	--	--	590 J	109 J
1-Methylnaphthalene	NV	NV	NV	--	--	--	--	--	--	--	--	137 U	30.3 U
2-Methylnaphthalene	NV	670	NV	--	--	--	--	--	--	--	--	137 U	30.3 U
Total LPAH ^(e)	NV	5,200	NV	--	--	--	--	--	--	--	--	137	55.2 J
Acenaphthene	NV	500	NV	--	--	--	--	--	--	--	--	68.1 U	15.4 J
Acenaphthylene	NV	1,300	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Anthracene	NV	960	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Fluorene	NV	540	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Naphthalene	NV	2,100	NV	--	--	--	--	--	--	--	--	137 U	30.3 U
Phenanthrene	NV	1,500	NV	--	--	--	--	--	--	--	--	68.1 U	39.8
Total HPAH ^(f)	NV	12,000	NV	--	--	--	--	--	--	--	--	590 J	53.5 J
Benzo(a)anthracene	NV	1,300	NV	--	--	--	--	--	--	--	--	68.1 U	30.3 U
Benzo(a)pyrene	NV	1,600	NV	--	--	--	--	--	--	--	--	167 J	22.7 U
Benzo(ghi)perylene	NV	670	NV	--	--	--	--	--	--	--	--	73.4 J	15.1 U
Chrysene	NV	1,400	NV	--	--	--	--	--	--	--	--	68.1 U	16.6 J
Dibenzo(a,h)anthracene	NV	230	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Fluoranthene	NV	1,700	NV	--	--	--	--	--	--	--	--	76.1 J	21.1 J
Indeno(1,2,3-cd)pyrene	NV	600	NV	--	--	--	--	--	--	--	--	68.1 U	15.1 U
Pyrene	NV	2,600	NV	--	--	--	--	--	--	--	--	152	15.8 J
Benzo(b)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--	--	121 J	22.7 U
Benzo(k)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--	--	102 U	22.7 U
Total benzofluoranthenes ^(g)	NV	3,200	NV	--	--	--	--	--	--	--	--	121 J	22.7 U
cPAH TEQ ^{(h)(1)}	NV	NV	21	--	--	--	--	--	--	--	--	195 J	16.8 J

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-01A	SE-02A	SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14
Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		SE-01A-1.0-	SE-02A-2.5-	SE-03A-0-1.0	SE-05A-2.0-	SE-06A-0.5-	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-	SE-10-2.0-3.7	SE-14-0-0.33
Collection Date:			09/25/2019	09/26/2019	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	
Collection Depth (ft bml):			1-2	2-3.5	0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	
Type:			Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Surface	
Percent Wood waste:			20	10	10	Trace	20	40	85	25	30	85	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside			
PAHs (ug/kg-OC)													
2-Methylnaphthalene	38,000	NV	NV	--	--	--	--	--	--	--	--	1,730 U	551 U
Total LPAH ^(e)	370,000	NV	NV	--	--	--	--	--	--	--	--	1,730 U	1,000 J
Acenaphthene	16,000	NV	NV	--	--	--	--	--	--	--	--	862 U	280 J
Acenaphthylene	66,000	NV	NV	--	--	--	--	--	--	--	--	862 U	275 U
Anthracene	220,000	NV	NV	--	--	--	--	--	--	--	--	862 U	275 U
Fluorene	23,000	NV	NV	--	--	--	--	--	--	--	--	862 U	275 U
Naphthalene	99,000	NV	NV	--	--	--	--	--	--	--	--	1,730 U	551 U
Phenanthrene	100,000	NV	NV	--	--	--	--	--	--	--	--	862 U	724
Total HPAH ^(f)	960,000	NV	NV	--	--	--	--	--	--	--	--	7,470 J	973 J
Benzo(a)anthracene	110,000	NV	NV	--	--	--	--	--	--	--	--	862 U	551 U
Benzo(a)pyrene	99,000	NV	NV	--	--	--	--	--	--	--	--	2,110 J	413 U
Benzo(ghi)perylene	31,000	NV	NV	--	--	--	--	--	--	--	--	929 J	275 U
Chrysene	110,000	NV	NV	--	--	--	--	--	--	--	--	862 U	302 J
Dibenzo(a,h)anthracene	12,000	NV	NV	--	--	--	--	--	--	--	--	862 U	275 U
Fluoranthene	160,000	NV	NV	--	--	--	--	--	--	--	--	963 J	384 J
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	--	--	--	--	--	--	--	--	862 U	275 U
Pyrene	1,000,000	NV	NV	--	--	--	--	--	--	--	--	1,920	287 J
Benzo(b)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--	--	1,530 J	413 U
Benzo(k)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--	--	1,290 U	413 U
Total benzofluoranthenes ^(g)	230,000	NV	NV	--	--	--	--	--	--	--	--	1,530 J	413 U
PCBs (ug/kg-dry)													
Aroclor 1016	NV	NV	NV	--	--	--	--	--	--	--	--	2.15 U	5.75 UJ
Aroclor 1221	NV	NV	NV	--	--	--	--	--	--	--	--	2.15 U	5.75 UJ
Aroclor 1232	NV	NV	NV	--	--	--	--	--	--	--	--	2.15 U	5.75 UJ
Aroclor 1242	NV	NV	NV	--	--	--	--	--	--	--	--	2.15 U	5.75 UJ
Aroclor 1248	NV	NV	NV	--	--	--	--	--	--	--	--	2.15 U	5.75 UJ
Aroclor 1254	NV	NV	NV	--	--	--	--	--	--	--	--	5.86 J	5.75 UJ
Aroclor 1260	NV	NV	NV	--	--	--	--	--	--	--	--	7.17 J	8.41 J
Total PCBs ⁽ⁱ⁾	110	110	3.5	--	--	--	--	--	--	--	--	13.0 J	8.41 J
Additional SVOCs (ug/kg-dry)													
Hexachlorocyclopentadiene	NV	NV	NV	--	--	--	--	--	--	--	--	341 U	75.7 U

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-01A	SE-02A	SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14
Sample Name:				SE-01A-1.0-	SE-02A-2.5-	SE-03A-0-1.0	SE-05A-2.0-	SE-06A-0.5-	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-	SE-10-2.0-3.7	SE-14-0-0.33
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/25/2019	09/26/2019	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019
Collection Depth (ft bml):				1-2	2-3.5	0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33
Type:				Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			20	10	10	Trace	20	40	85	25	30	85	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside			
Dioxins/Furans (pg/g-dry)													
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	263
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	52.5
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	2.34 UJ
1,2,3,4,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	5.92 J
1,2,3,4,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	2.61 UJ
1,2,3,6,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	10
1,2,3,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	1.66 UJ
1,2,3,7,8,9-HxCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	6.08 J
1,2,3,7,8,9-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	0.641 U
1,2,3,7,8-PeCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	2.46 UJK
1,2,3,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	1.26 UJ
2,3,4,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	1.85 UJ
2,3,4,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	1.23 J
2,3,7,8-TCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	1.73
2,3,7,8-TCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	1.75
OCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	2,830
OCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	116
Total HpCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	836 J
Total HpCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	180 J
Total HxCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	118 J
Total HxCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	64.7 J
Total PeCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	33.8 UJK
Total PeCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	22.2 UJK
Total TCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	14.1 J
Total TCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	14.1 J
Dioxin/Furan TEQ ⁽¹⁾	NV	NV	5	--	--	--	--	--	--	--	--	--	10.1 J
TPH (mg/kg-dry)													
Gasoline-Range Hydrocarbons	NV	NV	NV	--	--	--	--	--	--	--	--	11.8 U	12.8 U
Diesel-Range Hydrocarbons	340	340	NV	--	--	--	--	--	27.6 U	--	--	25.8 U	27.3 U
Motor-Oil-Range Hydrocarbons	3,600	3,600	NV	--	--	--	--	--	644	--	--	898	384

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-15	SE-16	SE-17	SE-18	SE-19	SE-20	SE-21	SE-22	SE-23	SE-24	
Sample Name:				SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33	SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:				30	Trace	0	5	0	0	10	10	15	25	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Inside	Outside	Inside	Outside				
Conventional Parameters														
Total Organic Carbon (%)	NV	NV	NV	4.7	1.5	2.3	1.7	2	6.6	1.3	3.8	2.6	7.8	
Total Solids (%)	NV	NV	NV	43.4	52.9	43.3	46.3	41.5	36.8	59.4	33.4	45.4	35.5 J	
Total Volatile Solids (%)	NV	NV	NV	14.4	5.35	6.8	6.06	6.95	12.7	5.02	11.6	7.18	18.9 J	
Ammonia as Nitrogen (mg/kg)	230	230	NV	5.75	8.43	10.7	12.9	9.43	3.9	7.06	7.81	11.8	9.49	
Sulfide (mg/kg)	39	39	NV	191	469	20	691	924	2.7 U	359	937	856	281	
Grain Size (%)														
Clay	NV	NV	NV	11.2	15.4	24.1	17.4	--	26.6	13.5	20.4	14.6	8.3	
Silt	NV	NV	NV	42.4	42.4	56.9	43.8	--	58.5	33.5	49.2	39.2	39.2	
Sand	NV	NV	NV	21	41.8	18.5	38.8	--	9.74	46.2	13.6	38.4	14.3	
Gravel	NV	NV	NV	25.4	0.39	0.55	0.02	--	5.18	6.79	16.8	7.85	38.2	
TCLP Metals (mg/L)														
Lead	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	
Mercury	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	
Metals (mg/kg-dry)														
Arsenic	14	14	11	6.2	4.91	7.09	5.93	--	7.96	4.49	6.97	8.51	8.26	
Cadmium	2.1	2.1	0.8	0.175 J	0.143 J	0.151 J	0.169 J	--	0.239 J	0.118 J	0.201 J	0.513	0.216 J	
Chromium	72	72	NV	32	32.2	36.1	34.5	--	32.9	29.1	35.7	37.8	40	
Copper	390	390	NV	49.8	52	57.3	62.1	--	64.6	49.9	68.6	117	73.7	
Lead	360	360	21	7.52	6.35	8.21	7.28	--	11.7	7.2	16.9	34.9	32.9	
Mercury	0.41	0.41	0.2	0.0402 J	0.0244 J	0.045 J	0.0386 J	0.0379 J	0.069	0.0385 J	0.0528 J	0.0928	0.111	
Nickel	26	26	NV	21.8	26.1	27.2	30.1	--	25.4	25.1	26.3	37.5	40.2	
Selenium	11	11	NV	0.714 J	0.725 J	0.867 J	0.86 J	--	0.941 J	0.63 J	1.01 J	0.798 J	0.797 J	
Silver	0.57	0.57	NV	0.115 J	0.0918 U	0.119 J	0.111 U	--	0.144 J	0.0854 J	0.147 U	0.148 J	0.146 J	
Zinc	410	410	NV	67.3	75.1	82.1	80.3	--	142	64	136	136	93	
Organic Chemicals (ug/kg-dry)														
2,4-Dimethylphenol	29	29	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	
2-Methylphenol	63	63	NV	30.2 U	24.4 U	29.5 U	28.4 U	--	35.8 U	22.2 U	39.6 U	71.1 U	37 U	
3- & 4-Methylphenol (m,p-Cresol)	260	260	NV	157	28.4 J	29.5 U	28.4 U	--	43.2 J	100	39.6 U	71.1 U	137	
Benzoic acid	650	650	NV	1,510 U	1,220 U	1,480 U	1,430 U	--	1,800 U	1,110 U	1,990 U	3,560 U	1,850 UJ	
Benzyl alcohol	57	57	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	
Dibenzofuran	200	200	NV	14.5 J	9.74 U	18.7 J	11.4 U	--	14.3 U	8.85 U	15.8 U	28.4 U	21.1 J	
Phenol	120	120	NV	58.3 J	19.5 U	23.6 U	22.8 U	--	28.7 U	28.1 J	31.7 U	57 U	88.9	
N-Nitrosodiphenylamine	NV	28	NV	30.2 U	24.4 U	29.5 U	28.4 U	--	35.8 U	22.2 U	39.6 U	71.1 U	37 U	
Organic Chemicals (ug/kg-OC)														
N-Nitrosodiphenylamine	11,000	NV	NV	643 U	1,630 U	1,280 U	1,670 U	--	542 U	1,710 U	1,040 U	2,730 U	474 U	
Phthalates (ug/kg-dry)														
Bis(2-ethylhexyl)phthalate	500	500	NV	181 U	146 U	177 U	171 U	--	215 U	133 U	238 U	427 U	222 U	
Butylbenzylphthalate	NV	63	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	
Diethyl phthalate	NV	200	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	
Dimethyl phthalate	NV	71	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	
Di-n-butyl phthalate	380	380	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	
Di-n-octyl phthalate	39	39	NV	96.9 U	78.3 U	94.6 U	91.4 U	--	115 U	71.2 U	127 U	228 U	119 U	

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-15	SE-16	SE-17	SE-18	SE-19	SE-20	SE-21	SE-22	SE-23	SE-24	
Sample Name:				SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33	SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:				30	Trace	0	5	0	0	10	10	15	25	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Inside	Outside	Inside	Outside				
Phthalates (ug/kg-OC)														
Butylbenzylphthalate	4,900	NV	NV	1,290 U	3,250 U	2,570 U	3,350 U	--	1,090 U	3,420 U	2,090 U	5,460 U	949 U	
Diethyl phthalate	61,000	NV	NV	1,290 U	3,250 U	2,570 U	3,350 U	--	1,090 U	3,420 U	2,090 U	5,460 U	949 U	
Dimethyl phthalate	53,000	NV	NV	1,290 U	3,250 U	2,570 U	3,350 U	--	1,090 U	3,420 U	2,090 U	5,460 U	949 U	
Chlorinated Organics (ug/kg-dry)														
1,2,4-Trichlorobenzene	NV	31	NV	30.2 U	24.4 U	29.5 U	28.4 U	--	35.8 U	22.2 U	39.6 U	71.1 U	37 U	
1,2-Dichlorobenzene	NV	35	NV	30.2 U	24.4 U	29.5 U	28.4 U	--	35.8 U	22.2 U	39.6 U	71.1 U	37 U	
1,4-Dichlorobenzene	NV	110	NV	30.2 U	24.4 U	29.5 U	28.4 U	--	35.8 U	22.2 U	39.6 U	71.1 U	37 U	
Hexachlorobenzene	NV	22	NV	12 U	9.74 U	11.8 U	11.4 U	--	14.3 U	8.85 U	15.8 U	28.4 U	14.8 U	
Hexachlorobutadiene	NV	11	NV	30.2 U	24.4 U	29.5 U	28.4 U	--	35.8 U	22.2 U	39.6 U	71.1 U	37 U	
Pentachlorophenol	360	360	NV	120 U	97.4 U	118 U	114 U	--	143 U	88.5 U	158 U	284 U	148 U	
Chlorinated Organics (ug/kg-OC)														
1,2,4-Trichlorobenzene	810	NV	NV	643 U	1,630 U	1,280 U	1,670 U	--	542 U	1,710 U	1,040 U	2,730 U	474 U	
1,2-Dichlorobenzene	2,300	NV	NV	643 U	1,630 U	1,280 U	1,670 U	--	542 U	1,710 U	1,040 U	2,730 U	474 U	
1,4-Dichlorobenzene	3,100	NV	NV	643 U	1,630 U	1,280 U	1,670 U	--	542 U	1,710 U	1,040 U	2,730 U	474 U	
Hexachlorobenzene	380	NV	NV	255 U	649 U	513 U	671 U	--	217 U	681 U	416 U	1,090 U	190 U	
Hexachlorobutadiene	3,900	NV	NV	643 U	1,630 U	1,280 U	1,670 U	--	542 U	1,710 U	1,040 U	2,730 U	474 U	
PAHs (ug/kg-dry)														
Total PAH ^(d)	17,000	17,000	NV	899 J	40.4 J	2,060 J	22.8 U	--	34.3 J	119 J	58.2 J	1,750 J	594 J	
1-Methylnaphthalene	NV	NV	NV	24.2 U	19.5 U	70.6	22.8 U	--	28.7 U	17.8 U	31.7 U	57 U	29.6 U	
2-Methylnaphthalene	NV	670	NV	24.2 U	19.5 U	33.7 J	22.8 U	--	28.7 U	17.8 U	31.7 U	57 U	29.6 U	
Total LPAH ^(e)	NV	5,200	NV	93.8 J	13.6 J	1,010 J	22.8 U	--	28.7 U	83.20 J	31.7 U	296 J	223 J	
Acenaphthene	NV	500	NV	48.7	9.74 U	126	11.4 U	--	14.3 U	8.85 U	15.8 U	28.4 U	29.3 J	
Acenaphthylene	NV	1,300	NV	12 U	9.74 U	22.9 J	11.4 U	--	14.3 U	14.5 J	15.8 U	37.6 J	14.8 U	
Anthracene	NV	960	NV	20.8 J	9.74 U	121	11.4 U	--	14.3 U	8.85 U	15.8 U	45.8 J	22.6 J	
Fluorene	NV	540	NV	12 U	9.74 U	87.5	11.4 U	--	14.3 U	8.85 U	15.8 U	28.4 U	24.2 J	
Naphthalene	NV	2,100	NV	24.2 U	19.5 U	77	22.8 U	--	28.7 U	49.2	31.7 U	57 U	69.8	
Phenanthrene	NV	1,500	NV	24.3	13.6 J	575	11.4 U	--	14.3 U	19.5	15.8 U	213	76.8	
Total HPAH ^(f)	NV	12,000	NV	805 J	26.8 J	945 J	17.1 U	--	34.3 J	35.8 J	58.2 J	1,450 J	371 J	
Benzo(a)anthracene	NV	1,300	NV	61.2	9.74 U	66.5	11.4 U	--	14.3 U	8.85 U	15.8 U	164	41.2	
Benzo(a)pyrene	NV	1,600	NV	45.8	14.6 U	38.7	17.1 U	--	21.5 U	13.3 U	23.8 U	163	31.8 J	
Benzo(ghi)perylene	NV	670	NV	18.3 J	9.74 U	11.8 U	11.4 U	--	14.3 U	8.85 U	15.8 U	77.8	14.8 U	
Chrysene	NV	1,400	NV	71.9	9.74 U	70.3	11.4 U	--	14.3 U	8.85 U	15.8 U	153	33.4	
Dibenzo(a,h)anthracene	NV	230	NV	12 U	9.74 U	11.8 U	11.4 U	--	14.3 U	8.85 U	15.8 U	28.4 U	14.8 U	
Fluoranthene	NV	1,700	NV	250	13.8 J	335	11.4 U	--	16.9 J	18.1	31.8	285	123	
Indeno(1,2,3-cd)pyrene	NV	600	NV	20.7 J	9.74 U	11.8 U	11.4 U	--	14.3 U	8.85 U	15.8 U	80.7	14.8 U	
Pyrene	NV	2,600	NV	210	13 J	401	11.4 U	--	17.4 J	17.7 J	26.4 J	305	113	
Benzo(b)fluoranthene	NV	NV	NV	90.7	14.6 U	33.9 J	17.1 U	--	21.5 U	13.3 U	23.8 U	153	28.6 J	
Benzo(k)fluoranthene	NV	NV	NV	36.5 J	14.6 U	17.7 U	17.1 U	--	21.5 U	13.3 U	23.8 U	68.1 J	22.2 U	
Total benzofluoranthenes ^(g)	NV	3,200	NV	127 J	14.6 U	33.9 J	17.1 U	--	21.5 U	13.3 U	23.8 U	221 J	28.6 J	
cPAH TEQ ^{(h)(1)}	NV	NV	21	68 J	14.6 U	51.5 J	17.1 U	--	21.5 U	13.3 U	23.8 U	213 J	41.7 J	

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-15	SE-16	SE-17	SE-18	SE-19	SE-20	SE-21	SE-22	SE-23	SE-24	
Sample Name:				SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33	SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:				30	Trace	0	5	0	0	10	10	15	25	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Inside	Outside	Inside	Outside				
PAHs (ug/kg-OC)														
2-Methylnaphthalene	38,000	NV	NV	515 U	1,300 U	1,470 J	1,340 U	--	435 U	1,370 U	834 U	2,190 U	379 U	
Total LPAH ^(e)	370,000	NV	NV	2,000 J	907	43,900	1,340	--	435 U	6,400	834 U	11,400	2,860 J	
Acenaphthene	16,000	NV	NV	1,040	649 U	5,480	671 U	--	217 U	681 U	416 U	1,090 U	376 J	
Acenaphthylene	66,000	NV	NV	255 U	649 U	996 J	671 U	--	217 U	1,120 J	416 U	1,450 J	190 U	
Anthracene	220,000	NV	NV	443 J	649 U	5,260	671 U	--	217 U	681 U	416 U	1,760 J	290 J	
Fluorene	23,000	NV	NV	255 U	649 U	3,800	671 U	--	217 U	681 U	416 U	1,090 U	310 J	
Naphthalene	99,000	NV	NV	515 U	1,300 U	3,350	1,340 U	--	435 U	3,780	834 U	2,190 U	895	
Phenanthrene	100,000	NV	NV	517	907 J	25,000	671 U	--	217 U	1,500	416 U	8,190	985	
Total HPAH ^(f)	960,000	NV	NV	17,100 J	1,790 J	41,100 J	1,010 U	--	520 J	2,750 J	1,530 J	55,800 J	4,760 J	
Benzo(a)anthracene	110,000	NV	NV	1,300	649 U	2,890	671 U	--	217 U	681 U	416 U	6,310	528	
Benzo(a)pyrene	99,000	NV	NV	974	973 U	1,680	1,010 U	--	326 U	1,020 U	626 U	6,270	408 J	
Benzo(ghi)perylene	31,000	NV	NV	389 J	649 U	513 U	671 U	--	217 U	681 U	416 U	2,990	190 U	
Chrysene	110,000	NV	NV	1,530	649 U	3,060	671 U	--	217 U	681 U	416 U	5,880	428	
Dibenzo(a,h)anthracene	12,000	NV	NV	255 U	649 U	513 U	671 U	--	217 U	681 U	416 U	1,090 U	190 U	
Fluoranthene	160,000	NV	NV	5,320	920 J	14,600	671 U	--	256 J	1,390	837	11,000	1,580	
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	440 J	649 U	513 U	671 U	--	217 U	681 U	416 U	3,100	190 U	
Pyrene	1,000,000	NV	NV	4,470	867 J	17,400	671 U	--	264 J	1,360 J	695 J	11,700	1,450	
Benzo(b)fluoranthene	NV	NV	NV	1,930	973 U	1,470 J	1,010 U	--	326 U	1,020 U	626 U	5,880	367 J	
Benzo(k)fluoranthene	NV	NV	NV	777 J	973 U	770 U	1,010 U	--	326 U	1,020 U	626 U	2,620 J	285 U	
Total benzofluoranthenes ^(g)	230,000	NV	NV	2,710 J	973	1,470 J	1,010	--	326 U	1,020	626 U	8,500	367 J	
PCBs (ug/kg-dry)														
Aroclor 1016	NV	NV	NV	4.57 U	2.02 U	2.07 U	2.03 U	--	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	
Aroclor 1221	NV	NV	NV	4.57 U	2.02 U	2.07 U	2.03 U	--	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	
Aroclor 1232	NV	NV	NV	4.57 U	2.02 U	2.07 U	2.03 U	--	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	
Aroclor 1242	NV	NV	NV	4.57 U	2.02 U	2.07 U	2.03 U	--	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	
Aroclor 1248	NV	NV	NV	4.57 U	2.02 U	2.07 U	2.03 U	--	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	
Aroclor 1254	NV	NV	NV	4.57 U	2.02 U	4.14 U	2.03 U	--	2.38 J	3.36 U	3.74 J	8.09 J	5.6 U	
Aroclor 1260	NV	NV	NV	4.57 U	2.02 U	4.14 U	2.03 U	--	2.31 J	4.16 J	4.43 J	4.39 U	42.4	
Total PCBs ⁽ⁱ⁾	110	110	3.5	4.57 U	2.02 U	4.14 U	2.03 U	--	4.69 J	4.16 J	8.17 J	8.09 J	42.4	
Additional SVOCs (ug/kg-dry)														
Hexachlorocyclopentadiene	NV	NV	NV	60.4 U	48.8 U	59 U	57 U	--	71.8 U	44.4 U	79.3 U	142 U	74 U	

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-15	SE-16	SE-17	SE-18	SE-19	SE-20	SE-21	SE-22	SE-23	SE-24	
Sample Name:				SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33	SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:				30	Trace	0	5	0	0	10	10	15	25	
TOC:	Outside	Inside	Inside	Inside	Inside	Outside	Inside	Outside	Inside	Outside				
Dioxins/Furans (pg/g-dry)														
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	--	--	--	--	--	--	19.3	401	--	--	
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	--	--	--	--	--	--	9.17	92.5	--	--	
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	--	--	--	--	--	--	0.462 UJ	4.41 J	--	--	
1,2,3,4,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	0.317 U	8.61	--	--	
1,2,3,4,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	0.376 UJ	3.54 J	--	--	
1,2,3,6,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	0.85 J	19.4	--	--	
1,2,3,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	0.346 UJ	2.79 J	--	--	
1,2,3,7,8,9-HxCDD	NV	NV	NV	--	--	--	--	--	--	1.14 J	14.8	--	--	
1,2,3,7,8,9-HxCDF	NV	NV	NV	--	--	--	--	--	--	0.217 U	1.15 UJ	--	--	
1,2,3,7,8-PeCDD	NV	NV	NV	--	--	--	--	--	--	0.643 J	4.75 J	--	--	
1,2,3,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	0.161 U	1.16 UJ	--	--	
2,3,4,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	0.414 UJ	4.24 J	--	--	
2,3,4,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	0.315 UJ	2.15 J	--	--	
2,3,7,8-TCDD	NV	NV	NV	--	--	--	--	--	--	0.341 U	1.74	--	--	
2,3,7,8-TCDF	NV	NV	NV	--	--	--	--	--	--	0.575 UJK	1.89	--	--	
OCDD	NV	NV	NV	--	--	--	--	--	--	177	3,250	--	--	
OCDF	NV	NV	NV	--	--	--	--	--	--	13.4	262	--	--	
Total HpCDDs	NV	NV	NV	--	--	--	--	--	--	43.1	737	--	--	
Total HpCDFs	NV	NV	NV	--	--	--	--	--	--	23.5 J	259 J	--	--	
Total HxCDDs	NV	NV	NV	--	--	--	--	--	--	11.3 J	141 J	--	--	
Total HxCDFs	NV	NV	NV	--	--	--	--	--	--	8.49 UJK	107 J	--	--	
Total PeCDDs	NV	NV	NV	--	--	--	--	--	--	3.71 J	29.5 J	--	--	
Total PeCDFs	NV	NV	NV	--	--	--	--	--	--	3.7 UJK	40.4 J	--	--	
Total TCDDs	NV	NV	NV	--	--	--	--	--	--	0.404 UJK	14.1 J	--	--	
Total TCDFs	NV	NV	NV	--	--	--	--	--	--	3.19 UJK	16.8 J	--	--	
Dioxin/Furan TEQ ⁽¹⁾	NV	NV	5	--	--	--	--	--	--	1.52 J	18.8 J	--	--	
TPH (mg/kg-dry)														
Gasoline-Range Hydrocarbons	NV	NV	NV	10 U	8.42 U	13.3 U	9.11 U	--	13.4 U	6.71 U	16 U	9.01 U	27.9 U	
Diesel-Range Hydrocarbons	340	340	NV	22.5 U	18.5 J	22.4 U	21.5 U	--	26.7 U	23.2 J	29.9 U	21.2 U	28.1 U	
Motor-Oil-Range Hydrocarbons	3,600	3,600	NV	374	36.8 U	44.9 U	43 U	--	610	33.1 U	130	73.8 J	559	

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31	SE-32	SE-33	SE-34
Sample Name:				SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33	SE-32	SE-33	SE-34
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface	Surface	Surface	Surface
Percent Wood waste:			80	80	10	10	75	80	20	35	Trace	10	5	
TOC:	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside	
Conventional Parameters														
Total Organic Carbon (%)	NV	NV	NV	18	13	3.8	3.9	5.5	9.9	5.1	2.1	1.1	1.2	1.2
Total Solids (%)	NV	NV	NV	40.6 J	42.4	39.4	38.3	36	42.9 J	47.6	48.8	46.4	54.1	53
Total Volatile Solids (%)	NV	NV	NV	19	18.4	12.1	9.96	13	27.4 J	14.7	8.8	6.56	6.45	6.69
Ammonia as Nitrogen (mg/kg)	230	230	NV	3.68	3.48	8.47	8.18	7.36	4.76	112	7.98	7.61	26.4	4.82
Sulfide (mg/kg)	39	39	NV	267	3.21 U	394	396	22.7	1,510 J	492	397	337 J	473 J	921 J
Grain Size (%)														
Clay	NV	NV	NV	3	7.1	14.7	21.2	--	7.5	26.6	15.9	--	--	--
Silt	NV	NV	NV	12.8	20.7	51.8	53	--	33.3	56.2	36.6	--	--	--
Sand	NV	NV	NV	33.2	37.2	15.8	17.3	--	26.8	11.4	44.4	--	--	--
Gravel	NV	NV	NV	51	35	17.7	8.57	--	32.4	5.79	2.99	--	--	--
TCLP Metals (mg/L)														
Lead	NV	NV	NV	--	--	--	--	--	--	0.0065 U	--	--	--	--
Mercury	NV	NV	NV	--	--	--	--	--	--	0.000007 U	--	--	--	--
Metals (mg/kg-dry)														
Arsenic	14	14	11	8.84	5.11	7.49	7.57	--	7.45	7.52	6.07	--	--	--
Cadmium	2.1	2.1	0.8	0.725	0.119 U	0.154 J	0.188 J	--	0.188 J	0.246	0.165 J	--	--	--
Chromium	72	72	NV	19.1	25.7	33.8	35.3	--	35.1	41.4	34.7	--	--	--
Copper	390	390	NV	76.8	81.9	62.6	63.3	--	92.5	66	61.4	--	--	--
Lead	360	360	21	37.9	30.4	10.8	11.6	--	16.2 J	14.9	7.94	--	--	--
Mercury	0.41	0.41	0.2	0.103	0.104	0.0366 J	0.0593	0.0827	0.107	0.0865	0.0443 J	--	--	--
Nickel	26	26	NV	25.5	26	25.7	27.4	--	33.8	27.7	30.2	--	--	--
Selenium	11	11	NV	0.632 U	0.593 U	0.896 J	0.987 J	--	0.644 J	0.993 J	0.845 J	--	--	--
Silver	0.57	0.57	NV	0.126 U	0.119 U	0.124 U	0.129 U	--	0.116 U	0.26	0.111 J	--	--	--
Zinc	410	410	NV	98.6	76	80.5	88.1	--	84.6	98.3	74.7	--	--	--
Organic Chemicals (ug/kg-dry)														
2,4-Dimethylphenol	29	29	NV	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U	--	--	--
2-Methylphenol	63	63	NV	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	260	260	NV	162 U	93.4 J	42.7 J	50.4 J	--	1,600	164	267	--	--	--
Benzoic acid	650	650	NV	8,130 U	3,840 U	1,640 U	1,700 U	--	3,830 U	3,450 U	1,350 U	--	--	--
Benzyl alcohol	57	57	NV	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U	--	--	--
Dibenzofuran	200	200	NV	64.7 U	33.9 J	13.1 U	13.6 U	--	145	35.6 J	10.7 U	--	--	--
Phenol	120	120	NV	130 U	94.1 J	26.2 U	60.8	--	571 J	64.7 J	73.9	--	--	--
N-Nitrosodiphenylamine	NV	28	NV	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U	--	--	--
Organic Chemicals (ug/kg-OC)														
N-Nitrosodiphenylamine	11,000	NV	NV	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U	--	--	--
Phthalates (ug/kg-dry)														
Bis(2-ethylhexyl)phthalate	500	500	NV	974 U	460 U	197 U	204 U	--	458 U	413 U	161 U	--	--	--
Butylbenzylphthalate	NV	63	NV	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U	--	--	--
Diethyl phthalate	NV	200	NV	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U	--	--	--
Dimethyl phthalate	NV	71	NV	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U	--	--	--
Di-n-butyl phthalate	380	380	NV	325 U	153 U	65.6 U	68 U	--	213 J	138 U	53.8 U	--	--	--
Di-n-octyl phthalate	39	39	NV	521 U	246 U	105 U	109 U	--	245 U	221 U	86.3 U	--	--	--

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31	SE-32	SE-33	SE-34
Sample Name:				SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33	SE-32	SE-33	SE-34
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface	Surface	Surface	Surface
Percent Wood waste:			80	80	10	10	75	80	20	35	Trace	10	5	
TOC:	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside	
Phthalates (ug/kg-OC)														
Butylbenzylphthalate	4,900	NV	NV	1,810 U	1,180 U	1,730 U	1,740 U	--	1,550 U	2,710 U	2,560 U	--	--	--
Diethyl phthalate	61,000	NV	NV	1,810 U	1,180 U	1,730 U	1,740 U	--	1,550 U	2,710 U	2,560 U	--	--	--
Dimethyl phthalate	53,000	NV	NV	1,810 U	1,180 U	1,730 U	1,740 U	--	1,550 U	2,710 U	2,560 U	--	--	--
Chlorinated Organics (ug/kg-dry)														
1,2,4-Trichlorobenzene	NV	31	NV	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U	--	--	--
1,2-Dichlorobenzene	NV	35	NV	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U	--	--	--
1,4-Dichlorobenzene	NV	110	NV	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U	--	--	--
Hexachlorobenzene	NV	22	NV	64.7 U	30.6 U	13.1 U	13.6 U	--	30.5 U	27.5 U	10.7 U	--	--	--
Hexachlorobutadiene	NV	11	NV	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U	--	--	--
Pentachlorophenol	360	360	NV	647 U	306 U	131 U	136 U	--	305 U	275 U	107 U	--	--	--
Chlorinated Organics (ug/kg-OC)														
1,2,4-Trichlorobenzene	810	NV	NV	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U	--	--	--
1,2-Dichlorobenzene	2,300	NV	NV	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U	--	--	--
1,4-Dichlorobenzene	3,100	NV	NV	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U	--	--	--
Hexachlorobenzene	380	NV	NV	359 U	235 U	345 U	349 U	--	308 U	539 U	510 U	--	--	--
Hexachlorobutadiene	3,900	NV	NV	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U	--	--	--
PAHs (ug/kg-dry)														
Total PAH ^(d)	17,000	17,000	NV	790 J	742 J	172 J	16.3 J	--	4,620 J	919 J	247 J	--	--	--
1-Methylnaphthalene	NV	NV	NV	130 U	61.4 U	26.2 U	27.2 U	--	76.7	55.2 U	21.5 U	--	--	--
2-Methylnaphthalene	NV	670	NV	130 U	61.4 U	26.2 U	27.2 U	--	149	55.2 U	21.5 U	--	--	--
Total LPAH ^(e)	NV	5,200	NV	64.8 J	267 J	18.1 J	27.2 U	--	1,460 J	395 J	160 J	--	--	--
Acenaphthene	NV	500	NV	64.7 U	40.8 J	13.1 U	13.6 U	--	135	148	37.2	--	--	--
Acenaphthylene	NV	1,300	NV	64.7 U	30.6 U	13.1 U	13.6 U	--	30.5 U	27.5 U	19.6 J	--	--	--
Anthracene	NV	960	NV	64.7 U	30.6 U	13.1 U	13.6 U	--	204	36.8 J	10.7 U	--	--	--
Fluorene	NV	540	NV	64.7 U	38.6 J	13.1 U	13.6 U	--	136	61.8	10.7 U	--	--	--
Naphthalene	NV	2,100	NV	130 U	75.2 J	26.2 U	27.2 U	--	491	55.2 U	74.2	--	--	--
Phenanthrene	NV	1,500	NV	64.8 J	112	18.1 J	13.6 U	--	491 J	148	28.9	--	--	--
Total HPAH ^(f)	NV	12,000	NV	725 J	475 J	154 J	16.3 J	--	2,940 J	524 J	87.4 J	--	--	--
Benzo(a)anthracene	NV	1,300	NV	89 J	45.8 J	20.3 J	13.6 U	--	218	53.7 J	12.5 J	--	--	--
Benzo(a)pyrene	NV	1,600	NV	111 J	66.5 J	23.6 J	20.4 U	--	154	43.8 J	17.3 J	--	--	--
Benzo(ghi)perylene	NV	670	NV	64.7 U	30.6 U	13.1 U	13.6 U	--	68	27.5 U	10.7 U	--	--	--
Chrysene	NV	1,400	NV	64.7 U	42.4 J	20.3 J	13.6 U	--	199	60.4	10.7 U	--	--	--
Dibenzo(a,h)anthracene	NV	230	NV	64.7 U	30.6 U	13.1 U	13.6 U	--	30.5 U	27.5 U	10.7 U	--	--	--
Fluoranthene	NV	1,700	NV	204	109	36.3	13.6 U	--	1,150 J	198	28	--	--	--
Indeno(1,2,3-cd)pyrene	NV	600	NV	64.7 U	34 J	13.1 U	13.6 U	--	69.5	27.5 U	10.7 U	--	--	--
Pyrene	NV	2,600	NV	184	102	32.4	16.3 J	--	823 J	168	29.6	--	--	--
Benzo(b)fluoranthene	NV	NV	NV	137 J	75.4 J	20.8 J	20.4 U	--	180	41.3 U	16.1 U	--	--	--
Benzo(k)fluoranthene	NV	NV	NV	97.4 U	46 U	19.7 U	20.4 U	--	75.8 J	41.3 U	16.1 U	--	--	--
Total benzofluoranthenes ^(g)	NV	3,200	NV	137 J	75.4 J	20.8 J	20.4 U	--	256 J	41.3 U	16.1 U	--	--	--
cPAH TEQ ^{(h)(1)}	NV	NV	21	145 J	86.3 J	30.2 J	20.4 U	--	212 J	56.7 J	21.3 J	--	--	--

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location: Sample Name: Collection Date: Collection Depth (ft bml): Type: Percent Wood waste: TOC:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31	SE-32	SE-33	SE-34
	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33	SE-32	SE-33	SE-34
				09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019	07/22/2020	07/22/2020	07/22/2020
				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	0-0.33	0-0.33	0-0.33
				Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface	Surface	Surface	Surface
				80	80	10	10	75	80	20	35	Trace	10	5
				Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside
PAHs (ug/kg-OC)														
2-Methylnaphthalene	38,000	NV	NV	722 U	472 U	689 U	697 U	--	1,510	1,080 U	1,020 U	--	--	--
Total LPAH ^(e)	370,000	NV	NV	360 J	2,050 J	476 J	697 U	--	14,700 J	7,750 J	7,620	--	--	--
Acenaphthene	16,000	NV	NV	359 U	314 J	345 U	349 U	--	1,360	2,900	1,770	--	--	--
Acenaphthylene	66,000	NV	NV	359 U	235 U	345 U	349 U	--	308 U	539 U	933 J	--	--	--
Anthracene	220,000	NV	NV	359 U	235 U	345 U	349 U	--	2,060	722 J	510 U	--	--	--
Fluorene	23,000	NV	NV	359 U	297 J	345 U	349 U	--	1,370	1,210	510 U	--	--	--
Naphthalene	99,000	NV	NV	722 U	578 J	689 U	697 U	--	4,960	1,080 U	3,530	--	--	--
Phenanthrene	100,000	NV	NV	360 J	862	476 J	349 U	--	4,960 J	2,900	1,380	--	--	--
Total HPAH ^(f)	960,000	NV	NV	4,030 J	3,650 J	4,050 J	418 J	--	29,700 J	10,300 J	4,160 J	--	--	--
Benzo(a)anthracene	110,000	NV	NV	494 J	352 J	534 J	349 U	--	2,200	1,050 J	595 J	--	--	--
Benzo(a)pyrene	99,000	NV	NV	617 J	512 J	621 J	523 U	--	1,560	859 J	824 J	--	--	--
Benzo(ghi)perylene	31,000	NV	NV	359 U	235 U	345 U	349 U	--	687	539 U	510 U	--	--	--
Chrysene	110,000	NV	NV	359 U	326 J	534 J	349 U	--	2,010	1,180	510 U	--	--	--
Dibenzo(a,h)anthracene	12,000	NV	NV	359 U	235 U	345 U	349 U	--	308 U	539 U	510 U	--	--	--
Fluoranthene	160,000	NV	NV	1,130	838	955	349 U	--	11,600 J	3,880	1,330	--	--	--
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	359 U	262 J	345 U	349 U	--	702	539 U	510 U	--	--	--
Pyrene	1,000,000	NV	NV	1,020	785	853	418 J	--	8,310 J	3,290	1,410	--	--	--
Benzo(b)fluoranthene	NV	NV	NV	761 J	580 J	547 J	523 U	--	1,820	810 U	767 U	--	--	--
Benzo(k)fluoranthene	NV	NV	NV	541 U	354 U	518 U	523 U	--	766 J	810 U	767 U	--	--	--
Total benzofluoranthenes ^(g)	230,000	NV	NV	761 J	580 J	547 J	523 U	--	2,580 J	810 U	767	--	--	--
PCBs (ug/kg-dry)														
Aroclor 1016	NV	NV	NV	4.56 U	4.42 U	2.07 UJ	1.92 UJ	--	11.6 U	7.24 U	3.96 U	--	--	--
Aroclor 1221	NV	NV	NV	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	4.13 U	3.96 U	--	--	--
Aroclor 1232	NV	NV	NV	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	17.6 U	3.96 U	--	--	--
Aroclor 1242	NV	NV	NV	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	10.3 U	3.96 U	--	--	--
Aroclor 1248	NV	NV	NV	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	13.4 U	3.96 U	--	--	--
Aroclor 1254	NV	NV	NV	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	11.4 U	3.96 U	--	--	--
Aroclor 1260	NV	NV	NV	17.6	15.5	9.53	9.05	--	38.9	14.4	3.96 U	--	--	--
Total PCBs ⁽ⁱ⁾	110	110	3.5	17.6	15.5	9.53	9.05	--	38.9	14.4	3.96 U	--	--	--
Additional SVOCs (ug/kg-dry)														
Hexachlorocyclopentadiene	NV	NV	NV	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U	--	--	--

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31	SE-32	SE-33	SE-34
Sample Name:				SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33	SE-32	SE-33	SE-34
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface	Surface	Surface	Surface
Percent Wood waste:			80	80	10	10	75	80	20	35	Trace	10	5	
TOC:	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside		
Dioxins/Furans (pg/g-dry)														
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
OCDD	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
OCDF	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total HpCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total HpCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total HxCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total HxCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total PeCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total PeCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Dioxin/Furan TEQ ⁽¹⁾	NV	NV	5	--	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg-dry)														
Gasoline-Range Hydrocarbons	NV	NV	NV	10.1 U	9.64 U	11.5 U	13 U	--	9.53 U	7.95 U	7.73 U	--	--	--
Diesel-Range Hydrocarbons	340	340	NV	24.1 U	23.4 U	24.2 U	25.9 U	--	23.2 U	20.6 U	20.4 U	--	--	--
Motor-Oil-Range Hydrocarbons	3,600	3,600	NV	2,080	842	89.6 J	72.2 J	--	385	393	58.5 J	--	--	--

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41	
Sample Name:				SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	10	25	50	90	0	20		
TOC:			Inside	Inside	Inside	Inside	Outside	Inside	Inside		
Conventional Parameters											
Total Organic Carbon (%)	NV	NV	NV	1.1	1.1	1.9	1.7	3.9	1	1.8	
Total Solids (%)	NV	NV	NV	50	49	46.2	49.6	25.5	77.6	43.4	
Total Volatile Solids (%)	NV	NV	NV	6.68	6.88	15.2	10.1	50.1	2.51	10.2	
Ammonia as Nitrogen (mg/kg)	230	230	NV	7.45	4.1	14.2	3.49	1.16	0.783	8.41	
Sulfide (mg/kg)	39	39	NV	447 J	546 J	204 J	365 J	2,110 J	392 J	567 J	
Grain Size (%)											
Clay	NV	NV	NV	--	--	--	--	--	--	--	
Silt	NV	NV	NV	--	--	--	--	--	--	--	
Sand	NV	NV	NV	--	--	--	--	--	--	--	
Gravel	NV	NV	NV	--	--	--	--	--	--	--	
TCLP Metals (mg/L)											
Lead	NV	NV	NV	--	--	--	--	--	--	--	
Mercury	NV	NV	NV	--	--	--	--	--	--	--	
Metals (mg/kg-dry)											
Arsenic	14	14	11	--	--	--	--	--	--	--	
Cadmium	2.1	2.1	0.8	--	--	--	--	--	--	--	
Chromium	72	72	NV	--	--	--	--	--	--	--	
Copper	390	390	NV	--	--	--	--	--	--	--	
Lead	360	360	21	--	--	--	--	--	--	--	
Mercury	0.41	0.41	0.2	--	--	--	--	--	--	--	
Nickel	26	26	NV	--	--	--	--	--	--	--	
Selenium	11	11	NV	--	--	--	--	--	--	--	
Silver	0.57	0.57	NV	--	--	--	--	--	--	--	
Zinc	410	410	NV	--	--	--	--	--	--	--	
Organic Chemicals (ug/kg-dry)											
2,4-Dimethylphenol	29	29	NV	--	--	--	--	--	--	--	
2-Methylphenol	63	63	NV	--	--	--	--	--	--	--	
3- & 4-Methylphenol (m,p-Cresol)	260	260	NV	--	--	--	--	--	--	--	
Benzoic acid	650	650	NV	--	--	--	--	--	--	--	
Benzyl alcohol	57	57	NV	--	--	--	--	--	--	--	
Dibenzofuran	200	200	NV	--	--	--	--	--	--	--	
Phenol	120	120	NV	--	--	--	--	--	--	--	
N-Nitrosodiphenylamine	NV	28	NV	--	--	--	--	--	--	--	
Organic Chemicals (ug/kg-OC)											
N-Nitrosodiphenylamine	11,000	NV	NV	--	--	--	--	--	--	--	
Phthalates (ug/kg-dry)											
Bis(2-ethylhexyl)phthalate	500	500	NV	--	--	--	--	--	--	--	
Butylbenzylphthalate	NV	63	NV	--	--	--	--	--	--	--	
Diethyl phthalate	NV	200	NV	--	--	--	--	--	--	--	
Dimethyl phthalate	NV	71	NV	--	--	--	--	--	--	--	
Di-n-butyl phthalate	380	380	NV	--	--	--	--	--	--	--	
Di-n-octyl phthalate	39	39	NV	--	--	--	--	--	--	--	

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date:				07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:				Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:				Trace	10	25	50	90	0	20
TOC:				Inside	Inside	Inside	Inside	Outside	Inside	Inside
Phthalates (ug/kg-OC)										
Butylbenzylphthalate	4,900	NV	NV	--	--	--	--	--	--	--
Diethyl phthalate	61,000	NV	NV	--	--	--	--	--	--	--
Dimethyl phthalate	53,000	NV	NV	--	--	--	--	--	--	--
Chlorinated Organics (ug/kg-dry)										
1,2,4-Trichlorobenzene	NV	31	NV	--	--	--	--	--	--	--
1,2-Dichlorobenzene	NV	35	NV	--	--	--	--	--	--	--
1,4-Dichlorobenzene	NV	110	NV	--	--	--	--	--	--	--
Hexachlorobenzene	NV	22	NV	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	11	NV	--	--	--	--	--	--	--
Pentachlorophenol	360	360	NV	--	--	--	--	--	--	--
Chlorinated Organics (ug/kg-OC)										
1,2,4-Trichlorobenzene	810	NV	NV	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,300	NV	NV	--	--	--	--	--	--	--
1,4-Dichlorobenzene	3,100	NV	NV	--	--	--	--	--	--	--
Hexachlorobenzene	380	NV	NV	--	--	--	--	--	--	--
Hexachlorobutadiene	3,900	NV	NV	--	--	--	--	--	--	--
PAHs (ug/kg-dry)										
Total PAH ^(d)	17,000	17,000	NV	--	--	--	--	--	--	--
1-Methylnaphthalene	NV	NV	NV	--	--	--	--	--	--	--
2-Methylnaphthalene	NV	670	NV	--	--	--	--	--	--	--
Total LPAH ^(e)	NV	5,200	NV	--	--	--	--	--	--	--
Acenaphthene	NV	500	NV	--	--	--	--	--	--	--
Acenaphthylene	NV	1,300	NV	--	--	--	--	--	--	--
Anthracene	NV	960	NV	--	--	--	--	--	--	--
Fluorene	NV	540	NV	--	--	--	--	--	--	--
Naphthalene	NV	2,100	NV	--	--	--	--	--	--	--
Phenanthrene	NV	1,500	NV	--	--	--	--	--	--	--
Total HPAH ^(f)	NV	12,000	NV	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	1,300	NV	--	--	--	--	--	--	--
Benzo(a)pyrene	NV	1,600	NV	--	--	--	--	--	--	--
Benzo(ghi)perylene	NV	670	NV	--	--	--	--	--	--	--
Chrysene	NV	1,400	NV	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	230	NV	--	--	--	--	--	--	--
Fluoranthene	NV	1,700	NV	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	600	NV	--	--	--	--	--	--	--
Pyrene	NV	2,600	NV	--	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--
Total benzofluoranthenes ^(g)	NV	3,200	NV	--	--	--	--	--	--	--
cPAH TEQ ^{(h)(1)}	NV	NV	21	--	--	--	--	--	--	--

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date:					07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	10	25	50	90	0	20	
TOC:			Inside	Inside	Inside	Inside	Outside	Inside	Inside	
PAHs (ug/kg-OC)										
2-Methylnaphthalene	38,000	NV	NV	--	--	--	--	--	--	--
Total LPAH ^(e)	370,000	NV	NV	--	--	--	--	--	--	--
Acenaphthene	16,000	NV	NV	--	--	--	--	--	--	--
Acenaphthylene	66,000	NV	NV	--	--	--	--	--	--	--
Anthracene	220,000	NV	NV	--	--	--	--	--	--	--
Fluorene	23,000	NV	NV	--	--	--	--	--	--	--
Naphthalene	99,000	NV	NV	--	--	--	--	--	--	--
Phenanthrene	100,000	NV	NV	--	--	--	--	--	--	--
Total HPAH ^(f)	960,000	NV	NV	--	--	--	--	--	--	--
Benzo(a)anthracene	110,000	NV	NV	--	--	--	--	--	--	--
Benzo(a)pyrene	99,000	NV	NV	--	--	--	--	--	--	--
Benzo(ghi)perylene	31,000	NV	NV	--	--	--	--	--	--	--
Chrysene	110,000	NV	NV	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	12,000	NV	NV	--	--	--	--	--	--	--
Fluoranthene	160,000	NV	NV	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	--	--	--	--	--	--	--
Pyrene	1,000,000	NV	NV	--	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	NV	--	--	--	--	--	--	--
Total benzofluoranthenes ^(g)	230,000	NV	NV	--	--	--	--	--	--	--
PCBs (ug/kg-dry)										
Aroclor 1016	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1221	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1232	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1242	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1248	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1254	NV	NV	NV	--	--	--	--	--	--	--
Aroclor 1260	NV	NV	NV	--	--	--	--	--	--	--
Total PCBs ⁽ⁱ⁾	110	110	3.5	--	--	--	--	--	--	--
Additional SVOCs (ug/kg-dry)										
Hexachlorocyclopentadiene	NV	NV	NV	--	--	--	--	--	--	--

Table 6-2
2019-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date:					07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	10	25	50	90	0	20	
TOC:			Inside	Inside	Inside	Inside	Outside	Inside	Inside	
Dioxins/Furans (pg/g-dry)										
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NV	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	--	--	--	--	--	--	--
2,3,7,8-TCDD	NV	NV	NV	--	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	NV	--	--	--	--	--	--	--
OCDD	NV	NV	NV	--	--	--	--	--	--	--
OCDF	NV	NV	NV	--	--	--	--	--	--	--
Total HpCDDs	NV	NV	NV	--	--	--	--	--	--	--
Total HpCDFs	NV	NV	NV	--	--	--	--	--	--	--
Total HxCDDs	NV	NV	NV	--	--	--	--	--	--	--
Total HxCDFs	NV	NV	NV	--	--	--	--	--	--	--
Total PeCDDs	NV	NV	NV	--	--	--	--	--	--	--
Total PeCDFs	NV	NV	NV	--	--	--	--	--	--	--
Total TCDDs	NV	NV	NV	--	--	--	--	--	--	--
Total TCDFs	NV	NV	NV	--	--	--	--	--	--	--
Dioxin/Furan TEQ ⁽¹⁾	NV	NV	5	--	--	--	--	--	--	--
TPH (mg/kg-dry)										
Gasoline-Range Hydrocarbons	NV	NV	NV	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	340	340	NV	--	--	--	--	--	--	--
Motor-Oil-Range Hydrocarbons	3,600	3,600	NV	--	--	--	--	--	--	--

Notes	
Shading (color key below) indicates values that exceed screening criteria. All results are screened against SSLs for protection of human health and higher trophic level ecological receptors. Results are screened against SCOs for protection of benthic organisms based on individual sample TOC results.	
TOC results outside 0.5-3.5%	
Detected result exceeding SCO for Protection of Benthic Organisms, Inside or Outside Organic Carbon 0.5-3.5%	
Detected result exceeding SSL for Protection of Human Health and Higher Trophic Level Ecological Receptors	
Bold is applied to detected results, with the exception of conventional parameters and grain size.	
% = percent.	PAH = polycyclic aromatic hydrocarbon.
-- = not analyzed.	PCB = polychlorinated biphenyl.
AET = apparent effects threshold.	PeCDD = pentachlorodibenzo-p-dioxin.
cPAH = carcinogenic PAH.	PeCDF = pentachlorodibenzofuran.
CSL = cleanup screening level.	pg/g-dry = picograms per gram, dry weight.
ft bml = feet below mudline.	PQL = practical quantitation limit.
HPAH = high-molecular-weight PAH.	RI = remedial investigation.
HpCDD = heptachlorodibenzo-p-dioxin.	SCO = sediment cleanup objective.
HxCDD = hexachlorodibenzo-p-dioxin.	SVOCs = semivolatile organic compounds.
HxCDF = hexachlorodibenzofuran.	TCDD = tetrachlorodibenzo-p-dioxin.
J = result is an estimated value.	TCDF = tetrachlorodibenzofuran.
K = result is an estimated maximum potential concentration.	TCLP = toxicity characteristic leaching procedure.
LPAH = low-molecular-weight PAH.	TEQ = toxic equivalent quotient.
mg/kg = milligrams per kilogram.	TOC = total organic carbon.
mg/kg-dry = milligrams per kilogram, dry weight.	TPH = total petroleum hydrocarbons.
mg/L = milligrams per liter.	U = result is non-detect at detection limit or estimated detection limit.
NV = no value.	ug/kg-dry = micrograms per kilogram, dry weight.
OCDD = octachlorodibenzodioxin.	ug/kg-OC = micrograms per kilogram, organic carbon normalized.
OCDF = octachlorodibenzofuran.	
^(a) Screening level is equivalent to organic carbon-normalized marine criteria. Where organic carbon-normalized criteria are not available, screening level is the lowest marine or freshwater SCO or CSL.	
^(b) Screening level is the lowest of the following criteria: marine AET, marine sediment, or freshwater sediment SCO or CSL.	
^(c) Human health and higher trophic level ecological receptor screening levels are chosen from lowest of bioaccumulative and direct contact pathways. If the risk-based value is lower than natural background or PQL, the cleanup level defaults to the higher of natural background or PQL.	
^(d) 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.	
^(e) 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.	
^(f) 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.	
^(g) Total benzofluoranthenes is the sum of detected benzo(b)fluoranthene and benzo(k)fluoranthene. Non-detect results are not included in the sum. When both analytical results are non-detect, the highest detection limit is used.	
^(h) cPAH TEQ is calculated with 2005 California EPA toxicity equivalence factors provided in table 6-1 of SCUM (Ecology, 2021). Non-detect results are included at one-half the detection limit. When all cPAHs are non-detect, the highest reported detection limit is shown.	
⁽ⁱ⁾ Total PCBs is the sum of all detected recolors. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.	
^(j) Dioxin/furan TEQ is calculated with 2005 World Health Organization toxic equivalence factors provided in table 6-2 of SCUM (Ecology, 2021). Non-detect results are included at one-half the detection limit.	
Reference	
⁽¹⁾ Ecology. 2021. Sediment cleanup user's manual (SCUM), guidance for implementing cleanup provisions of the sediment management standards, Chapter 173-204 WAC. Publication no. 12-09-057. Washington State Department of Ecology. Revised December 2021.	

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Lumber Shed		Former Boiler				Beach Area		Shannon Slough	Chehalis River (2013)				
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)	Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	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	CR01-10cm	CR02-10cm	CR03-10cm		
Collection Depth (ft bml):				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	11/08/2013	11/08/2013	11/08/2013		
Percent Wood waste:				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	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
TOC:				Trace	0	80	0	20	0	40	15	15	0	0	0		
	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside		
Conventionals																	
Total Organic Carbon (%)	NV	NV	NV	1.09	1.56	1.92	1.29	2.05	3.08	4.39	2.99	2.94	2.06 J	3.21 J	2.91 J		
Ammonia (as N) (mg N/kg)	230	230	NV	--	--	--	--	--	--	--	--	--	--	--	--		
Sulfide (mg/kg)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--		
Total Volatile Solids (%)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--		
Fixed Solids (%)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--		
Total Solids (%)	NV	NV	NV	67.22	54.35	47.46	63.97	44.38	55.76	55.6	59.33	45.44	44.09	51.8	36.4		
TCLP Metals (mg/L)																	
Lead	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--		
Mercury	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--		
Total Metals (mg/kg-dry)																	
Arsenic	14	14	11	20 U	20 U	30	20	20	20	9 U	9 U	30	10 U	9 U	10 U		
Cadmium	2.1	2.1	0.8	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	0.5	0.4	0.5 U		
Chromium	72	72	NV	43	49	52	39	42	40	31	39.9	42	40 J	38.5 J	48 J		
Copper	390	390	NV	--	81.5	134	57.8	61.1	55.3	40.8	49.2	54.8	58 J	56.3 J	65.4 J		
Lead	360	360	21	11	21	30	8	14	10	8	10	11	7	9	8		
Mercury	0.41	0.41	0.2	0.04	0.16	0.06	0.03 U	0.06	0.07	0.04	0.06	0.07	0.05	0.1	0.09		
Silver	0.57	0.57	NV	--	1 U	0.6 U	1 U	0.7 U	1 U	0.5 U	0.5 U	0.6 U	0.7 U	0.6 U	0.8 U		
Zinc	410	410	NV	--	107	134	71	90	75	68	80	83	87	79	91		
Organic Chemicals (ug/kg-dry)																	
2,4-Dimethylphenol	29	29	NV	97 U	24 U	24 U	25 U	24 U	17 J	24 U	24 U	25 U	24 U	24 U	24 U		
2-Methylphenol	63	63	NV	19 U	8.4	4.8 U	5 U	4.8 U	4.9 U	4 J	7.3	7.7	4.8 U	4.9 U	3.3 J		
Benzoic acid	650	650	NV	170 J	680	180 J	110 J	330 J	290 J	230	380	210 J	190 U	240	180 J		
Benzyl alcohol	57	57	NV	19 U	19 U	27	17 J	19 U	50	19 U	58	22	15 J	43 J	43 J		
Phenol	120	120	NV	18 J	100	35	22	71	53	130	200	51	24	94	43		
Dibenzofuran	200	200	NV	45	47	25	14 J	53	65	19 U	19 U	28	12 J	20	19 U		
N-Nitrosodiphenylamine	NV	28	NV	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	5 U	4.8 U	4.9 U	4.8 U		
Organic Chemicals (ug/kg-OC)																	
N-Nitrosodiphenylamine	11,000	NV	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	170 U	233 U	153 U	165 U		
Phthalates (ug/kg-dry)																	
Bis(2-ethylhexyl)phthalate	500	500	NV	58	66	48 U	50 U	48 U	49 U	43 J	39 J	50 U	29 J	49 U	48 U		
Butylbenzylphthalate	NV	63	NV	19 U	4.8 U	4.8 U	5 U	320	4.9 U	5.1	4.8 U	5 U	4.8 U	4.9 U	4.8 U		
Diethylphthalate	NV	200	NV	19 U	19 U	19	20 U	36 U	25	19 U	19 U	20 U	56	20	36		
Dimethyl phthalate	NV	71	NV	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	5 U	4.8 U	3.1 J	2.5 J		
Di-n-butyl phthalate	380	380	NV	19 U	130	19 U	20 U	19 U	20 U	19 U	19 U	20 U	19 U	20 U	19 U		
Di-n-octyl phthalate	39	39	NV	19 U	19 U	710	20 U	19 U	20 U	19 U	19 U	20 U	19 U	20 U	19 U		
Phthalates (ug/kg-OC)																	
Butylbenzylphthalate	4,900	NV	NV	1,740 U	308 U	250 U	388 U	15,600	159 U	116	161 U	170 U	233 U	153 U	165 U		
Diethylphthalate	61,000	NV	NV	1,740 U	1,220 U	990	1,550 U	1,760 U	812	433 U	635 U	680 U	2,720	623	1,240		
Dimethyl phthalate	53,000	NV	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	170 U	233 U	96.6 J	85.9 J		
Chlorinated Organics (ug/kg-dry)																	
1,2,4-Trichlorobenzene	NV	31	NV	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	3 J	4.8 U	4.9 U	4.8 U		
1,2-Dichlorobenzene	NV	35	NV	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	4.8 U	4.9 U	4.8 U		
1,4-Dichlorobenzene	NV	110	NV	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	4.8 U	19 J	4.8 U		
Hexachlorobenzene	NV	22	NV	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	4.8 U	4.9 U	4.8 U		

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2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Lumber Shed		Former Boiler				Beach Area		Shannon Slough	Chehalis River (2013)				
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)	Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	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	CR01-10cm	CR02-10cm	CR03-10cm		
Collection Depth (ft bml):				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	11/08/2013	11/08/2013	11/08/2013		
Percent Wood waste:				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	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
TOC:				Trace	0	80	0	20	0	40	15	15	0	0	0		
Investigation Area:	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Inside		
Hexachlorobutadiene	NV	11	NV	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	4.8 U	4.9 U	4.8 U		
Pentachlorophenol	360	360	NV	97 U	86 J	14 J	20 U	11 J	20 U	19 UJ	19 UJ	23	19 U	20 U	19 U		
Chlorinated Organics (ug/kg-OC)																	
1,2,4-Trichlorobenzene	810	NV	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	102 J	233 U	153 U	165 U		
1,2-Dichlorobenzene	2,300	NV	NV	1,740 U	308 U	250 U	388 U	234 U	58.4 J	107 U	161 U	112 J	233 U	153 U	165 U		
1,4-Dichlorobenzene	3,100	NV	NV	1,740 U	308 U	125 J	388 U	234 U	159 U	95.7 J	161 U	126 J	233 U	592 J	165 U		
Hexachlorobenzene	380	NV	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	112 J	233 U	153 U	165 U		
Hexachlorobutadiene	3,900	NV	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	95.2 J	233 U	153 U	165 U		
PAHs (ug/kg-dry)																	
Total PAHs ^(f)	17,000	17,000	NV	2,030 J	1,840 J	810 J	442 J	1,800	2,800	142 J	284 J	1,120 J	477 J	705 J	101 J		
Total LPAHs ^(g)	NV	5,200	NV	434 J	418	259 J	344 J	615	1,740	71	77 J	448	114	488	42		
1-Methylnaphthalene	NV	NV	NV	18 J	16 J	16 J	13 J	29	50	9.5 J	19 U	15 J	--	--	--		
2-Methylnaphthalene	NV	670	NV	40	19 U	23	20 U	19 U	79	19 U	19 U	26	19 U	28	19 U		
Acenaphthene	NV	500	NV	35	25	16 J	18 J	51	75	19 U	19 U	24	14 J	20	19 U		
Acenaphthylene	NV	1,300	NV	16 J	19	14 J	56	51	300	19 U	19 U	59	19 U	68	19 U		
Anthracene	NV	960	NV	57	65	27	15 J	71	72	19 U	11 J	26	14 J	16 J	19 U		
Fluorene	NV	540	NV	48	29	19 U	15 J	52	66	19 U	14 J	29	14 J	15 J	19 U		
Naphthalene	NV	2,100	NV	88	120	110	180	170	800	45	19 U	200	25	280	23		
Phenanthrene	NV	1,500	NV	190	160	92	60	220	430	26	52	110	47	89	19		
Total HPAHs ^(h)	NV	12,000	NV	1,540 J	1,400	512	85	1,150	923	61 J	207 J	631 J	363	189	59		
Benzo(a)anthracene	NV	1,300	NV	130	120	43	20 U	94	46	19 U	14 J	46	28	11 J	19 U		
Benzo(a)pyrene	NV	1,600	NV	67	84	37	20 U	67	44	19 U	12 J	32	21	20 U	19 U		
Benzo(ghi)perylene	NV	670	NV	57	56	28	20 U	54	44	19 U	14 J	29	14 J	15 J	19 U		
Chrysene	NV	1,400	NV	180	160	74	20 U	130	73	10 J	24	56	35	17 J	19 U		
Dibenzo(a,h)anthracene	NV	230	NV	18 J	19	9.5	5 U	12	6.4	4.7 U	3.9 J	8.5	3 J	4.9 U	4.8 U		
Fluoranthene	NV	1,700	NV	450	380	110	44	280	290	22	52	180	100	63	25		
Indeno(1,2,3-cd)pyrene	NV	600	NV	43	54	26	20 U	46	28	19 U	13 J	19 J	19 U	20 U	19 U		
Pyrene	NV	2,600	NV	360	300	84	41	250	300	17 J	40	150	110	61	21		
Total Benzofluoranthenes ⁽ⁱ⁾	NV	3,200	NV	230	230	100	40 U	220	92	12 J	34 J	110	52	22 J	13 J		
cPAH TEQ ^{(j)(1)}	NV	NV	21	111 J	128	55.6	40 U	106	62	12.9 J	18.7 J	50.9 J	30.6 J	14.7 J	13 J		
PAHs (ug/kg-OC)																	
Total LPAHs ^(g)	370,000	NV	NV	39,800 J	26,800	13,500 J	26,700 J	30,000	56,500	1,620	2,580 J	15,200	5,530	15,200	1,440		
2-Methylnaphthalene	38,000	NV	NV	3,670	1,220 U	1,200	1,550 U	927 U	2,560	433 U	635 U	884	922 U	872	653 U		
Acenaphthene	16,000	NV	NV	3,210	1,600	833 J	1,400 J	2,490	2,440	433 U	635 U	816	680 J	623	653 U		
Acenaphthylene	66,000	NV	NV	1,470 J	1,220	729 J	4,340	2,490	9,740	433 U	635 U	2,010	922 U	2,120	653 U		
Anthracene	220,000	NV	NV	5,230	4,170	1,410	1,160 J	3,460	2,340	433 U	368 J	884	680 J	498 J	653 U		
Fluorene	23,000	NV	NV	4,400	1,860	990 U	1,160 J	2,540	2,140	433 U	468 J	986	680 J	467 J	653 U		
Naphthalene	99,000	NV	NV	8,070	7,690	5,730	14,000	8,290	26,000	1,030	635 U	6,800	1,210	8,720	790		
Phenanthrene	100,000	NV	NV	17,400	10,300	4,790	4,650	10,700	14,000	592	1,740	3,740	2,280	2,770	653		
Total HPAHs ^(h)	960,000	NV	NV	141,000 J	89,700	26,700	6,590	56,100	30,000	1,390 J	6,920 J	21,500 J	17,600	5,890	2,030		
Benzo(a)anthracene	110,000	NV	NV	11,900	7,690	2,240	1,550 U	4,590	1,490	433 U	468 J	1,560	1,360	343 J	653 U		
Benzo(a)pyrene	99,000	NV	NV	6,150	5,380	1,930	1,550 U	3,270	1,430	433 U	401 J	1,090	1,020	623 U	653 U		
Benzo(ghi)perylene	31,000	NV	NV	5,230	3,590	1,460	1,550 U	2,630	1,430	433 U	468 J	986	680 J	467 J	653 U		
Chrysene	110,000	NV	NV	16,500	10,300	3,850	1,550 U	6,340	2,370	228 J	803	1,900	1,700	530 J	653 U		

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Lumber Shed		Former Boiler				Beach Area		Shannon Slough	Chehalis River (2013)		
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02
Collection Date:				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	CR01-10cm	CR02-10cm	CR03-10cm
Collection Depth (ft bml):				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	11/08/2013	11/08/2013	11/08/2013
Percent Wood waste:				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	0-0.33	0-0.33	0-0.33
TOC:				Trace	0	80	0	20	0	40	15	15	0	0	0
				Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside
Dibenzo(a,h)anthracene	12,000	NV	NV	1,650 J	1,220	495	388 U	585	208	107 U	130 J	289	146 J	153 U	165 U
Fluoranthene	160,000	NV	NV	41,300	24,400	5,730	3,410	13,700	9,420	501	1,740	6,120	4,850	1,960	859
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	3,940	3,460	1,350	1,550 U	2,240	909	433 U	435 J	646 J	922 U	623 U	653 U
Pyrene	1,000,000	NV	NV	33,000	19,200	4,380	3,180	12,200	9,740	387 J	1,340	5,100	5,340	1,900	722
Total Benzofluoranthenes ⁽ⁱ⁾	230,000	NV	NV	21,100	14,700	5,210	3,100 U	10,700	2,990	273 J	1,140 J	3,740	2,520	685 J	447 J
Pesticides and PCBs (ug/kg-dry)															
Aroclor 1016	NV	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1221	NV	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1232	NV	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	23 U	38 U	46 U
Aroclor 1242	NV	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1248	NV	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1254	NV	NV	NV	19 U	30	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	12 J	19 U
Aroclor 1260	NV	NV	NV	19 U	24	19 U	18 U	14 J	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1268	NV	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	--	--	--
Total PCBs ^(k)	110	110	3.5	19 U	54	19 U	18 U	14 J	18 U	18 U	19 U	19 U	23 U	12 J	46 U
Carbazole	900	900	NV	24 J	--	--	--	--	--	--	--	--	--	--	--
Additional SVOCs (ug/kg-dry)															
1,3-Dichlorobenzene	NV	NV	NV	19 U	--	--	--	--	--	--	--	--	4.8 U	4.9 U	4.8 U
4-Methylphenol	NV	NV	NV	26	120	28 J	190 J	210	560 J	26	19 U	160 J	30	730	60
Hexachlorocyclopentadiene	NV	NV	NV	97 U	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g-dw)															
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	--	--	583	14.5	955	12.5	95.4	107	--	211	201	66.1
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	--	--	33.1	1.26	75.8	0.295 U	14.6	23.9	--	31.9	113	24.7
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	--	--	2.1 U	0.25 U	3.72	0.0959 J	0.908 J	1.15	--	1.59	4.94	0.894 J
1,2,3,4,7,8-HxCDD	NV	NV	NV	--	--	2.33	0.583 U	2.96	0.589 J	1.32	1.57	--	1.76	1.96	1.42
1,2,3,4,7,8-HxCDF	NV	NV	NV	--	--	1.42	0.217 J	4.39	0.111 J	0.991 U	1.16 U	--	2.77	4.6	1.02
1,2,3,6,7,8-HxCDD	NV	NV	NV	--	--	10.7	1.3	22.3	1.71	5.25	6.27	--	9.98	10.4	4.81
1,2,3,6,7,8-HxCDF	NV	NV	NV	--	--	0.798 J	0.178 J	2.13	0.14 J	0.626 J	0.924 J	--	1.19	3.22	0.862 J
1,2,3,7,8,9-HxCDD	NV	NV	NV	--	--	8.01	5.31	13.9	7.04	5.49	7.96	--	11.1	12.4	12.9
1,2,3,7,8,9-HxCDF	NV	NV	NV	--	--	0.0933 U	0.258 U	1.62	0.146 U	0.395 J	0.42 J	--	0.778 U	0.886 J	0.268 J
1,2,3,7,8-PeCDD	NV	NV	NV	--	--	2.87	1.76	4.81	2.68	1.99	3.16	--	3.93	4.53	5.08
1,2,3,7,8-PeCDF	NV	NV	NV	--	--	0.483 U	0.141 J	0.978 J	0.288 U	0.383 U	0.394 J	--	0.683 J	0.804 J	0.508 J
2,3,4,6,7,8-HxCDF	NV	NV	NV	--	--	1.46	0.188 J	3.84	0.105 J	0.991	1.36	--	1.8	5.58	0.785 J
2,3,4,7,8-PeCDF	NV	NV	NV	--	--	0.506 J	0.0704 J	1.06	0.201 J	0.379 U	0.528 U	--	0.814 J	1.13	0.594 J
2,3,7,8-TCDD	NV	NV	NV	--	--	1.71	1.55	2.79	2.06	1.18	2.06 U	--	2.62	2.89	3.56
2,3,7,8-TCDF	NV	NV	NV	--	--	1.06	0.088 J	2.48	0.529 J	0.831 J	1.63	--	1.96	2.18	1.34
OCDD	NV	NV	NV	--	--	13,700 J	130	22,200 J	45.4 U	700	788	--	1,690	1,550	489
OCDF	NV	NV	NV	--	--	73.9	6.41	128	0.802 U	23.8	33.8	--	51	211	36.4
Total HpCDDs	NV	NV	NV	--	--	1,650	32.3	4120	26.3	225	273	--	485	433	167
Total HpCDFs	NV	NV	NV	--	--	126 U	3.43 U	243 U	0.643 U	37.3	58.9 U	--	87.1 U	310	55.9
Total HxCDDs	NV	NV	NV	--	--	147 U	33.2 U	321	45.4 U	48.3 U	72.3 U	--	97	114	80.8 U
Total HxCDFs	NV	NV	NV	--	--	44 U	1.27 U	119 U	0.888 U	22.2 U	30.8 U	--	52.5 U	125	24.4 U
Total PeCDDs	NV	NV	NV	--	--	25.9 U	12.7 U	38.2	21.9 U	12.4 U	21 U	--	25.8	34.9	30.6
Total PeCDFs	NV	NV	NV	--	--	12.8 U	0.428 U	35.9 U	2.08 U	10.6 U	16.5 U	--	18 U	47.6 U	13.2 U

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Lumber Shed		Former Boiler				Beach Area		Shannon Slough	Chehalis River (2013)		
Location:	Organic Carbon (0.5% to 3.5%) ^(a)	Organic Carbon (<0.5% or >3.5%) ^(b)		CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
Sample Name:			Collection Date:	Collection Depth (ft bml):	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	CR01-10cm	CR02-10cm
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	11/08/2013	11/08/2013	11/08/2013	
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	0-0.33	0-0.33	0-0.33	0-0.33
Percent Wood waste:	Trace	0			80	0	20	0	40	15	15	0	0	0	
TOC:	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside	Inside	Inside	
Total TCDDs	NV	NV	NV	--	--	23.9 U	12 U	25 U	21.4 U	8.55 U	15.4 U	--	17.4 U	28.1 U	24.7 U
Total TCDFs	NV	NV	NV	--	--	10.9 U	0.656 U	21.7 U	10.7 U	6.42 U	12.5 U	--	12.4 U	33 U	16.7 U
Dioxin/Furan TEQ ^{(f)(1)}	NV	NV	5	--	--	17.6 J	4.31 J	30.4 J	5.97 J	6.10 J	7.92 J	--	12.9 J	15.6 J	12.2 J
TPH (mg/kg-dry)															
Gasoline-Range Hydrocarbons	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	340	340	NV	180	370	--	26	130	170	--	--	--	--	--	--
Motor-Oil Range Hydrocarbons	3,600	3,600	NV	520	850	--	74	320	280	--	--	--	--	--	--
Grain Size (%)															
Gravel	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Very coarse sand	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Coarse sand	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Medium sand	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Fine sand	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Very fine sand	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Coarse silt	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Medium silt	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Fine silt	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Very fine silt	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Coarse clay	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Medium clay	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Fine clay	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Total fines	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Asbestos (%)															
Asbestos	NV	NV	NV	--	--	<1	<1	<1	<1	--	--	--	--	--	--
Pore Water Analysis															
Conductivity (uS/cm)	NV	NV	NV	--	--	--	--	--	--	--	--	--	18,700	12,200	17,500
Salinity (ppt)	NV	NV	NV	--	--	--	--	--	--	--	--	--	11	6.9	10.2

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River											
	Sample Name: Collection Date: Collection Depth (ft bml): Percent Wood waste: TOC:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14
CR04-10cm			CR04-2.5		CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	
				11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
				0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23
				60	60	60	45	45	70	70	0	0	0	0	0
				Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	-- ^(e)
Conventionals															
Total Organic Carbon (%)	NV	NV	NV	31.4 J	--	16.5 J	13.6 J	--	35.6 J	49.5 J	0.415	3.33	2.5	3.22	--
Ammonia (as N) (mg N/kg)	230	230	NV	0.47 U	--	15.2	7.21	--	1.37	14.0	--	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	6.46	--	179	320	--	906	2,910	--	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	59.91	--	38.2	36.49	--	60.05	69.23	--	--	--	--	--
Fixed Solids (%)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Total Solids (%)	NV	NV	NV	20.62	--	19.98	30.32	--	21.4	21.59	72.59	56.65	57.95	57.04	--
TCLP Metals (mg/L)															
Lead	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	0.1 U
Mercury	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	0.0001 U
Total Metals (mg/kg-dry)															
Arsenic	14	14	11	--	--	--	--	--	--	20 U	20 U	20 U	9 U	20 U	--
Cadmium	2.1	2.1	0.8	--	--	--	--	--	--	1 U	0.6 U	0.8 U	0.4	0.8 U	--
Chromium	72	72	NV	--	--	--	--	--	--	26 J	37	48	41.3	49	--
Copper	390	390	NV	--	--	--	--	--	--	96 J	47	62.2	55.1	63	--
Lead	360	360	21	--	--	--	--	--	--	110	6 U	11	9	12	--
Mercury	0.41	0.41	0.2	6.2	0.5 J	--	0.16	0.5 J	0.55	0.53	0.03 U	0.09	0.07	0.09	--
Silver	0.57	0.57	NV	--	--	--	--	--	--	1 U	1 U	1 U	0.5 U	1 U	--
Zinc	410	410	NV	--	--	--	--	--	--	237	78	86	76	90	--
Organic Chemicals (ug/kg-dry)															
2,4-Dimethylphenol	29	29	NV	530 UJ	400 UJ	--	290 UJ	440 UJ	--	350 U	23 U	24 U	24 U	24 U	--
2-Methylphenol	63	63	NV	100 UJ	81 UJ	--	44 J	88 UJ	--	45 J	4.7 U	4.9 U	7.2	4.9 U	--
Benzoic acid	650	650	NV	1,700 J	3,200 UJ	--	950 J	3,500 UJ	--	860 J	190 U	440	260	200	--
Benzyl alcohol	57	57	NV	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U	19 U	23	46	20	--
Phenol	120	120	NV	290 J	390 J	980 J	570 J	530 J	370 J	240 J	8.4 J	64	44	50	--
Dibenzofuran	200	200	NV	420 UJ	210 J	--	310 J	230 J	--	490	19 U	40	20 U	20	--
N-Nitrosodiphenylamine	NV	28	NV	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 UJ	4.9 U	4.9 U	--
Organic Chemicals (ug/kg-OC)															
N-Nitrosodiphenylamine	11,000	NV	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 UJ	196 U	152 U	--
Phthalates (ug/kg-dry)															
Bis(2-ethylhexyl)phthalate	500	500	NV	1,000 UJ	870 J	--	960 J	9,400 J	--	1,900	47 U	49 U	49 U	49 U	--
Butylbenzylphthalate	NV	63	NV	58 UJ	81 UJ	--	58 UJ	88 UJ	310 UJ	70 U	4.7 U	4.9 U	7.3	4.7 J	--
Diethylphthalate	NV	200	NV	420 UJ	320 UJ	--	230 UJ	350 UJ	--	270 J	19 U	20 U	20 U	20 U	--
Dimethyl phthalate	NV	71	NV	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
Di-n-butyl phthalate	380	380	NV	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U	19 U	20 U	20 U	20 U	--
Di-n-octyl phthalate	39	39	NV	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U	19 U	20 U	20 U	20 U	--
Phthalates (ug/kg-OC)															
Butylbenzylphthalate	4,900	NV	NV	185 UJ	--	--	426 UJ	--	871 UJ	141 U	1,130 U	147 U	292	146 J	--
Diethylphthalate	61,000	NV	NV	1,340 UJ	--	--	1,690 UJ	--	--	545 J	4,580 U	601 U	800 U	621 U	--
Dimethyl phthalate	53,000	NV	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--
Chlorinated Organics (ug/kg-dry)															
1,2,4-Trichlorobenzene	NV	31	NV	100 UJ	81 UJ	--	43 J	74 J	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
1,2-Dichlorobenzene	NV	35	NV	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
1,4-Dichlorobenzene	NV	110	NV	100 UJ	81 UJ	--	1,000 J	540 J	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
Hexachlorobenzene	NV	22	NV	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River												
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Collection Date:			Collection Depth (ft bml):		Percent Wood waste:	TOC:	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11
				11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
				0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23	
				60	60	60	45	45	70	70	0	0	0	0	0	
				Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	Inside	-- ^(e)
Hexachlorobutadiene	NV	11	NV	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--	
Pentachlorophenol	360	360	NV	270 J	400 J	--	230 UJ	350 UJ	1,500 UJ	240 J	19 UJ	20 UJ	20 UJ	20 UJ	--	
Chlorinated Organics (ug/kg-OC)																
1,2,4-Trichlorobenzene	810	NV	NV	318 UJ	--	--	316 J	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
1,2-Dichlorobenzene	2,300	NV	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
1,4-Dichlorobenzene	3,100	NV	NV	318 UJ	--	--	7,350 J	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
Hexachlorobenzene	380	NV	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
Hexachlorobutadiene	3,900	NV	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
PAHs (ug/kg-dry)																
Total PAHs ^(f)	17,000	17,000	NV	4,010 J	10,800 J	--	7,560 J	12,000 J	--	22,700	105 J	1,380 J	1,030 J	763 J	--	
Total LPAHs ^(g)	NV	5,200	NV	740 J	1,360 J	--	2,290 J	1,850 J	--	7,810	19	819	654	432 J	--	
1-Methylnaphthalene	NV	NV	NV	--	--	--	--	--	--	19 U	24	22	16 J	--		
2-Methylnaphthalene	NV	670	NV	420 UJ	320 UJ	--	310	350 UJ	--	780	19 U	41	20 U	21	--	
Acenaphthene	NV	500	NV	420 UJ	180 J	--	210	390 J	--	490	19 U	41	31	20	--	
Acenaphthylene	NV	1,300	NV	420 UJ	320 UJ	--	170	350 UJ	--	520	19 U	110	110	61	--	
Anthracene	NV	960	NV	420 UJ	290 J	--	230	320 J	--	750	19 U	41	28	18 J	--	
Fluorene	NV	540	NV	420 UJ	180 J	--	260 J	230 J	--	650	19 U	47	35	23	--	
Naphthalene	NV	2,100	NV	420 J	340 J	--	720 J	440 J	--	1,800	19 U	370	300	190	--	
Phenanthrene	NV	1,500	NV	320 J	370 J	--	700 J	470 J	--	3,600	19	210	150	120	--	
Total HPAHs ^(h)	NV	12,000	NV	3,270 J	9,460 J	--	4,960 J	10,200 J	--	14,100	86 J	494 J	351 J	294 J	--	
Benzo(a)anthracene	NV	1,300	NV	250 J	640 J	--	390	680 J	--	1,300	11 J	30	20	17 J	--	
Benzo(a)pyrene	NV	1,600	NV	300 J	680 J	--	340 J	530 J	--	1,200	19 U	20 U	20 U	20 U	--	
Benzo(ghi)perylene	NV	670	NV	230 J	660 J	--	260 J	300 J	--	590	19 U	30	30	20	--	
Chrysene	NV	1,400	NV	530 J	940 J	--	420 J	460 J	--	1,600	12 J	43	29	25	--	
Dibenzo(a,h)anthracene	NV	230	NV	120 J	360 J	--	94 J	190 J	--	150	4.7 U	6.3	4.3 J	3.2 J	--	
Fluoranthene	NV	1,700	NV	590 J	2,200 J	--	1,300 J	3,900 J	--	3,200	24	150	100	88	--	
Indeno(1,2,3-cd)pyrene	NV	600	NV	420 UJ	480 J	--	200 J	190 J	--	490	19 U	24	18 J	15 J	--	
Pyrene	NV	2,600	NV	700 J	1,800 J	--	1,300 J	3,100 J	--	3,600	23	150	110	87	--	
Total Benzofluoranthenes ⁽ⁱ⁾	NV	3,200	NV	550 J	1,700 J	--	660	810 J	--	2,000	16 J	61	40	39	--	
cPAH TEQ ^{(j)(1)}	NV	NV	21	418 J	1,010 J	--	479 J	722 J	--	1,610	13.5 J	22.6	18.5 J	17.7 J	--	
PAHs (ug/kg-OC)																
Total LPAHs ^(g)	370,000	NV	NV	2,360 J	--	--	16,800 J	--	--	15,800	4,580	24,600	26,200	13,400 J	--	
2-Methylnaphthalene	38,000	NV	NV	1,340 UJ	--	--	2,280	--	--	1,580	4,580 U	1,230	800 U	652	--	
Acenaphthene	16,000	NV	NV	1,340 UJ	--	--	1,540	--	--	990	4,580 U	1,230	1,240	621	--	
Acenaphthylene	66,000	NV	NV	1,340 UJ	--	--	1,250	--	--	1,050	4,580 U	3,300	4,400	1,890	--	
Anthracene	220,000	NV	NV	1,340 UJ	--	--	1,690	--	--	1,520	4,580 U	1,230	1,120	559 J	--	
Fluorene	23,000	NV	NV	1,340 UJ	--	--	1,910 J	--	--	1,310	4,580 U	1,410	1,400	714	--	
Naphthalene	99,000	NV	NV	1,340 J	--	--	5,290 J	--	--	3,640	4,580 U	11,100	12,000	5,900	--	
Phenanthrene	100,000	NV	NV	1,020 J	--	--	5,150 J	--	--	7,270	4,580	6,310	6,000	3,730	--	
Total HPAHs ^(h)	960,000	NV	NV	10,400 J	--	--	36,500 J	--	--	28,500	20,700 J	14,800 J	14,000 J	9,130 J	--	
Benzo(a)anthracene	110,000	NV	NV	796 J	--	--	2,870	--	--	2,630	2,650 J	901	800	528 J	--	
Benzo(a)pyrene	99,000	NV	NV	955 J	--	--	2,500 J	--	--	2,420	4,580 U	601 U	800 U	621 U	--	
Benzo(ghi)perylene	31,000	NV	NV	732 J	--	--	1,910 J	--	--	1,190	4,580 U	901	1,200	621	--	
Chrysene	110,000	NV	NV	1,690 J	--	--	3,090 J	--	--	3,230	2,890 J	1,290	1,160	776	--	

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River												
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Collection Date:			Collection Depth (ft bml):		Percent Wood waste:	TOC:	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11
				11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	
				0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23	
				60	60	60	45	45	70	70	0	0	0	0	0	
				Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	Inside	-- ^(e)
Dibenzo(a,h)anthracene	12,000	NV	NV	382 J	--	--	691 J	--	--	303	1,130 U	189	172 J	99.4 J	--	
Fluoranthene	160,000	NV	NV	1,880 J	--	--	9,560 J	--	--	6,460	5,780	4,500	4,000	2,730	--	
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	1,340 UJ	--	--	1,470 J	--	--	990	4,580 U	721	720 J	466 J	--	
Pyrene	1,000,000	NV	NV	2,230 J	--	--	9,560 J	--	--	7,270	5,540	4,500	4,400	2,700	--	
Total Benzofluoranthenes ⁽ⁱ⁾	230,000	NV	NV	1,750 J	--	--	4,850	--	--	4,040	3,860 J	1,830	1,600	1,210	--	
Pesticides and PCBs (ug/kg-dry)																
Aroclor 1016	NV	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1221	NV	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1232	NV	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1242	NV	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1248	NV	NV	NV	29 UJ	48 UJ	--	29 UJ	97 UJ	--	99 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1254	NV	NV	NV	97 UJ	440 J	--	98 UJ	490 J	--	200 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1260	NV	NV	NV	200 J	730 J	--	180 J	670 J	--	690	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1268	NV	NV	NV	--	--	--	--	--	--	17 U	20 U	20 U	20 U	20 U	20 U	--
Total PCBs ^(k)	110	110	3.5	200 J	1,170 J	--	180 J	1,160 J	--	690	17 U	20 U	20 U	20 U	20 U	--
Carbazole	900	900	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Additional SVOCs (ug/kg-dry)																
1,3-Dichlorobenzene	NV	NV	NV	100 UJ	81 UJ	--	620 J	280 J	--	70 U	--	--	--	--	--	--
4-Methylphenol	NV	NV	NV	420 UJ	320 UJ	--	310 J	280 J	--	420	19 U	870 J	150	130	--	--
Hexachlorocyclopentadiene	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g-dw)																
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	817	4,070	--	1,820	12,200	1,080	1,090	6.64	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	165	919	--	437	1,170	258	276	0.317 U	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	7.55 U	42.8	--	19.8	81.3	13.2	15.5	0.0458 U	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	4.26	32.5	--	11.2	24.5	12.7	8.21	0.255 U	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	7.26	35.9	--	15.3	115	18.1	21.7	0.0319 J	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	54.5	350	--	136	1,020	63.8	72.8	0.631 U	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	3.38	18.9	--	10.9	51.7	8.9	8.35	0.0339 U	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	10.2	48.1	--	29.9	98.1	16.5	15.4	2.76	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	2.45	14.6	--	6.11	62.9	4.79	4.66	0.112 U	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	4.34	18.8	--	13.9	34.1	9.35	8.27	1.02	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	2.06	12.4	--	4.73	41.4	3.28	3.24	0.0398 U	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NV	5.09	22.2	--	11.1	69.3	16.9	16.3	0.0438 U	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	3.43	15.7	--	5.82	43.5	5.96	5.87	0.0418 U	--	--	--	--	--
2,3,7,8-TCDD	NV	NV	NV	1.14 U	3.97	--	3	5.26	2.09	2.11	0.936 J	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	NV	3.53	16	--	6.3	54.3	4.87	4.95	0.0339 U	--	--	--	--	--
OCDD	NV	NV	NV	5,340 J	23,500 J	--	10,300 J	68,300 J	7,830 J	6,810 J	33.1	--	--	--	--	--
OCDF	NV	NV	NV	476	1,900	--	863	3,100	680	652	1.08 J	--	--	--	--	--
Total HpCDDs	NV	NV	NV	1,530	7,520	--	3,750	21,300	2,480	2,050	15.5	--	--	--	--	--
Total HpCDFs	NV	NV	NV	678 U	3,910	--	1,560	5,060 U	950	1,120 U	1.28 U	--	--	--	--	--
Total HxCDDs	NV	NV	NV	350 U	1,540 U	--	1,010 U	4,840	742 U	783 U	18.1 U	--	--	--	--	--
Total HxCDFs	NV	NV	NV	301 U	2,130	--	853	6,030 U	463 U	518 U	0.599 U	--	--	--	--	--
Total PeCDDs	NV	NV	NV	68.7 U	133 U	--	334 U	862 U	88.7	67 U	7.59	--	--	--	--	--
Total PeCDFs	NV	NV	NV	101 U	658 U	--	281 U	2,660 U	203 U	147 U	0.111 U	--	--	--	--	--

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River												
	Location:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:	Collection Date:		Collection Depth (ft bml):		Percent Wood waste:	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12
Collection Date:		11/07/2013		11/08/2013		11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013	10/13/2015	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		2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23	
Percent Wood waste:		60		60		60	45	45	70	70	0	0	0	0	0	
TOC:	Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside	-- ^(e)		
Total TCDDs	NV	NV	NV	17.5 U	32.6 U	--	73.6 U	180	42.6 U	28.7	7.61 U	--	--	--	--	
Total TCDFs	NV	NV	NV	27.9 U	119 U	--	78.1 U	558 U	82.8 U	62.3 U	0.303 U	--	--	--	--	
Dioxin/Furan TEQ ^{(f)(1)}	NV	NV	5	26.7 J	140 J	--	67.6 J	359 J	44.0 J	43.5 J	2.38 J	--	--	--	--	
TPH (mg/kg-dry)																
Gasoline-Range Hydrocarbons	NV	NV	NV	--	--	--	--	--	--	54 UJ	--	--	--	--	--	
Diesel-Range Hydrocarbons	340	340	NV	2,400 J	3,200 J	--	1,200 J	3,200 J	--	20,000	7 U	--	--	--	--	
Motor-Oil Range Hydrocarbons	3,600	3,600	NV	7,400 J	10,000 J	--	4,800 J	13,000 J	--	60,000	19	--	--	--	--	
Grain Size (%)																
Gravel	NV	NV	NV	22.8	--	23.6	20.2	--	22.7	--	--	--	--	--	--	
Very coarse sand	NV	NV	NV	13.8	--	13	11.4	--	13	--	--	--	--	--	--	
Coarse sand	NV	NV	NV	14.2	--	10.7	13.2	--	15.7	--	--	--	--	--	--	
Medium sand	NV	NV	NV	8.5	--	6.1	10.5	--	11.9	--	--	--	--	--	--	
Fine sand	NV	NV	NV	3.7	--	3.2	6	--	5.1	--	--	--	--	--	--	
Very fine sand	NV	NV	NV	1.4	--	1.4	3.5	--	2	--	--	--	--	--	--	
Coarse silt	NV	NV	NV	7.2	--	1.3	8.1	--	4.1	--	--	--	--	--	--	
Medium silt	NV	NV	NV	5.9	--	10.6	7.7	--	5.1	--	--	--	--	--	--	
Fine silt	NV	NV	NV	6.2	--	8.9	5.1	--	4.5	--	--	--	--	--	--	
Very fine silt	NV	NV	NV	4.8	--	6.1	4.5	--	3.7	--	--	--	--	--	--	
Coarse clay	NV	NV	NV	2.9	--	4.3	2.1	--	2.7	--	--	--	--	--	--	
Medium clay	NV	NV	NV	2.6	--	3.7	2.4	--	2.1	--	--	--	--	--	--	
Fine clay	NV	NV	NV	6.1	--	7.2	5.4	--	7.4	--	--	--	--	--	--	
Total fines	NV	NV	NV	35.6	--	42.1	35.3	--	29.7	--	--	--	--	--	--	
Asbestos (%)																
Asbestos	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Pore Water Analysis																
Conductivity (uS/cm)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Salinity (ppt)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River										Wharf Area
	Sample Name: Collection Date: Collection Depth (ft bml): Percent Wood waste: TOC:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-15C		CR-17D		CR-18B		CR-19D	CR-19F		
CR15C-SSD			CR15C-SBSD		CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	
				10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
				0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
				0	0	0	0	0	0	0	0	0	0	0
				Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside
Conventionals														
Total Organic Carbon (%)	NV	NV	NV	3.17	1.73	1.61	3.05	1.95	2.45	3.99	2.77	2.76	2.59	1.52
Ammonia (as N) (mg N/kg)	230	230	NV	--	--	--	--	--	--	18.6	--	--	--	--
Sulfide (mg/kg)	NV	NV	NV	--	--	--	--	--	--	605	--	--	--	--
Total Volatile Solids (%)	NV	NV	NV	--	--	--	--	--	--	8.58	--	--	--	--
Fixed Solids (%)	NV	NV	NV	--	--	--	--	--	--	44.8	--	--	--	--
Total Solids (%)	NV	NV	NV	35.1	57.47	52.1	48.09	46.44	47.88	39.38	49.31	50.3	51.43	46.69
TCLP Metals (mg/L)														
Lead	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/kg-dry)														
Arsenic	14	14	11	20	21	21	30	30	20	--	20	22	23	24
Cadmium	2.1	2.1	0.8	0.5 U	0.3 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U	0.3 U	0.4 U
Chromium	72	72	NV	40	34.5	34.4	40	41	36	--	41	50.5	51.3	39.3
Copper	390	390	NV	51.9	54.7	51.1	58.2	62.7	53.4	--	53.1	60	53.3	55.9
Lead	360	360	21	11	9	9	12	10	10	--	11	13	14	11
Mercury	0.41	0.41	0.2	0.06 U	0.04	0.04	0.07	0.05 U	0.07	--	0.05	0.05	0.07	0.09
Silver	0.57	0.57	NV	0.8 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.5 U	0.6 U
Zinc	410	410	NV	77	69	70	79	76	73	--	74	80	79	75
Organic Chemicals (ug/kg-dry)														
2,4-Dimethylphenol	29	29	NV	24 U	24 U	24 U	24 U	25 U	25 U	--	24 U	25 U	25 U	24 U
2-Methylphenol	63	63	NV	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	5.4
Benzoic acid	650	650	NV	250 J	160 J	150 J	230 J	160 J	210 J	--	170 J	240	370	440
Benzyl alcohol	57	57	NV	20 U	20 U	16 J	48	20 U	20 U	--	19 U	27	28	64
Phenol	120	120	NV	50	20 U	16 J	39	81	20 U	93 J+	89	47	68	76
Dibenzofuran	200	200	NV	24	21	19 U	84	20 U	20 U	--	15 J	25	28	25
N-Nitrosodiphenylamine	NV	28	NV	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U
Organic Chemicals (ug/kg-OC)														
N-Nitrosodiphenylamine	11,000	NV	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U
Phthalates (ug/kg-dry)														
Bis(2-ethylhexyl)phthalate	500	500	NV	29 J	49 U	48 U	38 J	50 U	50 U	--	48 U	50 U	32 J	49 U
Butylbenzylphthalate	NV	63	NV	4.9 U	4.9 U	3.4 J	4.9 U	7.2	2.8 J	--	8.1	9.3	7.4	4.9 U
Diethylphthalate	NV	200	NV	21 U	26 U	19 U	19 U	40 U	20 U	--	22 U	24 U	38 U	20 U
Dimethyl phthalate	NV	71	NV	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U
Di-n-butyl phthalate	380	380	NV	20 U	20 U	19 U	19 U	20 U	20 U	--	19 U	20 U	20 U	20 U
Di-n-octyl phthalate	39	39	NV	20 U	20 U	19 U	19 U	20 U	20 U	--	19 U	20 U	20 U	20 U
Phthalates (ug/kg-OC)														
Butylbenzylphthalate	4,900	NV	NV	155 U	283 U	211 J	161 U	369	114 J	--	292	337	286	322 U
Diethylphthalate	61,000	NV	NV	662 U	1,500 U	1,180 U	623 U	2,050 U	816 U	--	794 U	870 U	1,470 U	1,320 U
Dimethyl phthalate	53,000	NV	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U
Chlorinated Organics (ug/kg-dry)														
1,2,4-Trichlorobenzene	NV	31	NV	4.9 U	4.9 U	4.8 U	4.8 J	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U
1,2-Dichlorobenzene	NV	35	NV	4.9 U	4.9 U	4.8 U	1.6 J	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U
1,4-Dichlorobenzene	NV	110	NV	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U
Hexachlorobenzene	NV	22	NV	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River										Wharf Area
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-15C		CR-17D		CR-18B		CR-19D	CR-19F		CR-26
Collection Date:			Collection Depth (ft bml):		Percent Wood waste:	TOC:	CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD
				10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
				0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
				0	0	0	0	0	0	0	0	0	0	0
				Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside
Hexachlorobutadiene	NV	11	NV	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U
Pentachlorophenol	360	360	NV	20 UJ	20 UJ	19 U	21	20 U	20 U	--	19 U	20 UJ	20 UJ	20 UJ
Chlorinated Organics (ug/kg-OC)														
1,2,4-Trichlorobenzene	810	NV	NV	155 U	283 U	298 U	157 J	256 U	204 U	--	173 U	181 U	193 U	322 U
1,2-Dichlorobenzene	2,300	NV	NV	155 U	283 U	298 U	52.5 J	256 U	204 U	--	173 U	181 U	193 U	322 U
1,4-Dichlorobenzene	3,100	NV	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U
Hexachlorobenzene	380	NV	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U
Hexachlorobutadiene	3,900	NV	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U
PAHs (ug/kg-dry)														
Total PAHs ^(f)	17,000	17,000	NV	800 J	725 J	101 J	3,070	356 J	1,050 J	--	269 J	526 J	848 J	427 J
Total LPAHs ^(g)	NV	5,200	NV	255 J	196 J	32 J	1,160	66 J	118 J	--	131 J	258	340 J	166 J
1-Methylnaphthalene	NV	NV	NV	15 J	18 J	19 U	23	20 U	20 U	--	19 U	20 U	13 J	11 J
2-Methylnaphthalene	NV	670	NV	19 J	18 J	19 U	31	20 U	20 U	--	10 J	13 J	22	20 U
Acenaphthene	NV	500	NV	38	37	19 U	420	20 U	16 J	--	12 J	27	31	29
Acenaphthylene	NV	1,300	NV	15 J	15 J	19 U	20	20 U	17 J	--	19 U	20 U	18 J	9.7 J
Anthracene	NV	960	NV	18 J	20	19 U	110	20 U	24	--	15 J	30	26	14 J
Fluorene	NV	540	NV	29	20	19 U	140	11 J	12 J	--	12 J	29	27	23
Naphthalene	NV	2,100	NV	64	35	13 J	110	29	22	--	56	62	98	51
Phenanthrene	NV	1,500	NV	91	69	19	360	26	27	--	36	110	140	39
Total HPAHs ^(h)	NV	12,000	NV	511 J	493 J	68.9 J	1,850	290 J	932 J	--	128 J	255 J	473 J	250 J
Benzo(a)anthracene	NV	1,300	NV	56	64	19 U	160	29	99	--	12 J	21	37	18 J
Benzo(a)pyrene	NV	1,600	NV	31	35	19 U	81	12 J	68	--	19 U	20 U	20 U	20 U
Benzo(ghi)perylene	NV	670	NV	23	14 J	19 U	36	20 U	27	--	19 U	20 U	15 J	13 J
Chrysene	NV	1,400	NV	61	69	8.6 J	210	66	93	--	21	30	64	26
Dibenzo(a,h)anthracene	NV	230	NV	4 J	4.3 J	2.3 J	15	5 U	8	--	4.8 U	5 U	3.1 J	3.1 J
Fluoranthene	NV	1,700	NV	120	110	25	600	82	210	--	41	94	150	75
Indeno(1,2,3-cd)pyrene	NV	600	NV	18 J	17 J	19 U	41	20 U	27	--	19 U	20 U	14 J	8.8 J
Pyrene	NV	2,600	NV	98	80	20	470	62	220	--	35	83	130	70
Total Benzofluoranthenes ⁽ⁱ⁾	NV	3,200	NV	100	100	13 J	240	39 J	180	--	19 J	27 J	60	36 J
cPAH TEQ ^{(j)(1)}	NV	NV	21	49.4 J	54.2 J	13 J	129	20.7 J	100	--	14 J	16.4 J	22.1 J	16.9 J
PAHs (ug/kg-OC)														
Total LPAHs ^(g)	370,000	NV	NV	8,040 J	11,300 J	1,990 J	38,000	3,380 J	4,820 J	--	4,730 J	9,350	13,100 J	10,900 J
2-Methylnaphthalene	38,000	NV	NV	599 J	1,040 J	1,180 U	1,020	1,030 U	816 U	--	361 J	471 J	849	1,320 U
Acenaphthene	16,000	NV	NV	1,200	2,140	1,180 U	13,800	1,030 U	653 J	--	433 J	978	1,200	1,910
Acenaphthylene	66,000	NV	NV	473 J	867 J	1,180 U	656	1,030 U	694 J	--	686 U	725 U	695 J	638 J
Anthracene	220,000	NV	NV	568 J	1,160	1,180 U	3,610	1,030 U	980	--	542 J	1,090	1,000	921 J
Fluorene	23,000	NV	NV	915	1,160	1,180 U	4,590	564 J	490 J	--	433 J	1,050	1,040	1,510
Naphthalene	99,000	NV	NV	2,020	2,020	807 J	3,610	1,490	898	--	2,020	2,250	3,780	3,360
Phenanthrene	100,000	NV	NV	2,870	3,990	1,180	11,800	1,330	1,100	--	1,300	3,990	5,410	2,570
Total HPAHs ^(h)	960,000	NV	NV	16,100 J	28,500 J	4,280 J	60,700	14,900 J	38,000 J	--	4,620 J	9,240 J	18,300 J	16,400 J
Benzo(a)anthracene	110,000	NV	NV	1,770	3,700	1,180 U	5,250	1,490	4,040	--	433 J	761	1,430	1,180 J
Benzo(a)pyrene	99,000	NV	NV	978	2,020	1,180 U	2,660	615 J	2,780	--	686 U	725 U	772 U	1,320 U
Benzo(ghi)perylene	31,000	NV	NV	726	809 J	1,180 U	1,180	1,030 U	1,100	--	686 U	725 U	579 J	855 J
Chrysene	110,000	NV	NV	1,920	3,990	534 J	6,890	3,380	3,800	--	758	1,090	2,470	1,710

Table 6-3
2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Investigation Area: Location:	SCO for Protection of Benthic Organisms ⁽¹⁾		Screening Level for Protection of Human Health and Higher Trophic Level Ecological Receptors ^(c)	Former Mill Area and Chehalis River										Wharf Area	
	Sample Name:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-15C		CR-17D		CR-18B		CR-19D	CR-19F			CR-26
Collection Date:			Collection Depth (ft bml):		Percent Wood waste:	TOC:	CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD
				10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
				0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
				0	0	0	0	0	0	0	0	0	0	0	0
				Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside
Dibenzo(a,h)anthracene	12,000	NV	NV	126 J	249 J	143 J	492	256 U	327	--	173 U	181 U	120 J	204 J	
Fluoranthene	160,000	NV	NV	3,790	6,360	1,550	19,700	4,210	8,570	--	1,480	3,410	5,790	4,930	
Indeno(1,2,3-cd)pyrene	34,000	NV	NV	568 J	983 J	1,180 U	1,340	1,030 U	1,100	--	686 U	725 U	541 J	579 J	
Pyrene	1,000,000	NV	NV	3,090	4,620	1,240	15,400	3,180	8,980	--	1,260	3,010	5,020	4,610	
Total Benzofluoranthenes ⁽ⁱ⁾	230,000	NV	NV	3,150	5,780	807 J	7,870	2,000 J	7,350	--	686 J	978 J	2,320	2,370 J	
Pesticides and PCBs (ug/kg-dry)															
Aroclor 1016	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1221	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1232	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1242	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1248	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1254	NV	NV	NV	20 U	18 U	19 U	18 J	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1260	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Aroclor 1268	NV	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	
Total PCBs ^(k)	110	110	3.5	20 U	18 U	19 U	18 J	18 U	19 U	--	18 U	19 U	20 U	19 U	
Carbazole	900	900	NV	--	--	--	--	--	--	--	--	--	--	--	
Additional SVOCs (ug/kg-dry)															
1,3-Dichlorobenzene	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	
4-Methylphenol	NV	NV	NV	89	52	19 UJ	120 J	42	20 U	--	19 U	230	320	45	
Hexachlorocyclopentadiene	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--	
Dioxins/Furans (pg/g-dw)															
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	100	--	56.2	--	30.9	--	--	141	--	--	--	
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	25.3	--	8.12	--	7.34	--	--	24.3	--	--	--	
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	0.959 U	--	0.483 U	--	0.332 J	--	--	1.04	--	--	--	
1,2,3,4,7,8-HxCDD	NV	NV	NV	1.22	--	0.736 U	--	0.758 J	--	--	1.35	--	--	--	
1,2,3,4,7,8-HxCDF	NV	NV	NV	1.25 U	--	0.596 J	--	0.424 U	--	--	1.37	--	--	--	
1,2,3,6,7,8-HxCDD	NV	NV	NV	5.48	--	2.94	--	2.46	--	--	9.89	--	--	--	
1,2,3,6,7,8-HxCDF	NV	NV	NV	0.806 J	--	0.37 J	--	0.294 U	--	--	1.07	--	--	--	
1,2,3,7,8,9-HxCDD	NV	NV	NV	10	--	6.33	--	8	--	--	8.91	--	--	--	
1,2,3,7,8,9-HxCDF	NV	NV	NV	0.338 U	--	0.324 U	--	0.226 U	--	--	0.571 U	--	--	--	
1,2,3,7,8-PeCDD	NV	NV	NV	3.65	--	2.49	--	3.28	--	--	3.01	--	--	--	
1,2,3,7,8-PeCDF	NV	NV	NV	0.408 J	--	0.213 U	--	0.157 U	--	--	0.613 U	--	--	--	
2,3,4,6,7,8-HxCDF	NV	NV	NV	1.21 U	--	0.443 U	--	0.469 J	--	--	1.73	--	--	--	
2,3,4,7,8-PeCDF	NV	NV	NV	0.505 U	--	0.239 U	--	0.183 U	--	--	0.557 J	--	--	--	
2,3,7,8-TCDD	NV	NV	NV	2.7	--	1.85	--	2.36	--	--	2.16	--	--	--	
2,3,7,8-TCDF	NV	NV	NV	1.55	--	0.406 U	--	0.381 U	--	--	7.75	--	--	--	
OCDD	NV	NV	NV	790	--	475	--	189	--	--	1,010	--	--	--	
OCDF	NV	NV	NV	33.1	--	14	--	10.9	--	--	36.8	--	--	--	
Total HpCDDs	NV	NV	NV	275	--	150	--	73.7	--	--	340	--	--	--	
Total HpCDFs	NV	NV	NV	60.7 U	--	21.2 U	--	17.4	--	--	62.7 U	--	--	--	
Total HxCDDs	NV	NV	NV	76.1 U	--	45.8 U	--	46.9 U	--	--	93 U	--	--	--	
Total HxCDFs	NV	NV	NV	28.1 U	--	10.8 U	--	8.92 U	--	--	40.2 U	--	--	--	
Total PeCDDs	NV	NV	NV	26.5	--	16.7 U	--	20.5 U	--	--	26.4 U	--	--	--	
Total PeCDFs	NV	NV	NV	12.6 U	--	4.66 U	--	4.65 U	--	--	23.6 U	--	--	--	

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2013-2015 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

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	Sample Name: Collection Date: Collection Depth (ft bml): Percent Wood waste: TOC:	Organic Carbon (0.5% to 3.5%) ^(a)		Organic Carbon (<0.5% or >3.5%) ^(b)	CR-15C		CR-17D		CR-18B		CR-19D	CR-19F		
CR15C-SSD			CR15C-SBSD		CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	
				10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015
				0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0.5-1.0	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0
				0	0	0	0	0	0	0	0	0	0	0
				Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside
Total TCDDs	NV	NV	NV	20.3 U	--	12.4 U	--	15.9 U	--	--	20.6 U	--	--	--
Total TCDFs	NV	NV	NV	13.7 U	--	4.27 U	--	4.57 U	--	--	25.6 U	--	--	--
Dioxin/Furan TEQ ⁽¹⁾⁽¹⁾	NV	NV	5	9.99 J	--	6.29 J	--	7.35 J	--	--	10.6 J	--	--	--
TPH (mg/kg-dry)														
Gasoline-Range Hydrocarbons	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	340	340	NV	77	--	24	--	44	--	--	93	--	--	--
Motor-Oil Range Hydrocarbons	3,600	3,600	NV	190	--	46	--	92	--	--	240	--	--	--
Grain Size (%)														
Gravel	NV	NV	NV	--	--	--	--	--	--	1	--	--	--	--
Very coarse sand	NV	NV	NV	--	--	--	--	--	--	3.8	--	--	--	--
Coarse sand	NV	NV	NV	--	--	--	--	--	--	1.8	--	--	--	--
Medium sand	NV	NV	NV	--	--	--	--	--	--	2	--	--	--	--
Fine sand	NV	NV	NV	--	--	--	--	--	--	4.6	--	--	--	--
Very fine sand	NV	NV	NV	--	--	--	--	--	--	8.9	--	--	--	--
Coarse silt	NV	NV	NV	--	--	--	--	--	--	16	--	--	--	--
Medium silt	NV	NV	NV	--	--	--	--	--	--	20.1	--	--	--	--
Fine silt	NV	NV	NV	--	--	--	--	--	--	14.6	--	--	--	--
Very fine silt	NV	NV	NV	--	--	--	--	--	--	7.3	--	--	--	--
Coarse clay	NV	NV	NV	--	--	--	--	--	--	5.9	--	--	--	--
Medium clay	NV	NV	NV	--	--	--	--	--	--	3.4	--	--	--	--
Fine clay	NV	NV	NV	--	--	--	--	--	--	10.5	--	--	--	--
Total fines	NV	NV	NV	--	--	--	--	--	--	77.8	--	--	--	--
Asbestos (%)														
Asbestos	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Pore Water Analysis														
Conductivity (uS/cm)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--
Salinity (ppt)	NV	NV	NV	--	--	--	--	--	--	--	--	--	--	--

Notes

Shading (color key below) indicates values that exceed screening criteria. Non-detect results (U or UJ) are not evaluated against screening criteria. SCO for protection of benthic organisms are applied based on sample TOC results.

TOC results outside 0.5-3.5%

SCO for Protection of Benthic Organisms, Inside or Outside Organic Carbon 0.5-3.5%

SSL for Protection of Human Health and Higher Trophic Level Ecological Receptors

Bold is applied to detected results, with the exception of conventional parameters and grain size.

-- = not analyzed.

< = less than the limit of detection.

% = percent.

AET = apparent effects threshold.

cm = centimeter.

cPAH = carcinogenic PAH.

CSL = cleanup screening level.

ft bml = feet below mudline.

HpCDD = heptachlorodibenzo-p-dioxin.

HPAH = high-molecular-weight PAH.

HxCDD = hexachlorodibenzo-p-dioxin.

HxCDF = hexachlorodibenzofuran.

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.

NV = no value.

OCDD = octachlorodibenzodioxin.

OCDF = octachlorodibenzofuran.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

^(a)Screening level is equivalent to organic carbon-normalized marine criteria. Where organic carbon-normalized criteria are not available, screening level is the lowest marine or freshwater SCO or CSL.

^(b)Screening level is the lowest of the following criteria: marine AET, marine sediment, or freshwater sediment SCO or CSL.

^(c)Human health and higher trophic level ecological receptor screening levels are chosen from lowest of bioaccumulative and direct contact pathways. If the risk-based value is lower than natural background or PQL, the cleanup level defaults to the higher of natural background or PQL.

^(d)TOC analysis was not performed. Assume TOC would be outside of the 0.5 to 3.5 percent range based on other samples collected from the same boring.

^(e)TOC analysis was not performed. Assume TOC would be inside of the 0.5 to 3.5 percent range based on other samples collected from the same area.

^(f)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.

^(g)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.

^(h)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.

⁽ⁱ⁾Total benzofluoranthenes are reported by the laboratory.

^(j)cPAH TEQ is calculated with 2005 California EPA toxicity equivalence factors provided in table 6-1 of SCUM (Ecology, 2021). Non-detect results are included at one-half the detection limit. When all cPAHs are non-detect, the highest reported detection limit is shown.

^(k)Total PCBs is the sum of all detected recolors. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.

^(l)Dioxin/furan TEQ is calculated with 2005 World Health Organization toxic equivalence factors provided in table 6-2 of SCUM (Ecology, 2021). Non-detect results are included at one-half the detection limit.

Reference

⁽¹⁾Ecology. 2021. Sediment cleanup user's manual (SCUM), guidance for implementing cleanup provisions of the sediment management standards, Chapter 173-204 WAC. Publication no. 12-09-057. Washington State Department of Ecology. Revised December 2021.

PeCDD = pentachlorodibenzo-p-dioxin.

PeCDF = pentachlorodibenzofuran.

pg/g = picograms per gram (parts per trillion).

ppt = parts per thousand.

PQL = practical quantitation limit.

SIM = selective ion monitoring.

SCO = sediment cleanup objective.

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

TEQ = toxic equivalent quotient.

TCDD = tetrachlorodibenzo-p-dioxin.

TCDF = tetrachlorodibenzofuran.

TCLP = toxicity characteristic leaching procedure.

TOC = total organic carbon.

TPH = total petroleum hydrocarbon.

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.

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

ug/kg-OC = micrograms per kilogram, organic carbon normalized.

uS/cm = microsiemen = (micromhos) per centimeter.

Table 6-4
Wood Waste Parameters and Bioassay Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Preliminary Cleanup Standards ^(a)		CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
Sample Name	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or	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	CR01-10cm	CR02-10cm	CR03-10cm
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	11/08/2013	11/08/2013	11/08/2013
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	0-0.33	0-0.33	0-0.33
Percent Wood Waste			Trace	0	80	0	20	0	40	15	15	0	0	0
Conventional Parameters														
Total Organic Carbon (%)	NV	NV	1.09	1.56	1.92	1.29	2.05	3.08	4.39	2.99	2.94	2.06 J	3.21 J	2.91 J
Total Solids (%)	NV	NV	67.22	54.35	47.46	63.97	44.38	55.76	55.6	59.33	45.44	44.09	51.8	36.4
Total Volatile Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Ammonia as Nitrogen (mg/kg)	230	230	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide (mg/kg)	39	39	--	--	--	--	--	--	--	--	--	--	--	--
Pore Water Sulfide (mg/L)														
Laboratory Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
DGT Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Summary of Bioassay Results^(b)														
SCO	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	--	--
CSL	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	--	--

Table 6-4
Wood Waste Parameters and Bioassay Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Preliminary Cleanup Standards ^(a)		CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
			CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	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	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23
Percent Wood Waste			60	60	60	45	45	70	70	0	0	0	0	0
Conventional Parameters														
Total Organic Carbon (%)	NV	NV	31.4 J	--	16.5 J	13.6 J	--	35.6 J	49.5 J	0.415	3.33	2.5	3.22	--
Total Solids (%)	NV	NV	20.62	--	19.98	30.32	--	21.4	21.59	72.59	56.65	57.95	57.04	--
Total Volatile Solids (%)	NV	NV	59.91	--	38.2	36.49	--	60.05	69.23	--	--	--	--	--
Ammonia as Nitrogen (mg/kg)	230	230	0.47 U	--	15.2	7.21	--	1.37	14.0	--	--	--	--	--
Sulfide (mg/kg)	39	39	6.46	--	179	320	--	906	2,910	--	--	--	--	--
Pore Water Sulfide (mg/L)														
Laboratory Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
DGT Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Summary of Bioassay Results^(b)														
SCO	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	--	--
CSL	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	--	--

Table 6-4
Wood Waste Parameters and Bioassay Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Preliminary Cleanup Standards ^(a)		CR-15C		CR-17D		CR-18B		CR-19D	CR-19F		CR-26	SE-01A	
Sample Name			CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	SE-01A-1.0-2.0
Collection Date	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015	09/25/2019	
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	0-0.33	0-0.33	0.5-1.0	0.5-1.0	1-2	
Percent Wood Waste			0	0	0	0	0	0	0	0	0	0	20	
Conventional Parameters														
Total Organic Carbon (%)	NV	NV	3.17	1.73	1.61	3.05	1.95	2.45	3.99	2.77	2.76	2.59	1.52	4.4
Total Solids (%)	NV	NV	35.1	57.47	52.1	48.09	46.44	47.88	39.38	49.31	50.3	51.43	46.69	51.9
Total Volatile Solids (%)	NV	NV	--	--	--	--	--	--	8.58	--	--	--	--	11.9 J
Ammonia as Nitrogen (mg/kg)	230	230	--	--	--	--	--	--	18.6	--	--	--	--	290 J
Sulfide (mg/kg)	39	39	--	--	--	--	--	--	605	--	--	--	--	865 J
Pore Water Sulfide (mg/L)														
Laboratory Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
DGT Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Summary of Bioassay Results^(b)														
SCO	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	--	--
CSL	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	--	--

Table 6-4
Wood Waste Parameters and Bioassay Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Preliminary Cleanup Standards ^(a)		SE-02A	SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14	SE-15	SE-16	SE-17	
Sample Name			SE-02A-2.5-3.5	SE-03A-0-1.0	SE-05A-2.0-3.0	SE-06A-0.5-1.5	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-4.2	SE-10-2.0-3.7	SE-14-0-0.33	SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	
Collection Date	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or	09/26/2019	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	
Collection Depth (ft bml)			2-3.5	0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	0-0.33	0-0.33	0-0.33	
Percent Wood Waste			10	10	Trace	20	40	85	25	30	85	30	Trace	0	
Conventional Parameters															
Total Organic Carbon (%)	NV	NV	3.3	2.3	2.3	3.2	6.3	6.8	7.1	7.9 J	5.50	4.70	1.50	2.30	
Total Solids (%)	NV	NV	55.5	45.6	47.8	55.6	34	35.8	44	38.3	34.80	43.40	52.90	43.30	
Total Volatile Solids (%)	NV	NV	7.94 J	8.11 J	7.49	9.92 J	20.7 J	31.7	19.8	30.1	12.50	14.40	5.35	6.80	
Ammonia as Nitrogen (mg/kg)	230	230	230 J	168 J	47.1	408 J	7.73 J	8.65	36.3	5.37 J	15.20	5.75	8.43	10.70	
Sulfide (mg/kg)	39	39	977	856 J	4,040 J	--	639	153 J	124 J	228 J	409	191	469	20	
Pore Water Sulfide (mg/L)															
Laboratory Sulfide	NV	NV	--	--	--	--	--	--	--	--	0.13	--	0.05 U	--	
DGT Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Summary of Bioassay Results^(b)															
SCO	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	Pass	Pass	Pass
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	Pass	Pass	Pass
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	Pass	Pass	Pass
CSL	Amphipod	NV	NV	--	--	--	--	--	--	--	--	--	Pass	Pass	Pass
	Polychaete	NV	NV	--	--	--	--	--	--	--	--	--	Pass	Pass	Pass
	Larval	NV	NV	--	--	--	--	--	--	--	--	--	Pass	Pass	Pass

Table 6-4
Wood Waste Parameters and Bioassay Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Preliminary Cleanup Standards ^(a)		SE-18	SE-19	SE-20	SE-21	SE-22	SE-23	SE-24	SE-25	SE-26	SE-27		SE-28
Sample Name			SE-18-0-0.33	SE-19-0-0.33	SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33
Collection Date	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or	09/27/2019	09/27/2019	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019
Collection Depth (ft bml)			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Percent Wood Waste			5	0	0	10	10	15	25	80	80	10	10	75
Conventional Parameters														
Total Organic Carbon (%)	NV	NV	1.70	2	6.60	1.3	3.8	2.6	7.80	18	13.00	3.8	3.9	5.50
Total Solids (%)	NV	NV	46.30	41.5	36.80	59.4	33.4	45.4	35.50 J	40.6 J	42.40	39.4	38.3	36.00
Total Volatile Solids (%)	NV	NV	6.06	6.95	12.70	5.02	11.6	7.18	18.90 J	19	18.40	12.1	9.96	13.00
Ammonia as Nitrogen (mg/kg)	230	230	12.90	9.43	3.90	7.06	7.81	11.8	9.49	3.68	3.48	8.47	8.18	7.36
Sulfide (mg/kg)	39	39	691	924	2.70 U	359	937	856	281	267	3.21 U	394	396	22.70
Pore Water Sulfide (mg/L)														
Laboratory Sulfide	NV	NV	0.05 U	--	0.06 J	--	--	--	0.10	--	0.12	--	--	0.06
DGT Sulfide	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Summary of Bioassay Results^(b)														
SCO	Amphipod	NV	NV	Pass	--	Pass	--	--	--	Pass	--	Pass	--	--
	Polychaete	NV	NV	Pass	--	Pass	--	--	--	Pass	--	Pass	--	--
	Larval	NV	NV	Pass	--	Pass	--	--	--	Fail	--	Fail	--	--
CSL	Amphipod	NV	NV	Pass	--	Pass	--	--	--	Pass	--	Pass	--	--
	Polychaete	NV	NV	Pass	--	Pass	--	--	--	Pass	--	Pass	--	--
	Larval	NV	NV	Pass	--	Pass	--	--	--	Fail	--	Pass	--	--

Table 6-4
Wood Waste Parameters and Bioassay Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Preliminary Cleanup Standards ^(a)		SE-29	SE-30	SE-31	SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name			SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33	SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date	Organic Carbon (0.5% to 3.5%)	Organic Carbon (<0.5% or	09/24/2019	09/26/2019	09/27/2019	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml)			0-2	2-4.5	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Percent Wood Waste			80	20	35	Trace	10	5	Trace	10	25	50	90	0	20
Conventional Parameters															
Total Organic Carbon (%)	NV	NV	9.9	5.1	2.10	1.1	1.2	1.2	1.1	1.1	1.9	1.7	3.9	1	1.8
Total Solids (%)	NV	NV	42.9 J	47.6	48.80	46.4	54.1	53	50	49	46.2	49.6	25.5	77.6	43.4
Total Volatile Solids (%)	NV	NV	27.4 J	14.7	8.80	6.56	6.45	6.69	6.68	6.88	15.2	10.1	50.1	2.51	10.2
Ammonia as Nitrogen (mg/kg)	230	230	4.76	112	7.98	7.61	26.4	4.82	7.45	4.1	14.2	3.49	1.16	0.783	8.41
Sulfide (mg/kg)	39	39	1,510 J	492	397	337 J	473 J	921 J	447 J	546 J	204 J	365 J	2,110 J	392 J	567 J
Pore Water Sulfide (mg/L)															
Laboratory Sulfide	NV	NV	--	--	--	0.076	0.104	0.153	0.05 U	0.06 J	0.163	0.103	--	0.202	0.071
DGT Sulfide	NV	NV	--	--	--	0.0002	6.24	0.01	0.06	6.38	6.38	0.12	0.03	7.85	0.17
Summary of Bioassay Results^(b)															
SCO	Amphipod	NV	NV	--	--	Pass	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	Pass	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	Pass	--	--	--	--	--	--	--	--	--
CSL	Amphipod	NV	NV	--	--	Pass	--	--	--	--	--	--	--	--	--
	Polychaete	NV	NV	--	--	Pass	--	--	--	--	--	--	--	--	--
	Larval	NV	NV	--	--	Pass	--	--	--	--	--	--	--	--	--

<p>Notes</p> <p>-- = not analyzed.</p> <p>TOC results outside 0.5-3.5%</p> <p>Detected result exceeding preliminary cleanup standard, Inside or Outside Organic Carbon 0.5-3.5%</p> <p>Bioassay failure of CSL or SCO.</p> <p>% = percent.</p> <p>CSL = cleanup screening level.</p> <p>DGT = diffusive gradients in thin films.</p> <p>J = result is an estimated value.</p> <p>mg/kg = milligrams per kilogram.</p> <p>mg/L = milligrams per liter.</p> <p>NV = no value.</p> <p>SCO = sediment cleanup objective.</p> <p>U = result is non-detect at reporting limit.</p> <p>^(a)Preliminary cleanup standards are shown in Table 5-3.</p> <p>^(b)Bioassay results adapted from table 5-1 of Bioassay Testing Results; Sediment Quality Analysis: Seaport Landing Site, Aberdeen Washington January 8, 2020 report prepared by EcoAnalysts, Inc. Pass/fail performance criteria are provided in the report.</p>

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Table 6-5
Site-Specific Wood Waste Cleanup Level Scoring
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Site-Specific Wood Waste Cleanup Level Scoring			CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
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	CR01-10cm	CR02-10cm	CR03-10cm
Collection Date	0 Point Range	1 Point Range	2 Point Range	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	11/08/2013	11/08/2013	11/08/2013
Collection Depth (ft bml)	0 Point Range	1 Point Range	2 Point Range	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	0-0.33	0-0.33	0-0.33
Wood Waste Cleanup Level Parameters															
Total Organic Carbon (%)	< 6	6 – 7	> 7	1.09	1.56	1.92	1.29	2.05	3.08	4.39	2.99	2.94	2.06 J	3.21 J	2.91 J
Total Volatile Solids (%)	< 14	14 – 16	> 16	--	--	--	--	--	--	--	--	--	--	--	--
Wood Waste (%)	< 25	25 – <50	≥ 50	Trace	0	80	0	20	0	40	15	15	0	0	0
Wood Waste Cleanup Level Scoring ^(a)	--	--	--	0	0	2	0	0	0	1	0	0	0	0	0

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Table 6-5
Site-Specific Wood Waste Cleanup Level Scoring
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Site-Specific Wood Waste Cleanup Level Scoring			CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
				CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Sample Name				11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	11/07/2013	11/07/2013	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Collection Date	0 Point Range	1 Point Range	2 Point Range	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23
Collection Depth (ft bml)															
Wood Waste Cleanup Level Parameters															
Total Organic Carbon (%)	< 6	6 – 7	> 7	31.4 J	--	16.5 J	13.6 J	--	35.6 J	49.5 J	0.415	3.33	2.5	3.22	--
Total Volatile Solids (%)	< 14	14 – 16	> 16	59.91	--	38.2	36.49	--	60.05	69.23	--	--	--	--	--
Wood Waste (%)	< 25	25 – <50	≥ 50	60	60	60	45	45	70	70	0	0	0	0	0
Wood Waste Cleanup Level Scoring ^(a)	--	--	--	6	2	6	5	1	6	6	0	0	0	0	0

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Table 6-5
Site-Specific Wood Waste Cleanup Level Scoring
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Site-Specific Wood Waste Cleanup Level Scoring			CR-15C		CR-17D		CR-18B		CR-19D	CR-19F			CR-26	SE-01A
Sample Name				CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	SE-01A-1.0-2.0
Collection Date	0 Point Range	1 Point Range	2 Point Range	10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015	09/25/2019
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	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0	1-2
Wood Waste Cleanup Level Parameters															
Total Organic Carbon (%)	< 6	6 – 7	> 7	3.17	1.73	1.61	3.05	1.95	2.45	3.99	2.77	2.76	2.59	1.52	4.4
Total Volatile Solids (%)	< 14	14 – 16	> 16	--	--	--	--	--	--	8.58	--	--	--	--	11.9 J
Wood Waste (%)	< 25	25 – <50	≥ 50	0	0	0	0	0	0	0	0	0	0	0	20
Wood Waste Cleanup Level Scoring ^(a)	--	--	--	0	0	0	0	0	0	0	0	0	0	0	0

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Table 6-5
Site-Specific Wood Waste Cleanup Level Scoring
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Site-Specific Wood Waste Cleanup Level Scoring			SE-02A	SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14	SE-15	SE-16	SE-17
Sample Name				SE-02A-2.5-3.5	SE-03A-0-1.0	SE-05A-2.0-3.0	SE-06A-0.5-1.5	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-4.2	SE-10-2.0-3.7	SE-14-0-0.33	SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33
Collection Date	0 Point Range	1 Point Range	2 Point Range	09/26/2019	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019
Collection Depth (ft bml)	0 Point Range	1 Point Range	2 Point Range	2-3.5	0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	0-0.33	0-0.33	0-0.33
Wood Waste Cleanup Level Parameters															
Total Organic Carbon (%)	< 6	6 – 7	> 7	3.3	2.3	2.3	3.2	6.3	6.8	7.1	7.9 J	5.50	4.70	1.50	2.30
Total Volatile Solids (%)	< 14	14 – 16	> 16	7.94 J	8.11 J	7.49	9.92 J	20.7 J	31.7	19.8	30.1	12.50	14.40	5.35	6.80
Wood Waste (%)	< 25	25 – <50	≥ 50	10	10	Trace	20	40	85	25	30	85	30	Trace	0
Wood Waste Cleanup Level Scoring ^(a)	--	--	--	0	0	0	0	4	5	5	5	2	2	0	0

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Table 6-5
Site-Specific Wood Waste Cleanup Level Scoring
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Site-Specific Wood Waste Cleanup Level Scoring			SE-18	SE-19	SE-20	SE-21	SE-22	SE-23	SE-24	SE-25	SE-26	SE-27		SE-28
Sample Name				SE-18-0-0.33	SE-19-0-0.33	SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33
Collection Date	0 Point Range	1 Point Range	2 Point Range	09/27/2019	09/27/2019	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019
Collection Depth (ft bml)				0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Wood Waste Cleanup Level Parameters															
Total Organic Carbon (%)	< 6	6 – 7	> 7	1.70	2	6.60	1.3	3.8	2.6	7.80	18	13.00	3.8	3.9	5.50
Total Volatile Solids (%)	< 14	14 – 16	> 16	6.06	6.95	12.70	5.02	11.6	7.18	18.90 J	19	18.40	12.1	9.96	13.00
Wood Waste (%)	< 25	25 – <50	≥ 50	5	0	0	10	10	15	25	80	80	10	10	75
Wood Waste Cleanup Level Scoring ^(a)	--	--	--	0	0	1	0	0	0	5	6	6	0	0	2

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Table 6-5
Site-Specific Wood Waste Cleanup Level Scoring
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location	Site-Specific Wood Waste Cleanup Level Scoring			SE-29	SE-30	SE-31	SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name				SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33	SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date	0 Point Range	1 Point Range	2 Point Range	09/24/2019	09/26/2019	09/27/2019	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml)	0 Point Range	1 Point Range	2 Point Range	0-2	2-4.5	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Wood Waste Cleanup Level Parameters																
Total Organic Carbon (%)	< 6	6 – 7	> 7	9.9	5.1	2.10	1.1	1.2	1.2	1.1	1.1	1.9	1.7	3.9	1	1.8
Total Volatile Solids (%)	< 14	14 – 16	> 16	27.4 J	14.7	8.80	6.56	6.45	6.69	6.68	6.88	15.2	10.1	50.1	2.51	10.2
Wood Waste (%)	< 25	25 – <50	≥ 50	80	20	35	Trace	10	5	Trace	10	25	50	90	0	20
Wood Waste Cleanup Level Scoring ^(a)	--	--	--	6	1	1	0	0	0	0	0	2	2	4	0	0

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NOTES:
-- = not analyzed.
Site-specific wood waste cleanup level exceedance.
% = percent.
ft bml = feet below mudline.
J = result is an estimated value.
^(a)Based on parameter ranges, sample locations are awarded either zero, one, or two points. Sample locations with a wood waste score equal to or greater than two are not in compliance with the site-specific wood waste cleanup level.

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Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03	
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	CR01-10cm	CR02-10cm	CR03-10cm	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	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	11/08/2013	11/08/2013	11/08/2013	
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	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	0	80	0	20	0	40	15	15	0	0	0	0
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside
Conventional Parameters															
Ammonia as Nitrogen (mg/kg)	230	230	--	--	--	--	--	--	--	--	--	--	--	--	
Fixed Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Sulfide (mg/kg)	39	39	--	--	--	--	--	--	--	--	--	--	--	--	
Total Organic Carbon (%)	NV	NV	1.09	1.56	1.92	1.29	2.05	3.08	4.39	2.99	2.94	2.06 J	3.21 J	2.91 J	
Total Solids (%)	NV	NV	67.22	54.35	47.46	63.97	44.38	55.76	55.6	59.33	45.44	44.09	51.8	36.4	
Total Volatile Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
TCLP Metals (mg/L)															
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Total Metals (mg/kg-dry)															
Arsenic	11	11	20 U	20 U	30	20	20	20	9 U	9 U	30	10 U	9 U	10 U	
Cadmium	0.8	0.8	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	0.5	0.4	0.5 U	
Chromium	72	72	43	49	52	39	42	40	31	39.9	42	40 J	38.5 J	48 J	
Copper	390	390	--	81.5	134	57.8	61.1	55.3	40.8	49.2	54.8	58 J	56.3 J	65.4 J	
Lead	21	21	11	21	30	8	14	10	8	10	11	7	9	8	
Mercury	0.2	0.2	0.04	0.16	0.06	0.03 U	0.06	0.07	0.04	0.06	0.07	0.05	0.1	0.09	
Nickel	50	50	--	--	--	--	--	--	--	--	--	--	--	--	
Selenium	11	11	--	--	--	--	--	--	--	--	--	--	--	--	
Silver	0.57	0.57	--	1 U	0.6 U	1 U	0.7 U	1 U	0.5 U	0.5 U	0.6 U	0.7 U	0.6 U	0.8 U	
Zinc	410	410	--	107	134	71	90	75	68	80	83	87	79	91	
Organic Chemicals (ug/kg-dry)															
2,4-Dimethylphenol	29	29	97 U	24 U	24 U	25 U	24 U	17 J	24 U	24 U	25 U	24 U	24 U	24 U	
2-Methylphenol	63	63	19 U	8.4	4.8 U	5 U	4.8 U	4.9 U	4 J	7.3	7.7	4.8 U	4.9 U	3.3 J	
3- & 4-Methylphenol (m,p-Cresol)	260	260	--	--	--	--	--	--	--	--	--	--	--	--	
Benzoic acid	650	650	170 J	680	180 J	110 J	330 J	290 J	230	380	210 J	190 U	240	180 J	
Benzyl alcohol	57	57	19 U	19 U	27	17 J	19 U	50	19 U	58	22	15 J	43 J	43 J	
Dibenzofuran	200	200	45	47	25	14 J	53	65	19 U	19 U	28	12 J	20	19 U	
Phenol	120	120	18 J	100	35	22	71	53	130	200	51	24	94	43	
N-Nitrosodiphenylamine	NV	28	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	5 U	4.8 U	4.9 U	4.8 U	
Organic Chemicals (ug/kg-OC)															
N-Nitrosodiphenylamine	11,000	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	170 U	233 U	153 U	165 U	
Phthalates (ug/kg-dry)															
Bis(2-ethylhexyl)phthalate	500	500	58	66	48 U	50 U	48 U	49 U	43 J	39 J	50 U	29 J	49 U	48 U	
Butylbenzylphthalate	NV	63	19 U	4.8 U	4.8 U	5 U	320	4.9 U	5.1	4.8 U	5 U	4.8 U	4.9 U	4.8 U	
Diethyl phthalate	NV	200	19 U	19 U	19	20 U	36 U	25	19 U	19 U	20 U	56	20	36	
Dimethyl phthalate	NV	71	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	5 U	4.8 U	3.1 J	2.5 J	
Di-n-butyl phthalate	380	380	19 U	130	19 U	20 U	19 U	20 U	19 U	19 U	20 U	19 U	20 U	19 U	
Di-n-octyl phthalate	39	39	19 U	19 U	710	20 U	19 U	20 U	19 U	19 U	20 U	19 U	20 U	19 U	
Phthalates (ug/kg-OC)															
Butylbenzylphthalate	4,900	NV	1,740 U	308 U	250 U	388 U	15,600	159 U	116	161 U	170 U	233 U	153 U	165 U	
Diethyl phthalate	61,000	NV	1,740 U	1,220 U	990	1,550 U	1,760 U	812	433 U	635 U	680 U	2,720	623	1,240	
Dimethyl phthalate	53,000	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	170 U	233 U	96.6 J	85.9 J	

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03	
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	CR01-10cm	CR02-10cm	CR03-10cm	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	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	11/08/2013	11/08/2013	11/08/2013	
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	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	0	80	0	20	0	40	15	15	0	0	0	0
TOC:	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside		
Chlorinated Organics (ug/kg-dry)															
1,2,4-Trichlorobenzene	NV	31	19 U	4.8 U	4.8 U	5 U	4.8 U	4.9 U	4.7 U	4.8 U	3 J	4.8 U	4.9 U	4.8 U	
1,2-Dichlorobenzene	NV	35	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	4.8 U	4.9 U	4.8 U	
1,4-Dichlorobenzene	NV	110	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	4.8 U	19 J	4.8 U	
Hexachlorobenzene	NV	22	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	4.8 U	4.9 U	4.8 U	
Hexachlorobutadiene	NV	11	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	4.8 U	4.9 U	4.8 U	
Pentachlorophenol	360	360	97 U	86 J	14 J	20 U	11 J	20 U	19 UJ	19 UJ	23	19 U	20 U	19 U	
Chlorinated Organics (ug/kg-OC)															
1,2,4-Trichlorobenzene	810	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	102 J	233 U	153 U	165 U	
1,2-Dichlorobenzene	2,300	NV	1,740 U	308 U	250 U	388 U	234 U	58.4 J	107 U	161 U	112 J	233 U	153 U	165 U	
1,4-Dichlorobenzene	3,100	NV	1,740 U	308 U	125 J	388 U	234 U	159 U	95.7 J	161 U	126 J	233 U	592 J	165 U	
Hexachlorobenzene	380	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	112 J	233 U	153 U	165 U	
Hexachlorobutadiene	3,900	NV	1,740 U	308 U	250 U	388 U	234 U	159 U	107 U	161 U	95.2 J	233 U	153 U	165 U	
PAHs (ug/kg-dry)															
Total PAH ^(f)	17,000	17,000	2,030 J	1,840 J	810 J	442 J	1,800	2,800	142 J	284 J	1,120 J	477 J	705 J	101 J	
Total LPAH ^(g)	NV	5,200	434 J	418	259 J	344 J	615	1,740	71	77 J	448	114	488	42	
1-Methylnaphthalene	NV	NV	18 J	16 J	16 J	13 J	29	50	9.5 J	19 U	15 J	--	--	--	
2-Methylnaphthalene	NV	670	40	19 U	23	20 U	19 U	79	19 U	19 U	26	19 U	28	19 U	
Acenaphthene	NV	500	35	25	16 J	18 J	51	75	19 U	19 U	24	14 J	20	19 U	
Acenaphthylene	NV	1,300	16 J	19	14 J	56	51	300	19 U	19 U	59	19 U	68	19 U	
Anthracene	NV	960	57	65	27	15 J	71	72	19 U	11 J	26	14 J	16 J	19 U	
Fluorene	NV	540	48	29	19 U	15 J	52	66	19 U	14 J	29	14 J	15 J	19 U	
Naphthalene	NV	2,100	88	120	110	180	170	800	45	19 U	200	25	280	23	
Phenanthrene	NV	1,500	190	160	92	60	220	430	26	52	110	47	89	19	
Total HPAH ^(h)	NV	12,000	1,540 J	1,400	512	85	1,150	923	61 J	207 J	631 J	363	189	59	
Benzo(a)anthracene	NV	1,300	130	120	43	20 U	94	46	19 U	14 J	46	28	11 J	19 U	
Benzo(a)pyrene	NV	1,600	67	84	37	20 U	67	44	19 U	12 J	32	21	20 U	19 U	
Benzo(ghi)perylene	NV	670	57	56	28	20 U	54	44	19 U	14 J	29	14 J	15 J	19 U	
Chrysene	NV	1,400	180	160	74	20 U	130	73	10 J	24	56	35	17 J	19 U	
Dibenzo(a,h)anthracene	NV	230	18 J	19	9.5	5 U	12	6.4	4.7 U	3.9 J	8.5	3 J	4.9 U	4.8 U	
Fluoranthene	NV	1,700	450	380	110	44	280	290	22	52	180	100	63	25	
Indeno(1,2,3-cd)pyrene	NV	600	43	54	26	20 U	46	28	19 U	13 J	19 J	19 U	20 U	19 U	
Pyrene	NV	2,600	360	300	84	41	250	300	17 J	40	150	110	61	21	
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Total benzofluoranthenes ⁽ⁱ⁾	NV	3,200	230	230	100	40 U	220	92	12 J	34 J	110	52	22 J	13 J	
cPAH TEQ ^{(j)(1)}	21	21	111 J	128	55.6	40 U	106	62	12.9 J	18.7 J	50.9 J	30.6 J	14.7 J	13 J	
PAHs (ug/kg-OC)															
2-Methylnaphthalene	38,000	NV	3,670	1,220 U	1,200	1,550 U	927 U	2,560	433 U	635 U	884	922 U	872	653 U	
Total LPAH ^(g)	370,000	NV	39,800 J	26,800	13,500 J	26,700 J	30,000	56,500	1,620	2,580 J	15,200	5,530	15,200	1,440	
Acenaphthene	16,000	NV	3,210	1,600	833 J	1,400 J	2,490	2,440	433 U	635 U	816	680 J	623	653 U	
Acenaphthylene	66,000	NV	1,470 J	1,220	729 J	4,340	2,490	9,740	433 U	635 U	2,010	922 U	2,120	653 U	
Anthracene	220,000	NV	5,230	4,170	1,410	1,160 J	3,460	2,340	433 U	368 J	884	680 J	498 J	653 U	

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
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	CR01-10cm	CR02-10cm	CR03-10cm
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	11/08/2013	11/08/2013	11/08/2013
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	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	0	80	0	20	0	40	15	15	0	0	0
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside
PAHs (ug/kg-OC) cont.														
Fluorene	23,000	NV	4,400	1,860	990 U	1,160 J	2,540	2,140	433 U	468 J	986	680 J	467 J	653 U
Naphthalene	99,000	NV	8,070	7,690	5,730	14,000	8,290	26,000	1,030	635 U	6,800	1,210	8,720	790
Phenanthrene	100,000	NV	17,400	10,300	4,790	4,650	10,700	14,000	592	1,740	3,740	2,280	2,770	653
Total HPAH ^(h)	960,000	NV	141,000 J	89,700	26,700	6,590	56,100	30,000	1,390 J	6,920 J	21,500 J	17,600	5,890	2,030
Benzo(a)anthracene	110,000	NV	11,900	7,690	2,240	1,550 U	4,590	1,490	433 U	468 J	1,560	1,360	343 J	653 U
Benzo(a)pyrene	99,000	NV	6,150	5,380	1,930	1,550 U	3,270	1,430	433 U	401 J	1,090	1,020	623 U	653 U
Benzo(ghi)perylene	31,000	NV	5,230	3,590	1,460	1,550 U	2,630	1,430	433 U	468 J	986	680 J	467 J	653 U
Chrysene	110,000	NV	16,500	10,300	3,850	1,550 U	6,340	2,370	228 J	803	1,900	1,700	530 J	653 U
Dibenzo(a,h)anthracene	12,000	NV	1,650 J	1,220	495	388 U	585	208	107 U	130 J	289	146 J	153 U	165 U
Fluoranthene	160,000	NV	41,300	24,400	5,730	3,410	13,700	9,420	501	1,740	6,120	4,850	1,960	859
Indeno(1,2,3-cd)pyrene	34,000	NV	3,940	3,460	1,350	1,550 U	2,240	909	433 U	435 J	646 J	922 U	623 U	653 U
Pyrene	1,000,000	NV	33,000	19,200	4,380	3,180	12,200	9,740	387 J	1,340	5,100	5,340	1,900	722
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Total benzofluoranthenes ⁽ⁱ⁾	230,000	NV	21,100	14,700	5,210	3,100 U	10,700	2,990	273 J	1,140 J	3,740	2,520	685 J	447 J
PCBs and Pesticides (ug/kg-dry)														
Aroclor 1016	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1221	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1232	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	23 U	38 U	46 U
Aroclor 1242	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1248	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1254	NV	NV	19 U	30	19 U	18 U	18 U	18 U	18 U	19 U	19 U	18 U	12 J	19 U
Aroclor 1260	NV	NV	19 U	24	19 U	18 U	14 J	18 U	18 U	19 U	19 U	18 U	19 U	19 U
Aroclor 1268	NV	NV	19 U	19 U	19 U	18 U	18 U	18 U	18 U	19 U	19 U	--	--	--
Total PCBs ^(k)	3.5	3.5	19 U	54	19 U	18 U	14 J	18 U	18 U	19 U	19 U	23 U	12 J	46 U
Carbazole	900	900	24 J	--	--	--	--	--	--	--	--	--	--	--
Additional SVOCs (ug/kg-dry)														
1,3-Dichlorobenzene	NV	NV	19 U	--	--	--	--	--	--	--	--	4.8 U	4.9 U	4.8 U
4-Methylphenol	NV	NV	26	120	28 J	190 J	210	560 J	26	19 U	160 J	30	730	60
Hexachlorocyclopentadiene	NV	NV	97 U	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g-dry)														
1,2,3,4,6,7,8-HpCDD	NV	NV	--	--	583	14.5	955	12.5	95.4	107	--	211	201	66.1
1,2,3,4,6,7,8-HpCDF	NV	NV	--	--	33.1	1.26	75.8	0.295 U	14.6	23.9	--	31.9	113	24.7
1,2,3,4,7,8,9-HpCDF	NV	NV	--	--	2.1 U	0.25 U	3.72	0.0959 J	0.908 J	1.15	--	1.59	4.94	0.894 J
1,2,3,4,7,8-HxCDD	NV	NV	--	--	2.33	0.583 U	2.96	0.589 J	1.32	1.57	--	1.76	1.96	1.42
1,2,3,4,7,8-HxCDF	NV	NV	--	--	1.42	0.217 J	4.39	0.111 J	0.991 U	1.16 U	--	2.77	4.6	1.02
1,2,3,6,7,8-HxCDD	NV	NV	--	--	10.7	1.3	22.3	1.71	5.25	6.27	--	9.98	10.4	4.81
1,2,3,6,7,8-HxCDF	NV	NV	--	--	0.798 J	0.178 J	2.13	0.14 J	0.626 J	0.924 J	--	1.19	3.22	0.862 J
1,2,3,7,8,9-HxCDD	NV	NV	--	--	8.01	5.31	13.9	7.04	5.49	7.96	--	11.1	12.4	12.9
1,2,3,7,8,9-HxCDF	NV	NV	--	--	0.0933 U	0.258 U	1.62	0.146 U	0.395 J	0.42 J	--	0.778 U	0.886 J	0.268 J
1,2,3,7,8-PeCDD	NV	NV	--	--	2.87	1.76	4.81	2.68	1.99	3.16	--	3.93	4.53	5.08
1,2,3,7,8-PeCDF	NV	NV	--	--	0.483 U	0.141 J	0.978 J	0.288 U	0.383 U	0.394 J	--	0.683 J	0.804 J	0.508 J

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03	
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	CR01-10cm	CR02-10cm	CR03-10cm	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	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	11/08/2013	11/08/2013	11/08/2013	
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	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	0	80	0	20	0	40	15	15	0	0	0	
TOC:	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside		
Dioxins/Furans (pg/g-dry) cont.															
2,3,4,6,7,8-HxCDF	NV	NV	--	--	1.46	0.188 J	3.84	0.105 J	0.991	1.36	--	1.8	5.58	0.785 J	
2,3,4,7,8-PeCDF	NV	NV	--	--	0.506 J	0.0704 J	1.06	0.201 J	0.379 U	0.528 U	--	0.814 J	1.13	0.594 J	
2,3,7,8-TCDD	NV	NV	--	--	1.71	1.55	2.79	2.06	1.18	2.06 U	--	2.62	2.89	3.56	
2,3,7,8-TCDF	NV	NV	--	--	1.06	0.088 J	2.48	0.529 J	0.831 J	1.63	--	1.96	2.18	1.34	
OCDD	NV	NV	--	--	13,700 J	130	22,200 J	45.4 U	700	788	--	1,690	1,550	489	
OCDF	NV	NV	--	--	73.9	6.41	128	0.802 U	23.8	33.8	--	51	211	36.4	
Total HpCDDs	NV	NV	--	--	1,650	32.3	4120	26.3	225	273	--	485	433	167	
Total HpCDFs	NV	NV	--	--	126 U	3.43 U	243 U	0.643 U	37.3	58.9 U	--	87.1 U	310	55.9	
Total HxCDDs	NV	NV	--	--	147 U	33.2 U	321	45.4 U	48.3 U	72.3 U	--	97	114	80.8 U	
Total HxCDFs	NV	NV	--	--	44 U	1.27 U	119 U	0.888 U	22.2 U	30.8 U	--	52.5 U	125	24.4 U	
Total PeCDDs	NV	NV	--	--	25.9 U	12.7 U	38.2	21.9 U	12.4 U	21 U	--	25.8	34.9	30.6	
Total PeCDFs	NV	NV	--	--	12.8 U	0.428 U	35.9 U	2.08 U	10.6 U	16.5 U	--	18 U	47.6 U	13.2 U	
Total TCDDs	NV	NV	--	--	23.9 U	12 U	25 U	21.4 U	8.55 U	15.4 U	--	17.4 U	28.1 U	24.7 U	
Total TCDFs	NV	NV	--	--	10.9 U	0.656 U	21.7 U	10.7 U	6.42 U	12.5 U	--	12.4 U	33 U	16.7 U	
Dioxin/Furan TEQ ⁽¹⁾	5	5	--	--	17.6 J	4.31 J	30.4 J	5.97 J	6.10 J	7.92 J	--	12.9 J	15.6 J	12.2 J	
TPH (mg/kg-dry)															
Gasoline-Range Hydrocarbons	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Diesel-Range Hydrocarbons	340	340	180	370	--	26	130	170	--	--	--	--	--	--	
Motor-Oil Range Hydrocarbons	3,600	3,600	520	850	--	74	320	280	--	--	--	--	--	--	
Grain Size (%)															
Gravel	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Very coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Medium sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Very fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Coarse silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Medium silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Very fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Coarse clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Medium clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Fine clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Total fines	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Sand, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Silt, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Clay, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Asbestos (%)															
Asbestos	NV	NV	--	--	<1	<1	<1	<1	--	--	--	--	--	--	
Pore Water Analysis															
Conductivity (uS/cm)	NV	NV	--	--	--	--	--	--	--	--	--	18,700	12,200	17,500	
Salinity (ppt)	NV	NV	--	--	--	--	--	--	--	--	--	11	6.9	10.2	

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:			CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date:			11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	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	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23
Type:			Surface	Subsurface	Subsurface	Surface	Subsurface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			60	60	60	45	45	70	70	0	0	0	0	0
TOC:			Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	-- ^(e)
Organic Carbon														
Conventional Parameters														
Ammonia as Nitrogen (mg/kg)	230	230	0.47 U	--	15.2	7.21	--	1.37	14.0	--	--	--	--	--
Fixed Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide (mg/kg)	39	39	6.46	--	179	320	--	906	2,910	--	--	--	--	--
Total Organic Carbon (%)	NV	NV	31.4 J	--	16.5 J	13.6 J	--	35.6 J	49.5 J	0.415	3.33	2.5	3.22	--
Total Solids (%)	NV	NV	20.62	--	19.98	30.32	--	21.4	21.59	72.59	56.65	57.95	57.04	--
Total Volatile Solids (%)	NV	NV	59.91	--	38.2	36.49	--	60.05	69.23	--	--	--	--	--
TCLP Metals (mg/L)														
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	0.1 U
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	0.0001 U
Total Metals (mg/kg-dry)														
Arsenic	11	11	--	--	--	--	--	--	20 U	20 U	20 U	9 U	20 U	--
Cadmium	0.8	0.8	--	--	--	--	--	--	1 U	0.6 U	0.8 U	0.4	0.8 U	--
Chromium	72	72	--	--	--	--	--	--	26 J	37	48	41.3	49	--
Copper	390	390	--	--	--	--	--	--	96 J	47	62.2	55.1	63	--
Lead	21	21	--	--	--	--	--	--	110	6 U	11	9	12	--
Mercury	0.2	0.2	6.2	0.5 J	--	0.16	0.5 J	0.55	0.53	0.03 U	0.09	0.07	0.09	--
Nickel	50	50	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	11	11	--	--	--	--	--	--	--	--	--	--	--	--
Silver	0.57	0.57	--	--	--	--	--	--	1 U	1 U	1 U	0.5 U	1 U	--
Zinc	410	410	--	--	--	--	--	--	237	78	86	76	90	--
Organic Chemicals (ug/kg-dry)														
2,4-Dimethylphenol	29	29	530 UJ	400 UJ	--	290 UJ	440 UJ	--	350 U	23 U	24 U	24 U	24 U	--
2-Methylphenol	63	63	100 UJ	81 UJ	--	44 J	88 UJ	--	45 J	4.7 U	4.9 U	7.2	4.9 U	--
3- & 4-Methylphenol (m,p-Cresol)	260	260	--	--	--	--	--	--	--	--	--	--	--	--
Benzoic acid	650	650	1,700 J	3,200 UJ	--	950 J	3,500 UJ	--	860 J	190 U	440	260	200	--
Benzyl alcohol	57	57	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U	19 U	23	46	20	--
Dibenzofuran	200	200	420 UJ	210 J	--	310 J	230 J	--	490	19 U	40	20 U	20	--
Phenol	120	120	290 J	390 J	980 J	570 J	530 J	370 J	240 J	8.4 J	64	44	50	--
N-Nitrosodiphenylamine	NV	28	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 UJ	4.9 U	4.9 U	--
Organic Chemicals (ug/kg-OC)														
N-Nitrosodiphenylamine	11,000	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 UJ	196 U	152 U	--
Phthalates (ug/kg-dry)														
Bis(2-ethylhexyl)phthalate	500	500	1,000 UJ	870 J	--	960 J	9,400 J	--	1,900	47 U	49 U	49 U	49 U	--
Butylbenzylphthalate	NV	63	58 UJ	81 UJ	--	58 UJ	88 UJ	310 UJ	70 U	4.7 U	4.9 U	7.3	4.7 J	--
Diethyl phthalate	NV	200	420 UJ	320 UJ	--	230 UJ	350 UJ	--	270 J	19 U	20 U	20 U	20 U	--
Dimethyl phthalate	NV	71	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--
Di-n-butyl phthalate	380	380	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U	19 U	20 U	20 U	20 U	--
Di-n-octyl phthalate	39	39	420 UJ	320 UJ	--	230 UJ	350 UJ	--	280 U	19 U	20 U	20 U	20 U	--
Phthalates (ug/kg-OC)														
Butylbenzylphthalate	4,900	NV	185 UJ	--	--	426 UJ	--	871 UJ	141 U	1,130 U	147 U	292	146 J	--
Diethyl phthalate	61,000	NV	1,340 UJ	--	--	1,690 UJ	--	--	545 J	4,580 U	601 U	800 U	621 U	--
Dimethyl phthalate	53,000	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	
Sample Name:			CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	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	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23	
Type:			Surface	Subsurface	Subsurface	Surface	Subsurface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			60	60	60	45	45	70	70	0	0	0	0	0	0
TOC:			Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	Inside	-- ^(e)
Chlorinated Organics (ug/kg-dry)															
1,2,4-Trichlorobenzene	NV	31	100 UJ	81 UJ	--	43 J	74 J	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--	
1,2-Dichlorobenzene	NV	35	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--	
1,4-Dichlorobenzene	NV	110	100 UJ	81 UJ	--	1,000 J	540 J	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--	
Hexachlorobenzene	NV	22	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--	
Hexachlorobutadiene	NV	11	100 UJ	81 UJ	--	58 UJ	88 UJ	--	70 U	4.7 U	4.9 U	4.9 U	4.9 U	--	
Pentachlorophenol	360	360	270 J	400 J	--	230 UJ	350 UJ	1,500 UJ	240 J	19 UJ	20 UJ	20 UJ	20 UJ	--	
Chlorinated Organics (ug/kg-OC)															
1,2,4-Trichlorobenzene	810	NV	318 UJ	--	--	316 J	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
1,2-Dichlorobenzene	2,300	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
1,4-Dichlorobenzene	3,100	NV	318 UJ	--	--	7,350 J	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
Hexachlorobenzene	380	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
Hexachlorobutadiene	3,900	NV	318 UJ	--	--	426 UJ	--	--	141 U	1,130 U	147 U	196 U	152 U	--	
PAHs (ug/kg-dry)															
Total PAH ^(f)	17,000	17,000	4,010 J	10,800 J	--	7,560 J	12,000 J	--	22,700	105 J	1,380 J	1,030 J	763 J	--	
Total LPAH ^(g)	NV	5,200	740 J	1,360 J	--	2,290 J	1,850 J	--	7,810	19	819	654	432 J	--	
1-Methylnaphthalene	NV	NV	--	--	--	--	--	--	19 U	24	22	16 J	--	--	
2-Methylnaphthalene	NV	670	420 UJ	320 UJ	--	310	350 UJ	--	780	19 U	41	20 U	21	--	
Acenaphthene	NV	500	420 UJ	180 J	--	210	390 J	--	490	19 U	41	31	20	--	
Acenaphthylene	NV	1,300	420 UJ	320 UJ	--	170	350 UJ	--	520	19 U	110	110	61	--	
Anthracene	NV	960	420 UJ	290 J	--	230	320 J	--	750	19 U	41	28	18 J	--	
Fluorene	NV	540	420 UJ	180 J	--	260 J	230 J	--	650	19 U	47	35	23	--	
Naphthalene	NV	2,100	420 J	340 J	--	720 J	440 J	--	1,800	19 U	370	300	190	--	
Phenanthrene	NV	1,500	320 J	370 J	--	700 J	470 J	--	3,600	19	210	150	120	--	
Total HPAH ^(h)	NV	12,000	3,270 J	9,460 J	--	4,960 J	10,200 J	--	14,100	86 J	494 J	351 J	294 J	--	
Benzo(a)anthracene	NV	1,300	250 J	640 J	--	390	680 J	--	1,300	11 J	30	20	17 J	--	
Benzo(a)pyrene	NV	1,600	300 J	680 J	--	340 J	530 J	--	1,200	19 U	20 U	20 U	20 U	--	
Benzo(ghi)perylene	NV	670	230 J	660 J	--	260 J	300 J	--	590	19 U	30	30	20	--	
Chrysene	NV	1,400	530 J	940 J	--	420 J	460 J	--	1,600	12 J	43	29	25	--	
Dibenzo(a,h)anthracene	NV	230	120 J	360 J	--	94 J	190 J	--	150	4.7 U	6.3	4.3 J	3.2 J	--	
Fluoranthene	NV	1,700	590 J	2,200 J	--	1,300 J	3,900 J	--	3,200	24	150	100	88	--	
Indeno(1,2,3-cd)pyrene	NV	600	420 UJ	480 J	--	200 J	190 J	--	490	19 U	24	18 J	15 J	--	
Pyrene	NV	2,600	700 J	1,800 J	--	1,300 J	3,100 J	--	3,600	23	150	110	87	--	
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Total benzo(a)fluoranthenes ⁽ⁱ⁾	NV	3,200	550 J	1,700 J	--	660	810 J	--	2,000	16 J	61	40	39	--	
cPAH TEQ ^{(j)(1)}	21	21	418 J	1,010 J	--	479 J	722 J	--	1,610	13.5 J	22.6	18.5 J	17.7 J	--	
PAHs (ug/kg-OC)															
2-Methylnaphthalene	38,000	NV	1,340 UJ	--	--	2,280	--	--	1,580	4,580 U	1,230	800 U	652	--	
Total LPAH ^(g)	370,000	NV	2,360 J	--	--	16,800 J	--	--	15,800	4,580	24,600	26,200	13,400 J	--	
Acenaphthene	16,000	NV	1,340 UJ	--	--	1,540	--	--	990	4,580 U	1,230	1,240	621	--	
Acenaphthylene	66,000	NV	1,340 UJ	--	--	1,250	--	--	1,050	4,580 U	3,300	4,400	1,890	--	
Anthracene	220,000	NV	1,340 UJ	--	--	1,690	--	--	1,520	4,580 U	1,230	1,120	559 J	--	

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	
Sample Name:			CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	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	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23	
Type:			Surface	Subsurface	Subsurface	Surface	Subsurface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			60	60	60	45	45	70	70	0	0	0	0	0	0
TOC:			Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	Inside	-- ^(e)
PAHs (ug/kg-OC) cont.															
Fluorene	23,000	NV	1,340 UJ	--	--	1,910 J	--	--	1,310	4,580 U	1,410	1,400	714	--	
Naphthalene	99,000	NV	1,340 J	--	--	5,290 J	--	--	3,640	4,580 U	11,100	12,000	5,900	--	
Phenanthrene	100,000	NV	1,020 J	--	--	5,150 J	--	--	7,270	4,580	6,310	6,000	3,730	--	
Total HPAH ^(h)	960,000	NV	10,400 J	--	--	36,500 J	--	--	28,500	20,700 J	14,800 J	14,000 J	9,130 J	--	
Benzo(a)anthracene	110,000	NV	796 J	--	--	2,870	--	--	2,630	2,650 J	901	800	528 J	--	
Benzo(a)pyrene	99,000	NV	955 J	--	--	2,500 J	--	--	2,420	4,580 U	601 U	800 U	621 U	--	
Benzo(ghi)perylene	31,000	NV	732 J	--	--	1,910 J	--	--	1,190	4,580 U	901	1,200	621	--	
Chrysene	110,000	NV	1,690 J	--	--	3,090 J	--	--	3,230	2,890 J	1,290	1,160	776	--	
Dibenzo(a,h)anthracene	12,000	NV	382 J	--	--	691 J	--	--	303	1,130 U	189	172 J	99.4 J	--	
Fluoranthene	160,000	NV	1,880 J	--	--	9,560 J	--	--	6,460	5,780	4,500	4,000	2,730	--	
Indeno(1,2,3-cd)pyrene	34,000	NV	1,340 UJ	--	--	1,470 J	--	--	990	4,580 U	721	720 J	466 J	--	
Pyrene	1,000,000	NV	2,230 J	--	--	9,560 J	--	--	7,270	5,540	4,500	4,400	2,700	--	
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Total benzofluoranthenes ⁽ⁱ⁾	230,000	NV	1,750 J	--	--	4,850	--	--	4,040	3,860 J	1,830	1,600	1,210	--	
PCBs and Pesticides (ug/kg-dry)															
Aroclor 1016	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	--	
Aroclor 1221	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	--	
Aroclor 1232	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	--	
Aroclor 1242	NV	NV	20 UJ	19 UJ	--	20 UJ	19 UJ	--	20 U	17 U	20 U	20 U	20 U	--	
Aroclor 1248	NV	NV	29 UJ	48 UJ	--	29 UJ	97 UJ	--	99 U	17 U	20 U	20 U	20 U	--	
Aroclor 1254	NV	NV	97 UJ	440 J	--	98 UJ	490 J	--	200 U	17 U	20 U	20 U	20 U	--	
Aroclor 1260	NV	NV	200 J	730 J	--	180 J	670 J	--	690	17 U	20 U	20 U	20 U	--	
Aroclor 1268	NV	NV	--	--	--	--	--	--	17 U	20 U	20 U	20 U	20 U	--	
Total PCBs ^(k)	3.5	3.5	200 J	1,170 J	--	180 J	1,160 J	--	690	17 U	20 U	20 U	20 U	--	
Carbazole	900	900	--	--	--	--	--	--	--	--	--	--	--	--	
Additional SVOCs (ug/kg-dry)															
1,3-Dichlorobenzene	NV	NV	100 UJ	81 UJ	--	620 J	280 J	--	70 U	--	--	--	--	--	
4-Methylphenol	NV	NV	420 UJ	320 UJ	--	310 J	280 J	--	420	19 U	870 J	150	130	--	
Hexachlorocyclopentadiene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	
Dioxins/Furans (pg/g-dry)															
1,2,3,4,6,7,8-HpCDD	NV	NV	817	4,070	--	1,820	12,200	1,080	1,090	6.64	--	--	--	--	
1,2,3,4,6,7,8-HpCDF	NV	NV	165	919	--	437	1,170	258	276	0.317 U	--	--	--	--	
1,2,3,4,7,8,9-HpCDF	NV	NV	7.55 U	42.8	--	19.8	81.3	13.2	15.5	0.0458 U	--	--	--	--	
1,2,3,4,7,8-HxCDD	NV	NV	4.26	32.5	--	11.2	24.5	12.7	8.21	0.255 U	--	--	--	--	
1,2,3,4,7,8-HxCDF	NV	NV	7.26	35.9	--	15.3	115	18.1	21.7	0.0319 J	--	--	--	--	
1,2,3,6,7,8-HxCDD	NV	NV	54.5	350	--	136	1,020	63.8	72.8	0.631 U	--	--	--	--	
1,2,3,6,7,8-HxCDF	NV	NV	3.38	18.9	--	10.9	51.7	8.9	8.35	0.0339 U	--	--	--	--	
1,2,3,7,8,9-HxCDD	NV	NV	10.2	48.1	--	29.9	98.1	16.5	15.4	2.76	--	--	--	--	
1,2,3,7,8,9-HxCDF	NV	NV	2.45	14.6	--	6.11	62.9	4.79	4.66	0.112 U	--	--	--	--	
1,2,3,7,8-PeCDD	NV	NV	4.34	18.8	--	13.9	34.1	9.35	8.27	1.02	--	--	--	--	
1,2,3,7,8-PeCDF	NV	NV	2.06	12.4	--	4.73	41.4	3.28	3.24	0.0398 U	--	--	--	--	

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-04			CR-05		CR-06		CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP
Sample Name:			CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP
Collection Date:			11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013	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	2.5-5	0-0.33	0.33-2.5	0-0.33	1-2.5	23	15	11	12	11-23
Type:			Surface	Subsurface	Subsurface	Surface	Subsurface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			60	60	60	45	45	70	70	0	0	0	0	0
TOC:			Outside	-- ^(d)	Outside	Outside	-- ^(d)	Outside	Outside	Outside	Inside	Inside	Inside	-- ^(e)
Dioxins/Furans (pg/g-dry) cont.														
2,3,4,6,7,8-HxCDF	NV	NV	5.09	22.2	--	11.1	69.3	16.9	16.3	0.0438 U	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	3.43	15.7	--	5.82	43.5	5.96	5.87	0.0418 U	--	--	--	--
2,3,7,8-TCDD	NV	NV	1.14 U	3.97	--	3	5.26	2.09	2.11	0.936 J	--	--	--	--
2,3,7,8-TCDF	NV	NV	3.53	16	--	6.3	54.3	4.87	4.95	0.0339 U	--	--	--	--
OCDD	NV	NV	5,340 J	23,500 J	--	10,300 J	68,300 J	7,830 J	6,810 J	33.1	--	--	--	--
OCDF	NV	NV	476	1,900	--	863	3,100	680	652	1.08 J	--	--	--	--
Total HpCDDs	NV	NV	1,530	7,520	--	3,750	21,300	2,480	2,050	15.5	--	--	--	--
Total HpCDFs	NV	NV	678 U	3,910	--	1,560	5,060 U	950	1,120 U	1.28 U	--	--	--	--
Total HxCDDs	NV	NV	350 U	1,540 U	--	1,010 U	4,840	742 U	783 U	18.1 U	--	--	--	--
Total HxCDFs	NV	NV	301 U	2,130	--	853	6,030 U	463 U	518 U	0.599 U	--	--	--	--
Total PeCDDs	NV	NV	68.7 U	133 U	--	334 U	862 U	88.7	67 U	7.59	--	--	--	--
Total PeCDFs	NV	NV	101 U	658 U	--	281 U	2,660 U	203 U	147 U	0.111 U	--	--	--	--
Total TCDDs	NV	NV	17.5 U	32.6 U	--	73.6 U	180	42.6 U	28.7	7.61 U	--	--	--	--
Total TCDFs	NV	NV	27.9 U	119 U	--	78.1 U	558 U	82.8 U	62.3 U	0.303 U	--	--	--	--
Dioxin/Furan TEQ ^{(f)(1)}	5	5	26.7 J	140 J	--	67.6 J	359 J	44.0 J	43.5 J	2.38 J	--	--	--	--
TPH (mg/kg-dry)														
Gasoline-Range Hydrocarbons	--	--	--	--	--	--	--	--	54 UJ	--	--	--	--	--
Diesel-Range Hydrocarbons	340	340	2,400 J	3,200 J	--	1,200 J	3,200 J	--	20,000	7 U	--	--	--	--
Motor-Oil Range Hydrocarbons	3,600	3,600	7,400 J	10,000 J	--	4,800 J	13,000 J	--	60,000	19	--	--	--	--
Grain Size (%)														
Gravel	NV	NV	22.8	--	23.6	20.2	--	22.7	--	--	--	--	--	--
Very coarse sand	NV	NV	13.8	--	13	11.4	--	13	--	--	--	--	--	--
Coarse sand	NV	NV	14.2	--	10.7	13.2	--	15.7	--	--	--	--	--	--
Medium sand	NV	NV	8.5	--	6.1	10.5	--	11.9	--	--	--	--	--	--
Fine sand	NV	NV	3.7	--	3.2	6	--	5.1	--	--	--	--	--	--
Very fine sand	NV	NV	1.4	--	1.4	3.5	--	2	--	--	--	--	--	--
Coarse silt	NV	NV	7.2	--	1.3	8.1	--	4.1	--	--	--	--	--	--
Medium silt	NV	NV	5.9	--	10.6	7.7	--	5.1	--	--	--	--	--	--
Fine silt	NV	NV	6.2	--	8.9	5.1	--	4.5	--	--	--	--	--	--
Very fine silt	NV	NV	4.8	--	6.1	4.5	--	3.7	--	--	--	--	--	--
Coarse clay	NV	NV	2.9	--	4.3	2.1	--	2.7	--	--	--	--	--	--
Medium clay	NV	NV	2.6	--	3.7	2.4	--	2.1	--	--	--	--	--	--
Fine clay	NV	NV	6.1	--	7.2	5.4	--	7.4	--	--	--	--	--	--
Total fines	NV	NV	35.6	--	42.1	35.3	--	29.7	--	--	--	--	--	--
Sand, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Silt, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Clay, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Asbestos (%)														
Asbestos	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Pore Water Analysis														
Conductivity (uS/cm)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Salinity (ppt)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-15C		CR-17D		CR-18B		CR-19D	CR-19F			CR-26	SE-01A	SE-02A
Sample Name:			CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	SE-01A-1.0-2.0	SE-02A-2.5-3.5
Collection Date:			10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015	09/25/2019	09/26/2019
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	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0	1-2	2-3.5
Type:			Surface	Subsurface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			0	0	0	0	0	0	0	0	0	0	0	20	10
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Outside	Inside
Conventional Parameters															
Ammonia as Nitrogen (mg/kg)	230	230	--	--	--	--	--	--	18.6	--	--	--	--	290 J	230 J
Fixed Solids (%)	NV	NV	--	--	--	--	--	--	44.8	--	--	--	--	--	--
Sulfide (mg/kg)	39	39	--	--	--	--	--	--	605	--	--	--	--	865 J	977
Total Organic Carbon (%)	NV	NV	3.17	1.73	1.61	3.05	1.95	2.45	3.99	2.77	2.76	2.59	1.52	4.4	3.3
Total Solids (%)	NV	NV	35.1	57.47	52.1	48.09	46.44	47.88	39.38	49.31	50.3	51.43	46.69	51.9	55.5
Total Volatile Solids (%)	NV	NV	--	--	--	--	--	--	8.58	--	--	--	--	11.9 J	7.94 J
TCLP Metals (mg/L)															
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/kg-dry)															
Arsenic	11	11	20	21	21	30	30	20	--	20	22	23	24	--	--
Cadmium	0.8	0.8	0.5 U	0.3 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U	0.3 U	0.4 U	--	--
Chromium	72	72	40	34.5	34.4	40	41	36	--	41	50.5	51.3	39.3	--	--
Copper	390	390	51.9	54.7	51.1	58.2	62.7	53.4	--	53.1	60	53.3	55.9	--	--
Lead	21	21	11	9	9	12	10	10	--	11	13	14	11	--	--
Mercury	0.2	0.2	0.06 U	0.04	0.04	0.07	0.05 U	0.07	--	0.05	0.05	0.07	0.09	--	0.103
Nickel	50	50	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	0.57	0.57	0.8 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.5 U	0.6 U	--	--
Zinc	410	410	77	69	70	79	76	73	--	74	80	79	75	--	--
Organic Chemicals (ug/kg-dry)															
2,4-Dimethylphenol	29	29	24 U	24 U	24 U	24 U	25 U	25 U	--	24 U	25 U	25 U	24 U	--	--
2-Methylphenol	63	63	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	5.4	--	--
3- & 4-Methylphenol (m,p-Cresol)	260	260	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzoic acid	650	650	250 J	160 J	150 J	230 J	160 J	210 J	--	170 J	240	370	440	--	--
Benzyl alcohol	57	57	20 U	20 U	16 J	48	20 U	20 U	--	19 U	27	28	64	--	--
Dibenzofuran	200	200	24	21	19 U	84	20 U	20 U	--	15 J	25	28	25	--	--
Phenol	120	120	50	20 U	16 J	39	81	20 U	93 J+	89	47	68	76	--	--
N-Nitrosodiphenylamine	NV	28	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
Organic Chemicals (ug/kg-OC)															
N-Nitrosodiphenylamine	11,000	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--
Phthalates (ug/kg-dry)															
Bis(2-ethylhexyl)phthalate	500	500	29 J	49 U	48 U	38 J	50 U	50 U	--	48 U	50 U	32 J	49 U	--	--
Butylbenzylphthalate	NV	63	4.9 U	4.9 U	3.4 J	4.9 U	7.2	2.8 J	--	8.1	9.3	7.4	4.9 U	--	--
Diethyl phthalate	NV	200	21 U	26 U	19 U	19 U	40 U	20 U	--	22 U	24 U	38 U	20 U	--	--
Dimethyl phthalate	NV	71	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
Di-n-butyl phthalate	380	380	20 U	20 U	19 U	19 U	20 U	20 U	--	19 U	20 U	20 U	20 U	--	--
Di-n-octyl phthalate	39	39	20 U	20 U	19 U	19 U	20 U	20 U	--	19 U	20 U	20 U	20 U	--	--
Phthalates (ug/kg-OC)															
Butylbenzylphthalate	4,900	NV	155 U	283 U	211 J	161 U	369	114 J	--	292	337	286	322 U	--	--
Diethyl phthalate	61,000	NV	662 U	1,500 U	1,180 U	623 U	2,050 U	816 U	--	794 U	870 U	1,470 U	1,320 U	--	--
Dimethyl phthalate	53,000	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-15C		CR-17D		CR-18B		CR-19D	CR-19F			CR-26	SE-01A	SE-02A
Sample Name:			CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	SE-01A-1.0-2.0	SE-02A-2.5-3.5
Collection Date:			10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015	09/25/2019	09/26/2019
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	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0	1-2	2-3.5
Type:			Surface	Subsurface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			0	0	0	0	0	0	0	0	0	0	0	20	10
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Outside	Inside
Chlorinated Organics (ug/kg-dry)															
1,2,4-Trichlorobenzene	NV	31	4.9 U	4.9 U	4.8 U	4.8 J	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
1,2-Dichlorobenzene	NV	35	4.9 U	4.9 U	4.8 U	1.6 J	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
1,4-Dichlorobenzene	NV	110	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
Hexachlorobenzene	NV	22	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
Hexachlorobutadiene	NV	11	4.9 U	4.9 U	4.8 U	4.9 U	5 U	5 U	--	4.8 U	5 U	5 U	4.9 U	--	--
Pentachlorophenol	360	360	20 UJ	20 UJ	19 U	21	20 U	20 U	--	19 U	20 UJ	20 UJ	20 UJ	--	--
Chlorinated Organics (ug/kg-OC)															
1,2,4-Trichlorobenzene	810	NV	155 U	283 U	298 U	157 J	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--
1,2-Dichlorobenzene	2,300	NV	155 U	283 U	298 U	52.5 J	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--
1,4-Dichlorobenzene	3,100	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--
Hexachlorobenzene	380	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--
Hexachlorobutadiene	3,900	NV	155 U	283 U	298 U	161 U	256 U	204 U	--	173 U	181 U	193 U	322 U	--	--
PAHs (ug/kg-dry)															
Total PAH ^(f)	17,000	17,000	800 J	725 J	101 J	3,070	356 J	1,050 J	--	269 J	526 J	848 J	427 J	--	--
Total LPAH ^(g)	NV	5,200	255 J	196 J	32 J	1,160	66 J	118 J	--	131 J	258	340 J	166 J	--	--
1-Methylnaphthalene	NV	NV	15 J	18 J	19 U	23	20 U	20 U	--	19 U	20 U	13 J	11 J	--	--
2-Methylnaphthalene	NV	670	19 J	18 J	19 U	31	20 U	20 U	--	10 J	13 J	22	20 U	--	--
Acenaphthene	NV	500	38	37	19 U	420	20 U	16 J	--	12 J	27	31	29	--	--
Acenaphthylene	NV	1,300	15 J	15 J	19 U	20	20 U	17 J	--	19 U	20 U	18 J	9.7 J	--	--
Anthracene	NV	960	18 J	20	19 U	110	20 U	24	--	15 J	30	26	14 J	--	--
Fluorene	NV	540	29	20	19 U	140	11 J	12 J	--	12 J	29	27	23	--	--
Naphthalene	NV	2,100	64	35	13 J	110	29	22	--	56	62	98	51	--	--
Phenanthrene	NV	1,500	91	69	19	360	26	27	--	36	110	140	39	--	--
Total HPAH ^(h)	NV	12,000	511 J	493 J	68.9 J	1,850	290 J	932 J	--	128 J	255 J	473 J	250 J	--	--
Benzo(a)anthracene	NV	1,300	56	64	19 U	160	29	99	--	12 J	21	37	18 J	--	--
Benzo(a)pyrene	NV	1,600	31	35	19 U	81	12 J	68	--	19 U	20 U	20 U	20 U	--	--
Benzo(ghi)perylene	NV	670	23	14 J	19 U	36	20 U	27	--	19 U	20 U	15 J	13 J	--	--
Chrysene	NV	1,400	61	69	8.6 J	210	66	93	--	21	30	64	26	--	--
Dibenzo(a,h)anthracene	NV	230	4 J	4.3 J	2.3 J	15	5 U	8	--	4.8 U	5 U	3.1 J	3.1 J	--	--
Fluoranthene	NV	1,700	120	110	25	600	82	210	--	41	94	150	75	--	--
Indeno(1,2,3-cd)pyrene	NV	600	18 J	17 J	19 U	41	20 U	27	--	19 U	20 U	14 J	8.8 J	--	--
Pyrene	NV	2,600	98	80	20	470	62	220	--	35	83	130	70	--	--
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Total benzofluoranthenes ⁽ⁱ⁾	NV	3,200	100	100	13 J	240	39 J	180	--	19 J	27 J	60	36 J	--	--
cPAH TEQ ^{(j)(1)}	21	21	49.4 J	54.2 J	13 J	129	20.7 J	100	--	14 J	16.4 J	22.1 J	16.9 J	--	--
PAHs (ug/kg-OC)															
2-Methylnaphthalene	38,000	NV	599 J	1,040 J	1,180 U	1,020	1,030 U	816 U	--	361 J	471 J	849	1,320 U	--	--
Total LPAH ^(g)	370,000	NV	8,040 J	11,300 J	1,990 J	38,000	3,380 J	4,820 J	--	4,730 J	9,350	13,100 J	10,900 J	--	--
Acenaphthene	16,000	NV	1,200	2,140	1,180 U	13,800	1,030 U	653 J	--	433 J	978	1,200	1,910	--	--
Acenaphthylene	66,000	NV	473 J	867 J	1,180 U	656	1,030 U	694 J	--	686 U	725 U	695 J	638 J	--	--
Anthracene	220,000	NV	568 J	1,160	1,180 U	3,610	1,030 U	980	--	542 J	1,090	1,000	921 J	--	--

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		CR-15C		CR-17D		CR-18B		CR-19D	CR-19F			CR-26	SE-01A	SE-02A
Sample Name:			CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	SE-01A-1.0-2.0	SE-02A-2.5-3.5
Collection Date:			10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015	09/25/2019	09/26/2019
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	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0	1-2	2-3.5
Type:			Surface	Subsurface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			0	0	0	0	0	0	0	0	0	0	0	20	10
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Outside	Inside
PAHs (ug/kg-OC) cont.															
Fluorene	23,000	NV	915	1,160	1,180 U	4,590	564 J	490 J	--	433 J	1,050	1,040	1,510	--	--
Naphthalene	99,000	NV	2,020	2,020	807 J	3,610	1,490	898	--	2,020	2,250	3,780	3,360	--	--
Phenanthrene	100,000	NV	2,870	3,990	1,180	11,800	1,330	1,100	--	1,300	3,990	5,410	2,570	--	--
Total HPAH ^(h)	960,000	NV	16,100 J	28,500 J	4,280 J	60,700	14,900 J	38,000 J	--	4,620 J	9,240 J	18,300 J	16,400 J	--	--
Benzo(a)anthracene	110,000	NV	1,770	3,700	1,180 U	5,250	1,490	4,040	--	433 J	761	1,430	1,180 J	--	--
Benzo(a)pyrene	99,000	NV	978	2,020	1,180 U	2,660	615 J	2,780	--	686 U	725 U	772 U	1,320 U	--	--
Benzo(ghi)perylene	31,000	NV	726	809 J	1,180 U	1,180	1,030 U	1,100	--	686 U	725 U	579 J	855 J	--	--
Chrysene	110,000	NV	1,920	3,990	534 J	6,890	3,380	3,800	--	758	1,090	2,470	1,710	--	--
Dibenzo(a,h)anthracene	12,000	NV	126 J	249 J	143 J	492	256 U	327	--	173 U	181 U	120 J	204 J	--	--
Fluoranthene	160,000	NV	3,790	6,360	1,550	19,700	4,210	8,570	--	1,480	3,410	5,790	4,930	--	--
Indeno(1,2,3-cd)pyrene	34,000	NV	568 J	983 J	1,180 U	1,340	1,030 U	1,100	--	686 U	725 U	541 J	579 J	--	--
Pyrene	1,000,000	NV	3,090	4,620	1,240	15,400	3,180	8,980	--	1,260	3,010	5,020	4,610	--	--
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Total benzofluoranthenes ⁽ⁱ⁾	230,000	NV	3,150	5,780	807 J	7,870	2,000 J	7,350	--	686 J	978 J	2,320	2,370 J	--	--
PCBs and Pesticides (ug/kg-dry)															
Aroclor 1016	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1221	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1232	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1242	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1248	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1254	NV	NV	20 U	18 U	19 U	18 J	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1260	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Aroclor 1268	NV	NV	20 U	18 U	19 U	20 U	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Total PCBs ^(k)	3.5	3.5	20 U	18 U	19 U	18 J	18 U	19 U	--	18 U	19 U	20 U	19 U	--	--
Carbazole	900	900	--	--	--	--	--	--	--	--	--	--	--	--	--
Additional SVOCs (ug/kg-dry)															
1,3-Dichlorobenzene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	NV	NV	89	52	19 UJ	120 J	42	20 U	--	19 U	230	320	45	--	--
Hexachlorocyclopentadiene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g-dry)															
1,2,3,4,6,7,8-HpCDD	NV	NV	100	--	56.2	--	30.9	--	--	141	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	25.3	--	8.12	--	7.34	--	--	24.3	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	0.959 U	--	0.483 U	--	0.332 J	--	--	1.04	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	1.22	--	0.736 U	--	0.758 J	--	--	1.35	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	1.25 U	--	0.596 J	--	0.424 U	--	--	1.37	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	5.48	--	2.94	--	2.46	--	--	9.89	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	0.806 J	--	0.37 J	--	0.294 U	--	--	1.07	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	10	--	6.33	--	8	--	--	8.91	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	0.338 U	--	0.324 U	--	0.226 U	--	--	0.571 U	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	3.65	--	2.49	--	3.28	--	--	3.01	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	0.408 J	--	0.213 U	--	0.157 U	--	--	0.613 U	--	--	--	--	--

Location:	Preliminary Cleanup Standards ^(a)		CR-15C		CR-17D		CR-18B		CR-19D	CR-19F			CR-26	SE-01A	SE-02A
Sample Name:			CR15C-SSD	CR15C-SBSD	CR17-D-SSD	CR17-D-SBSD	CR18B-SSD	CR18B-SBSD	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD	SE-01A-1.0-2.0	SE-02A-2.5-3.5
Collection Date:			10/14/2015	10/14/2015	10/15/2015	10/15/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/16/2015	10/15/2015	09/25/2019	09/26/2019
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	0-0.33	0-0.33	0.5-1.0	0.5-1.0	0.5-1.0	1-2	2-3.5
Type:			Surface	Subsurface	Surface	Subsurface	Surface	Subsurface	Surface	Surface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
Percent Wood waste:			0	0	0	0	0	0	0	0	0	0	0	20	10
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Outside	Inside
Dioxins/Furans (pg/g-dry) cont.			--												
2,3,4,6,7,8-HxCDF	NV	NV	1.21 U	--	0.443 U	--	0.469 J	--	--	1.73	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	0.505 U	--	0.239 U	--	0.183 U	--	--	0.557 J	--	--	--	--	--
2,3,7,8-TCDD	NV	NV	2.7	--	1.85	--	2.36	--	--	2.16	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	1.55	--	0.406 U	--	0.381 U	--	--	7.75	--	--	--	--	--
OCDD	NV	NV	790	--	475	--	189	--	--	1,010	--	--	--	--	--
OCDF	NV	NV	33.1	--	14	--	10.9	--	--	36.8	--	--	--	--	--
Total HpCDDs	NV	NV	275	--	150	--	73.7	--	--	340	--	--	--	--	--
Total HpCDFs	NV	NV	60.7 U	--	21.2 U	--	17.4	--	--	62.7 U	--	--	--	--	--
Total HxCDDs	NV	NV	76.1 U	--	45.8 U	--	46.9 U	--	--	93 U	--	--	--	--	--
Total HxCDFs	NV	NV	28.1 U	--	10.8 U	--	8.92 U	--	--	40.2 U	--	--	--	--	--
Total PeCDDs	NV	NV	26.5	--	16.7 U	--	20.5 U	--	--	26.4 U	--	--	--	--	--
Total PeCDFs	NV	NV	12.6 U	--	4.66 U	--	4.65 U	--	--	23.6 U	--	--	--	--	--
Total TCDDs	NV	NV	20.3 U	--	12.4 U	--	15.9 U	--	--	20.6 U	--	--	--	--	--
Total TCDFs	NV	NV	13.7 U	--	4.27 U	--	4.57 U	--	--	25.6 U	--	--	--	--	--
Dioxin/Furan TEQ ^{(b)(1)}	5	5	9.99 J	--	6.29 J	--	7.35 J	--	--	10.6 J	--	--	--	--	--
TPH (mg/kg-dry)															
Gasoline-Range Hydrocarbons	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diesel-Range Hydrocarbons	340	340	77	--	24	--	44	--	--	93	--	--	--	--	--
Motor-Oil Range Hydrocarbons	3,600	3,600	190	--	46	--	92	--	--	240	--	--	--	--	--
Grain Size (%)															
Gravel	NV	NV	--	--	--	--	--	--	1	--	--	--	--	--	--
Very coarse sand	NV	NV	--	--	--	--	--	--	3.8	--	--	--	--	--	--
Coarse sand	NV	NV	--	--	--	--	--	--	1.8	--	--	--	--	--	--
Medium sand	NV	NV	--	--	--	--	--	--	2	--	--	--	--	--	--
Fine sand	NV	NV	--	--	--	--	--	--	4.6	--	--	--	--	--	--
Very fine sand	NV	NV	--	--	--	--	--	--	8.9	--	--	--	--	--	--
Coarse silt	NV	NV	--	--	--	--	--	--	16	--	--	--	--	--	--
Medium silt	NV	NV	--	--	--	--	--	--	20.1	--	--	--	--	--	--
Fine silt	NV	NV	--	--	--	--	--	--	14.6	--	--	--	--	--	--
Very fine silt	NV	NV	--	--	--	--	--	--	7.3	--	--	--	--	--	--
Coarse clay	NV	NV	--	--	--	--	--	--	5.9	--	--	--	--	--	--
Medium clay	NV	NV	--	--	--	--	--	--	3.4	--	--	--	--	--	--
Fine clay	NV	NV	--	--	--	--	--	--	10.5	--	--	--	--	--	--
Total fines	NV	NV	--	--	--	--	--	--	77.8	--	--	--	--	--	--
Sand, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Silt, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Clay, total	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Asbestos (%)															
Asbestos	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Pore Water Analysis															
Conductivity (uS/cm)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--
Salinity (ppt)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14	SE-15	SE-16	SE-17	SE-18	SE-19	
Sample Name:			SE-03A-0-1.0	SE-05A-2.0-3.0	SE-06A-0.5-1.5	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-4.2	SE-10-2.0-3.7	SE-14-0-0.33	SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	
Collection Depth (ft bml):			0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			10	Trace	20	40	85	25	30	85	30	Trace	0	5	0	0
TOC:	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside	
Conventional Parameters																
Ammonia as Nitrogen (mg/kg)	230	230	168 J	47.1	408 J	7.73 J	8.65	36.3	5.37 J	15.2	5.75	8.43	10.7	12.9	9.43	
Fixed Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sulfide (mg/kg)	39	39	856 J	4,040 J	--	639	153 J	124 J	228 J	409	191	469	20	691	924	
Total Organic Carbon (%)	NV	NV	2.3	2.3	3.2	6.3	6.8	7.1	7.9 J	5.5	4.7	1.5	2.3	1.7	2	
Total Solids (%)	NV	NV	45.6	47.8	55.6	34	35.8	44	38.3	34.8	43.4	52.9	43.3	46.3	41.5	
Total Volatile Solids (%)	NV	NV	8.11 J	7.49	9.92 J	20.7 J	31.7	19.8	30.1	12.5	14.4	5.35	6.8	6.06	6.95	
TCLP Metals (mg/L)																
Lead	NV	NV	--	--	--	--	--	--	0.0065 U	--	--	--	--	--	--	
Mercury	NV	NV	--	--	--	--	--	--	0.000007 U	--	--	--	--	--	--	
Total Metals (mg/kg-dry)																
Arsenic	11	11	--	--	--	--	--	--	5.47	8.63	6.2	4.91	7.09	5.93	--	
Cadmium	0.8	0.8	--	--	--	--	--	--	0.595	0.139 U	0.175 J	0.143 J	0.151 J	0.169 J	--	
Chromium	72	72	--	--	--	--	--	--	25.2	33.9	32	32.2	36.1	34.5	--	
Copper	390	390	--	--	--	--	--	--	56.1	85.5	49.8	52	57.3	62.1	--	
Lead	21	21	--	--	--	--	--	--	24.0	47.3	7.52	6.35	8.21	7.28	--	
Mercury	0.2	0.2	--	--	--	0.226	--	--	0.129	0.0882	0.0402 J	0.0244 J	0.045 J	0.0386 J	0.0379 J	
Nickel	50	50	--	--	--	--	--	--	25.1	27.9	21.8	26.1	27.2	30.1	--	
Selenium	11	11	--	--	--	--	--	--	0.667 J	0.716 J	0.714 J	0.725 J	0.867 J	0.86 J	--	
Silver	0.57	0.57	--	--	--	--	--	--	0.138 J	0.139 U	0.115 J	0.0918 U	0.119 J	0.111 U	--	
Zinc	410	410	--	--	--	--	--	--	71.9	82.2	67.3	75.1	82.1	80.3	--	
Organic Chemicals (ug/kg-dry)																
2,4-Dimethylphenol	29	29	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--	
2-Methylphenol	63	63	--	--	--	--	--	--	170 U	37.8 U	30.2 U	24.4 U	29.5 U	28.4 U	--	
3- & 4-Methylphenol (m,p-Cresol)	260	260	--	--	--	--	--	--	309 J	37.8 U	157	28.4 J	29.5 U	28.4 U	--	
Benzoic acid	650	650	--	--	--	--	--	--	8,550 U	1,900 U	1,510 U	1,220 U	1,480 U	1,430 U	--	
Benzyl alcohol	57	57	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--	
Dibenzofuran	200	200	--	--	--	--	--	--	68.1 U	15.1 U	14.5 J	9.74 U	18.7 J	11.4 U	--	
Phenol	120	120	--	--	--	--	--	--	137 U	71.5	58.3 J	19.5 U	23.6 U	22.8 U	--	
N-Nitrosodiphenylamine	NV	28	--	--	--	--	--	--	170 U	37.8 U	30.2 U	24.4 U	29.5 U	28.4 U	--	
Organic Chemicals (ug/kg-OC)																
N-Nitrosodiphenylamine	11,000	NV	--	--	--	--	--	--	2,150 U	687 U	643 U	1,630 U	1,280 U	1,670 U	--	
Phthalates (ug/kg-dry)																
Bis(2-ethylhexyl)phthalate	500	500	--	--	--	--	--	--	1,020 U	227 U	181 U	146 U	177 U	171 U	--	
Butylbenzylphthalate	NV	63	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--	
Diethyl phthalate	NV	200	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--	
Dimethyl phthalate	NV	71	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--	
Di-n-butyl phthalate	380	380	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--	
Di-n-octyl phthalate	39	39	--	--	--	--	--	--	548 U	121 U	96.9 U	78.3 U	94.6 U	91.4 U	--	
Phthalates (ug/kg-OC)																
Butylbenzylphthalate	4,900	NV	--	--	--	--	--	--	4,320 U	1,380 U	1,290 U	3,250 U	2,570 U	3,350 U	--	
Diethyl phthalate	61,000	NV	--	--	--	--	--	--	4,320 U	1,380 U	1,290 U	3,250 U	2,570 U	3,350 U	--	
Dimethyl phthalate	53,000	NV	--	--	--	--	--	--	4,320 U	1,380 U	1,290 U	3,250 U	2,570 U	3,350 U	--	

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14	SE-15	SE-16	SE-17	SE-18	SE-19		
Sample Name:			SE-03A-0-1.0	SE-05A-2.0-3.0	SE-06A-0.5-1.5	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-4.2	SE-10-2.0-3.7	SE-14-0-0.33	SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019		
Collection Depth (ft bml):			0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	
Type:			Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			10	Trace	20	40	85	25	30	85	30	Trace	0	5	0	0	
TOC:	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside		
Chlorinated Organics (ug/kg-dry)																	
1,2,4-Trichlorobenzene	NV	31	--	--	--	--	--	--	170 U	37.8 U	30.2 U	24.4 U	29.5 U	28.4 U	--		
1,2-Dichlorobenzene	NV	35	--	--	--	--	--	--	170 U	37.8 U	30.2 U	24.4 U	29.5 U	28.4 U	--		
1,4-Dichlorobenzene	NV	110	--	--	--	--	--	--	170 U	37.8 U	30.2 U	24.4 U	29.5 U	28.4 U	--		
Hexachlorobenzene	NV	22	--	--	--	--	--	--	68.1 U	15.1 U	12 U	9.74 U	11.8 U	11.4 U	--		
Hexachlorobutadiene	NV	11	--	--	--	--	--	--	170 U	37.8 U	30.2 U	24.4 U	29.5 U	28.4 U	--		
Pentachlorophenol	360	360	--	--	--	--	--	--	681 U	151 U	120 U	97.4 U	118 U	114 U	--		
Chlorinated Organics (ug/kg-OC)																	
1,2,4-Trichlorobenzene	810	NV	--	--	--	--	--	--	2,150 U	687 U	643 U	1,630 U	1,280 U	1,670 U	--		
1,2-Dichlorobenzene	2,300	NV	--	--	--	--	--	--	2,150 U	687 U	643 U	1,630 U	1,280 U	1,670 U	--		
1,4-Dichlorobenzene	3,100	NV	--	--	--	--	--	--	2,150 U	687 U	643 U	1,630 U	1,280 U	1,670 U	--		
Hexachlorobenzene	380	NV	--	--	--	--	--	--	862 U	275 U	255 U	649 U	513 U	671 U	--		
Hexachlorobutadiene	3,900	NV	--	--	--	--	--	--	2,150 U	687 U	643 U	1,630 U	1,280 U	1,670 U	--		
PAHs (ug/kg-dry)																	
Total PAH ^(f)	17,000	17,000	--	--	--	--	--	--	590 J	109 J	899 J	40.4 J	2,060 J	22.8 U	--		
Total LPAH ^(g)	NV	5,200	--	--	--	--	--	--	137	55.2 J	93.8 J	13.6 J	1,010 J	22.8 U	--		
1-Methylnaphthalene	NV	NV	--	--	--	--	--	--	137 U	30.3 U	24.2 U	19.5 U	70.6	22.8 U	--		
2-Methylnaphthalene	NV	670	--	--	--	--	--	--	137 U	30.3 U	24.2 U	19.5 U	33.7 J	22.8 U	--		
Acenaphthene	NV	500	--	--	--	--	--	--	68.1 U	15.4 J	48.7	9.74 U	126	11.4 U	--		
Acenaphthylene	NV	1,300	--	--	--	--	--	--	68.1 U	15.1 U	12 U	9.74 U	22.9 J	11.4 U	--		
Anthracene	NV	960	--	--	--	--	--	--	68.1 U	15.1 U	20.8 J	9.74 U	121	11.4 U	--		
Fluorene	NV	540	--	--	--	--	--	--	68.1 U	15.1 U	12 U	9.74 U	87.5	11.4 U	--		
Naphthalene	NV	2,100	--	--	--	--	--	--	137 U	30.3 U	24.2 U	19.5 U	77	22.8 U	--		
Phenanthrene	NV	1,500	--	--	--	--	--	--	68.1 U	39.8	24.3	13.6 J	575	11.4 U	--		
Total HPAH ^(h)	NV	12,000	--	--	--	--	--	--	590 J	53.5 J	805 J	26.8 J	945 J	17.1 U	--		
Benzo(a)anthracene	NV	1,300	--	--	--	--	--	--	68.1 U	30.3 U	61.2	9.74 U	66.5	11.4 U	--		
Benzo(a)pyrene	NV	1,600	--	--	--	--	--	--	167 J	22.7 U	45.8	14.6 U	38.7	17.1 U	--		
Benzo(ghi)perylene	NV	670	--	--	--	--	--	--	73.4 J	15.1 U	18.3 J	9.74 U	11.8 U	11.4 U	--		
Chrysene	NV	1,400	--	--	--	--	--	--	68.1 U	16.6 J	71.9	9.74 U	70.3	11.4 U	--		
Dibenzo(a,h)anthracene	NV	230	--	--	--	--	--	--	68.1 U	15.1 U	12 U	9.74 U	11.8 U	11.4 U	--		
Fluoranthene	NV	1,700	--	--	--	--	--	--	76.1 J	21.1 J	250	13.8 J	335	11.4 U	--		
Indeno(1,2,3-cd)pyrene	NV	600	--	--	--	--	--	--	68.1 U	15.1 U	20.7 J	9.74 U	11.8 U	11.4 U	--		
Pyrene	NV	2,600	--	--	--	--	--	--	152	15.8 J	210	13 J	401	11.4 U	--		
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	121 J	22.7 U	90.7	14.6 U	33.9 J	17.1 U	--		
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	102 U	22.7 U	36.5 J	14.6 U	17.7 U	17.1 U	--		
Total benzofluoranthenes ⁽ⁱ⁾	NV	3,200	--	--	--	--	--	--	121 J	22.7 U	127 J	14.6 U	33.9 J	17.1 U	--		
cPAH TEQ ^{(j)(1)}	21	21	--	--	--	--	--	--	195 J	16.8 J	68 J	14.6 U	51.5 J	17.1 U	--		
PAHs (ug/kg-OC)																	
2-Methylnaphthalene	38,000	NV	--	--	--	--	--	--	1,730 U	551 U	515 U	1,300 U	1,470 J	1,340 U	--		
Total LPAH ^(g)	370,000	NV	--	--	--	--	--	--	1,730 U	1,000 J	2,000 J	907	43,900	1,340	--		
Acenaphthene	16,000	NV	--	--	--	--	--	--	862 U	280 J	1,040	649 U	5,480	671 U	--		
Acenaphthylene	66,000	NV	--	--	--	--	--	--	862 U	275 U	255 U	649 U	996 J	671 U	--		
Anthracene	220,000	NV	--	--	--	--	--	--	862 U	275 U	443 J	649 U	5,260	671 U	--		

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14	SE-15	SE-16	SE-17	SE-18	SE-19		
Sample Name:			SE-03A-0-1.0	SE-05A-2.0-3.0	SE-06A-0.5-1.5	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-4.2	SE-10-2.0-3.7	SE-14-0-0.33	SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019		
Collection Depth (ft bml):			0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	
Type:			Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			10	Trace	20	40	85	25	30	85	30	Trace	0	5	0	0	
TOC:	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside		
PAHs (ug/kg-OC) cont.																	
Fluorene	23,000	NV	--	--	--	--	--	--	862 U	275 U	255 U	649 U	3,800	671 U	--		
Naphthalene	99,000	NV	--	--	--	--	--	--	1,730 U	551 U	515 U	1,300 U	3,350	1,340 U	--		
Phenanthrene	100,000	NV	--	--	--	--	--	--	862 U	724	517	907 J	25,000	671 U	--		
Total HPAH ^(h)	960,000	NV	--	--	--	--	--	--	7,470 J	973 J	17,100 J	1,790 J	41,100 J	1,010 U	--		
Benzo(a)anthracene	110,000	NV	--	--	--	--	--	--	862 U	551 U	1,300	649 U	2,890	671 U	--		
Benzo(a)pyrene	99,000	NV	--	--	--	--	--	--	2,110 J	413 U	974	973 U	1,680	1,010 U	--		
Benzo(ghi)perylene	31,000	NV	--	--	--	--	--	--	929 J	275 U	389 J	649 U	513 U	671 U	--		
Chrysene	110,000	NV	--	--	--	--	--	--	862 U	302 J	1,530	649 U	3,060	671 U	--		
Dibenzo(a,h)anthracene	12,000	NV	--	--	--	--	--	--	862 U	275 U	255 U	649 U	513 U	671 U	--		
Fluoranthene	160,000	NV	--	--	--	--	--	--	963 J	384 J	5,320	920 J	14,600	671 U	--		
Indeno(1,2,3-cd)pyrene	34,000	NV	--	--	--	--	--	--	862 U	275 U	440 J	649 U	513 U	671 U	--		
Pyrene	1,000,000	NV	--	--	--	--	--	--	1,920	287 J	4,470	867 J	17,400	671 U	--		
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	1,530 J	413 U	1,930	973 U	1,470 J	1,010 U	--		
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	1,290 U	413 U	777 J	973 U	770 U	1,010 U	--		
Total benzofluoranthenes ⁽ⁱ⁾	230,000	NV	--	--	--	--	--	--	1,530 J	413 U	2,710 J	973	1,470 J	1,010	--		
PCBs and Pesticides (ug/kg-dry)																	
Aroclor 1016	NV	NV	--	--	--	--	--	--	2.15 U	5.75 UJ	4.57 U	2.02 U	2.07 U	2.03 U	--		
Aroclor 1221	NV	NV	--	--	--	--	--	--	2.15 U	5.75 UJ	4.57 U	2.02 U	2.07 U	2.03 U	--		
Aroclor 1232	NV	NV	--	--	--	--	--	--	2.15 U	5.75 UJ	4.57 U	2.02 U	2.07 U	2.03 U	--		
Aroclor 1242	NV	NV	--	--	--	--	--	--	2.15 U	5.75 UJ	4.57 U	2.02 U	2.07 U	2.03 U	--		
Aroclor 1248	NV	NV	--	--	--	--	--	--	2.15 U	5.75 UJ	4.57 U	2.02 U	2.07 U	2.03 U	--		
Aroclor 1254	NV	NV	--	--	--	--	--	--	5.86 J	5.75 UJ	4.57 U	2.02 U	4.14 U	2.03 U	--		
Aroclor 1260	NV	NV	--	--	--	--	--	--	7.17 J	8.41 J	4.57 U	2.02 U	4.14 U	2.03 U	--		
Aroclor 1268	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Total PCBs ^(k)	3.5	3.5	--	--	--	--	--	--	13.0 J	8.41 J	4.57 U	2.02 U	4.14 U	2.03 U	--		
Carbazole	900	900	--	--	--	--	--	--	--	--	--	--	--	--	--		
Additional SVOCs (ug/kg-dry)																	
1,3-Dichlorobenzene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
4-Methylphenol	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Hexachlorocyclopentadiene	NV	NV	--	--	--	--	--	--	341 U	75.7 U	60.4 U	48.8 U	59 U	57 U	--		
Dioxins/Furans (pg/g-dry)																	
1,2,3,4,6,7,8-HpCDD	NV	NV	--	--	--	--	--	--	--	263	--	--	--	--	--		
1,2,3,4,6,7,8-HpCDF	NV	NV	--	--	--	--	--	--	--	52.5	--	--	--	--	--		
1,2,3,4,7,8,9-HpCDF	NV	NV	--	--	--	--	--	--	--	2.34 UJ	--	--	--	--	--		
1,2,3,4,7,8-HxCDD	NV	NV	--	--	--	--	--	--	--	5.92 J	--	--	--	--	--		
1,2,3,4,7,8-HxCDF	NV	NV	--	--	--	--	--	--	--	2.61 UJ	--	--	--	--	--		
1,2,3,6,7,8-HxCDD	NV	NV	--	--	--	--	--	--	--	10	--	--	--	--	--		
1,2,3,6,7,8-HxCDF	NV	NV	--	--	--	--	--	--	--	1.66 UJ	--	--	--	--	--		
1,2,3,7,8,9-HxCDD	NV	NV	--	--	--	--	--	--	--	6.08 J	--	--	--	--	--		
1,2,3,7,8,9-HxCDF	NV	NV	--	--	--	--	--	--	--	0.641 U	--	--	--	--	--		
1,2,3,7,8-PeCDD	NV	NV	--	--	--	--	--	--	--	2.46 UJK	--	--	--	--	--		
1,2,3,7,8-PeCDF	NV	NV	--	--	--	--	--	--	--	1.26 UJ	--	--	--	--	--		

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-03A	SE-05A	SE-06A	SE-07A	SE-08A	SE-08C	SE-10	SE-14	SE-15	SE-16	SE-17	SE-18	SE-19		
Sample Name:			SE-03A-0-1.0	SE-05A-2.0-3.0	SE-06A-0.5-1.5	SE-07A-0-1.0	SE-08A-0-1.0	SE-08C-3.2-4.2	SE-10-2.0-3.7	SE-14-0-0.33	SE-15-0-0.33	SE-16-0-0.33	SE-17-0-0.33	SE-18-0-0.33	SE-19-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/23/2019	09/25/2019	09/26/2019	09/24/2019	09/24/2019	09/26/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019		
Collection Depth (ft bml):			0-1	2-3	0.5-1.5	0-1	0-1	3-4.2	2-3.7	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	
Type:			Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			10	Trace	20	40	85	25	30	85	30	Trace	0	5	0	0	
TOC:	Inside	Inside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside		
Dioxins/Furans (pg/g-dry) cont.																	
2,3,4,6,7,8-HxCDF	NV	NV	--	--	--	--	--	--	--	1.85 UJ	--	--	--	--	--		
2,3,4,7,8-PeCDF	NV	NV	--	--	--	--	--	--	--	1.23 J	--	--	--	--	--		
2,3,7,8-TCDD	NV	NV	--	--	--	--	--	--	--	1.73	--	--	--	--	--		
2,3,7,8-TCDF	NV	NV	--	--	--	--	--	--	--	1.75	--	--	--	--	--		
OCDD	NV	NV	--	--	--	--	--	--	--	2,830	--	--	--	--	--		
OCDF	NV	NV	--	--	--	--	--	--	--	116	--	--	--	--	--		
Total HpCDDs	NV	NV	--	--	--	--	--	--	--	836 J	--	--	--	--	--		
Total HpCDFs	NV	NV	--	--	--	--	--	--	--	180 J	--	--	--	--	--		
Total HxCDDs	NV	NV	--	--	--	--	--	--	--	118 J	--	--	--	--	--		
Total HxCDFs	NV	NV	--	--	--	--	--	--	--	64.7 J	--	--	--	--	--		
Total PeCDDs	NV	NV	--	--	--	--	--	--	--	33.8 UJK	--	--	--	--	--		
Total PeCDFs	NV	NV	--	--	--	--	--	--	--	22.2 UJK	--	--	--	--	--		
Total TCDDs	NV	NV	--	--	--	--	--	--	--	14.1 J	--	--	--	--	--		
Total TCDFs	NV	NV	--	--	--	--	--	--	--	14.1 J	--	--	--	--	--		
Dioxin/Furan TEQ ^{(f)(1)}	5	5	--	--	--	--	--	--	--	10.1 J	--	--	--	--	--		
TPH (mg/kg-dry)																	
Gasoline-Range Hydrocarbons	--	--	--	--	--	--	--	--	11.8 U	12.8 U	10 U	8.42 U	13.3 U	9.11 U	--		
Diesel-Range Hydrocarbons	340	340	--	--	--	27.6 U	--	--	25.8 U	27.3 U	22.5 U	18.5 J	22.4 U	21.5 U	--		
Motor-Oil Range Hydrocarbons	3,600	3,600	--	--	--	644	--	--	898	384	374	36.8 U	44.9 U	43 U	--		
Grain Size (%)																	
Gravel	NV	NV	--	--	--	--	--	--	15.5	22.4	25.4	0.39	0.55	0.02	--		
Very coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Medium sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Very fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Coarse silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Medium silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Very fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Coarse clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Medium clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Fine clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Total fines	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Sand, total	NV	NV	--	--	--	--	--	--	29.4	27.3	21	41.8	18.5	38.8	--		
Silt, total	NV	NV	--	--	--	--	--	--	39.5	41.2	42.4	42.4	56.9	43.8	--		
Clay, total	NV	NV	--	--	--	--	--	--	15.7	9.2	11.2	15.4	24.1	17.4	--		
Asbestos (%)																	
Asbestos	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Pore Water Analysis																	
Conductivity (uS/cm)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Salinity (ppt)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		

Location:	Preliminary Cleanup Standards ^(a)		SE-20	SE-21	SE-22	SE-23	SE-24	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31		
Sample Name:			SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019		
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface
Percent Wood waste:			0	10	10	15	25	80	80	10	10	75	80	20	35		
TOC:			Outside	Inside	Outside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside
Conventional Parameters																	
Ammonia as Nitrogen (mg/kg)	230	230	3.9	7.06	7.81	11.8	9.49	3.68	3.48	8.47	8.18	7.36	4.76	112	7.98		
Fixed Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Sulfide (mg/kg)	39	39	2.7 U	359	937	856	281	267	3.21 U	394	396	22.7	1,510 J	492	397		
Total Organic Carbon (%)	NV	NV	6.6	1.3	3.8	2.6	7.8	18	13	3.8	3.9	5.5	9.9	5.1	2.1		
Total Solids (%)	NV	NV	36.8	59.4	33.4	45.4	35.5 J	40.6 J	42.4	39.4	38.3	36	42.9 J	47.6	48.8		
Total Volatile Solids (%)	NV	NV	12.7	5.02	11.6	7.18	18.9 J	19	18.4	12.1	9.96	13	27.4 J	14.7	8.8		
TCLP Metals (mg/L)																	
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--	--	0.0065 U	--		
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--	--	0.000007 U	--		
Total Metals (mg/kg-dry)																	
Arsenic	11	11	7.96	4.49	6.97	8.51	8.26	8.84	5.11	7.49	7.57	--	7.45	7.52	6.07		
Cadmium	0.8	0.8	0.239 J	0.118 J	0.201 J	0.513	0.216 J	0.725	0.119 U	0.154 J	0.188 J	--	0.188 J	0.246	0.165 J		
Chromium	72	72	32.9	29.1	35.7	37.8	40	19.1	25.7	33.8	35.3	--	35.1	41.4	34.7		
Copper	390	390	64.6	49.9	68.6	117	73.7	76.8	81.9	62.6	63.3	--	92.5	66	61.4		
Lead	21	21	11.7	7.2	16.9	34.9	32.9	37.9	30.4	10.8	11.6	--	16.2 J	14.9	7.94		
Mercury	0.2	0.2	0.069	0.0385 J	0.0528 J	0.0928	0.111	0.103	0.104	0.0366 J	0.0593	0.0827	0.107	0.0865	0.0443 J		
Nickel	50	50	25.4	25.1	26.3	37.5	40.2	25.5	26	25.7	27.4	--	33.8	27.7	30.2		
Selenium	11	11	0.941 J	0.63 J	1.01 J	0.798 J	0.797 J	0.632 U	0.593 U	0.896 J	0.987 J	--	0.644 J	0.993 J	0.845 J		
Silver	0.57	0.57	0.144 J	0.0854 J	0.147 U	0.148 J	0.146 J	0.126 U	0.119 U	0.124 U	0.129 U	--	0.116 U	0.26	0.111 J		
Zinc	410	410	142	64	136	136	93	98.6	76	80.5	88.1	--	84.6	98.3	74.7		
Organic Chemicals (ug/kg-dry)																	
2,4-Dimethylphenol	29	29	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U		
2-Methylphenol	63	63	35.8 U	22.2 U	39.6 U	71.1 U	37 U	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U		
3- & 4-Methylphenol (m,p-Cresol)	260	260	43.2 J	100	39.6 U	71.1 U	137	162 U	93.4 J	42.7 J	50.4 J	--	1,600	164	267		
Benzoic acid	650	650	1,800 U	1,110 U	1,990 U	3,560 U	1,850 UJ	8,130 U	3,840 U	1,640 U	1,700 U	--	3,830 U	3,450 U	1,350 U		
Benzyl alcohol	57	57	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U		
Dibenzofuran	200	200	14.3 U	8.85 U	15.8 U	28.4 U	21.1 J	64.7 U	33.9 J	13.1 U	13.6 U	--	145	35.6 J	10.7 U		
Phenol	120	120	28.7 U	28.1 J	31.7 U	57 U	88.9	130 U	94.1 J	26.2 U	60.8	--	571 J	64.7 J	73.9		
N-Nitrosodiphenylamine	NV	28	35.8 U	22.2 U	39.6 U	71.1 U	37 U	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U		
Organic Chemicals (ug/kg-OC)																	
N-Nitrosodiphenylamine	11,000	NV	542 U	1,710 U	1,040 U	2,730 U	474 U	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U		
Phthalates (ug/kg-dry)																	
Bis(2-ethylhexyl)phthalate	500	500	215 U	133 U	238 U	427 U	222 U	974 U	460 U	197 U	204 U	--	458 U	413 U	161 U		
Butylbenzylphthalate	NV	63	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U		
Diethyl phthalate	NV	200	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U		
Dimethyl phthalate	NV	71	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U		
Di-n-butyl phthalate	380	380	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	213 J	138 U	53.8 U		
Di-n-octyl phthalate	39	39	115 U	71.2 U	127 U	228 U	119 U	521 U	246 U	105 U	109 U	--	245 U	221 U	86.3 U		
Phthalates (ug/kg-OC)																	
Butylbenzylphthalate	4,900	NV	1,090 U	3,420 U	2,090 U	5,460 U	949 U	1,810 U	1,180 U	1,730 U	1,740 U	--	1,550 U	2,710 U	2,560 U		
Diethyl phthalate	61,000	NV	1,090 U	3,420 U	2,090 U	5,460 U	949 U	1,810 U	1,180 U	1,730 U	1,740 U	--	1,550 U	2,710 U	2,560 U		
Dimethyl phthalate	53,000	NV	1,090 U	3,420 U	2,090 U	5,460 U	949 U	1,810 U	1,180 U	1,730 U	1,740 U	--	1,550 U	2,710 U	2,560 U		

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-20	SE-21	SE-22	SE-23	SE-24	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31		
Sample Name:			SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019		
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface
Percent Wood waste:			0	10	10	15	25	80	80	10	10	75	80	20	35		
TOC:	Outside	Inside	Outside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside		
Chlorinated Organics (ug/kg-dry)																	
1,2,4-Trichlorobenzene	NV	31	35.8 U	22.2 U	39.6 U	71.1 U	37 U	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U		
1,2-Dichlorobenzene	NV	35	35.8 U	22.2 U	39.6 U	71.1 U	37 U	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U		
1,4-Dichlorobenzene	NV	110	35.8 U	22.2 U	39.6 U	71.1 U	37 U	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U		
Hexachlorobenzene	NV	22	14.3 U	8.85 U	15.8 U	28.4 U	14.8 U	64.7 U	30.6 U	13.1 U	13.6 U	--	30.5 U	27.5 U	10.7 U		
Hexachlorobutadiene	NV	11	35.8 U	22.2 U	39.6 U	71.1 U	37 U	162 U	76.6 U	32.7 U	33.9 U	--	76.3 U	68.8 U	26.9 U		
Pentachlorophenol	360	360	143 U	88.5 U	158 U	284 U	148 U	647 U	306 U	131 U	136 U	--	305 U	275 U	107 U		
Chlorinated Organics (ug/kg-OC)																	
1,2,4-Trichlorobenzene	810	NV	542 U	1,710 U	1,040 U	2,730 U	474 U	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U		
1,2-Dichlorobenzene	2,300	NV	542 U	1,710 U	1,040 U	2,730 U	474 U	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U		
1,4-Dichlorobenzene	3,100	NV	542 U	1,710 U	1,040 U	2,730 U	474 U	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U		
Hexachlorobenzene	380	NV	217 U	681 U	416 U	1,090 U	190 U	359 U	235 U	345 U	349 U	--	308 U	539 U	510 U		
Hexachlorobutadiene	3,900	NV	542 U	1,710 U	1,040 U	2,730 U	474 U	900 U	589 U	861 U	869 U	--	771 U	1,350 U	1,280 U		
PAHs (ug/kg-dry)																	
Total PAH ^(f)	17,000	17,000	34.3 J	119 J	58.2 J	1,750 J	594 J	790 J	742 J	172 J	16.3 J	--	4,620 J	919 J	247 J		
Total LPAH ^(g)	NV	5,200	28.7 U	83.2 J	31.7 U	296 J	223 J	64.8 J	267 J	18.1 J	27.2 U	--	1,460 J	395 J	160 J		
1-Methylnaphthalene	NV	NV	28.7 U	17.8 U	31.7 U	57 U	29.6 U	130 U	61.4 U	26.2 U	27.2 U	--	76.7	55.2 U	21.5 U		
2-Methylnaphthalene	NV	670	28.7 U	17.8 U	31.7 U	57 U	29.6 U	130 U	61.4 U	26.2 U	27.2 U	--	149	55.2 U	21.5 U		
Acenaphthene	NV	500	14.3 U	8.85 U	15.8 U	28.4 U	29.3 J	64.7 U	40.8 J	13.1 U	13.6 U	--	135	148	37.2		
Acenaphthylene	NV	1,300	14.3 U	14.5 J	15.8 U	37.6 J	14.8 U	64.7 U	30.6 U	13.1 U	13.6 U	--	30.5 U	27.5 U	19.6 J		
Anthracene	NV	960	14.3 U	8.85 U	15.8 U	45.8 J	22.6 J	64.7 U	30.6 U	13.1 U	13.6 U	--	204	36.8 J	10.7 U		
Fluorene	NV	540	14.3 U	8.85 U	15.8 U	28.4 U	24.2 J	64.7 U	38.6 J	13.1 U	13.6 U	--	136	61.8	10.7 U		
Naphthalene	NV	2,100	28.7 U	49.2	31.7 U	57 U	69.8	130 U	75.2 J	26.2 U	27.2 U	--	491	55.2 U	74.2		
Phenanthrene	NV	1,500	14.3 U	19.5	15.8 U	213	76.8	64.8 J	112	18.1 J	13.6 U	--	491 J	148	28.9		
Total HPAH ^(h)	NV	12,000	34.3 J	35.8 J	58.2 J	1,450 J	371 J	725 J	475 J	154 J	16.3 J	--	2,940 J	524 J	87.4 J		
Benzo(a)anthracene	NV	1,300	14.3 U	8.85 U	15.8 U	164	41.2	89 J	45.8 J	20.3 J	13.6 U	--	218	53.7 J	12.5 J		
Benzo(a)pyrene	NV	1,600	21.5 U	13.3 U	23.8 U	163	31.8 J	111 J	66.5 J	23.6 J	20.4 U	--	154	43.8 J	17.3 J		
Benzo(ghi)perylene	NV	670	14.3 U	8.85 U	15.8 U	77.8	14.8 U	64.7 U	30.6 U	13.1 U	13.6 U	--	68	27.5 U	10.7 U		
Chrysene	NV	1,400	14.3 U	8.85 U	15.8 U	153	33.4	64.7 U	42.4 J	20.3 J	13.6 U	--	199	60.4	10.7 U		
Dibenzo(a,h)anthracene	NV	230	14.3 U	8.85 U	15.8 U	28.4 U	14.8 U	64.7 U	30.6 U	13.1 U	13.6 U	--	30.5 U	27.5 U	10.7 U		
Fluoranthene	NV	1,700	16.9 J	18.1	31.8	285	123	204	109	36.3	13.6 U	--	1,150 J	198	28		
Indeno(1,2,3-cd)pyrene	NV	600	14.3 U	8.85 U	15.8 U	80.7	14.8 U	64.7 U	34 J	13.1 U	13.6 U	--	69.5	27.5 U	10.7 U		
Pyrene	NV	2,600	17.4 J	17.7 J	26.4 J	305	113	184	102	32.4	16.3 J	--	823 J	168	29.6		
Benzo(b)fluoranthene	NV	NV	21.5 U	13.3 U	23.8 U	153	28.6 J	137 J	75.4 J	20.8 J	20.4 U	--	180	41.3 U	16.1 U		
Benzo(k)fluoranthene	NV	NV	21.5 U	13.3 U	23.8 U	68.1 J	22.2 U	97.4 U	46 U	19.7 U	20.4 U	--	75.8 J	41.3 U	16.1 U		
Total benzofluoranthenes ⁽ⁱ⁾	NV	3,200	21.5 U	13.3 U	23.8 U	221 J	28.6 J	137 J	75.4 J	20.8 J	20.4 U	--	256 J	41.3 U	16.1 U		
cPAH TEQ ^{(j)(1)}	21	21	21.5 U	13.3 U	23.8 U	213 J	41.7 J	145 J	86.3 J	30.2 J	20.4 U	--	212 J	56.7 J	21.3 J		
PAHs (ug/kg-OC)																	
2-Methylnaphthalene	38,000	NV	435 U	1,370 U	834 U	2,190 U	379 U	722 U	472 U	689 U	697 U	--	1,510	1,080 U	1,020 U		
Total LPAH ^(g)	370,000	NV	435 U	6,400	834 U	11,400	2,860 J	360 J	2,050 J	476 J	697 U	--	14,700 J	7,750 J	7,620		
Acenaphthene	16,000	NV	217 U	681 U	416 U	1,090 U	376 J	359 U	314 J	345 U	349 U	--	1,360	2,900	1,770		
Acenaphthylene	66,000	NV	217 U	1,120 J	416 U	1,450 J	190 U	359 U	235 U	345 U	349 U	--	308 U	539 U	933 J		
Anthracene	220,000	NV	217 U	681 U	416 U	1,760 J	290 J	359 U	235 U	345 U	349 U	--	2,060	722 J	510 U		

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-20	SE-21	SE-22	SE-23	SE-24	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31		
Sample Name:			SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019		
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface
Percent Wood waste:			0	10	10	15	25	80	80	10	10	75	80	20	35		
TOC:	Outside	Inside	Outside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside		
PAHs (ug/kg-OC) cont.																	
Fluorene	23,000	NV	217 U	681 U	416 U	1,090 U	310 J	359 U	297 J	345 U	349 U	--	1,370	1,210	510 U		
Naphthalene	99,000	NV	435 U	3,780	834 U	2,190 U	895	722 U	578 J	689 U	697 U	--	4,960	1,080 U	3,530		
Phenanthrene	100,000	NV	217 U	1,500	416 U	8,190	985	360 J	862	476 J	349 U	--	4,960 J	2,900	1,380		
Total HPAH ^(h)	960,000	NV	520 J	2,750 J	1,530 J	55,800 J	4,760 J	4,030 J	3,650 J	4,050 J	418 J	--	29,700 J	10,300 J	4,160 J		
Benzo(a)anthracene	110,000	NV	217 U	681 U	416 U	6,310	528	494 J	352 J	534 J	349 U	--	2,200	1,050 J	595 J		
Benzo(a)pyrene	99,000	NV	326 U	1,020 U	626 U	6,270	408 J	617 J	512 J	621 J	523 U	--	1,560	859 J	824 J		
Benzo(ghi)perylene	31,000	NV	217 U	681 U	416 U	2,990	190 U	359 U	235 U	345 U	349 U	--	687	539 U	510 U		
Chrysene	110,000	NV	217 U	681 U	416 U	5,880	428	359 U	326 J	534 J	349 U	--	2,010	1,180	510 U		
Dibenzo(a,h)anthracene	12,000	NV	217 U	681 U	416 U	1,090 U	190 U	359 U	235 U	345 U	349 U	--	308 U	539 U	510 U		
Fluoranthene	160,000	NV	256 J	1,390	837	11,000	1,580	1,130	838	955	349 U	--	11,600 J	3,880	1,330		
Indeno(1,2,3-cd)pyrene	34,000	NV	217 U	681 U	416 U	3,100	190 U	359 U	262 J	345 U	349 U	--	702	539 U	510 U		
Pyrene	1,000,000	NV	264 J	1,360 J	695 J	11,700	1,450	1,020	785	853	418 J	--	8,310 J	3,290	1,410		
Benzo(b)fluoranthene	NV	NV	326 U	1,020 U	626 U	5,880	367 J	761 J	580 J	547 J	523 U	--	1,820	810 U	767 U		
Benzo(k)fluoranthene	NV	NV	326 U	1,020 U	626 U	2,620 J	285 U	541 U	354 U	518 U	523 U	--	766 J	810 U	767 U		
Total benzofluoranthenes ⁽ⁱ⁾	230,000	NV	326 U	1,020	626 U	8,500	367 J	761 J	580 J	547 J	523 U	--	2,580 J	810 U	767		
PCBs and Pesticides (ug/kg-dry)																	
Aroclor 1016	NV	NV	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	4.56 U	4.42 U	2.07 UJ	1.92 UJ	--	11.6 U	7.24 U	3.96 U		
Aroclor 1221	NV	NV	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	4.13 U	3.96 U		
Aroclor 1232	NV	NV	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	17.6 U	3.96 U		
Aroclor 1242	NV	NV	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	10.3 U	3.96 U		
Aroclor 1248	NV	NV	2.12 U	3.36 U	2.04 U	4.39 U	5.6 U	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	13.4 U	3.96 U		
Aroclor 1254	NV	NV	2.38 J	3.36 U	3.74 J	8.09 J	5.6 U	4.56 U	4.42 U	2.07 U	1.92 U	--	11.6 U	11.4 U	3.96 U		
Aroclor 1260	NV	NV	2.31 J	4.16 J	4.43 J	4.39 U	42.4	17.6	15.5	9.53	9.05	--	38.9	14.4	3.96 U		
Aroclor 1268	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Total PCBs ^(k)	3.5	3.5	4.69 J	4.16 J	8.17 J	8.09 J	42.4	17.6	15.5	9.53	9.05	--	38.9	14.4	3.96 U		
Carbazole	900	900	--	--	--	--	--	--	--	--	--	--	--	--	--		
Additional SVOCs (ug/kg-dry)																	
1,3-Dichlorobenzene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
4-Methylphenol	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Hexachlorocyclopentadiene	NV	NV	71.8 U	44.4 U	79.3 U	142 U	74 U	325 U	153 U	65.6 U	68 U	--	153 U	138 U	53.8 U		
Dioxins/Furans (pg/g-dry)																	
1,2,3,4,6,7,8-HpCDD	NV	NV	--	19.3	401	--	--	--	--	--	--	--	--	--	--		
1,2,3,4,6,7,8-HpCDF	NV	NV	--	9.17	92.5	--	--	--	--	--	--	--	--	--	--		
1,2,3,4,7,8,9-HpCDF	NV	NV	--	0.462 UJ	4.41 J	--	--	--	--	--	--	--	--	--	--		
1,2,3,4,7,8-HxCDD	NV	NV	--	0.317 U	8.61	--	--	--	--	--	--	--	--	--	--		
1,2,3,4,7,8-HxCDF	NV	NV	--	0.376 UJ	3.54 J	--	--	--	--	--	--	--	--	--	--		
1,2,3,6,7,8-HxCDD	NV	NV	--	0.85 J	19.4	--	--	--	--	--	--	--	--	--	--		
1,2,3,6,7,8-HxCDF	NV	NV	--	0.346 UJ	2.79 J	--	--	--	--	--	--	--	--	--	--		
1,2,3,7,8,9-HxCDD	NV	NV	--	1.14 J	14.8	--	--	--	--	--	--	--	--	--	--		
1,2,3,7,8,9-HxCDF	NV	NV	--	0.217 U	1.15 UJ	--	--	--	--	--	--	--	--	--	--		
1,2,3,7,8-PeCDD	NV	NV	--	0.643 J	4.75 J	--	--	--	--	--	--	--	--	--	--		
1,2,3,7,8-PeCDF	NV	NV	--	0.161 U	1.16 UJ	--	--	--	--	--	--	--	--	--	--		

Table 8-1
2013-2020 Sediment Analytical Results
Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site

Location:	Preliminary Cleanup Standards ^(a)		SE-20	SE-21	SE-22	SE-23	SE-24	SE-25	SE-26	SE-27		SE-28	SE-29	SE-30	SE-31		
Sample Name:			SE-20-0-0.33	SE-21-0-0.33	SE-22-0-0.33	SE-23-0-0.33	SE-24-0-0.33	SE-25-0-0.33	SE-26-0-0.33	SE-27-0-0.33	SE-27-0-0.33-DUP	SE-28-0-0.33	SE-29-0-2.0	SE-30-2.5-4.5	SE-31-0-0.33		
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	09/25/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/27/2019	09/24/2019	09/26/2019	09/27/2019		
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-2	2-4.5	0-0.33	
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Subsurface	Subsurface	Surface
Percent Wood waste:			0	10	10	15	25	80	80	10	10	75	80	20	35		
TOC:	Outside	Inside	Outside	Inside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Outside	Inside		
Dioxins/Furans (pg/g-dry) cont.																	
2,3,4,6,7,8-HxCDF	NV	NV	--	0.414 UJ	4.24 J	--	--	--	--	--	--	--	--	--	--		
2,3,4,7,8-PeCDF	NV	NV	--	0.315 UJ	2.15 J	--	--	--	--	--	--	--	--	--	--		
2,3,7,8-TCDD	NV	NV	--	0.341 U	1.74	--	--	--	--	--	--	--	--	--	--		
2,3,7,8-TCDF	NV	NV	--	0.575 UJK	1.89	--	--	--	--	--	--	--	--	--	--		
OCDD	NV	NV	--	177	3,250	--	--	--	--	--	--	--	--	--	--		
OCDF	NV	NV	--	13.4	262	--	--	--	--	--	--	--	--	--	--		
Total HpCDDs	NV	NV	--	43.1	737	--	--	--	--	--	--	--	--	--	--		
Total HpCDFs	NV	NV	--	23.5 J	259 J	--	--	--	--	--	--	--	--	--	--		
Total HxCDDs	NV	NV	--	11.3 J	141 J	--	--	--	--	--	--	--	--	--	--		
Total HxCDFs	NV	NV	--	8.49 UJK	107 J	--	--	--	--	--	--	--	--	--	--		
Total PeCDDs	NV	NV	--	3.71 J	29.5 J	--	--	--	--	--	--	--	--	--	--		
Total PeCDFs	NV	NV	--	3.7 UJK	40.4 J	--	--	--	--	--	--	--	--	--	--		
Total TCDDs	NV	NV	--	0.404 UJK	14.1 J	--	--	--	--	--	--	--	--	--	--		
Total TCDFs	NV	NV	--	3.19 UJK	16.8 J	--	--	--	--	--	--	--	--	--	--		
Dioxin/Furan TEQ ^{(f)(1)}	5	5	--	1.52 J	18.8 J	--	--	--	--	--	--	--	--	--	--		
TPH (mg/kg-dry)																	
Gasoline-Range Hydrocarbons	--	--	13.4 U	6.71 U	16 U	9.01 U	27.9 U	10.1 U	9.64 U	11.5 U	13 U	--	9.53 U	7.95 U	7.73 U		
Diesel-Range Hydrocarbons	340	340	26.7 U	23.2 J	29.9 U	21.2 U	28.1 U	24.1 U	23.4 U	24.2 U	25.9 U	--	23.2 U	20.6 U	20.4 U		
Motor-Oil Range Hydrocarbons	3,600	3,600	610	33.1 U	130	73.8 J	559	2,080	842	89.6 J	72.2 J	--	385	393	58.5 J		
Grain Size (%)																	
Gravel	NV	NV	5.18	6.79	16.8	7.85	38.2	51	35	17.7	8.57	--	32.4	5.79	2.99		
Very coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Medium sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Very fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Coarse silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Medium silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Very fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Coarse clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Medium clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Fine clay	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Total fines	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Sand, total	NV	NV	9.74	46.2	13.6	38.4	14.3	33.2	37.2	15.8	17.3	--	26.8	11.4	44.4		
Silt, total	NV	NV	58.5	33.5	49.2	39.2	39.2	12.8	20.7	51.8	53	--	33.3	56.2	36.6		
Clay, total	NV	NV	26.6	13.5	20.4	14.6	8.3	3	7.1	14.7	21.2	--	7.5	26.6	15.9		
Asbestos (%)																	
Asbestos	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Pore Water Analysis																	
Conductivity (uS/cm)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		
Salinity (ppt)	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--		

Location:	Preliminary Cleanup Standards ^(a)		SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name:			SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date:			07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:	(0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	Trace	10	5	Trace	10	25	50	90	0	20
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside
Conventional Parameters												
Ammonia as Nitrogen (mg/kg)	230	230	7.61	26.4	4.82	7.45	4.1	14.2	3.49	1.16	0.783	8.41
Fixed Solids (%)	NV	NV	--	--	--	--	--	--	--	--	--	--
Sulfide (mg/kg)	39	39	337 J	473 J	921 J	447 J	546 J	204 J	365 J	2,110 J	392 J	567 J
Total Organic Carbon (%)	NV	NV	1.1	1.2	1.2	1.1	1.1	1.9	1.7	3.9	1	1.8
Total Solids (%)	NV	NV	46.4	54.1	53	50	49	46.2	49.6	25.5	77.6	43.4
Total Volatile Solids (%)	NV	NV	6.56	6.45	6.69	6.68	6.88	15.2	10.1	50.1	2.51	10.2
TCLP Metals (mg/L)												
Lead	NV	NV	--	--	--	--	--	--	--	--	--	--
Mercury	NV	NV	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/kg-dry)												
Arsenic	11	11	--	--	--	--	--	--	--	--	--	--
Cadmium	0.8	0.8	--	--	--	--	--	--	--	--	--	--
Chromium	72	72	--	--	--	--	--	--	--	--	--	--
Copper	390	390	--	--	--	--	--	--	--	--	--	--
Lead	21	21	--	--	--	--	--	--	--	--	--	--
Mercury	0.2	0.2	--	--	--	--	--	--	--	--	--	--
Nickel	50	50	--	--	--	--	--	--	--	--	--	--
Selenium	11	11	--	--	--	--	--	--	--	--	--	--
Silver	0.57	0.57	--	--	--	--	--	--	--	--	--	--
Zinc	410	410	--	--	--	--	--	--	--	--	--	--
Organic Chemicals (ug/kg-dry)												
2,4-Dimethylphenol	29	29	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	63	63	--	--	--	--	--	--	--	--	--	--
3- & 4-Methylphenol (m,p-Cresol)	260	260	--	--	--	--	--	--	--	--	--	--
Benzoic acid	650	650	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	57	57	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	200	200	--	--	--	--	--	--	--	--	--	--
Phenol	120	120	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	NV	28	--	--	--	--	--	--	--	--	--	--
Organic Chemicals (ug/kg-OC)												
N-Nitrosodiphenylamine	11,000	NV	--	--	--	--	--	--	--	--	--	--
Phthalates (ug/kg-dry)												
Bis(2-ethylhexyl)phthalate	500	500	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	NV	63	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	NV	200	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	NV	71	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	380	380	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	39	39	--	--	--	--	--	--	--	--	--	--
Phthalates (ug/kg-OC)												
Butylbenzylphthalate	4,900	NV	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	61,000	NV	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	53,000	NV	--	--	--	--	--	--	--	--	--	--

Location:	Preliminary Cleanup Standards ^(a)		SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name:			SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date:			07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:	(0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	Trace	10	5	Trace	10	25	50	90	0	20
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside
Chlorinated Organics (ug/kg-dry)												
1,2,4-Trichlorobenzene	NV	31	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	NV	35	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	NV	110	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	NV	22	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	11	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	360	360	--	--	--	--	--	--	--	--	--	--
Chlorinated Organics (ug/kg-OC)												
1,2,4-Trichlorobenzene	810	NV	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	2,300	NV	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	3,100	NV	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	380	NV	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	3,900	NV	--	--	--	--	--	--	--	--	--	--
PAHs (ug/kg-dry)												
Total PAH ^(f)	17,000	17,000	--	--	--	--	--	--	--	--	--	--
Total LPAH ^(g)	NV	5,200	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	NV	NV	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	NV	670	--	--	--	--	--	--	--	--	--	--
Acenaphthene	NV	500	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	NV	1,300	--	--	--	--	--	--	--	--	--	--
Anthracene	NV	960	--	--	--	--	--	--	--	--	--	--
Fluorene	NV	540	--	--	--	--	--	--	--	--	--	--
Naphthalene	NV	2,100	--	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	1,500	--	--	--	--	--	--	--	--	--	--
Total HPAH ^(h)	NV	12,000	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	1,300	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	NV	1,600	--	--	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	NV	670	--	--	--	--	--	--	--	--	--	--
Chrysene	NV	1,400	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	230	--	--	--	--	--	--	--	--	--	--
Fluoranthene	NV	1,700	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	600	--	--	--	--	--	--	--	--	--	--
Pyrene	NV	2,600	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--
Total benzofluoranthenes ⁽ⁱ⁾	NV	3,200	--	--	--	--	--	--	--	--	--	--
cPAH TEQ ^{(j)(1)}	21	21	--	--	--	--	--	--	--	--	--	--
PAHs (ug/kg-OC)												
2-Methylnaphthalene	38,000	NV	--	--	--	--	--	--	--	--	--	--
Total LPAH ^(g)	370,000	NV	--	--	--	--	--	--	--	--	--	--
Acenaphthene	16,000	NV	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	66,000	NV	--	--	--	--	--	--	--	--	--	--
Anthracene	220,000	NV	--	--	--	--	--	--	--	--	--	--

Location:	Preliminary Cleanup Standards ^(a)		SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Sample Name:			SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41
Collection Date:			07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:	(0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	Trace	10	5	Trace	10	25	50	90	0	20
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside
PAHs (ug/kg-OC) cont.												
Fluorene	23,000	NV	--	--	--	--	--	--	--	--	--	--
Naphthalene	99,000	NV	--	--	--	--	--	--	--	--	--	--
Phenanthrene	100,000	NV	--	--	--	--	--	--	--	--	--	--
Total HPAH ^(h)	960,000	NV	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	110,000	NV	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	99,000	NV	--	--	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	31,000	NV	--	--	--	--	--	--	--	--	--	--
Chrysene	110,000	NV	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	12,000	NV	--	--	--	--	--	--	--	--	--	--
Fluoranthene	160,000	NV	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	34,000	NV	--	--	--	--	--	--	--	--	--	--
Pyrene	1,000,000	NV	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	--	--	--	--	--	--	--	--	--	--
Total benzofluoranthenes ⁽ⁱ⁾	230,000	NV	--	--	--	--	--	--	--	--	--	--
PCBs and Pesticides (ug/kg-dry)												
Aroclor 1016	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	NV	NV	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	NV	NV	--	--	--	--	--	--	--	--	--	--
Total PCBs ^(k)	3.5	3.5	--	--	--	--	--	--	--	--	--	--
Carbazole	900	900	--	--	--	--	--	--	--	--	--	--
Additional SVOCs (ug/kg-dry)												
1,3-Dichlorobenzene	NV	NV	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	NV	NV	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	NV	NV	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (pg/g-dry)												
1,2,3,4,6,7,8-HpCDD	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	--	--	--	--	--	--	--	--	--	--

Location:	Preliminary Cleanup Standards ^(a)		SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41	
Sample Name:			SE-32	SE-33	SE-34	SE-35	SE-36	SE-37	SE-38	SE-39	SE-40	SE-41	
Collection Date:	Organic Carbon (0.5% to 3.5%) ^(b)	Organic Carbon (<0.5% or >3.5%) ^(c)	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	
Collection Depth (ft bml):			0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Type:			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Percent Wood waste:			Trace	10	5	Trace	10	25	50	90	0	20	
TOC:			Inside	Inside	Inside	Inside	Inside	Inside	Inside	Inside	Outside	Inside	Inside
Dioxins/Furans (pg/g-dry) cont.													
2,3,4,6,7,8-HxCDF	NV	NV	--	--	--	--	--	--	--	--	--	--	
2,3,4,7,8-PeCDF	NV	NV	--	--	--	--	--	--	--	--	--	--	
2,3,7,8-TCDD	NV	NV	--	--	--	--	--	--	--	--	--	--	
2,3,7,8-TCDF	NV	NV	--	--	--	--	--	--	--	--	--	--	
OCDD	NV	NV	--	--	--	--	--	--	--	--	--	--	
OCDF	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total HpCDDs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total HpCDFs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total HxCDDs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total HxCDFs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total PeCDDs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total PeCDFs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total TCDDs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total TCDFs	NV	NV	--	--	--	--	--	--	--	--	--	--	
Dioxin/Furan TEQ ^{(f)(1)}	5	5	--	--	--	--	--	--	--	--	--	--	
TPH (mg/kg-dry)													
Gasoline-Range Hydrocarbons	--	--	--	--	--	--	--	--	--	--	--	--	
Diesel-Range Hydrocarbons	340	340	--	--	--	--	--	--	--	--	--	--	
Motor-Oil Range Hydrocarbons	3,600	3,600	--	--	--	--	--	--	--	--	--	--	
Grain Size (%)													
Gravel	NV	NV	--	--	--	--	--	--	--	--	--	--	
Very coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	
Coarse sand	NV	NV	--	--	--	--	--	--	--	--	--	--	
Medium sand	NV	NV	--	--	--	--	--	--	--	--	--	--	
Fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	
Very fine sand	NV	NV	--	--	--	--	--	--	--	--	--	--	
Coarse silt	NV	NV	--	--	--	--	--	--	--	--	--	--	
Medium silt	NV	NV	--	--	--	--	--	--	--	--	--	--	
Fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	
Very fine silt	NV	NV	--	--	--	--	--	--	--	--	--	--	
Coarse clay	NV	NV	--	--	--	--	--	--	--	--	--	--	
Medium clay	NV	NV	--	--	--	--	--	--	--	--	--	--	
Fine clay	NV	NV	--	--	--	--	--	--	--	--	--	--	
Total fines	NV	NV	--	--	--	--	--	--	--	--	--	--	
Sand, total	NV	NV	--	--	--	--	--	--	--	--	--	--	
Silt, total	NV	NV	--	--	--	--	--	--	--	--	--	--	
Clay, total	NV	NV	--	--	--	--	--	--	--	--	--	--	
Asbestos (%)													
Asbestos	NV	NV	--	--	--	--	--	--	--	--	--	--	
Pore Water Analysis													
Conductivity (uS/cm)	NV	NV	--	--	--	--	--	--	--	--	--	--	
Salinity (ppt)	NV	NV	--	--	--	--	--	--	--	--	--	--	

Notes
Shading (color key below) indicates values that exceed PCSs. Non-detect results (U or UJ) are not evaluated against screening criteria. PCSs are applied based on sample TOC results.
Bold font is applied to detected results, with the exception of conventional parameters and grain size.

TOC results outside 0.5-3.5%
Detected result exceeding PCS, Inside or Outside Organic Carbon 0.5-3.5%

- | | |
|---|--|
| <p>% = percent.
-- = not analyzed.
< = less than.
>= greater than.
AET = apparent effects threshold.
cm = centimeter.
cPAH = carcinogenic PAH.
ft bml = feet below mudline.
HPAH = high-molecular-weight PAH.
HpCDD = heptachlorodibenzo-p-dioxin.
HxCDD = hexachlorodibenzo-p-dioxin.
HxCDF = hexachlorodibenzofuran.
J = result is an estimated value.
J+ = result is an estimated value with a potential high bias.
K = result is an estimated maximum potential concentration.
LPAH = low-molecular-weight PAH.
mg/kg = milligrams per kilogram.
mg/kg-dry = milligrams per kilogram, dry weight.
mg/L = milligrams per liter.
NV = no value.
OCDD = octachlorodibenzodioxin.
OCDF = octachlorodibenzofuran.
PAH = polycyclic aromatic hydrocarbon.</p> | <p>PCB = polychlorinated biphenyl.
PCS = preliminary cleanup standard.
PeCDD = pentachlorodibenzo-p-dioxin.
PeCDF = pentachlorodibenzofuran.
pg/g-dry = picograms per gram, dry weight.
ppt = parts per thousand.
PQL = practical quantitation limit.
SCUM = Sediment Cleanup User's Manual.
SIM = selective ion monitoring.
SMS = sediment management standard.
SVOC = semivolatile organic compound.
TCDD = tetrachlorodibenzo-p-dioxin.
TCDF = tetrachlorodibenzofuran.
TCLP = toxicity characteristic leaching procedure.
TEQ = toxic equivalent quotient.
TOC = total organic carbon.
TPH = total petroleum hydrocarbons.
U = result is non-detect at detection limit or estimated detection limit.
ug/kg-dry = micrograms per kilogram, dry weight.
ug/kg-OC = micrograms per kilogram, organic carbon normalized.
UJ = result is non-detect with an estimated reporting limit.
uS/cm = microSiemens per centimeter.</p> |
|---|--|

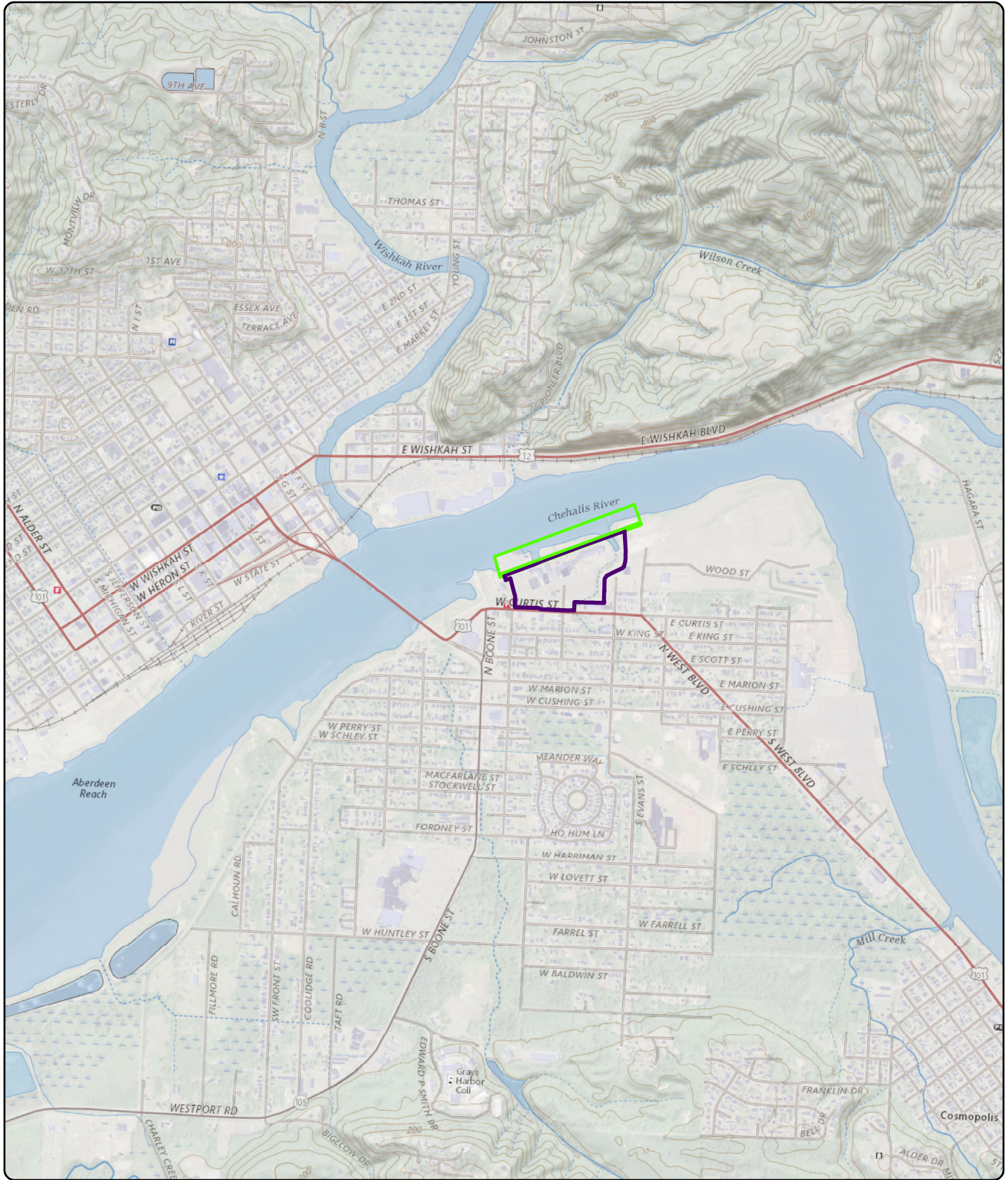
- ^(a)PCSs are shown in Table 5-3.
- ^(b)Preliminary cleanup standard for sediment within the standard 0.5 to 3.5 percent TOC range is equivalent to the highest of natural background, PQL, or RBCs. RBCs are the lowest of SMS freshwater, SMS marine, and human health and higher trophic ecological receptors risk criteria.
- ^(c)Preliminary cleanup standards for sediment outside of the standard 0.5 to 3.5 percent TOC range is equivalent to the highest of natural background, PQL, or RBCs. RBCs are the lowest of SMS freshwater, SMS marine, SMS marine AETs, and |
- ^(d)TOC analysis was not performed. Assume TOC would be outside of the 0.5 to 3.5 percent range based on other samples collected from the same boring.
- ^(e)TOC analysis was not performed. Assume TOC would be inside of the 0.5 to 3.5 percent range based on other samples collected from the same area.
- ^(f)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.
- ^(g)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.
- ^(h)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.
- ⁽ⁱ⁾Total benzofluoranthenes are reported by the laboratory for samples collected from 2013-2015. Total benzofluoranthenes are calculated as the sum of detected benzo(b)fluoranthene and benzo(k)fluoranthene for samples collected from 2019-2020. Non-detect results are not included in the sum. When both analytical results are non-detect, the highest detection limit is used.
- ^(j)cPAH TEQ is calculated with 2005 California EPA toxicity equivalence factors provided in table 6-1 of SCUM (Ecology, 2021). Non-detect results are included at one-half the detection limit. When all cPAHs are non-detect, the highest reported detection limit is shown.
- ^(k)Total PCBs is the sum of all detected recolors. Non-detect results are not included in the sum. When all analytical results are non-detect, the highest detection limit is used.
- ^(l)Dioxin/furan TEQ is calculated with 2005 World Health Organization toxic equivalence factors provided in table 6-2 of SCUM (Ecology, 2021). Non-detect results are included at one-half the detection limit.

Reference
⁽¹⁾Ecology, 2021. Sediment cleanup user's manual (SCUM), guidance for implementing cleanup provisions of the sediment management standards, Chapter 173-204 WAC. Publication no. 12-09-057. Washington State Department of Ecology. Revised December 2021.

DRAFT

FIGURES





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

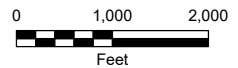
Legend

-  The Property
-  Approximate Aquatic Land Lease Area



**Figure 1-1
Site Location**

Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington



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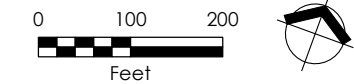


Figure 1-2
Site Vicinity and Area
of In-Water Investigation

Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington

Legend

-  Approximate Line of Ordinary High Water
-  Area of In-Water Investigation
-  The Property
-  Approximate Aquatic Lease Area
-  Tax Lot



Source:
 Aerial photograph obtained from Mapbox; tax lot data
 obtained from Grays Harbor County.

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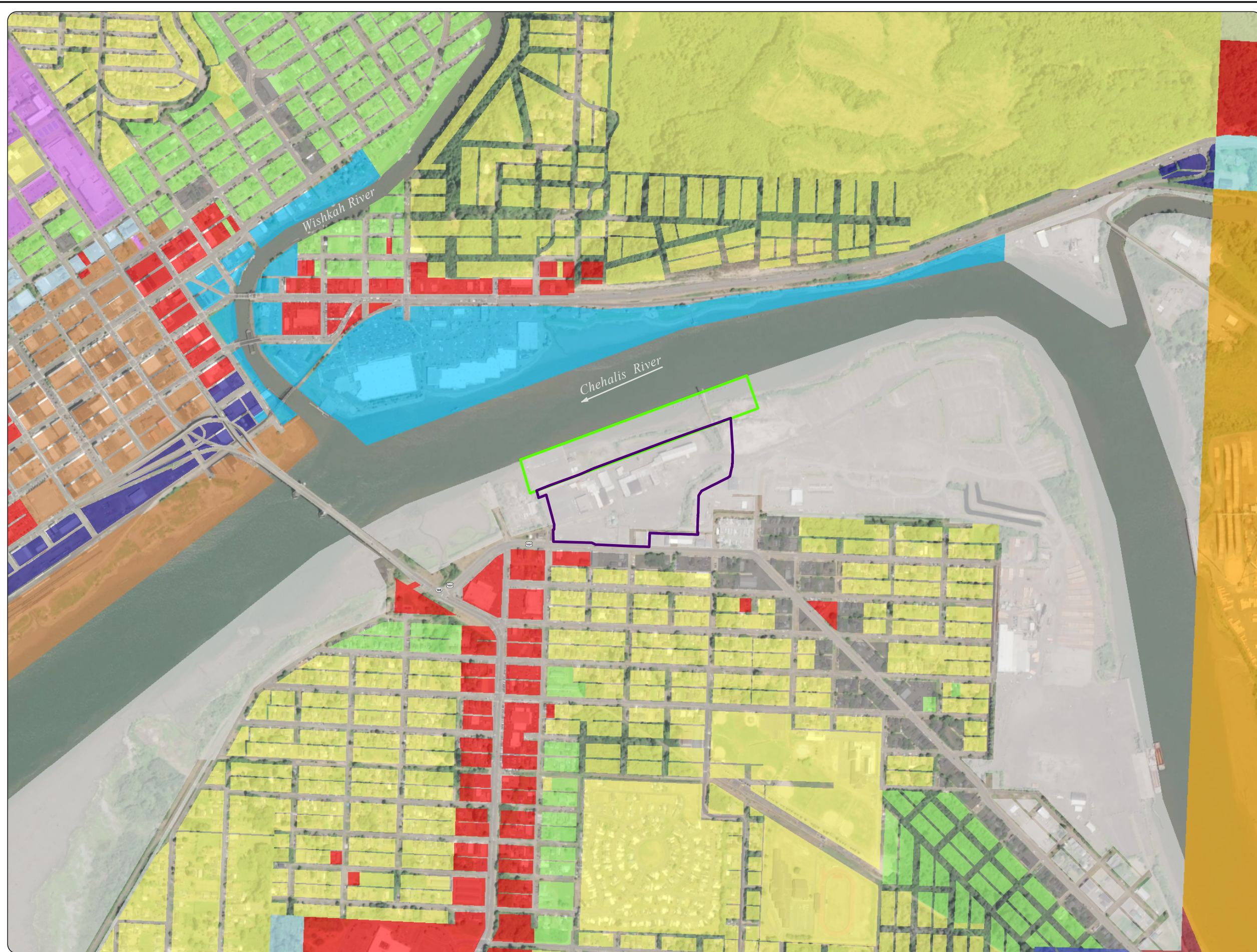




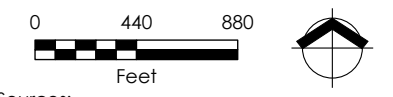
Figure 2-1
Zoning Designations
 Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington

Legend

-  The Property
-  Approximate Aquatic Land Lease Area

Zoning Designation

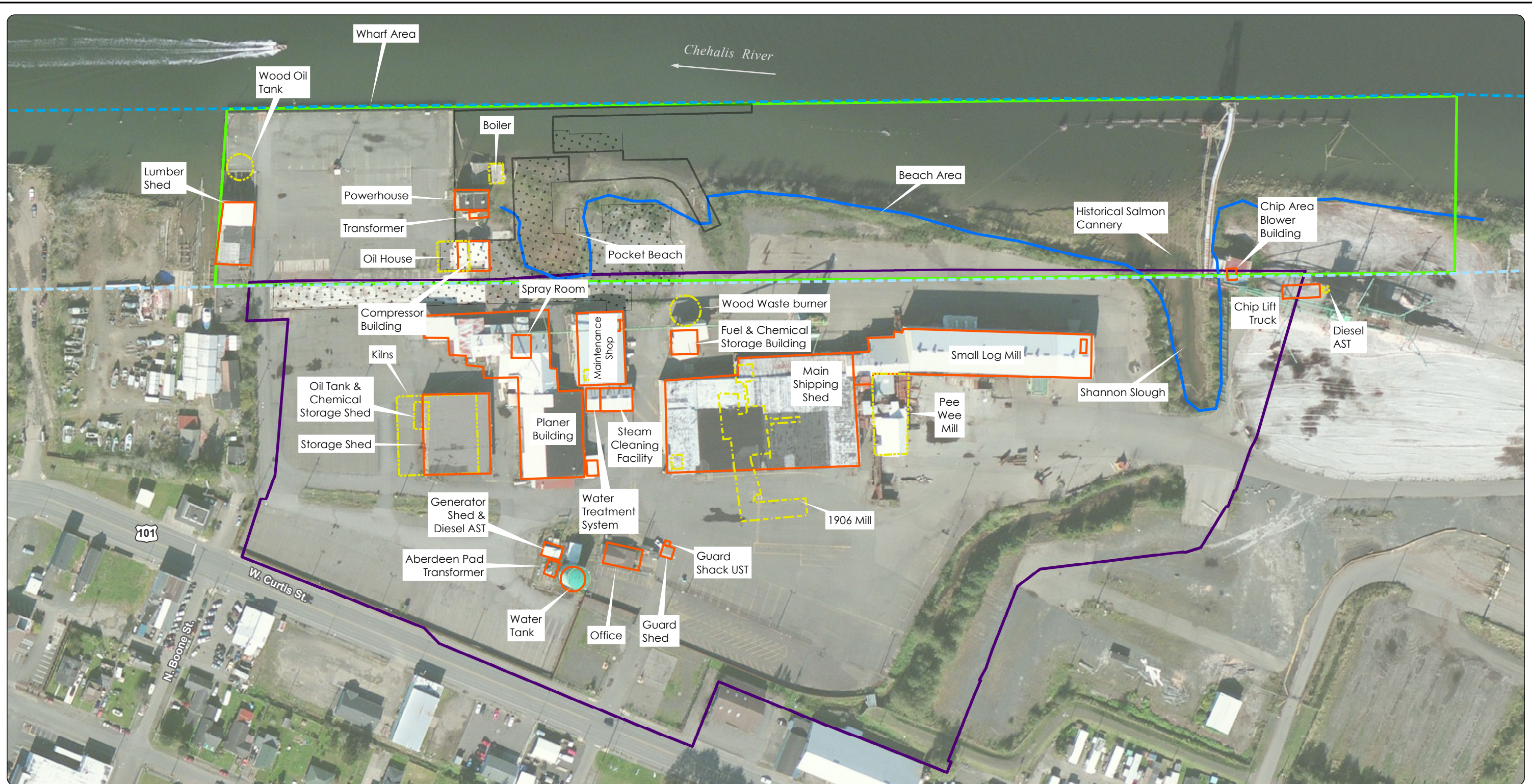
-  Aberdeen CD Downtown Commercial
-  Aberdeen CG General Commercial
-  Aberdeen CR Commercial/Residential
-  Aberdeen I Industrial
-  Aberdeen LI Light Industrial
-  Aberdeen MI Major Institutional
-  Aberdeen RM Multiple Family Residential
-  Aberdeen RP Residential Professional
-  Aberdeen RS Single 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



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

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.

Path: X:\1044_02_1404\Fig-2_Historical and Current_Features.mxd
 Print Date: 4/26/2022
 Approved By: mpallock
 Produced By: abibby
 Project: MT044_02_014



Sources:
 Aerial photograph obtained from Esri ArcGIS Online.
 Parcels and roads obtained from Grays Harbor County.
 Harbor lines obtained from Washington Department of Natural Resources.
 Former features from Level I Environmental Site Assessment,
 PES Environmental; August 13, 2010.

NOTES:
 AST = aboveground storage tank.
 UST = underground storage tank.
 Aquatic land 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.

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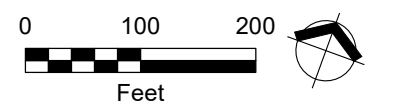
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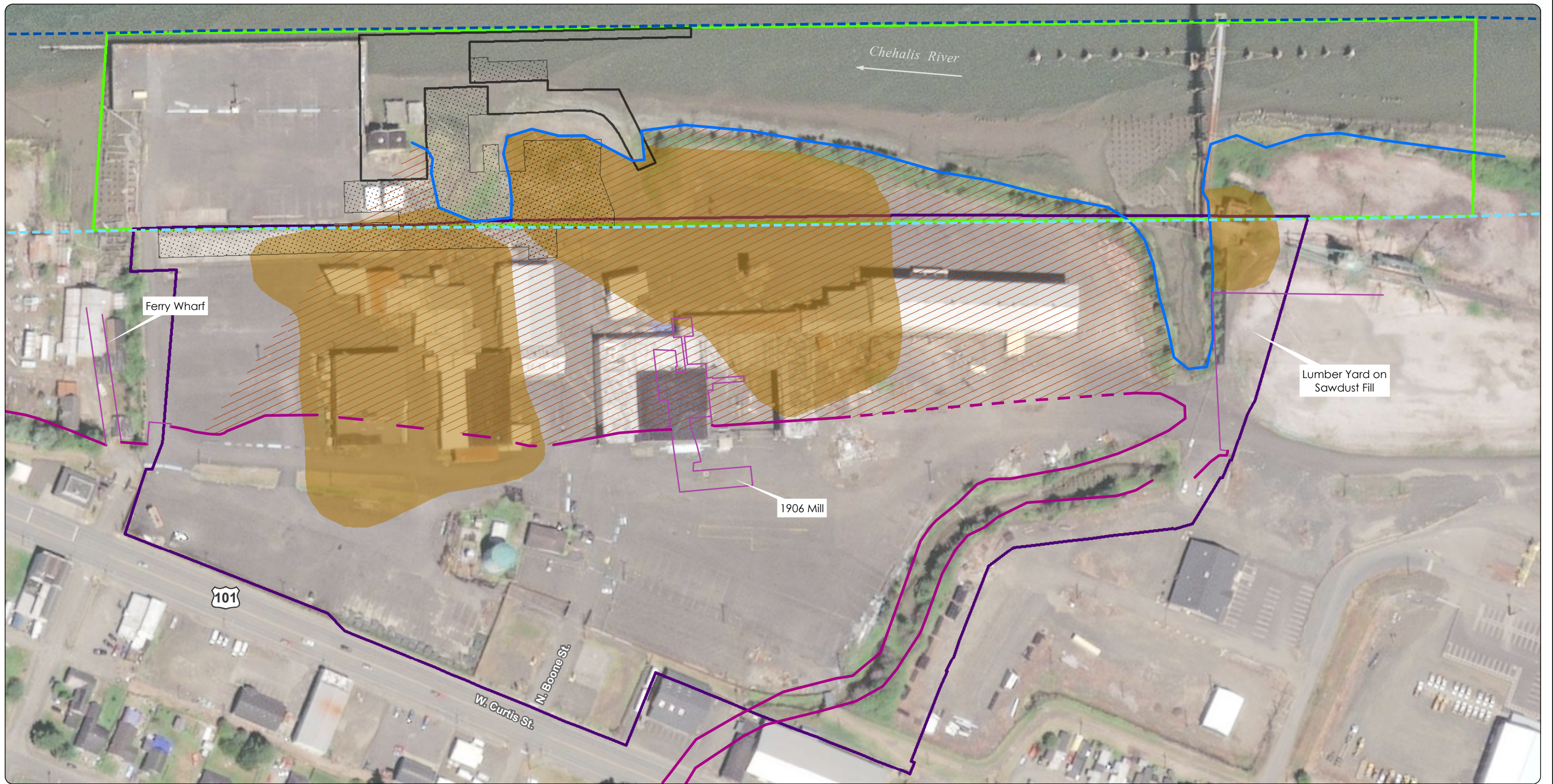
Legend

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

Figure 2-2
Historical and Current
Site Features

Weyerhaeuser Sawmill Aberdeen/
 Seaport Landing Site
 Aberdeen, Washington





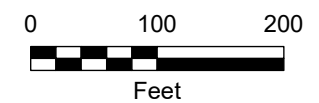
Source:
 Aerial photograph obtained from Esri.
 Parcels and roads obtained from Grays Harbor County.
 Shorelines boundaries are approximate and derived from Sanborn Fire Insurance maps. Harbor lines obtained from Washington Department of Natural Resources. Extent of wood waste is approximate and derived from geologic logs.

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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.

- Legend**
- Extent of Wood Waste
 - The Property
 - Approximate Aquatic Land 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





NOTES:
 Aquatic land 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.

Source:
 Aerial photograph obtained from Esri.



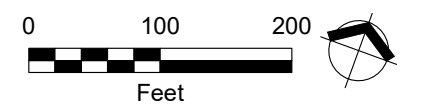
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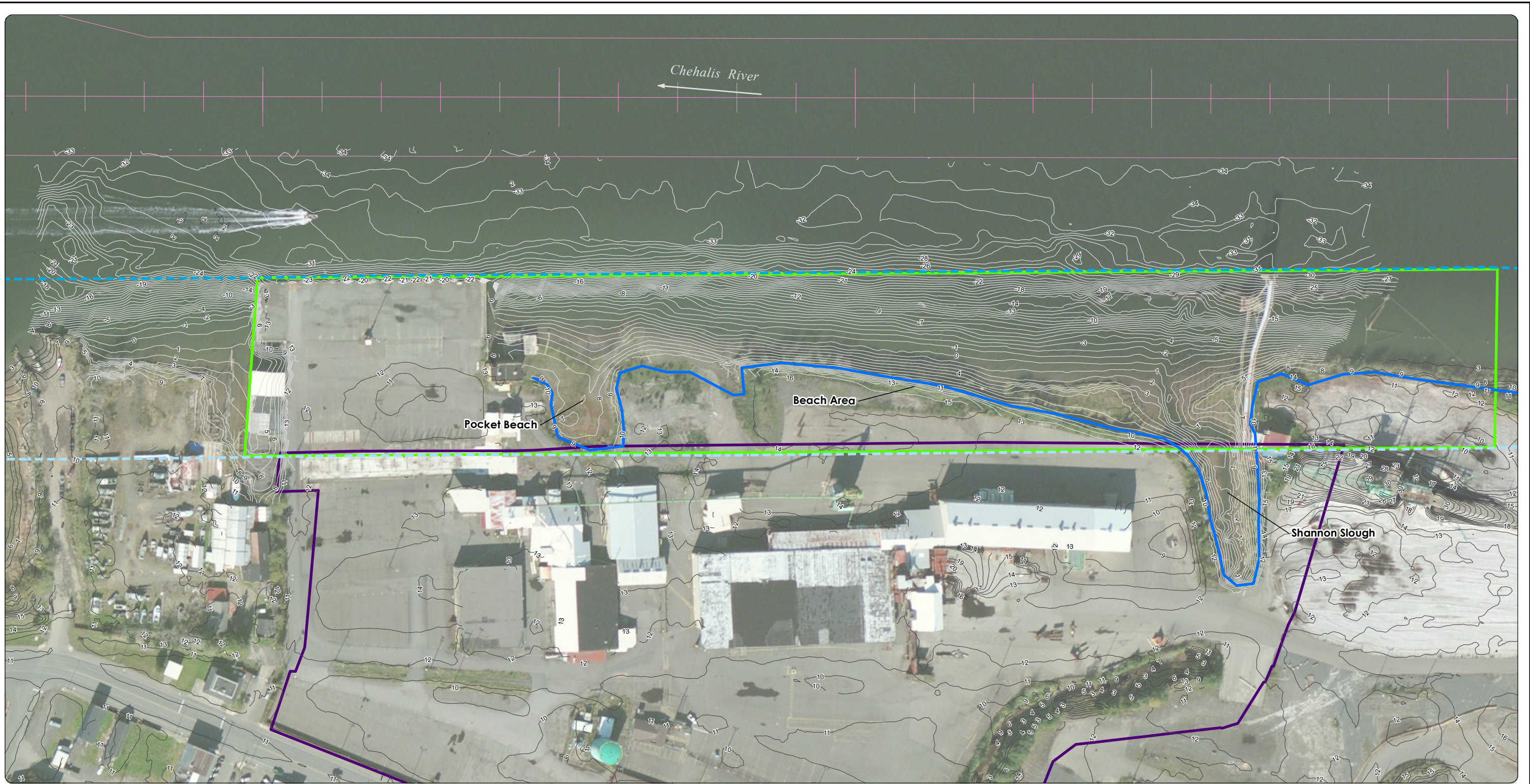
- Legend**
- Catch Basin
 - Oil/Water Separator
 - Outfall
 - Drain Pipe (with flow direction)
 - Approximate Line of Ordinary High Water
 - Composite Samples
 - Approximate Aquatic Land Lease Area
 - Former Mill
 - Former Wharf Extension
 - The Property
 - Drainage Basin, Contributing Area

- Previous Investigations**
- 2013 Sediment Samples
 - 2015 Soil and/or Groundwater Samples
 - 2015 Sediment Samples
 - 2015 Seep Sample
 - 2016 Stormwater Sample

Figure 2-4
Previous Sample Locations

Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington





NOTES:
 Aquatic land 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.
 NAVD 88 = North American Vertical Datum of 1988.

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









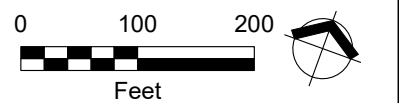
-  Approximate Line of Ordinary High Water
-  Inner Harbor Line
-  Outer Harbor Line
-  Approximate Aquatic Land Lease Area
-  The Property
-  One-Foot Contour Bathymetry (NAVD 88)
-  One-Foot Contour LiDAR (NAVD 88)
-  Navigation Channel

Figure 3-1
Bathymetry and Topography

Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington



Path: X:\1044_02_14\04\Fig4-1 Subsurface Sediment Sampling.mxd
 Print Date: 4/27/2022
 Approved By: mpallock
 Produced By: abibby
 Project: M1044_02.01



NOTES:
 Aquatic land 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.
 Expanded Chemistry - See tables for analyses conducted at each location.
 Source:
 Aerial photograph obtained from Esri ArcGIS Online.


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Legend










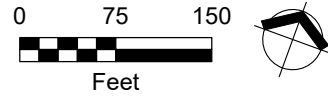
-  Radioisotope Analysis
-  Visual Wood Waste and Wood Waste Chemistry
-  Visual Wood Waste
-  Visual Wood Waste and Expanded Chemistry
-  The Property
-  Approximate Aquatic Land Lease Area
-  Former Mill
-  Former Wharf Extension
-  Approximate Line of Ordinary High Water

Figure 4-1
Subsurface Sediment Sampling Locations
 Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, Washington

0 75 150

 Feet



Notes
 DGT = diffusive gradients in thin films
 All locations are approximate.
 Aquatic land 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.
 Surface is sediment collected in the top 10 centimeters (0 to 0.33 feet below the mudline).

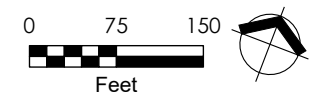
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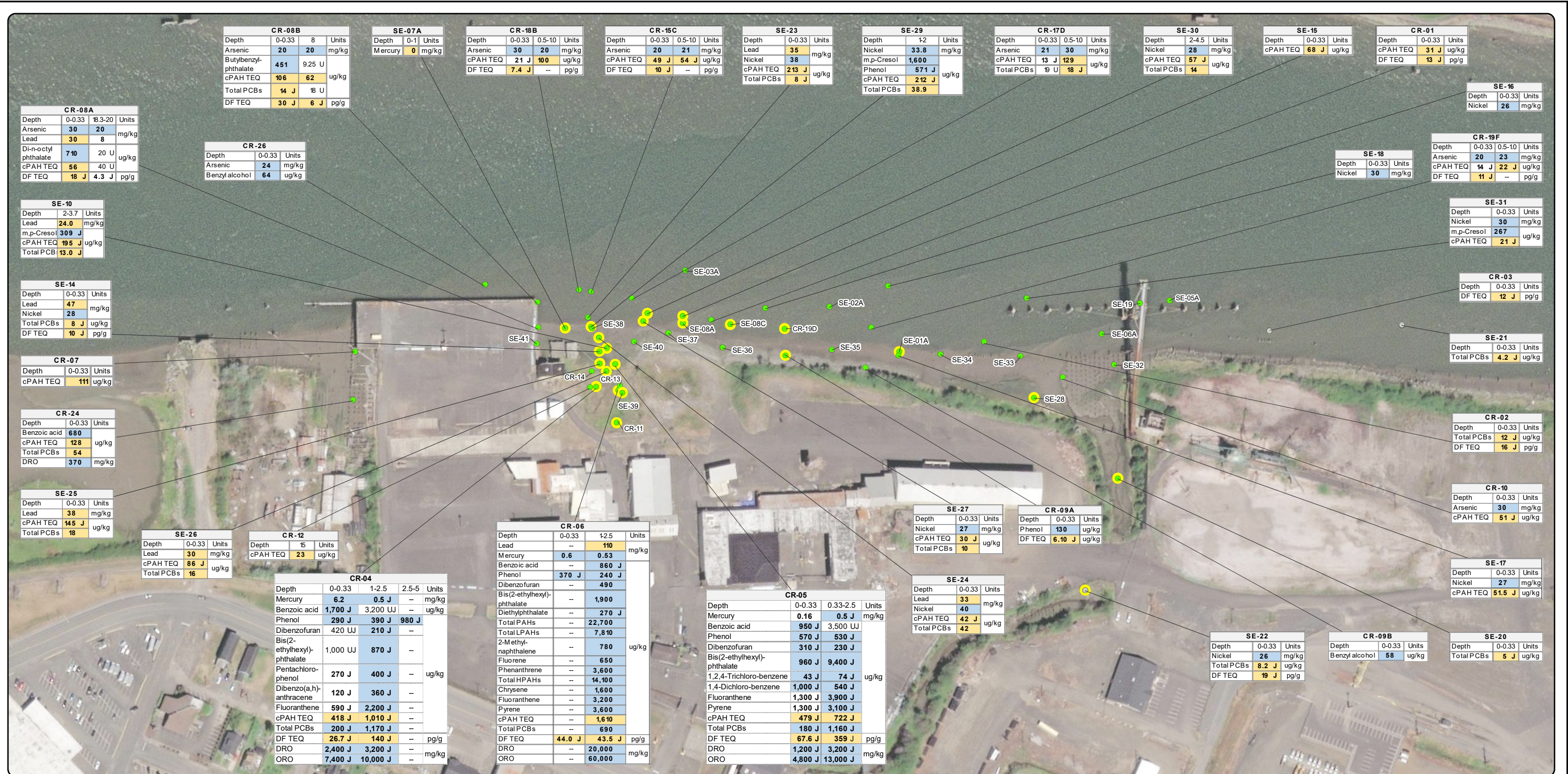
This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Data Source
 Aerial photograph obtained from Esri ArcGIS Online.

- | | |
|---|--|
| DGT Sample Locations | The Property |
| Chemistry | Approximate Aquatic Land Lease Area |
| Chemistry and Bioassay | Sediment Chemistry Sample for Background |
| Wood Waste Chemistry Only | Former Mill |
| Possible Sulfide Bacterial Seep and Bacterial Mat | Former Wharf Extension |
| Approximate Line of Ordinary High Water | Approximate Visual Extent of Wood Waste |

Figure 4-2
Surface Sediment Sampling Locations
 Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, Washington





NOTES;
 All depths are in feet below mudline.
 Conventional parameters are not shown on this figure.
 Samples shown with no data have no screening level exceedances.

Source:
 Aerial photograph obtained from Esri.



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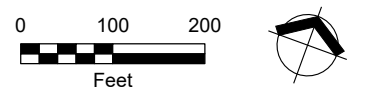
Acronyms and Abbreviations:
 -- = not analyzed.
 cPAH TEQ = carcinogenic PAH toxicity equivalent.
 DF TEQ = dioxin/furan toxic equivalent quotient.
 DRO = diesel-range organics.
 HPAHs = high-molecular-weight PAHs.
 J = result is estimated.
 LPAHs = low-molecular-weight PAHs.
 mg/kg = milligrams per kilogram.
 m,p-cresol = 3- & 4-methylphenol.
 ORO = oil-range organics.
 PAHs = polycyclic aromatic hydrocarbons.
 PCBs = polychlorinated biphenyls.
 pg/g = picograms per grams.
 SCO = sediment cleanup objective.
 SSL = site screening level.
 U = result is not detected.
 ug/kg = micrograms per kilogram.

- Legend**
- Sediment Sample
 - Background Location
 - Total Organic Carbon <0.5% or >3.5%

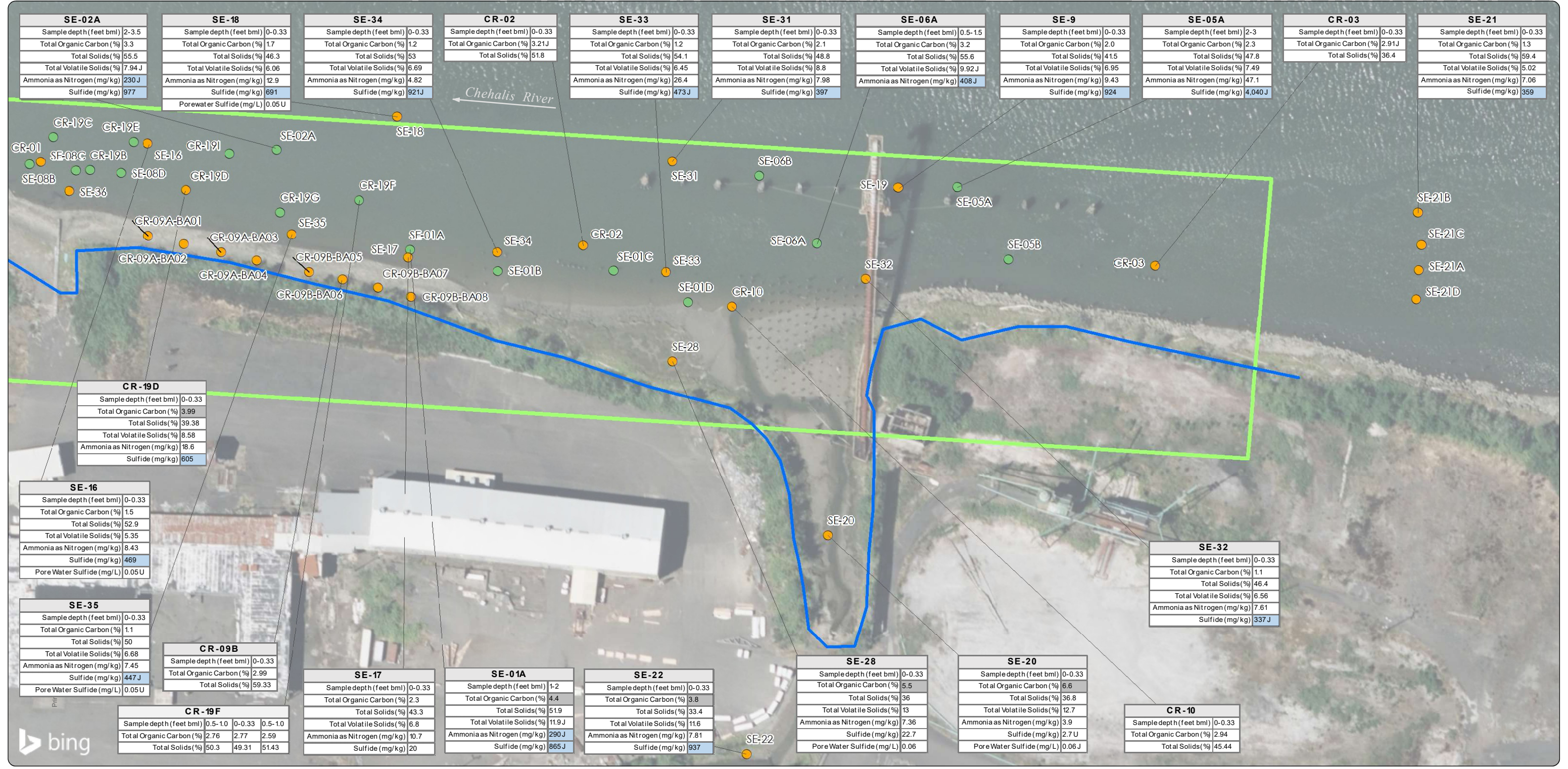
Exceedance and Detection Key	
Benthic SCO exceedance	
Human health SSL exceedance	
Detected values are bolded	

Figure 6-1
Sediment Primary Cleanup Level Exceedances

Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington



Path: X:\11044_02_14\041Efig-2B_Woodwaste_Parameters_Upriver.mxd
 Produced By: imollock
 Approved By: roberts
 Project: M11044_02.014



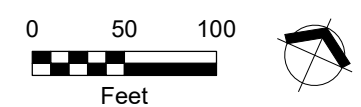
Notes
 Aquatic land lease areas were digitized from print maps of Aberdeen tidelands dated March 22, 2001 and January 15, 1907, on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
 Surface is sediment collected in the top 10 centimeters (0 to 0.33 feet bml).
 % = percent.
 bml = below mudline.
 J = Result is an estimated value.
 mg/kg = milligrams per kilogram.
 mg/L = milligrams per liter.
 U = Result is non-detect at reporting limit.

Data Sources
 Aerial photograph obtained from Microsoft Bing;
 parcels and roads obtained from Grays Harbor County.

- Legend**
- Surface Sample
 - Subsurface Sample
 - Approximate Aquatic Land Lease Area
 - Approximate Line of Ordinary High Water



Figure 6-2B
Upriver Wood Waste Parameters
 Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington



	Detected result exceeds preliminary cleanup standard, regardless of whether TOC is within standard 0.5 to 3.5 percent range.
	Total organic carbon outside of standard 0.5 to 3.5 percent range.



Chehalis River

NOTES:
 AM = amphipod mortality.
 CSL = cleanup screening level.
 LD = larval development.
 PG = polychaete growth.
 SCO = sediment cleanup objective.
 Aquatic land 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.
 Surface is sediment collected in the top 10 centimeters (0 to 0.33 feet below the mudline).

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Source:
 Aerial imagery obtained from Esri.

Legend



- Pass
- SCO Failure
- CSL Failure

- Surface Sample
- The Property
- Approximate Aquatic Land Lease Area
- Approximate Line of Ordinary High Water

Figure 6-3
Bioassay Results
 Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, Washington

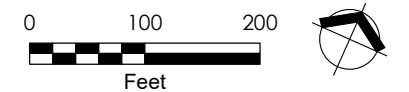
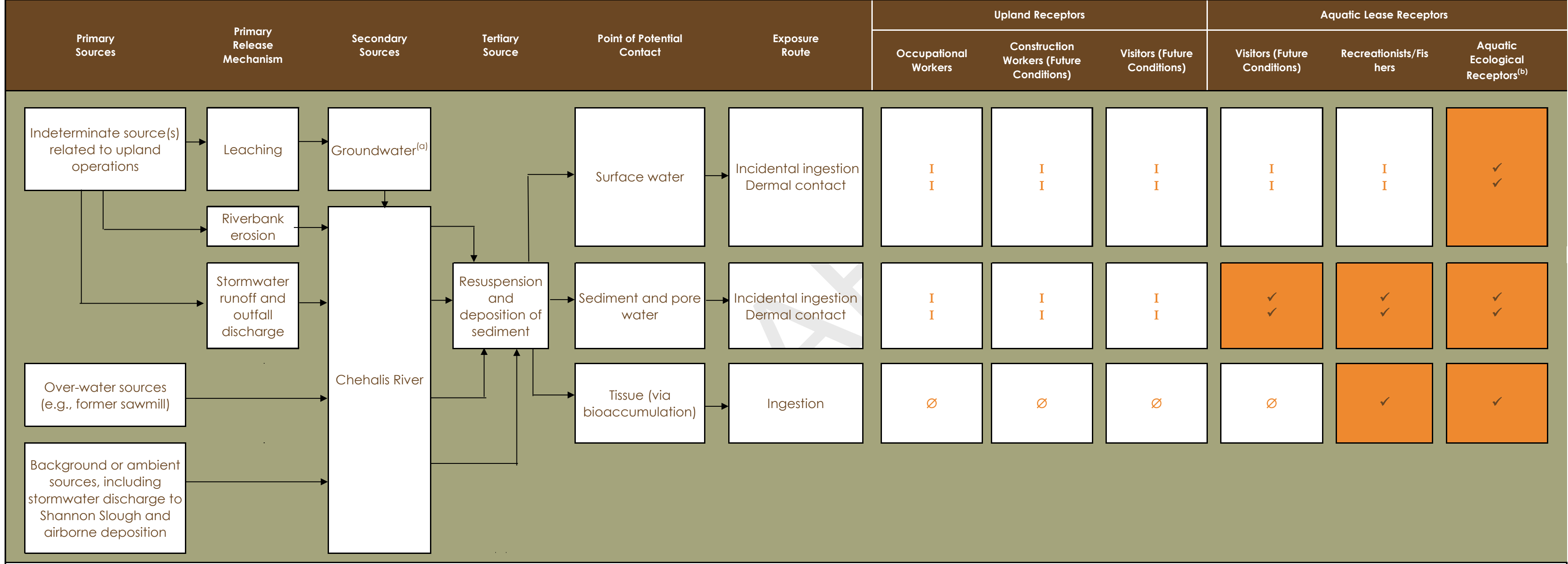


Figure 7-1
 Conceptual Site Model
 Weyerhaeuser Sawmill Aberdeen/Seaport Landing Site



Notes

- Primary pathway.
- ✓ Potentially complete exposure route.
- ∅ Incomplete exposure route.
- I Insignificant exposure route.

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

^(b)Aquatic ecological receptors include aquatic plants; benthos; fish; and piscivorous birds, shorebirds, and mammals.



Figure 7-2
Visible Percent Wood Waste in
Surface and Subsurface Sediment

Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, Washington

Legend

- Approximate Line of Ordinary High Water
- Approximate Aquatic Land Lease Area

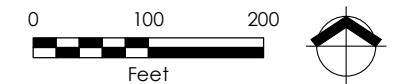
Total Percent Wood Content

- Not sampled
- No wood observed at depth interval
- < 0.5%
- 0.5 to 5%
- 5.1 to 10%
- 10.1 to 20%
- 20.1 to 50%
- 50.1 to 75%
- > 75%

Collected Sample Depth Interval

- < 0.3 foot
- 0.3 to 2 feet
- 2 to 4 feet
- 4 to 6 feet
- 6 to 8 feet
- 8 to 10 feet
- 10 to 12 feet
- 12 to 14 feet
- 14 to 16 feet
- 16 to 18 feet
- 18 to 20 feet
- 20 to 22 feet
- 22 to 24 feet
- 24 to 26 feet
- 26 to 28 feet

NOTES:
 Aquatic land 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. Each sample location shown to the approximate depth sampled; top box represents sample station location. Wood waste content based on visual inspection.

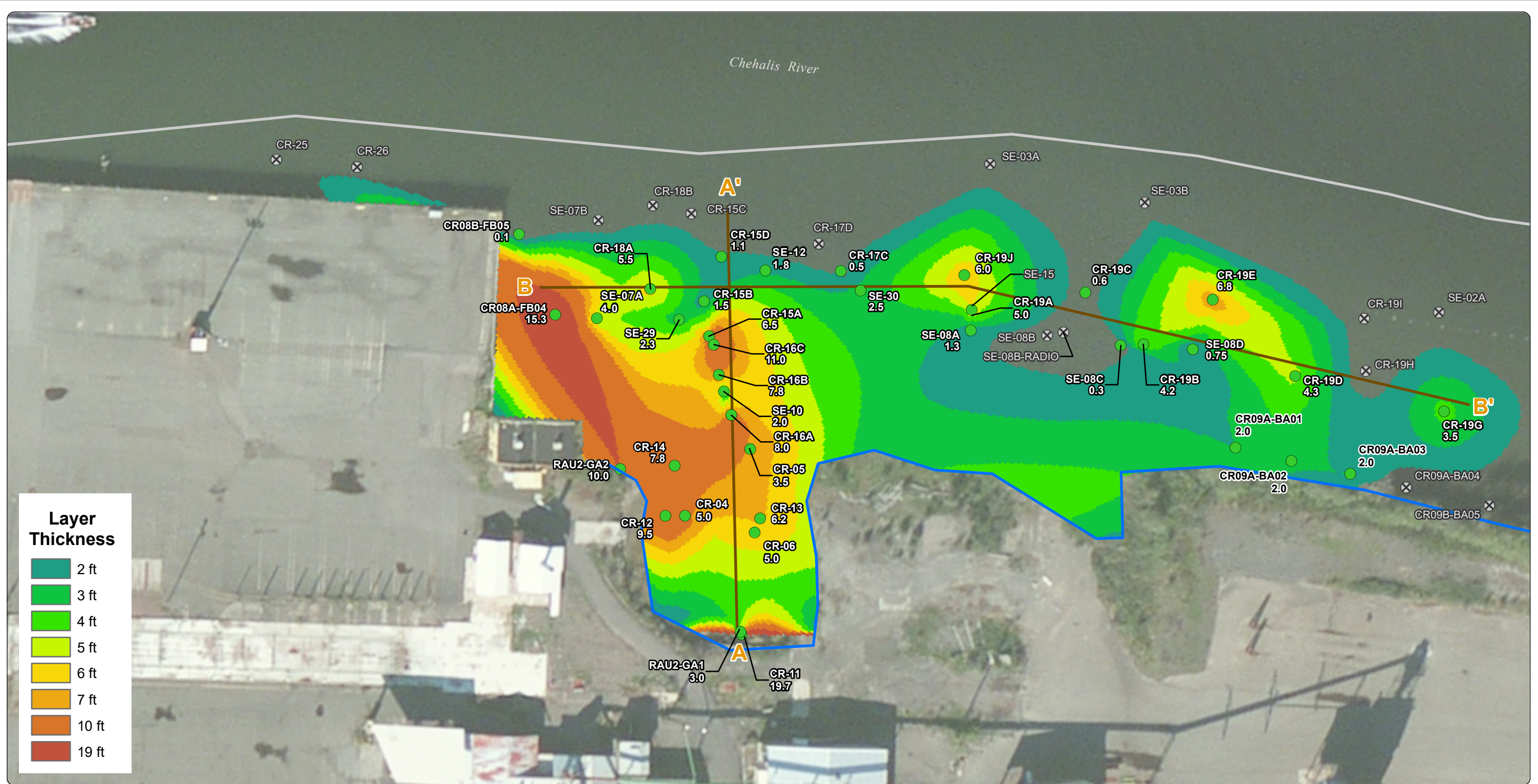


Source:
 Aerial photograph obtained from Esri.



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Path: X:\1044_02_14\04\Fig7-3A_Downriver_Estimated_Wood_Waste_Thickness.mxd
 Print Date: 4/28/2022
 Approved By: mstinger
 Produced By: stumer
 Project: M1044_02_014



NOTES:
 2019 sampling event did not reach bottom of wood waste layer.
 Interpolation created using Natural Neighbor Spatial Analyst tool with ESRI ArcMap.
 Intervals of no recovery in the first core drilled at a location were assumed to be sediment.
 Significant is defined as greater than 25 percent wood waste by volume.
 Surface samples were not included in the interpolation, with the exception of SE-28 and SE-31 to adequately represent visual observation of wood waste.
 Wood waste thickness shown by numbers next to sample locations.


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Source:
 Aerial photograph obtained from Esri ArcGIS Online.

Legend




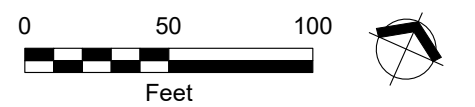
● Sample Location	 Cross Section
⊗ No Significant Wood Waste Accumulation Observed	 Model Domain
	 Approximate Line of Ordinary High Water

Figure 7-3A
Downriver Estimated Wood Waste Thickness

Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington



Path: X:\1044_02_14\04\Fig7-3B_Upriver_Estimated_Wood_Waste_Thickness.mxd
 Project: M1044_02.014
 Produced By: stumer
 Reviewed by: mpallock
 Print Date: 4/28/2022



Layer Thickness	
	2 ft
	3 ft
	4 ft
	5 ft
	6 ft
	7 ft
	10 ft
	19 ft

NOTES:
 2019 sampling event did not reach bottom of wood waste layer.
 Interpolation created using Natural Neighbor Spatial Analyst tool with ESRI ArcMap.
 Intervals of no recovery in the first core drilled at a location were assumed to be sediment.
 Significant is defined as greater than 25 percent wood waste by volume.
 Surface samples were not included in the interpolation, with the exception of SE-28 and SE-31 to adequately represent visual observation of wood waste.
 Wood waste thickness shown by numbers next to sample locations.


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Source:
 Aerial photograph obtained from Esri ArcGIS Online.

- Legend**
- Subsurface
 - Surface
 - No Significant Wood Waste Accumulation Observed
 - Total Thickness Unknown
 - Model Domain
 - Approximate Line of Ordinary High Water

Figure 7-3B
Upriver Estimated Wood Waste Thickness
 Weyerhaeuser Sawmill
 Aberdeen/Seaport
 Landing Site
 Aberdeen, Washington

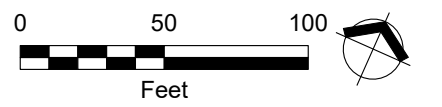
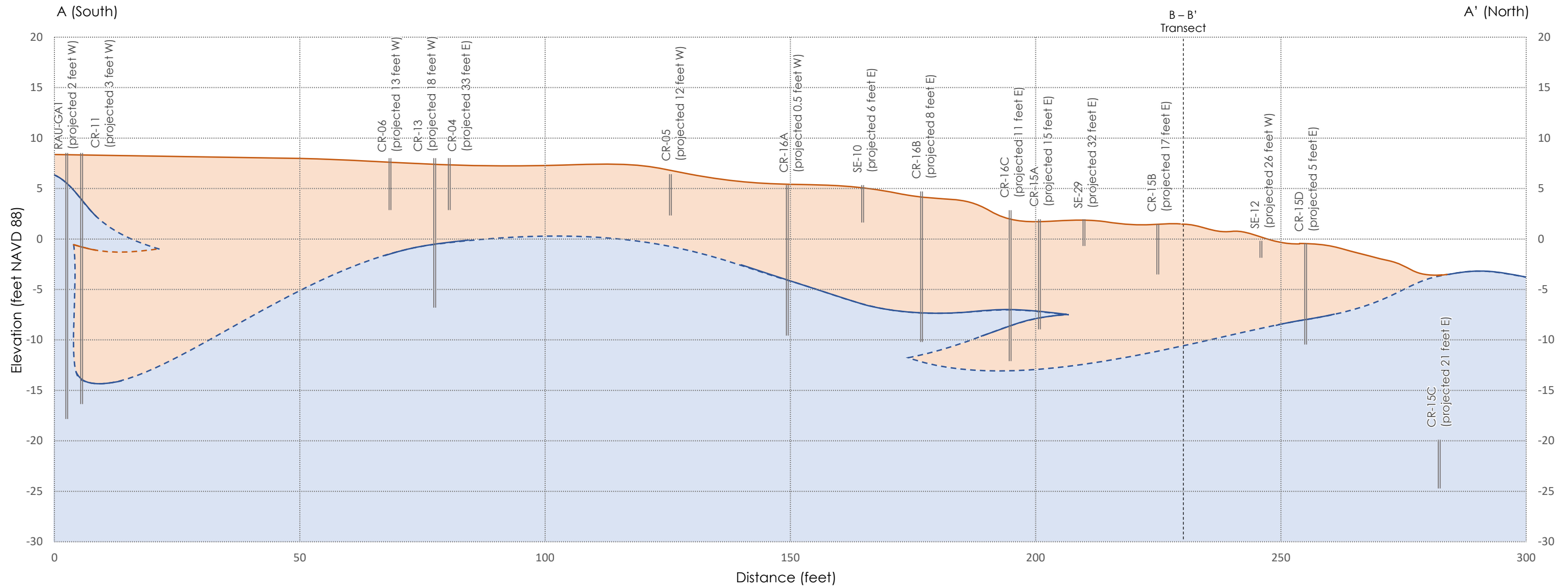


Figure 7-4
Geologic Cross Section A to A'
 Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, WA



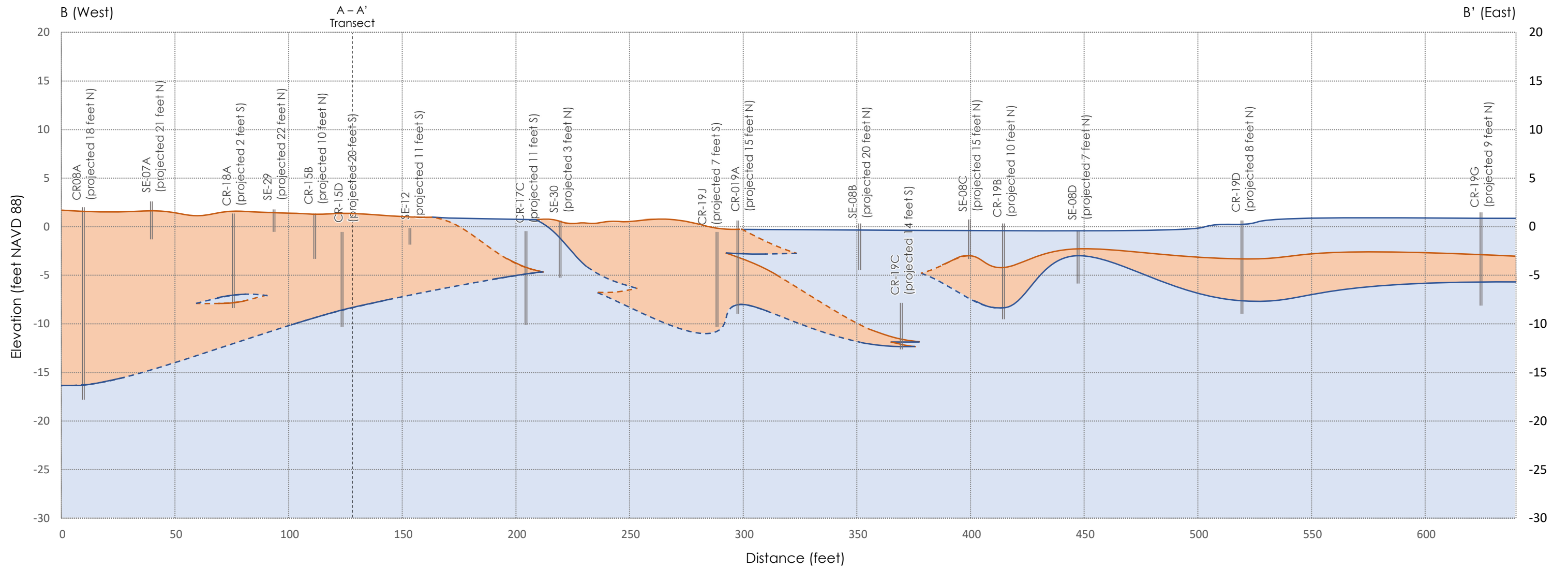
Legend

- Wood waste
- Sediment
- Borehole

Notes:

All feature locations are approximate.
 Units are dashed where inferred.
 Sediments containing greater than 25% wood waste are considered wood waste.
 Vertical exaggeration is 2x.
 NAVD 88 = North American Vertical Datum of 1988.

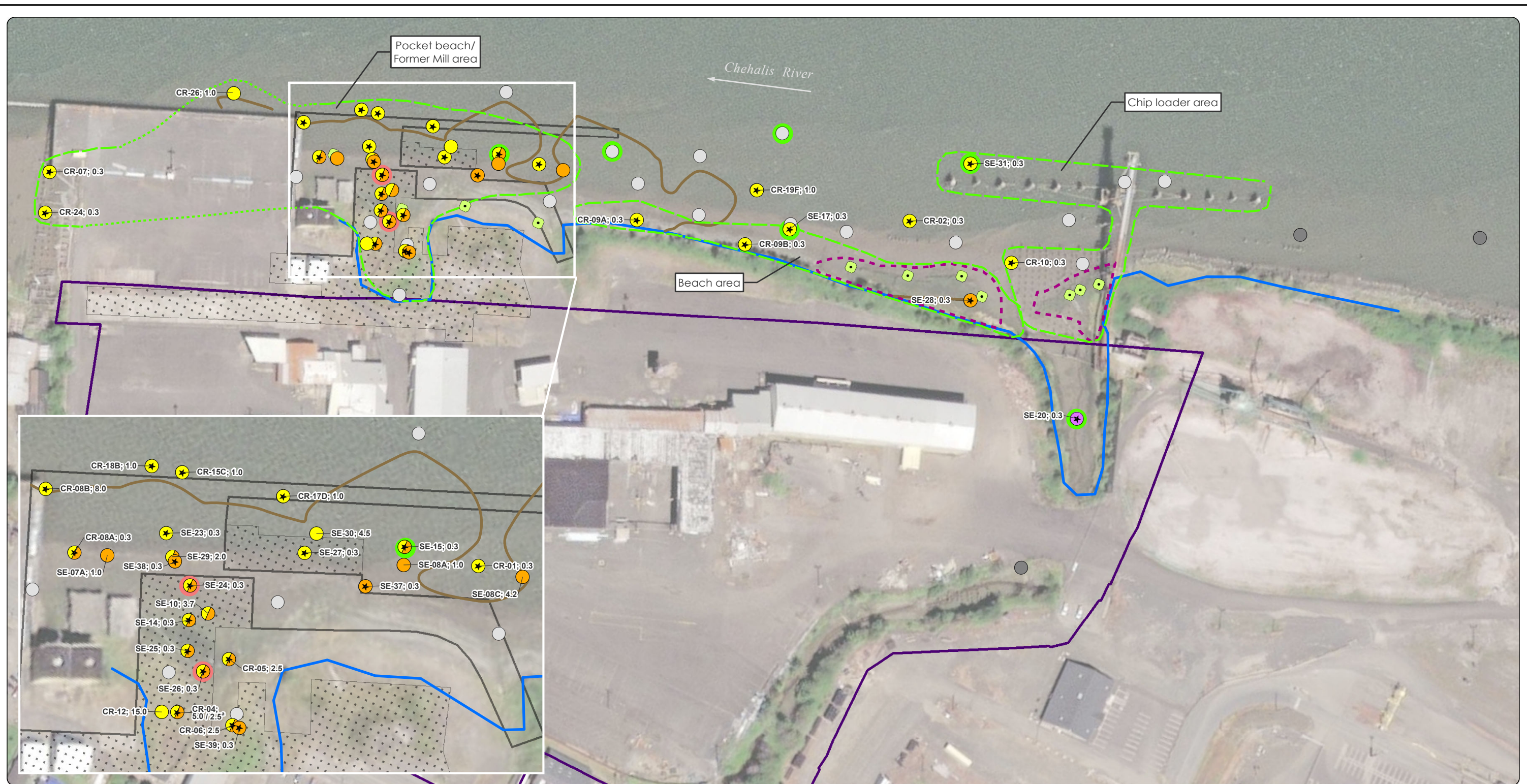
Figure 7-5
Geologic Cross Section B to B'
 Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, WA



Legend	
	Wood waste
	Sediment
	Borehole

Notes:
 All feature locations are approximate.
 Units are dashed where inferred.
 Sediments containing greater than 25% wood waste are considered wood waste.
 Vertical exaggeration is 5x.
 NAVD 88 = North American Vertical Datum of 1988.

Path: X:\1044_02_14\04\Fig8-1_IHSExceedances.mxd
 Project: M1044_02_014
 Produced By: jfraters
 Reviewed By: jpollack
 Print Date: 2/6/2023



Notes
 Chemical results for IHSs were compared to the preliminary cleanup standards in Table 5-3 of the remedial investigation report.
 IHSs include arsenic, cPAH TEQ, total PCBs, and dioxin/furan TEQ.
 Sample location labels are followed by the maximum exceedance depth in ft bml.
 Wood waste exceedances were identified by comparing total organic carbon, total volatile solids, and estimated wood waste percentages to the three-part wood waste cleanup level presented in Appendix H of the remedial investigation report.

Abbreviations
 cPAH= carcinogenic polycyclic aromatic hydrocarbon toxic equivalent quotient.
 dioxin/furan = polychlorinated dibenzo-p-dioxin and -furan.
 ft bml = feet below mudline.
 IHS = indicator hazardous substance.
 PCBs = polychlorinated biphenyls.
 TEQ = toxic equivalent quotient.
 (a) At CR-04, the maximum wood waste exceedance depth is 5.0 ft bml and the maximum chemical exceedance depth is 2.5 ft bml.

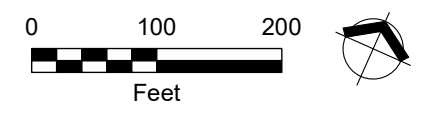
Data Source
 Aerial photograph obtained from Esri ArcGIS Online.



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- Legend**
- ★ IHS Exceedance at Surface
 - IHS Exceedance (Sample Name; Maximum Exceedance Depth)
 - Wood Waste Exceedance
 - Chemical Exceedance
 - Background Locations
 - IHS Exceedance Unrelated to Site
 - Sample with No IHS Exceedance
 - Possible Sulfide Bacterial Seep and Bacterial Mat
 - Bioassay Pass
 - Bioassay Fail
 - Significant Wood Waste Extent
 - Approximate Line of Ordinary High Water
 - - - Approximate Visual Extent of Wood Waste
 - Area of Concern
 - Former Mill
 - Former Wharf Extension
 - The Property

Figure 8-1
Site-Related IHS Exceedances
 Weyerhaeuser Sawmill
 Aberdeen/Seaport Landing Site
 Aberdeen, Washington



APPENDIX A
STUDY AREA INVESTIGATION

DRAFT



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

Prepared by
Maul Foster & Alongi, Inc.
2815 Second Avenue, Suite 540, Seattle, WA 98121

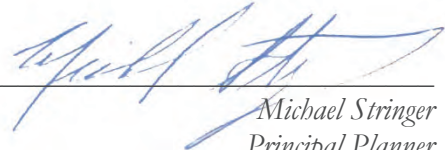
FINAL STUDY AREA INVESTIGATION—AQUATIC LANDS LEASE
WEYERHAEUSER SAWMILL ABERDEEN/SEAPORT LANDING SITE
FACILITY SITE ID 1126, CLEANUP SITE ID 4987, AGREED ORDER 1125
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES AQUATIC
LANDS LEASE NO. 22-092275

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

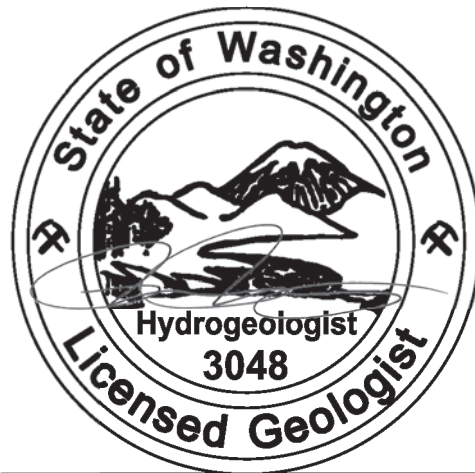
MAUL FOSTER & ALONGI, INC.



*Phil Wiescher, PhD
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MICHAEL R. MURRAY

6/19/19

*Michael R. Murray LHG
Senior Hydrogeologist*

CONTENTS

TABLES AND ILLUSTRATIONS	V
ACRONYMS AND ABBREVIATIONS	VI
1 INTRODUCTION	1
1.1 PURPOSE AND OBJECTIVES	1
1.2 REGULATORY FRAMEWORK	1
1.3 QUINAULT INDIAN NATION TREATY RIGHTS	2
2 BACKGROUND	3
2.1 LOCATION AND CURRENT PROPERTY CONDITIONS	3
2.2 PROPERTY HISTORY	3
2.3 SHORELINE MODIFICATIONS AND HISTORICAL FILL EVENTS	4
2.4 LEASED PROPERTY OPERATIONS	5
2.5 PREVIOUS INVESTIGATIONS	6
3 LEASED PROPERTY INVESTIGATION	10
3.1 OBJECTIVES AND APPROACH	10
3.2 FIELD INVESTIGATION	11
4 LEASED PROPERTY CONDITIONS	15
4.1 TOPOGRAPHY AND BATHYMETRY	15
4.2 GEOLOGY AND HYDROGEOLOGY	16
4.3 AQUATIC ENVIRONMENT AND BOTTOM SUBSTRATE	17
4.4 BENEFICIAL WATER AND LAND USES	19
5 CONCEPTUAL SITE MODEL	20
5.1 SOURCE CHARACTERIZATION	20
5.2 BACKGROUND SOURCES	21
5.3 FATE AND TRANSPORT OF CONTAMINANTS	21
5.4 POTENTIAL HUMAN HEALTH EXPOSURE SCENARIOS	22
5.5 POTENTIAL ECOLOGICAL RECEPTORS	24
5.6 TERRESTRIAL ECOLOGICAL EVALUATION	24
6 SCREENING LEVELS	24
6.1 SOIL	24
6.2 GROUNDWATER SEEP WATER, AND STORMWATER	25
6.3 SEDIMENT	25
7 ANALYTICAL RESULTS	28
7.1 SOIL	29
7.2 GROUNDWATER, SEEP WATER, AND STORMWATER	30
7.3 SEDIMENT	31
LIMITATIONS	
REFERENCES	
TABLES	
FIGURES	
APPENDIX A	

CONTENTS (CONTINUED)

SANBORN MAPS
APPENDIX B FIELD METHODS
APPENDIX C BORING LOGS
APPENDIX D TERRESTRIAL ECOLOGICAL EVALUATION
APPENDIX E SEDIMENT SCREENING LEVEL DEVELOPMENT FOR HUMAN HEALTH—DIRECT CONTACT
APPENDIX F LABORATORY REPORTS (PROVIDED ON CD)
APPENDIX G DATA VALIDATION MEMORANDA

DRAFT

TABLES AND ILLUSTRATIONS

FOLLOWING REPORT:

TABLES

- 3-1 SOIL, GROUNDWATER, AND SEEP SAMPLE DESCRIPTIONS AND ANALYSES
- 3-2 GROUNDWATER AND SEEP WATER FIELD PARAMETERS
- 3-3 SEDIMENT SAMPLE DESCRIPTIONS AND ANALYSES
- 6-1 BACKGROUND CHEHALIS RIVER SEDIMENT CONCENTRATIONS
- 7-1 SAMPLE SUMMARY
- 7-2 SOIL ANALYTICAL RESULTS AND SCREENING CRITERIA
- 7-3 GROUNDWATER, SEEP, AND STORMWATER ANALYTICAL RESULTS AND IN-WATER SCREENING CRITERIA
- 7-4 SEDIMENT ANALYTICAL RESULTS
- 7-5 SEDIMENT ANALYTICAL RESULTS AND SCREENING CRITERIA
- 7-6 WOODWASTE TOXICITY SCORING

FIGURES

- 1-1 PROPERTY LOCATION
- 1-2 PROPERTY VICINITY
- 1-3 HISTORICAL AND CURRENT PROPERTY FEATURES
- 2-1 SAMPLE LOCATIONS
- 2-2 SURFACE DRAINAGE FEATURES
- 4-1 BATHYMETRY AND TOPOGRAPHY
- 4-2 ESTIMATED WOODWASTE THICKNESS
- 4-3 ESTIMATED SEDIMENT THICKNESS OVERLYING WOODWASTE
- 4-4 WOODWASTE AND OVERLYING SEDIMENT CROSS SECTION
- 5-1 CONCEPTUAL SITE MODEL
- 6-1 BACKGROUND SAMPLE LOCATIONS
- 7-1 SEDIMENT MANAGEMENT STANDARD EXCEEDANCES

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
GHSA	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

DRAFT

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 (GHSA) 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 GHSA entered into Agreed Order DE 11225 with Ecology. The order required the GHSA 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. GHSA 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 GHSA, 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 GHSA 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 pilings 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 pilings. 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 GHSA 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 inconsistencies 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 through 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 GHSA 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 GHSA 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 Section 2.4, 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 GHSA 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 freshwater² 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 PCBs³ were developed using toxicity values from the CLARC database.

$$SL_C = \frac{ARL_C * BW * AT}{EF * ED[(IR * AB * SFo)/10^6 \text{ mg/kg}] + (SA * AF * ABS * SFd)/10^6 \text{ mg/kg}}$$

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 ($[\text{mg}/\text{kg}\cdot\text{day}]^{-1}$, 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/cm²/day);

ABS is the dermal absorption fraction (unitless, chemical-specific); and

SF_d is the dermal cancer potency factor ([mg/kg-day]⁻¹, derived as SF_o/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-methylphenol 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 CR-09B (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 GHSA 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
	0.0 to 3.0 feet: No recovery.	NA	NA	NA	NA	NA	NA	NA	NA
CR-21	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 hydrocarbons.

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**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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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 <i>Archive</i>
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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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								
CR-08A	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	<i>Archive</i>	
	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	<i>Archive</i>	
	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	<i>Archive</i>	
	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	<i>Archive</i>	
	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 <i>Archive</i>	
	CR08A-FB04	0.0 to 3.0 feet: No recovery.	NA	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	NA
		5.0 to 9.5 feet: No recovery.	NA	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	NA
		15.0 to 17.0 feet: No recovery.	NA	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	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. 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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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 <i>Archive</i>
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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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	<i>Archive</i>
	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 <i>Archive</i>

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	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
			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	<i>Archive</i>	
		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	<i>Archive</i>	
		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	<i>Archive</i>	
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	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	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.

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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

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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&M964 2	PGHO&M964 2
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	--

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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

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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.

^aSamples 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 constituents are non-detect.

^bSample 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.

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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.	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	Composite sample DNR-SSD-SUPCOMP analyzed only for Dioxins/Furans.	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)										
SSF1/SCFM1	DNR-SSF1	Surface Grab	0-10 cm bml	DNR-SSF1-COMP	Composite sample DNR-SSF1-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				
SSF2/SCFM2	DNR-SSF2	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				
SSF3/SCFM3	DNR-SSF3	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			DNR-SB456B-COMP	Composite sample DNR-SB456B-COMP analyzed only for Dioxins/Furans.	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					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			CR09A-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC	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					CR09A-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC	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							CR09A-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC	Archive
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
	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			CR09B-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC					Archive
	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					CR09B-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC			Archive
	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							CR09B-SSD-COMP (0-0.33 ft bml samples only)	Composite sample analyzed for SMS, Dioxins/Furans, TOC	Archive
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, HClD, SVOCs, VOCs	817175.8	615194.5
	B01-GW-10.0	Groundwater Boring	10.0 ft bgs			Hg, As, Cd, Cr, Pb, HClD, SVOCs, VOCs		
B02	B02-S-5.0	Soil Boring	5.0 ft bgs			Hg, As, Cd, Cr, Pb, HClD, TPH-Dx, SVOCs, VOCs	817111.2	615305.6
	B02-GW-6	Groundwater Boring	6.0 ft bgs			Hg, As, Cd, Cr, Pb, HClD, TPH-Dx, SVOCs, VOCs		
B03	B03-S-5.0	Soil Boring	5.0 ft bgs			Hg, As, Cd, Cr, Pb, HClD, TPH-Dx, SVOCs, VOCs	817070.2	615137.7
	B03-GW-10	Groundwater Boring	10.0 ft bgs			Hg, As, Cd, Cr, Pb, HClD, 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.

^aDNR-SSDF-COM, DNR-SSDD-COMP, and DNR-SSDU-COMP were further composited as sample DNR-SSD-SUPCOMP.

DRAFT

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 U*	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.

^aValue is for hexavalent chromium/trivalent chromium.

^bValue is for benzo(b)fluoranthene.

^cValue is for 1,3-dichloropropene.

^dValue was updated from 100 ug/kg based on personal communication with the Washington Department of Ecology in 2019.

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Table 7-3
Groundwater, Seep, and Stormwater Analytical Results and In-Water Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Location:	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 ^f	--	--	--	--	--	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.

^aSLV 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.

^bFreshwater criterion is expressed in terms of the dissolved metal in the water column.

^cValue is for trivalent chromium.

^dFreshwater 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>.

^eValue is for MTCA B nonpotable surface water.

^eValue is for benzo(b)fluoranthene, as a value for total benzofluoranthenes is not available.

^fValue is for 2,3,7,8-TCDD.

Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Lumber Shed		Former Boiler				Beach Area		Shannon Slough
	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10
	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
	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
	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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Lumber Shed		Former Boiler				Beach Area		Shannon Slough
	CR-07	CR-24	CR-08A		CR-08B		CR-09A	CR-09B	CR-10
	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
	10/13/2015 0-0.33	10/13/2015 0-0.33	10/14/2015 0-0.33	10/15/2015 18.3-20.0	10/14/2015 0-0.33	10/15/2015 8.0	10/13/2015 0-0.33	10/13/2015 0-0.33	10/14/2015 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	--	--	--
Conventional									
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)	--	--	--	--	--	--	--	--	--

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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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Chehalis River (2013)			Former Mill Area and Chehalis River						
	CR-01	CR-02	CR-03	CR-04			CR-05		CR-06	
	CR01-10cm	CR02-10cm	CR03-10cm	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5
	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
	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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Chehalis River (2013)			Former Mill Area and Chehalis River						
	CR-01	CR-02	CR-03	CR-04			CR-05		CR-06	
	CR01-10cm	CR02-10cm	CR03-10cm	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5	CR06-10cm	CR06-2.5
	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
	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	--	--	--	--	--	--	--	

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Table 7-4
Sediment Analytical Results
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Former Mill Area and Chehalis River										
	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
	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
	10/13/2015 23	10/13/2015 15	10/13/2015 11	10/13/2015 12	10/13/2015 11-23	10/14/2015 0-0.33	10/14/2015 0.5-1.0	10/15/2015 0-0.33	10/15/2015 0.5-1.0	10/16/2015 0-0.33	10/16/2015 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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Former Mill Area and Chehalis River										
	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
	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
	10/13/2015 23	10/13/2015 15	10/13/2015 11	10/13/2015 12	10/13/2015 11-23	10/14/2015 0-0.33	10/14/2015 0.5-1.0	10/15/2015 0-0.33	10/15/2015 0.5-1.0	10/16/2015 0-0.33	10/16/2015 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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	Former Mill Area and Chehalis River										
	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	CR-15C		CR-17D		CR-18B	
	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
	10/13/2015 23	10/13/2015 15	10/13/2015 11	10/13/2015 12	10/13/2015 11-23	10/14/2015 0-0.33	10/14/2015 0.5-1.0	10/15/2015 0-0.33	10/15/2015 0.5-1.0	10/16/2015 0-0.33	10/16/2015 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)	--	--	--	--	--	--	--	--	--	--	--	

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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	--	--	--
Conventional					
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)	--	--	--	--	--

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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.

^aCalculated value. Only detected values are summed.

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Table 7-5
Sediment Analytical Results and Screening Criteria
Seaport Landing Aquatic Land Lease
Aberdeen, Washington

Investigation Area: Location: Sample Name: Collection Date: Collection Depth (ft bml):	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
					CR-07	CR-24	CR-08A		CR-08B	
	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD				
	10/13/2015	10/13/2015	10/14/2015	10/15/2015	10/14/2015	10/15/2015				
	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
					CR-07	CR-24	CR-08A		CR-08B	
	CR-07-SSD-COMP 10/13/2015	CR-24-SSD-COMP 10/13/2015	CR08a-SSD-COMP 10/14/2015	CR08A-SBSD 10/15/2015	CR08b-SSD-COMP 10/14/2015	CR08b-SBSD 10/15/2015				
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic						
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
					CR-07	CR-24	CR-08A		CR-08B	
	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD				
	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Lumber Shed		Former Boiler			
					CR-07	CR-24	CR-08A		CR-08B	
	CR-07-SSD-COMP	CR-24-SSD-COMP	CR08a-SSD-COMP	CR08A-SBSD	CR08b-SSD-COMP	CR08b-SBSD				
	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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm				
	10/13/2015 0-0.33	10/13/2015 0-0.33	10/14/2015 0-0.33	11/08/2013 0-0.33	11/08/2013 0-0.33	11/08/2013 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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm				
	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm				
	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Beach Area		Shannon Slough	Chehalis River (2013)		
					CR-09A	CR-09B	CR-10	CR-01	CR-02	CR-03
	CR09a-SSD-COMP	CR09b-SSD-COMP	CR10-SSD-COMP	CR01-10cm	CR02-10cm	CR03-10cm				
	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						
					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West
Location:					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B
Sample Name:					Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11	Apr-11
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	0-0.33	0-2.5	0-0.33	0-0.33	0-0.33	0-2.7	2.7-4.6
Collection Depth (ft bml):											
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River						
					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West
					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B
					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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River							
					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West	
					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B	
					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
Aberdeen, Washington

Investigation Area: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River							
					Old Mill North	Old Mill North	Old Mill North	Old Mill West	Old Mill East	Old Mill West	Old Mill West	
					DNR-SSFM1	DNR-SCFM1A	DNR-SSFM1-COMP	DNR-SSFM2	DNR-SSFM3	DNR-SCFM2A	DNR-SCFM2B	
					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					
					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
Location:					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
Sample Name:					Apr-11	11/07/2013	11/08/2013	11/08/2013	11/08/2013	11/08/2013
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	0-3.0	0-0.33	1-2.5	2.5-5	0-0.33	0.33-2.5
Collection Depth (ft bml):										
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 ^p	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
					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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
					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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					Old Mill East	CR-04	CR-04	CR-04	CR-05	CR-05
					DNR-SCFM3A	CR04-10cm	CR04-2.5	CR04-5	CR05-10cm	CR05-2.5
					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						
					CR-06 CR06-10cm 11/07/2013 0-0.33	CR-06 CR06-2.5 11/07/2013 1-2.5	CR-11 CR11-SBSD-23 10/13/2015 23	CR-12 CR12-SBSD-15 10/13/2015 15	CR-13 CR13-SBSD-11 10/13/2015 11	CR-14 CR14-SBSD-12 10/13/2015 12	CR-11-14-COMP CR11-14-SBSD-COMP 10/13/2015 11-23
Location:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon							
Sample Name:											
Collection Date:											
Collection Depth (ft bml):											
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River							
					CR-06	CR-06	CR-11	CR-12	CR-13	CR-14	CR-11-14-COMP	
					CR06-10cm	CR06-2.5	CR11-SBSD-23	CR12-SBSD-15	CR13-SBSD-11	CR14-SBSD-12	CR11-14-SBSD-COMP	
					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	20 U	--
Aroclor 1242	NV	NV	NA	NA	--	20 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1248	NV	NV	NA	NA	--	99 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1254	NV	NV	NA	NA	--	200 U	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1260	NV	NV	NA	NA	--	690	17 U	20 U	20 U	20 U	20 U	--
Aroclor 1268	NV	NV	NA	NA	--	--	17 U	20 U	20 U	20 U	20 U	--
Total PCBs ^b	130	1000	NA	NA	--	690	17 U	20 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	4.9 U	--
1,2-Dichlorobenzene	35	50	NA	NA	--	70 U	4.7 U	4.9 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	4.9 U	--
Bis(2-ethylhexyl)phthalate	1300	1900	NA	NA	--	1900	47 U	49 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	4.7 J	--
Dibenzofuran	540	540	NA	NA	--	490	19 U	40	20 U	20	20	--
Diethylphthalate	200	>1200	NA	NA	--	270 J	19 U	20 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	4.9 U	--
Di-n-butyl phthalate	1400	1400	NA	NA	--	280 U	19 U	20 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	20 U	--
Hexachlorobenzene	22	70	NA	NA	--	70 U	4.7 U	4.9 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	4.9 U	--
N-Nitrosodiphenylamine	28	40	NA	NA	--	70 U	4.7 U	4.9 UJ	4.9 U	4.9 U	4.9 U	--
PAHs—dry weight (ug/kg)												
2-Methylnaphthalene	670	670	NA	NA	--	780	19 U	41	20 U	21	21	--
Acenaphthene	500	500	NA	NA	--	490	19 U	41	31	20	20	--
Acenaphthylene	1300	1300	NA	NA	--	520	19 U	110	110	61	61	--
Anthracene	960	960	NA	NA	--	750	19 U	41	28	18 J	18 J	--
Benzo(a)anthracene	1300	1600	NA	NA	--	1300	11 J	30	20	17 J	17 J	--
Benzo(a)pyrene	1600	1600	NA	NA	--	1200	19 U	20 U	20 U	20 U	20 U	--
Benzo(ghi)perylene	670	720	NA	NA	--	590	19 U	30	30	20	20	--
Chrysene	1400	2800	NA	NA	--	1600	12 J	43	29	25	25	--
Dibenzo(a,h)anthracene	230	230	NA	NA	--	150	4.7 U	6.3	4.3 J	3.2 J	3.2 J	--
Fluoranthene	1700	2500	NA	NA	--	3200	24	150	100	88	88	--
Fluorene	540	540	NA	NA	--	650	19 U	47	35	23	23	--
Indeno(1,2,3-cd)pyrene	600	690	NA	NA	--	490	19 U	24	18 J	15 J	15 J	--
Naphthalene	2100	2100	NA	NA	--	1800	19 U	370	300	190	190	--
Phenanthrene	1500	1500	NA	NA	--	3600	19	210	150	120	120	--
Pyrene	2600	3300	NA	NA	--	3600	23	150	110	87	87	--
Total Benzofluoranthenes	3200	3600	NA	NA	--	2000	16 J	61	40	39	39	--
Total HPAHs ^b	12000	17000	NA	NA	--	14130	86 J	494 J	351 J	294 J	294 J	--
Total LPAHs ^b	5200	5200	NA	NA	--	7810	19	819	654	432 J	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						
					CR-06 CR06-10cm 11/07/2013	CR-06 CR06-2.5 11/07/2013	CR-11 CR11-SBSD-23 10/13/2015	CR-12 CR12-SBSD-15 10/13/2015	CR-13 CR13-SBSD-11 10/13/2015	CR-14 CR14-SBSD-12 10/13/2015	CR-11-14-COMP CR11-14-SBSD-COMP 10/13/2015
Location:	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic							
Sample Name:											
Collection Date:											
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River							
					CR-06 CR06-10cm 11/07/2013	CR-06 CR06-2.5 11/07/2013	CR-11 CR11-SBSD-23 10/13/2015	CR-12 CR12-SBSD-15 10/13/2015	CR-13 CR13-SBSD-11 10/13/2015	CR-14 CR14-SBSD-12 10/13/2015	CR-11-14-COMP CR11-14-SBSD-COMP 10/13/2015	
					SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic				
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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					CR-15C		CR-17D		CR-18B	
	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	CR15C-SSD 10/14/2015 0-0.33	CR15C-SBSD 10/14/2015 0.5-1.0	CR17-D-SSD 10/15/2015 0-0.33	CR17-D-SBSD 10/15/2015 0.5-1.0	CR18B-SSD 10/16/2015 0-0.33	CR18B-SBSD 10/16/2015 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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					CR-15C		CR-17D		CR-18B	
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	CR15C-SSD 10/14/2015	CR15C-SBSD 10/14/2015	CR17-D-SSD 10/15/2015	CR17-D-SBSD 10/15/2015	CR18B-SSD 10/16/2015	CR18B-SBSD 10/16/2015
	Aroclor 1232	NV	NV	NA	NA	20 U	18 U	19 U	20 U	18 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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					CR-15C		CR-17D		CR-18B	
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	CR15C-SSD 10/14/2015	CR15C-SBSD 10/14/2015	CR17-D-SSD 10/15/2015	CR17-D-SBSD 10/15/2015	CR18B-SSD 10/16/2015	CR18B-SBSD 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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River					
					CR-15C		CR-17D		CR-18B	
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	CR15C-SSD 10/14/2015	CR15C-SBSD 10/14/2015	CR17-D-SSD 10/15/2015	CR17-D-SBSD 10/15/2015	CR18B-SSD 10/16/2015	CR18B-SBSD 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: Location: Sample Name: Collection Date: Collection Depth (ft bml):	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
					CR-19D	CR-19F	CR-19F		CR-26
	CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD				
	10/16/2015 0-0.33	10/16/2015 0-0.33	10/16/2015 0.5-1.0	10/16/2015 0.5-1.0	10/15/2015 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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
					CR-19D	CR-19F	CR-19F		CR-26
	CR19D-SSD-CONV 10/16/2015	CR19F-SSD 10/16/2015	CR19F-SBSD 10/16/2015	CR19F-SBSD-DUP 10/16/2015	CR26-SBSD 10/15/2015				
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic					
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Former Mill Area/Pocket Beach and Chehalis River				
					CR-19D	CR-19F	CR-19F		CR-26
	CR19D-SSD-CONV 10/16/2015	CR19F-SSD 10/16/2015	CR19F-SBSD 10/16/2015	CR19F-SBSD-DUP 10/16/2015	CR26-SBSD 10/15/2015				
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic					
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels SCO—Dry CSL—Dry SCO—Organic CSL—Organic				Former Mill Area/Pocket Beach and Chehalis River				
					CR-19D	CR-19F	CR-19F		CR-26
					CR19D-SSD-CONV	CR19F-SSD	CR19F-SBSD	CR19F-SBSD-DUP	CR26-SBSD
					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			
					Downstream Dock	Dock Front	Upstream Dock	Composite
Location:					DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP ^c
Sample Name:					Apr-11	Apr-11	Apr-11	Apr-11
Collection Date:	SCO—Dry Weight	CSL—Dry Weight	SCO—Organic Carbon	CSL—Organic Carbon	0-0.33	0-0.33	0-0.33	0-0.33
Collection Depth (ft bml):								
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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Wharf Area			
					Downstream Dock	Dock Front	Upstream Dock	Composite
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP ^c
	Apr-11	Apr-11	Apr-11	Apr-11	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Wharf Area			
					Downstream Dock	Dock Front	Upstream Dock	Composite
	DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP ^c				
	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: Location: Sample Name: Collection Date:	SMS Marine Cleanup Screening Levels				Wharf Area			
					Downstream Dock	Dock Front	Upstream Dock	Composite
	SCO—Dry	CSL—Dry	SCO—Organic	CSL—Organic	DNR-SSDD-COMP	DNR-SSDF-COMP	DNR-SSDU-COMP	DNR-SSD-SUPCOMP ^c
	Apr-11	Apr-11	Apr-11	Apr-11	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.

^aDry weight AET values are used when TOC results are outside the range of 0.5 to 3.5%.

^bCalculated value. Only detected values are summed.

^cDNR-SSD-SUPCOMP is a composite sample of DNR-SSDD, DNR-SSDF, and DNR-SSDU composites.

DRAFT

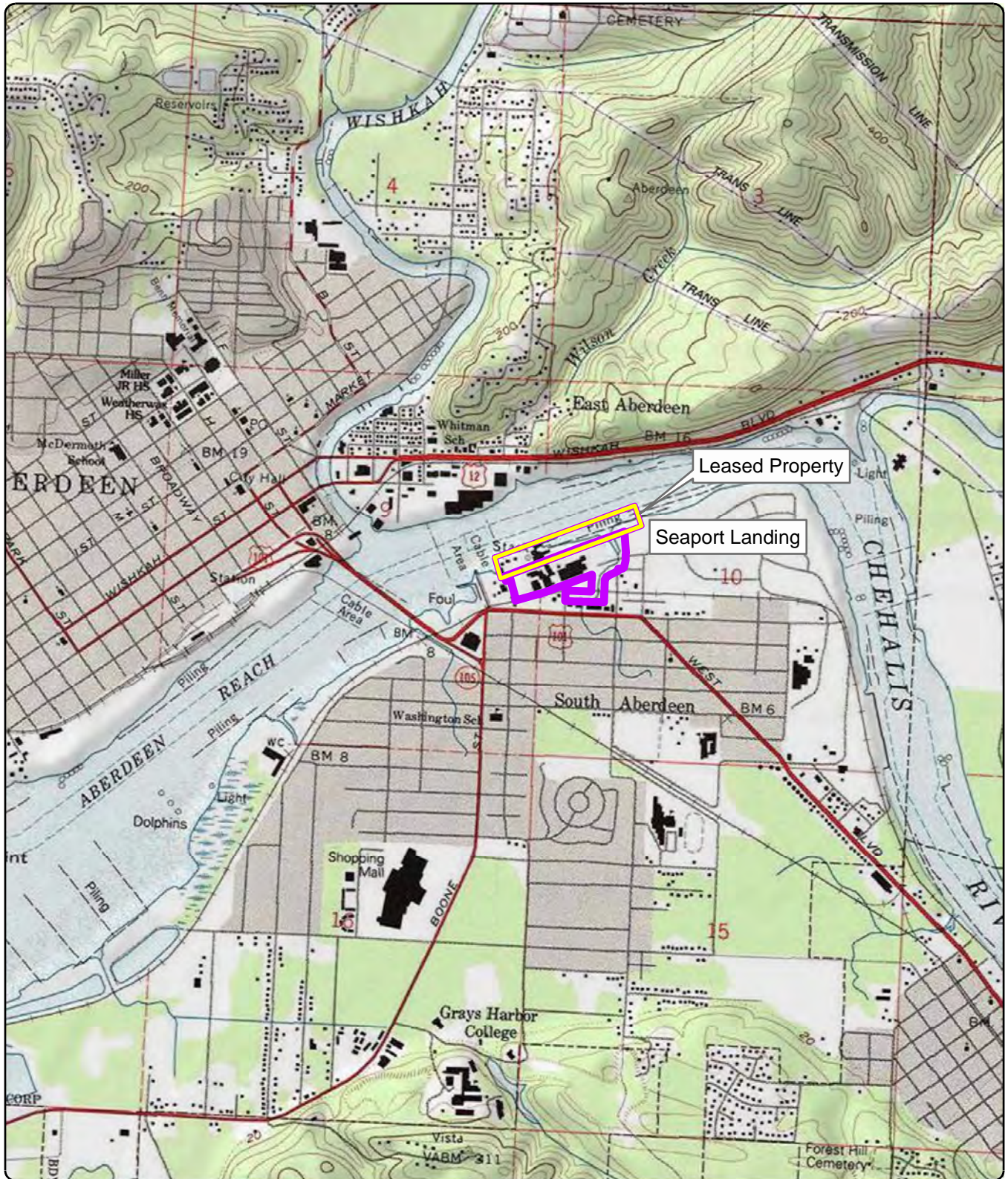
**Table 7-6
Woodwaste Toxicity Scoring
Seaport Landing Aquatic Land Lease
Aberdeen, Washington**

Location: Sample Name: Collection Date: Collection Depth (ft bgs):		CR-04 CR04-10cm 11/07/2013 0-0.33	CR-04 CR04-5 11/08/2013 4-5	CR-05 CR05-10cm 11/08/2013 0-0.33	CR-06 CR06-10cm 11/07/2013 0-0.33	CR-06 CR06-2.5 11/07/2013 1-2.5	CR-19D CR-19D-SSD-CONV 10/16/2015 0-0.33							
Woodwaste Scoring Criteria (DNR, 2011)		Points		Points		Points		Points		Points				
	Score Criteria Level 1	Score Criteria Level 2	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.														

DRAFT

FIGURES



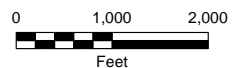


Site Address: 500 North Custer Street, Aberdeen, Washington
 Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Aberdeen
 Section 9 & 10, Township 17 North, Range 9 West

- Approximate Aquatic Lease Area
- Seaport Authority Property



Figure 1-1
Property Location
 Aberdeen, Washington



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 p. 971 544 2139 | www.maulfooster.com

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Path: X:\0863.01_Harbor_Architects\02\Fig_Aberdeen_South_Waterfront_Tidelands_Aquatic_Lease_Areas_w_Lease_Numbers.mxd
Print Date: 8/17/2015
Approved By: mstringer
Produced By: jmillr
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.



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.

Legend

- Approximate Aquatic Lease Areas (with Lease Number)
 - Pakonen Boatyard
 - Seaport Authority
- Inner Harbor Line
- Outer Harbor Line

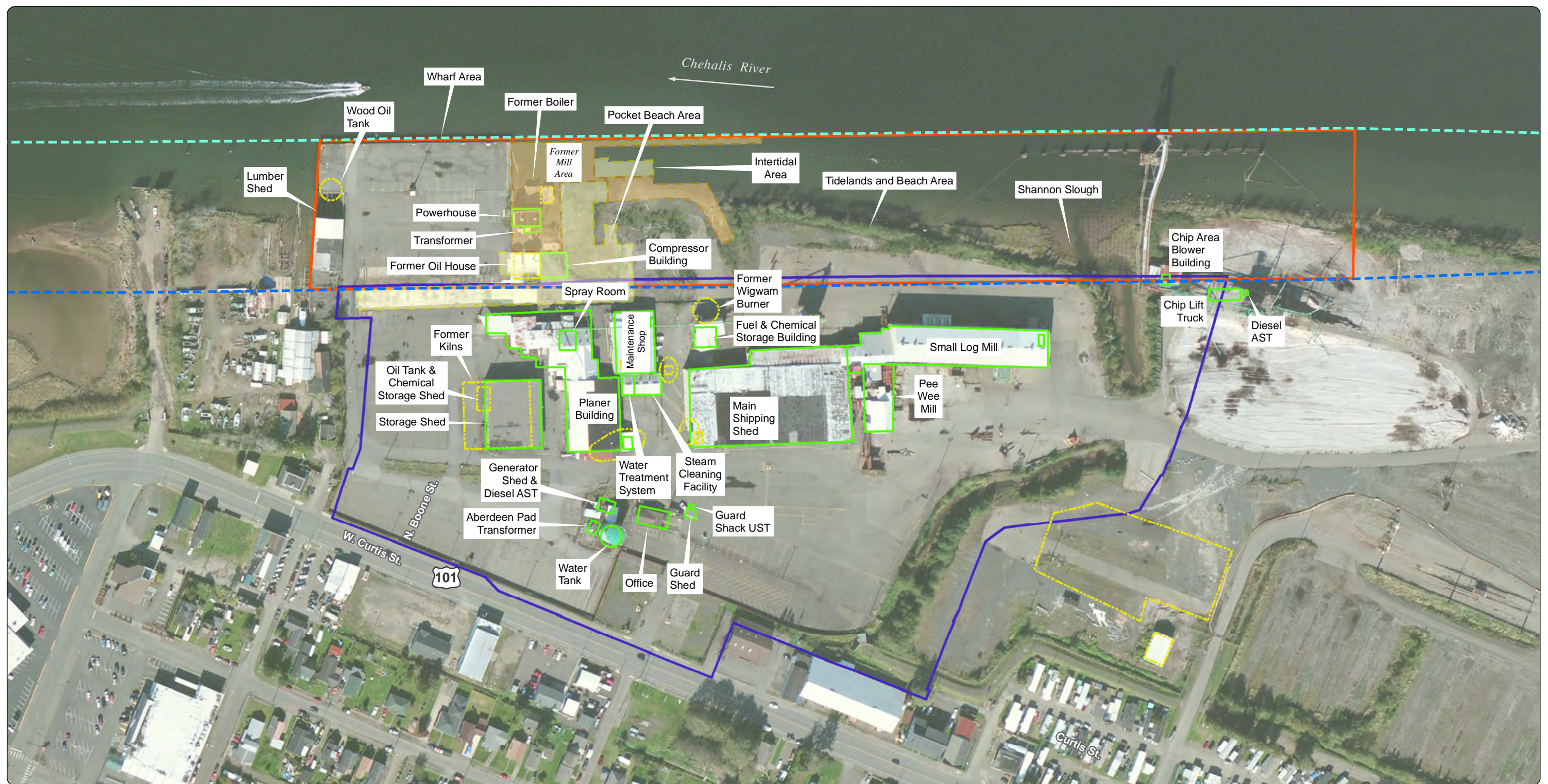
Notes:
1. Areas of property ownership have been generalized based on taxlot information obtained from the County and a purchase sale agreement for the Seaport Authority property, and should be considered approximate.
2. Aquatic lease areas were digitized from print maps of the Aberdeen tidelands dated 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



Project: 0863.01.01-02 Produced By: roberis Approved By: mstringer Print Date: 1/4/2017 Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_FL_FSI\Fig3_Property Features_ML.mxd



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.

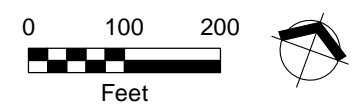
Legend

- 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



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Project: 0863.01.01-02 Produced By: aguse Print Date: 5/22/2019 Approved By: mstringer Path: X:\11044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_RL_FS\Fig2-1_SampleLocationsLabeled_02.mxd



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 | Catch Basin | Study | 1998 Sediment Samples |
| Seaport Authority Property | Oil/Water Separator | | 2011 Sediment Samples |
| Former Mill | Outfall | | 2013 Sediment Samples |
| Former Wharf Extension | Drain Pipe (with flow direction) | | 2015 Upland Samples |
| | | | 2015 Sediment Samples |

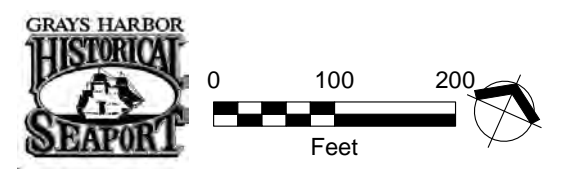
Notes:
 1. GHSA = Grays Harbor Historical Seaport Authority.
 2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.

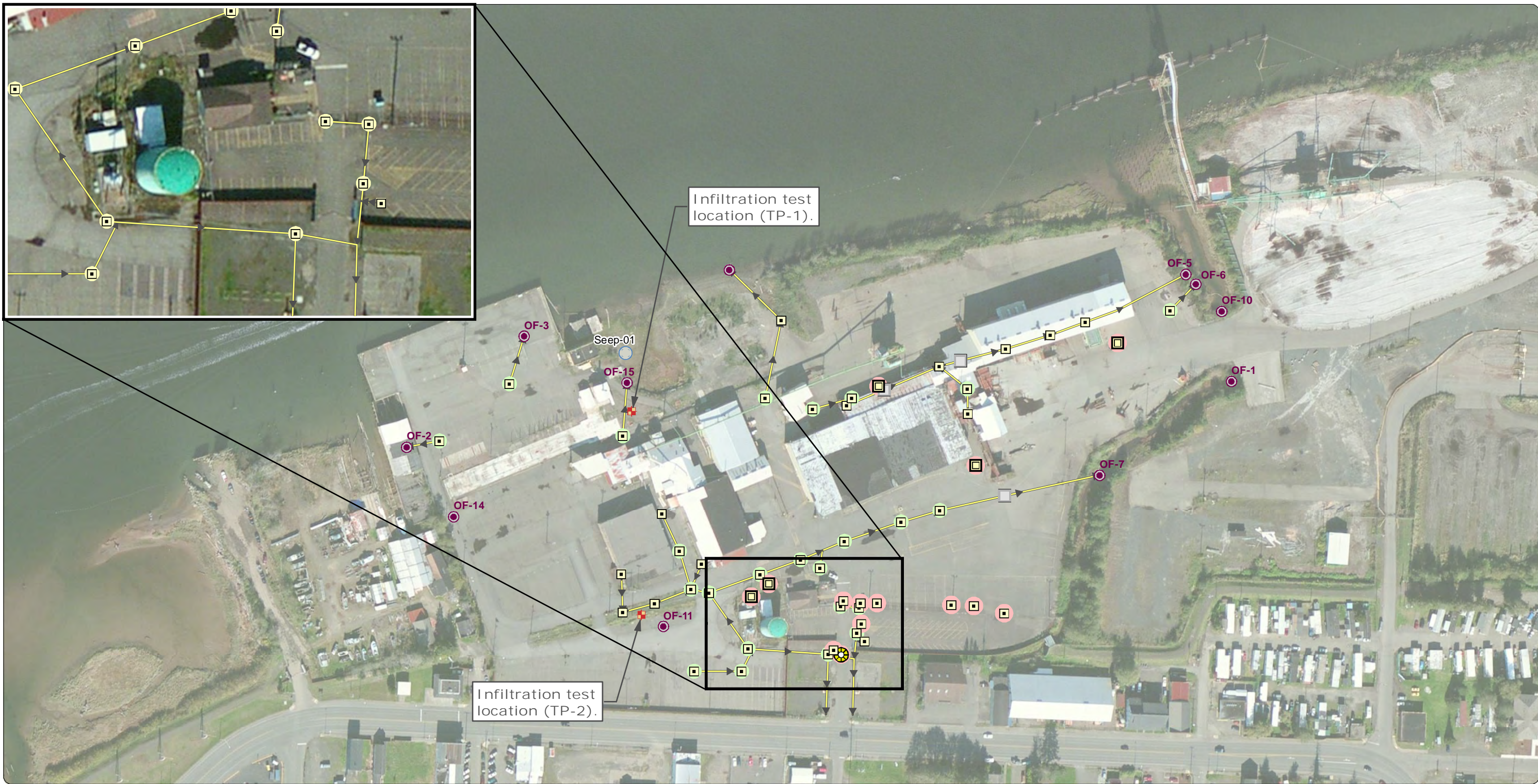
Figure 2-1
Sample Locations

Aberdeen, Washington



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.





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.



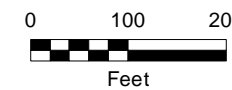
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Legend

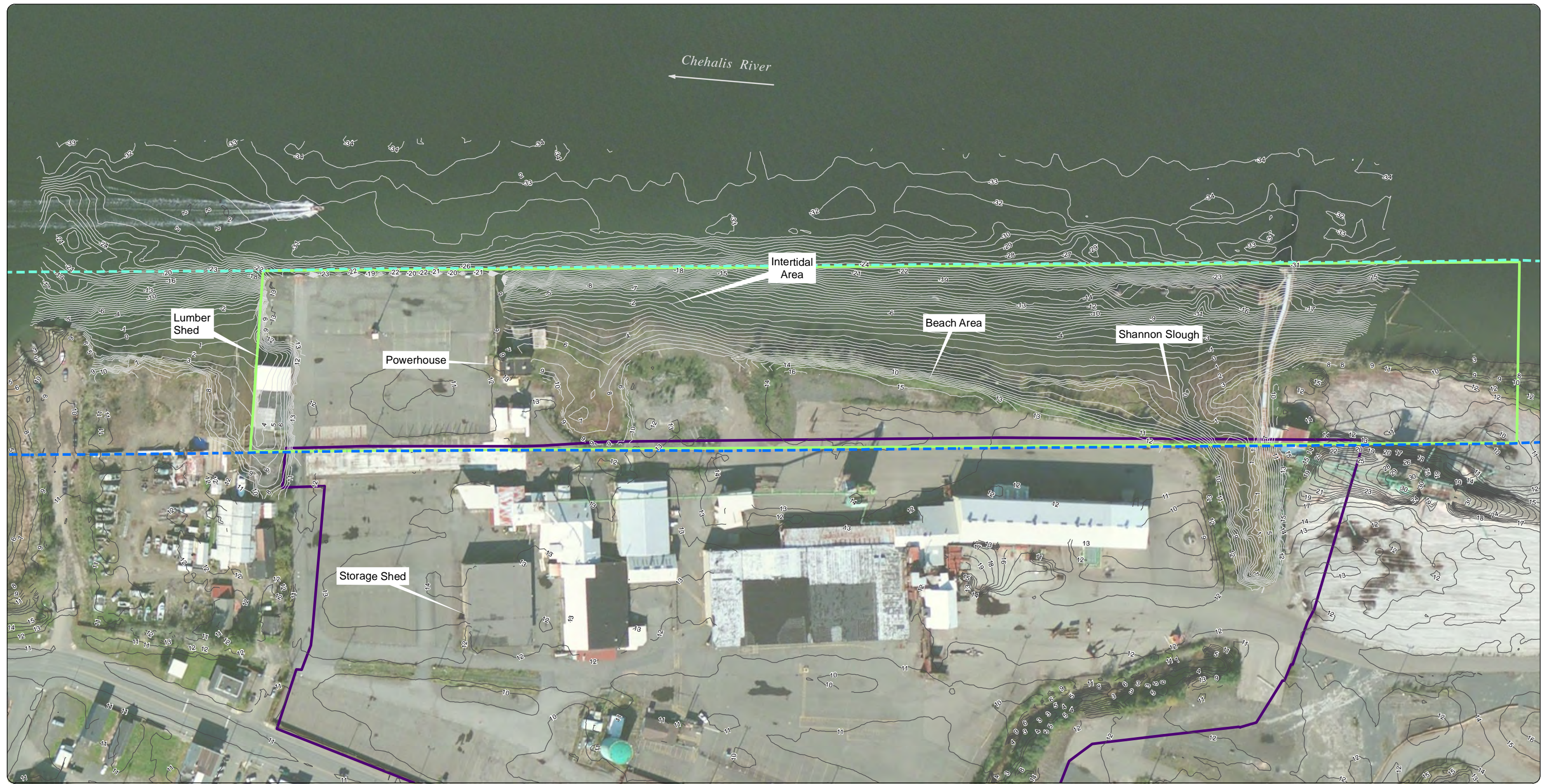
- Catch Basin
- Electrical Vault
- Sanitary Manhole
- Oil/Water Separator
- Outfall (field verified)
- Verified
- GPS located
- Drain Pipe (with flow direction)
- Infiltration Test Location (10/27/15)

Note: All features are approximate.

Figure 2-2
Surface Drainage Features
Aberdeen, Washington



Project: 0863.01.01-02 Produced By: astrandhagen. Approved By: mstringer Print Date: 4/5/2017 Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_RI_Fig\Bathymetry.mxd



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

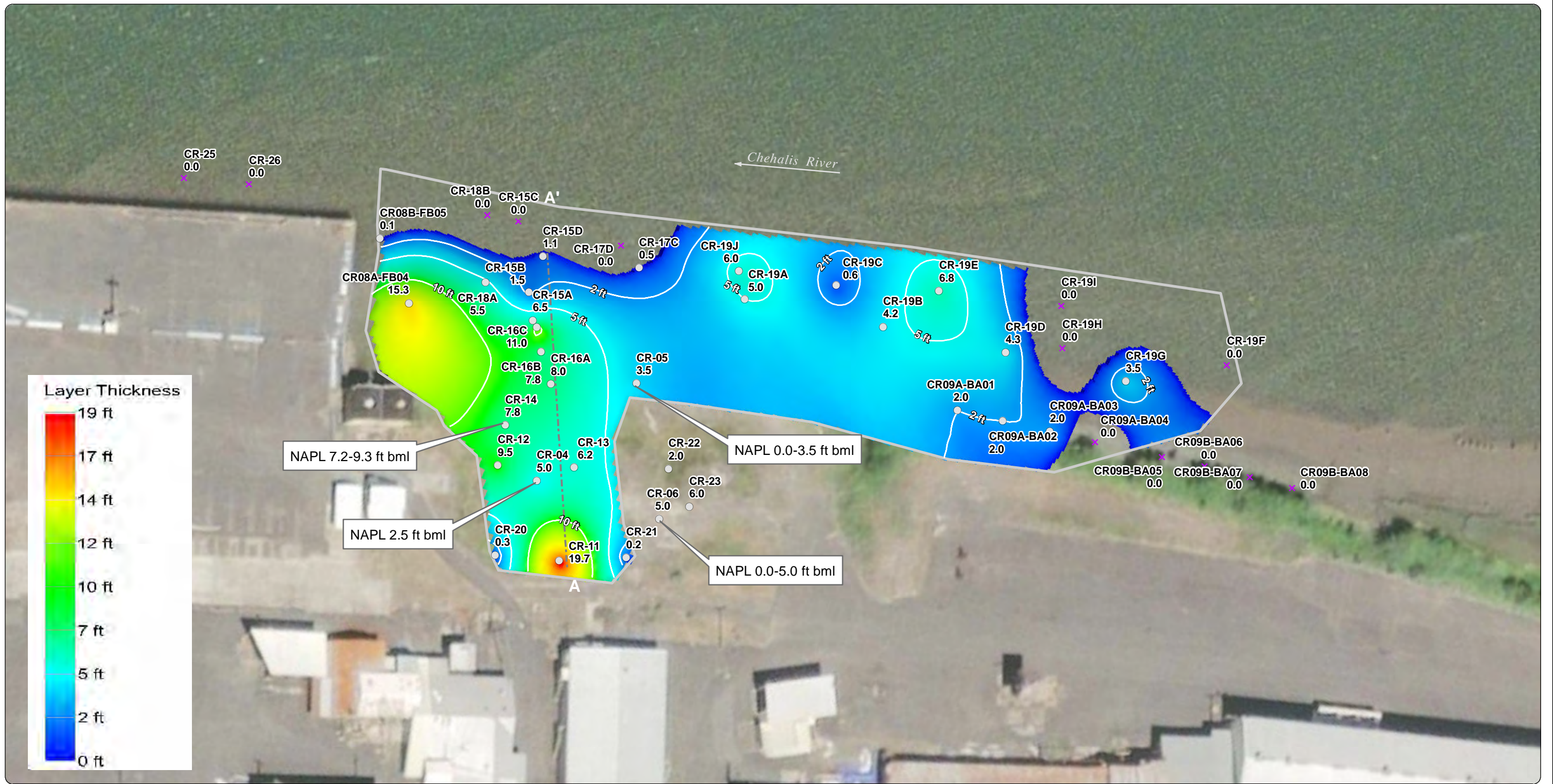
- - - Inner Harbor Line
- - - Outer Harbor Line
- Approximate Aquatic Lease Area
- One Foot Contour Bathymetry (NAVD88)
- One Foot Contour LiDAR (NAVD88)

**Figure 4-1
Bathymetry and
Topography**

Aberdeen, Washington



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.



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

**Figure 4-2
 Estimated Woodwaste Thickness**

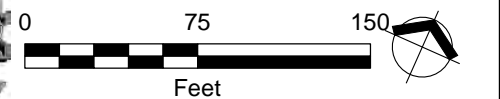
Aberdeen, Washington



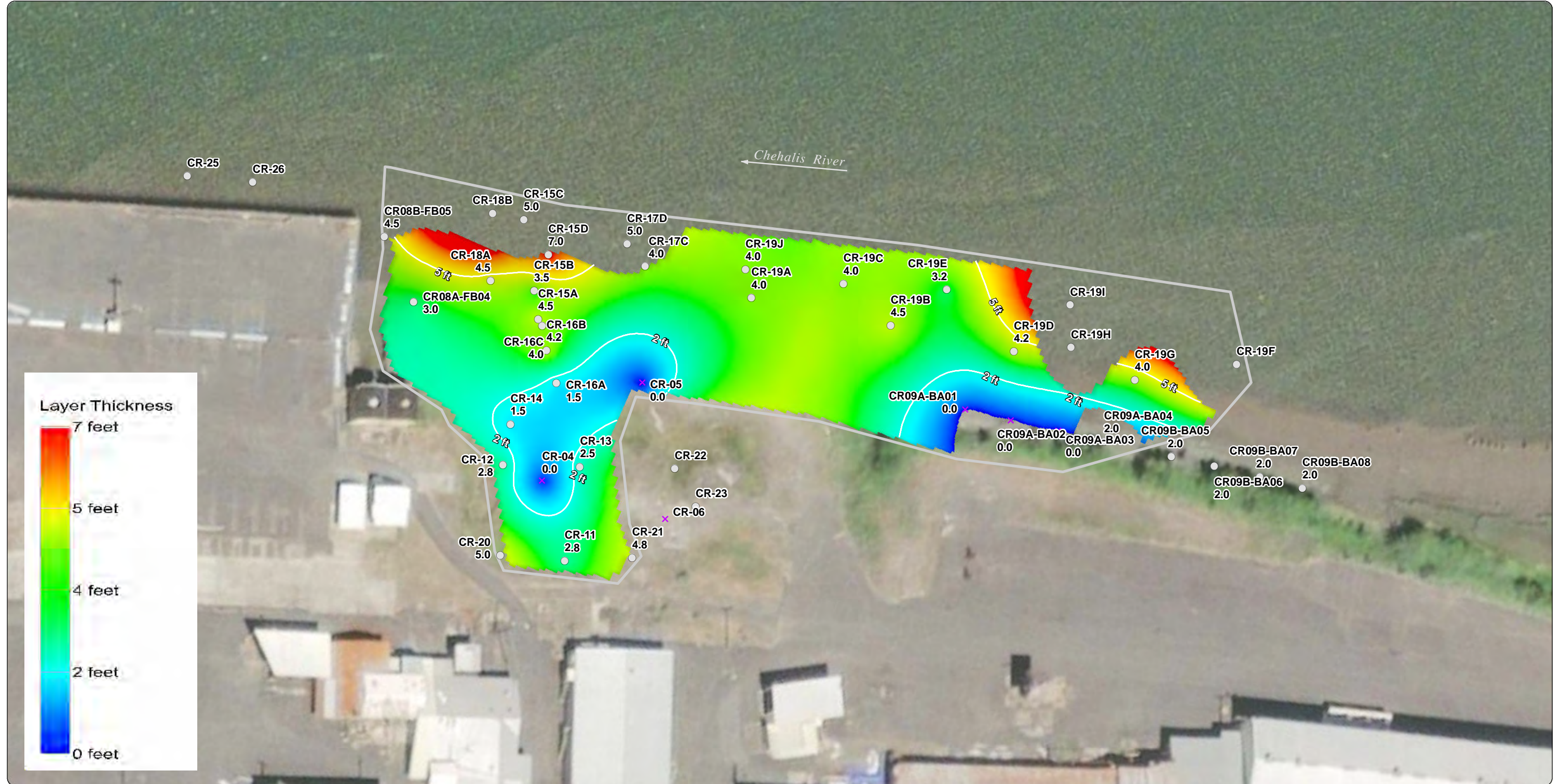
Notes:

1. GHSA = 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. Significant 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.

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Path: X:\1044_02.01-02_Grays Harbor Seaport Authority\Projects\EVS_Model\Fig4_3_sed_thickness_wv_domain.mxd
 Project: 0863.01.01-02 Produced By: astrandhagen Approved By: mstringer Print Date: 5/7/2019



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.

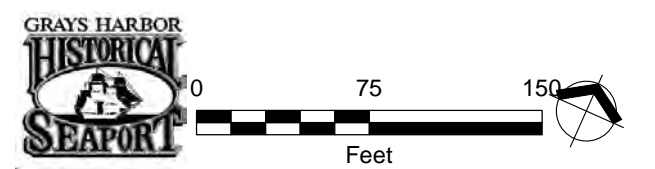
Sample Location
 ● Sediment Thickness (Feet)
 □ Model Domain
 ✕ No Sediment Accumulation Observed

Figure 4-3
Estimated Sediment Thickness
Overlying Woodwaste
 Aberdeen, Washington

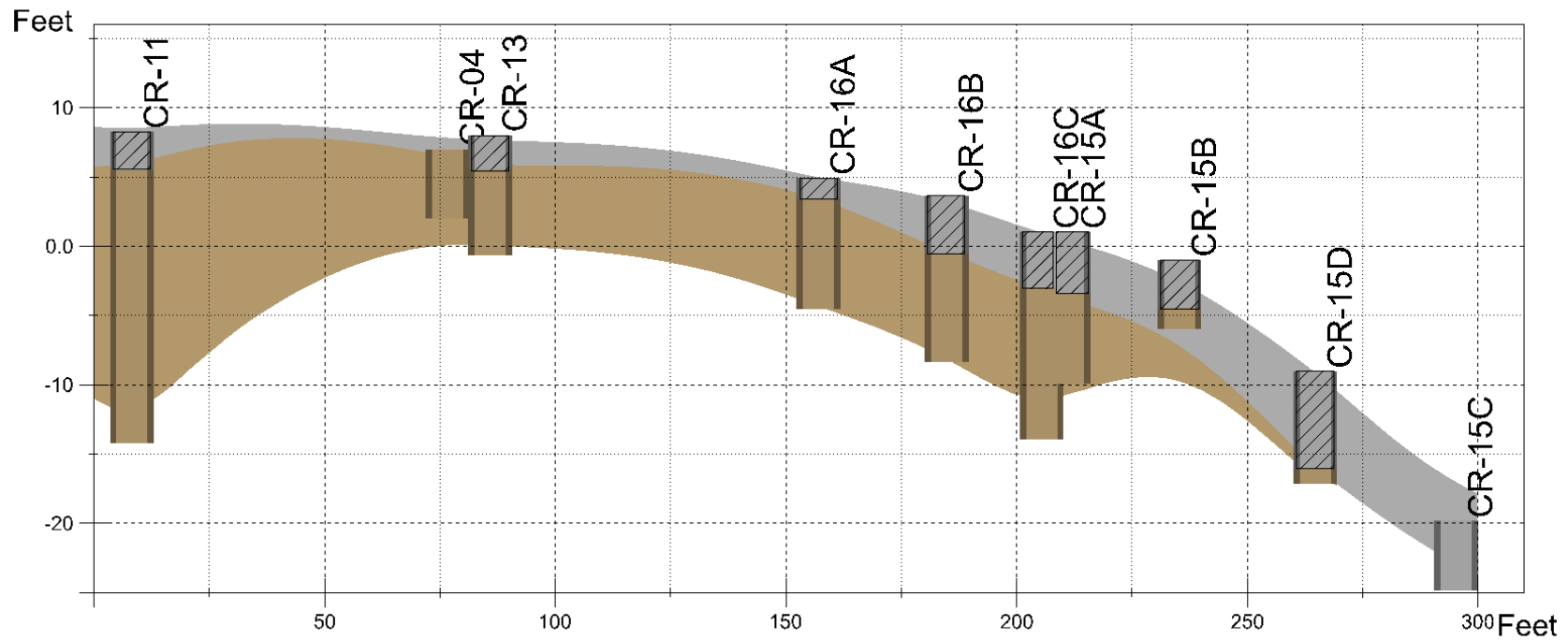
- Notes:**
1. GHSA = Grays Harbor Historical Seaport Authority.
 2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.
 3. Significant 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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Project: 1044.01 Produced By: estrandhagen Approved By: mmovak Print Date: 4/4/2017 Path: X:\1044.02\01\02\Grays Harbor Seaport\Authority\Projects\EIS_Model\Fig4_4_Woodwaste and Overlaying Sediment Cross-Section.ai



A

A'

Legend

- Wood Debris
- Sediment
- No Recovery

Figure 4-4
Woodwaste and Overlaying
Sediment Cross-Section
 Aberdeen, Washington



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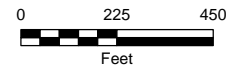
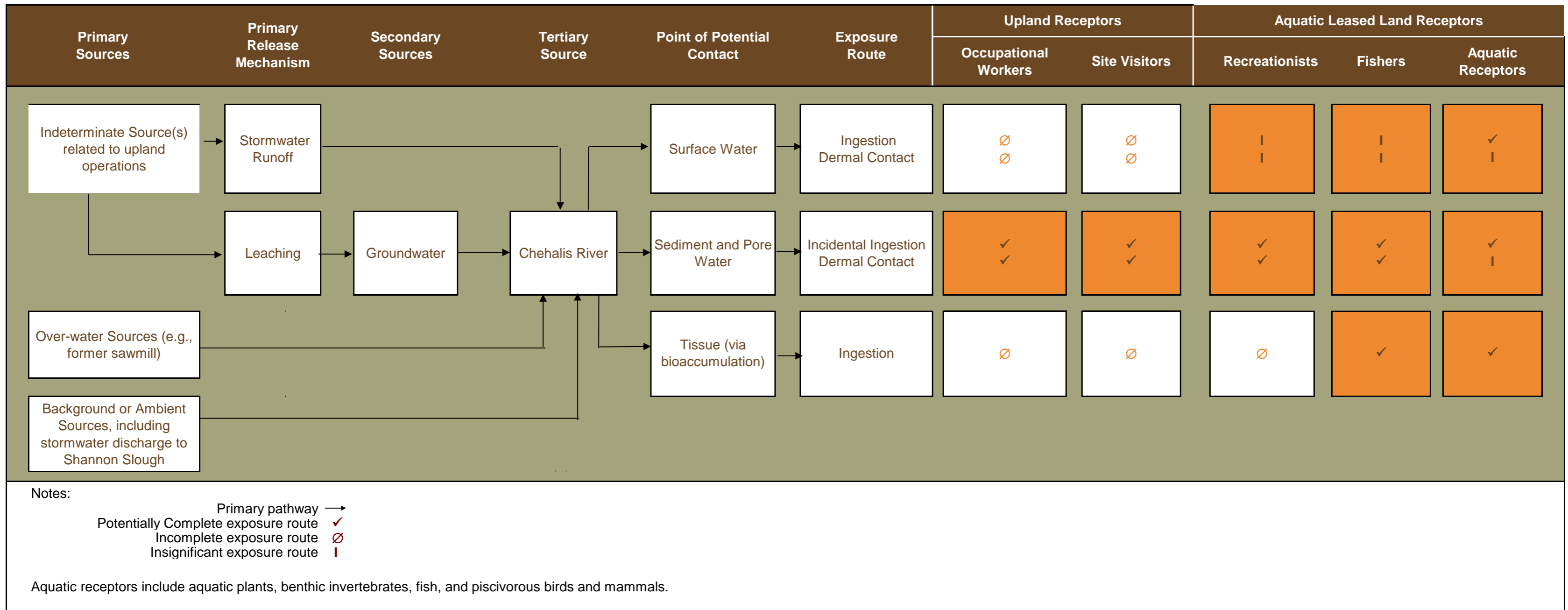
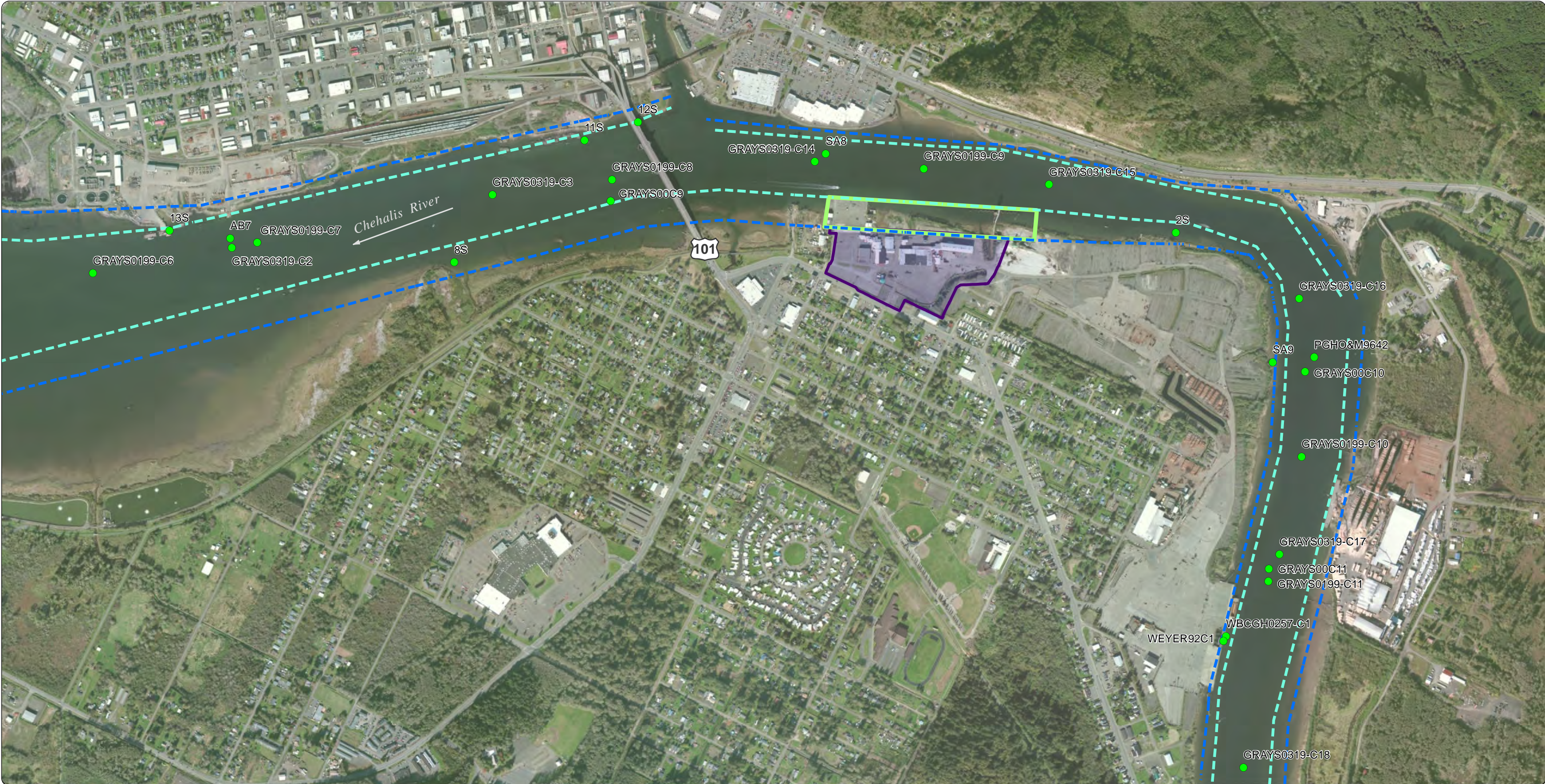


Figure 5-1
 Conceptual Site Model
 Seaport Landing Aquatic Land Lease
 Aberdeen, Washington



Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Seaport_Landing_RI_FS\Fig-1_BackgroundLocationsLabeled_01.mxd
 Print Date: 5/22/2019
 Produced By: aguse
 Approved By: mstringer



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.

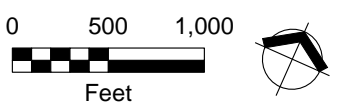
- Approximate Aquatic Lease Area
- Background Sediment Samples
- Seaport Authority
- Inner Harbor Line
- Outer Harbor Line

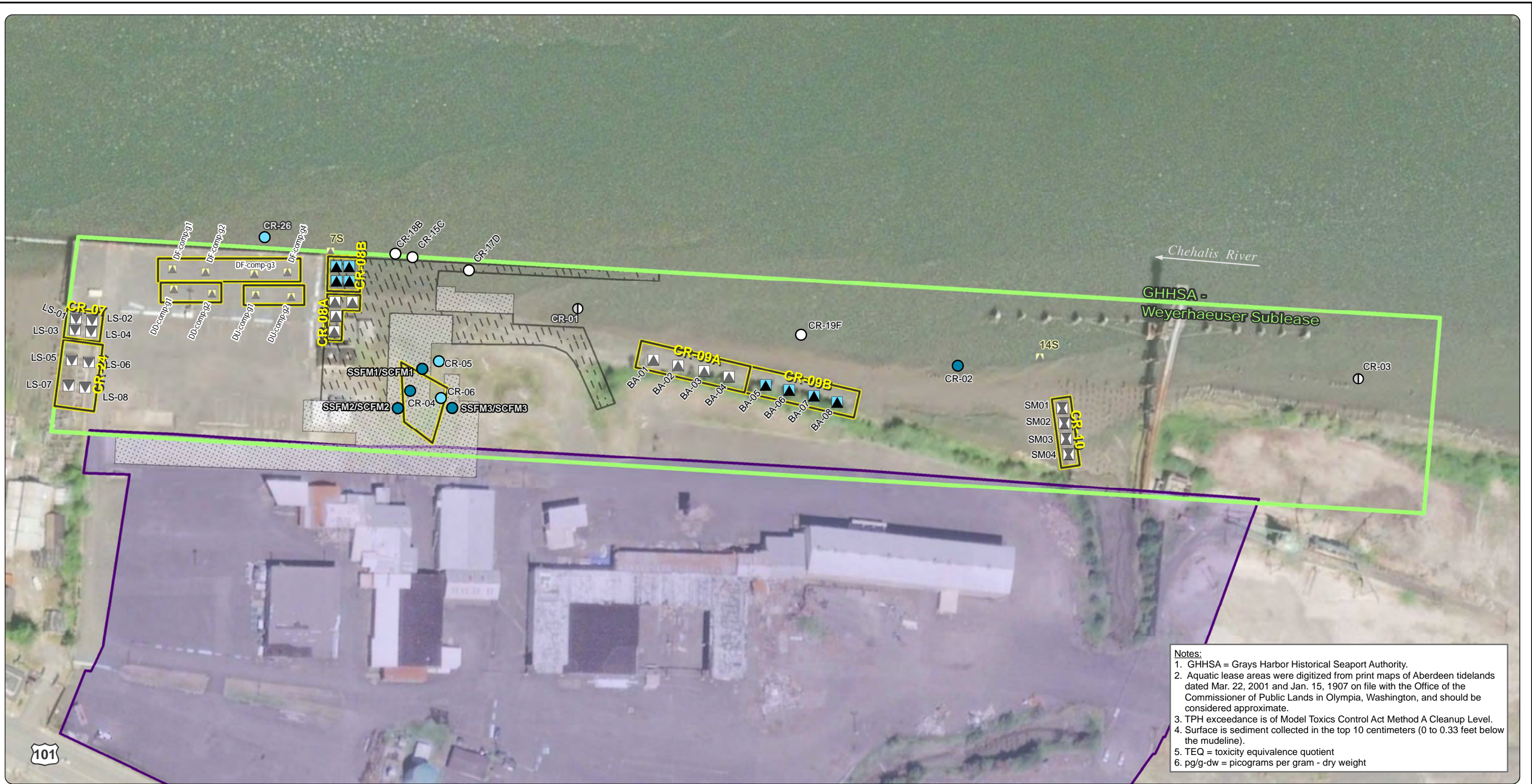
Notes:
 1. GHSA = Grays Harbor Historical Seaport Authority.
 2. Aquatic lease areas were digitized from print maps of Aberdeen tidelands dated Mar. 22, 2001 and Jan. 15, 1907 on file with the Office of the Commissioner of Public Lands in Olympia, Washington, and should be considered approximate.

Figure 6-1
Background
Sample Locations
 Aberdeen, Washington



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Notes:
 1. GHSA = 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 mudline).
 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.

- Approximate 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

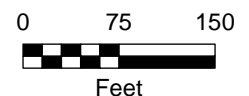
- No Exceedances - Not Analyzed for TPH
- No Exceedances - Not Analyzed for Dioxin TEQ
- No Exceedances - Not Analyzed for Dioxin TEQ or TPH
- SCO Exceedance

**Figure 7-1
Sediment Management
Standard Exceedances**

Aberdeen, Washington



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APPENDIX A
SANBORN MAPS

DRAFT

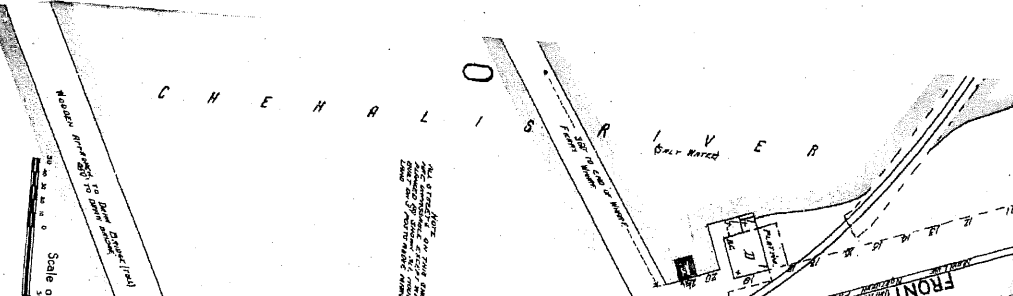




1906 Certified Sanborn Map

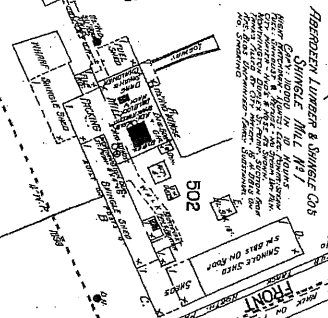
1906 Certified Sanborn Map

RIVER (Salt Water)



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CHEHALIS RIVER



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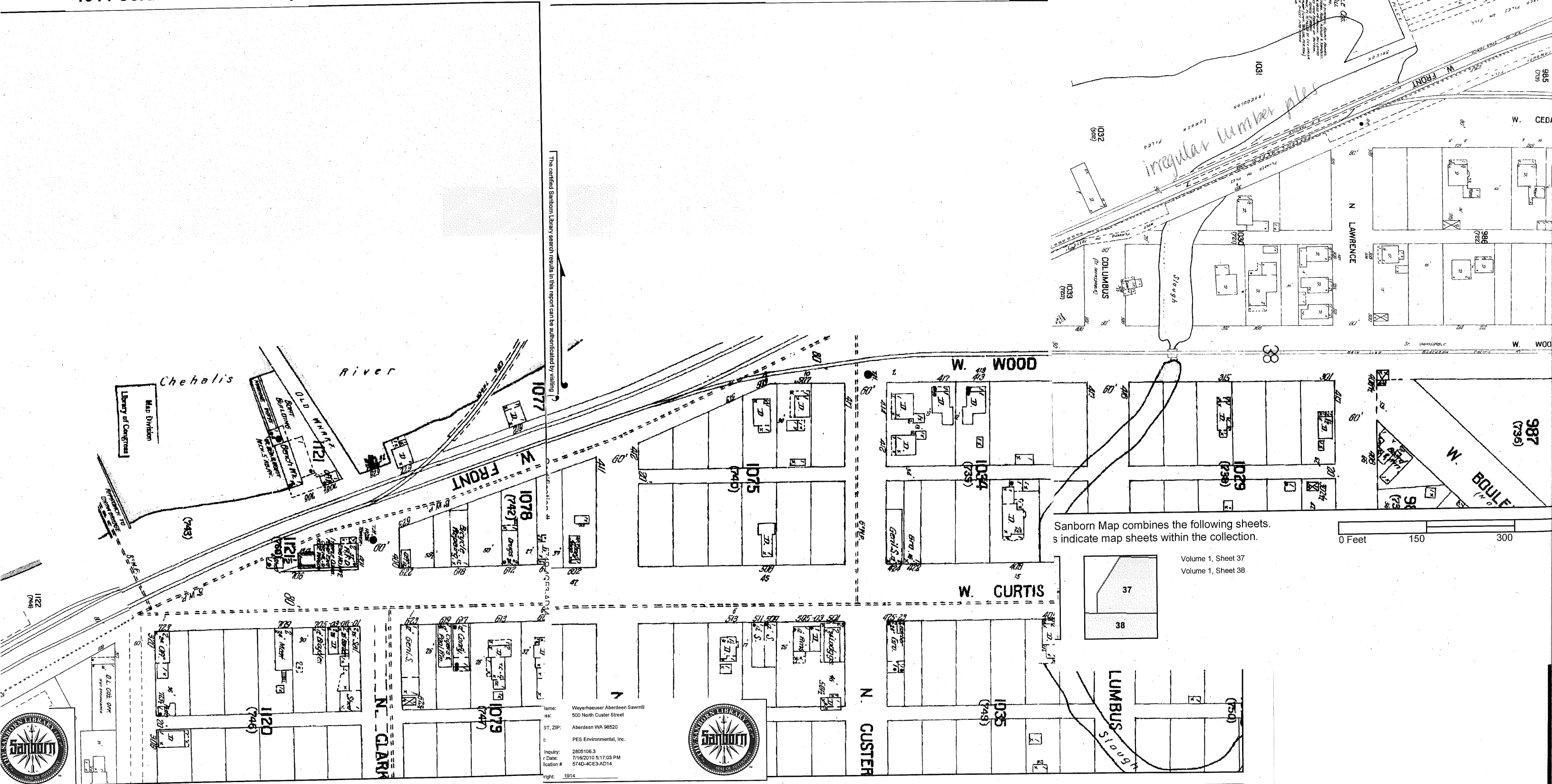
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1914 Certified Sanborn Map

1914 Certified Sanborn Map



Sanborn Map combines the following sheets. s indicate map sheets within the collection.

Volume 1, Sheet 37
Volume 1, Sheet 38

This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.

Volume 1, Sheet 37
Volume 1, Sheet 38

Combines the following sheets. s indicate map sheets within the collection.

Volume 1, Sheet 38



Name: Weyerhaeuser Aberdeen Sawmill
Address: 500 North Custer Street
City: Aberdeen WA 98520
Company: PES Environmental, Inc.
Inquiry: 2805106.3
Date: 7/16/2010 5:17:03 PM
Location #: 5740-ICE3-AD14
Night: 1914

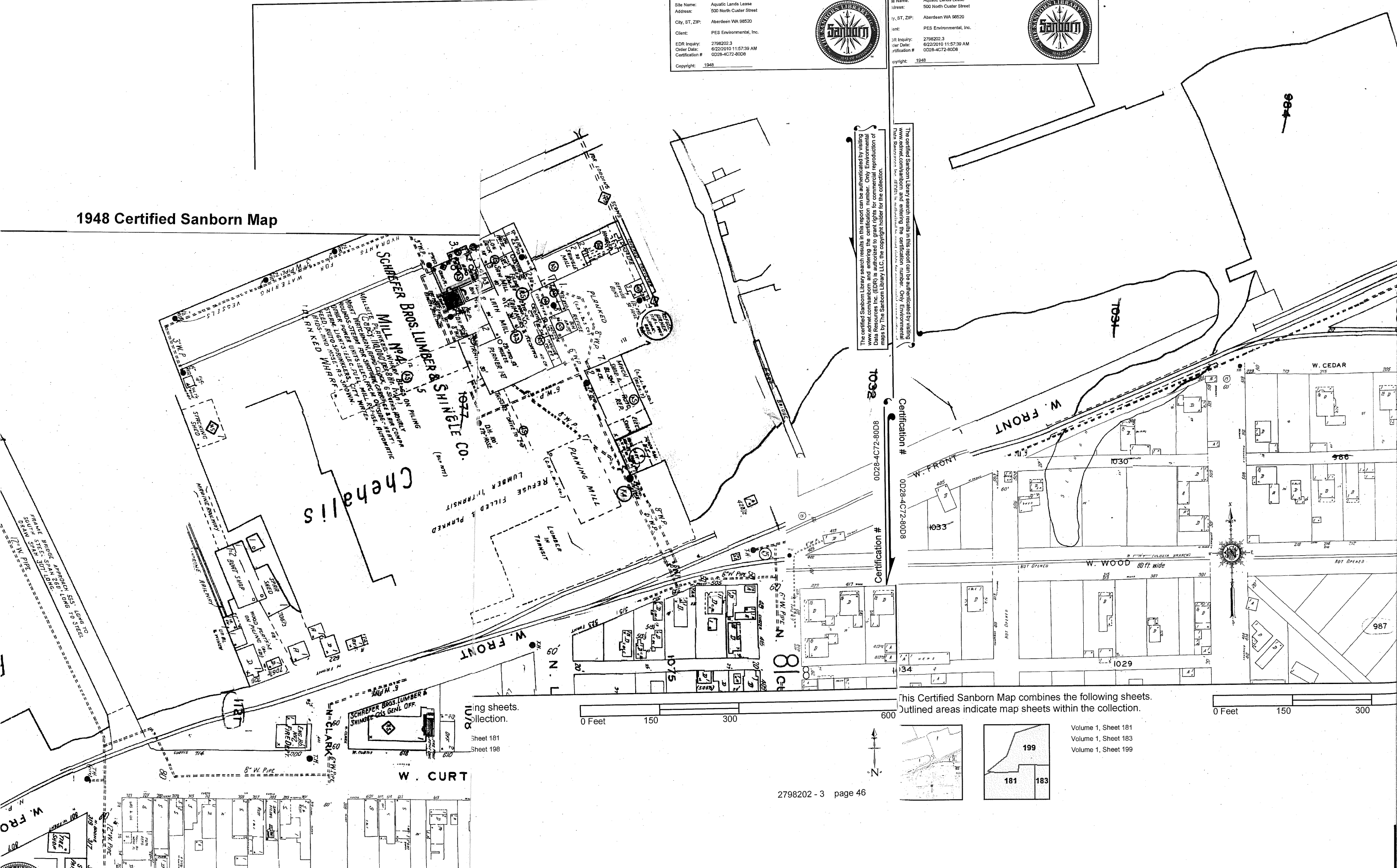
Site Name: Aquatic Lands Lease
 Address: 500 North Custer Street
 City, ST, ZIP: Aberdeen WA 98520
 Client: PES Environmental, Inc.
 EDR Inquiry: 2798202.3
 Order Date: 6/22/2010 11:57:39 AM
 Certification #: 0028-4C72-8008
 Copyright: 1948



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 #: 0028-4C72-8008
 Copyright: 1948



1948 Certified Sanborn Map

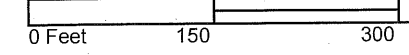
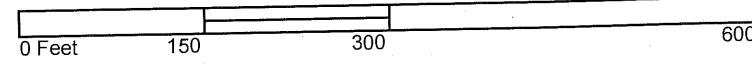


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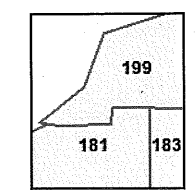
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1032
 Certification # 0028-4C72-8008

Certification # 0028-4C72-8008



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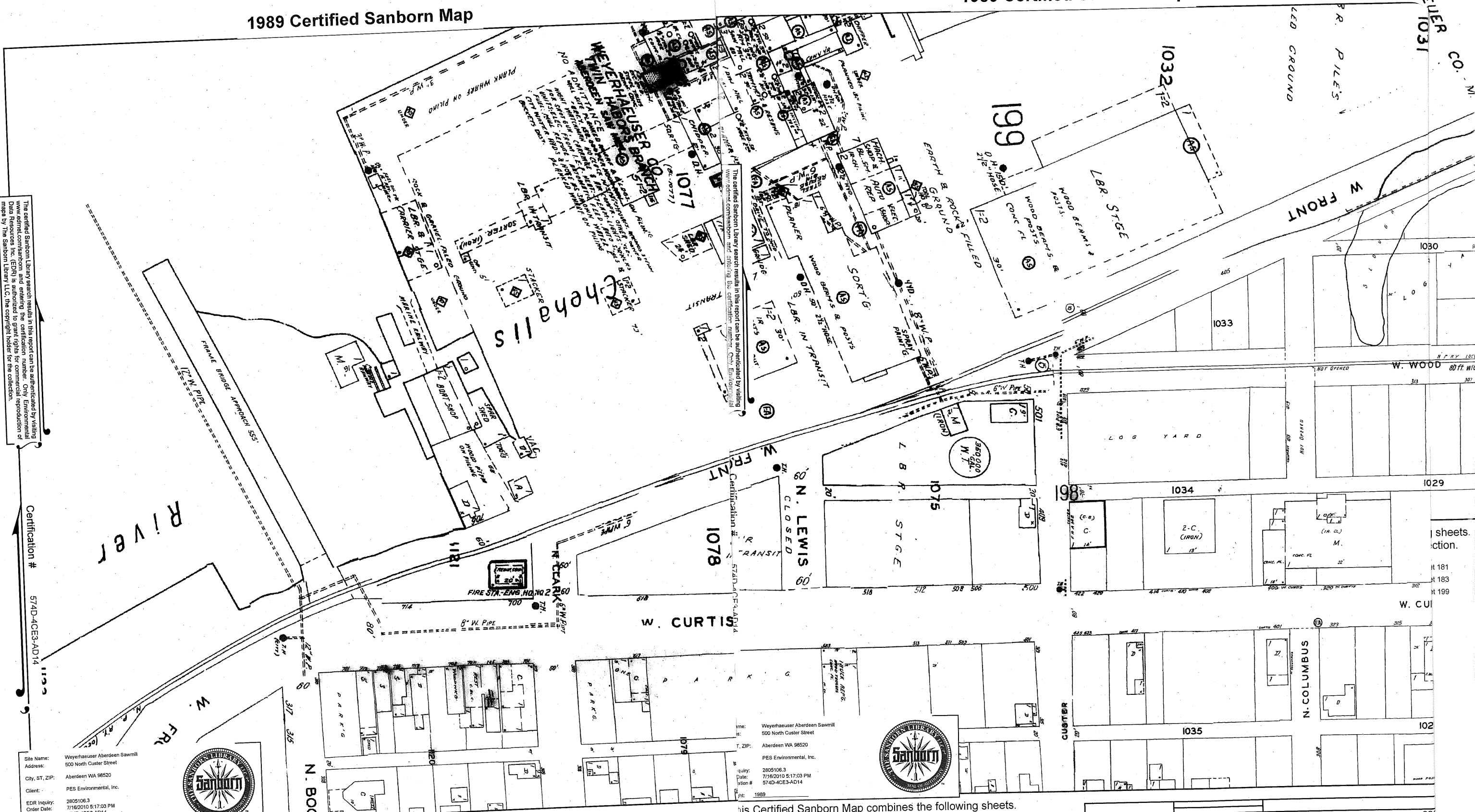


Volume 1, Sheet 181
 Volume 1, Sheet 183
 Volume 1, Sheet 199

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 ollection.
 Sheet 181
 Sheet 198

1989 Certified Sanborn Map

1989 Certified Sanborn Map



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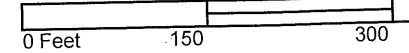
Certification # 574D-4CE3-AD14

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



Weyerhaeuser Aberdeen Sawmill
 500 North Custer Street
 Aberdeen WA 98520
 PES Environmental, Inc.
 2805106.3
 7/16/2010 5:17:03 PM
 574D-4CE3-AD14
 1989

This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.



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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, continuous 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

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Maul Foster & Alongi, Inc.		Geologic Borehole Log/Well Construction							
		Project Number 1044.02.01		Well Number CR-08A		Sheet 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	Interval	Percent Recovery	Collection Method	Sample Data			Lithologic Column	Soil Description
					Number	Name (Type)	Blows/6"		
1								0.0 to 3.0 feet: No recovery.	
2									
3								3.0 to 5.0 feet: Woodwaste; reddish brownish black; 80% woodwaste; 20% sand, medium to coarse.	
4									
5								5.0 to 9.5 feet: No recovery.	
6									
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									
18								17.0 to 18.3 feet: Woodwaste; reddish brownish black; 80% woodwaste; 20% sand, medium to coarse. @ 17.1 feet: brick.	
19								18.3 to 20.0 feet: SILTY SAND (SM); gray; 40% fines, medium plasticity; 60% sand, fine to medium.	
20				GP			CR08A-SBSD		

NOTES:

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Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-08B** Sheet **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	Interval	Percent Recovery	Sample Data				Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)				
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										
8									7.0 to 10.0 feet: SANDY SILT (MLS); gray; 60% fines; 40% sand, fine.	
9				GP		CR08B-SBSD				
10										



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-11	Sheet 1 of 2
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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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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										@ 12.0 feet: Sheen.
14										
15										
16										
17										
18										
19										
20										

PID = 17.2 ppm

NOTES:

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Depth (feet, BGS)	Well Details		Sample Data					Lithologic Column	Soil Description
			Interval	Percent Recovery	Collection Method	Number	Name (Type)		
21									
22									
23				GRAB	CR11-SBSD-23				22.5 to 25.0 feet: <i>SANDY SILT (MLS); plastic.</i>
24									
25									
									<i>PID = 6.4 ppm</i>

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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.

Project Number
1044.02.01

Well Number
CR-12

Sheet
1 of 1

Project Name **Seaport Landing**
 Project Location **500 North Custer Street, Aberdeen, WA**
 Start/End Date **10/13/2015 to 10/13/2015**
 Driller/Equipment **Cascade Drilling, LP/GeoProbe Track rig**
 Geologist/Engineer **M. Murray**
 Sample Method **GeoProbe**

TOC Elevation (feet)
 Surface Elevation (feet)
 Northing
 Easting
 Hole Depth **15.0-feet**
 Outer Hole Diam **2.25-inch**

Mudline

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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; sulfur odor; wet.
8										
9										
10										10.0 to 11.9 feet: No recovery.
11										
12										PID = 98.7 ppm
13										11.9 to 12.3 feet: Woodwaste; trace silt; sulfur odor; wet. 12.3 to 13.8; SILTY SAND (SM); 80% silty sand; 20% woodwaste.
14										PID = 10.1 ppm
15				GP						13.8 to 15.0 feet: SANDY SILT (MLS); gray; 60% fines, plastic; 40% sand, fine, micaceous. CR12-SBSD-15

NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-13	Sheet 1 of 1
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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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1										0.0 to 2.5 feet: No recovery.
2										
3										2.5 to 5.0 feet: Woodwaste; slight sulfur odor; wet.
4										
5										
6										5.0 to 6.8 feet: No recovery.
7										
8										6.8 to 8.7 feet: Woodwaste; slight sulfur odor; wet.
9										
10										8.7 to 10.0 feet: SANDY SILT (MLS)
11										10.0 to 11.1 feet: No recovery.
12										
13										
14										
15										

PID = 2.0 ppm

PID = 1.7 ppm

GP CR13-SBSD-11

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Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-14** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Lithologic Column	Soil Description
					Number	Name (Type)	Blows/6"		
1								0.0 to 1.5 feet: No recovery.	
2								1.5 to 5.0 feet: Woodwaste; sulfur odor; wet.	
3									
4									
5								5.0 to 7.2 feet: No recovery.	
6									
7									
8								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									
13								12.0 to 15.0 feet: SANDY SILT (MLS); gray; 70% fines, plastic; 30% sand, fine, micaceous.	
14									
15									

PID = 102 ppm

GP CR14-SBSD-12

PID = 0.0 ppm

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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-15A	Sheet 1 of 1
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Project Name Seaport Landing Project Location 500 North Custer Street, Aberdeen, WA Start/End Date 10/14/2015 to 10/14/2015 Driller/Equipment Cascade Drilling, LP/GeoProbe Track rig Geologist/Engineer M. Murray Sample Method GeoProbe	TOC Elevation (feet) Surface Elevation (feet) Northing Easting Hole Depth 11.0-feet Outer Hole Diam 2.25-inch
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Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data				Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)				
1									0.0 to 4.5 feet: No recovery.	
2										
3										
4										
5				GP		CR15A-5			4.5 to 5.0 feet: Woodwaste.	
6									5.0 to 7.0 feet: No recovery.	
7										
8									7.0 to 9.2 feet: Woodwaste; 70% woodwaste; 30% sandy silt, blackish brown.	
9										
10									9.2 to 9.5 feet: SANDY SILT (MLS)	
11				GP		CR15A-11			9.5 to 11.0 feet: Woodwaste; 70% woodwaste; 30% sandy silt, blackish brown.	



NOTES:

Maul Foster & Alongi, Inc. **Geologic Borehole Log/Well Construction**

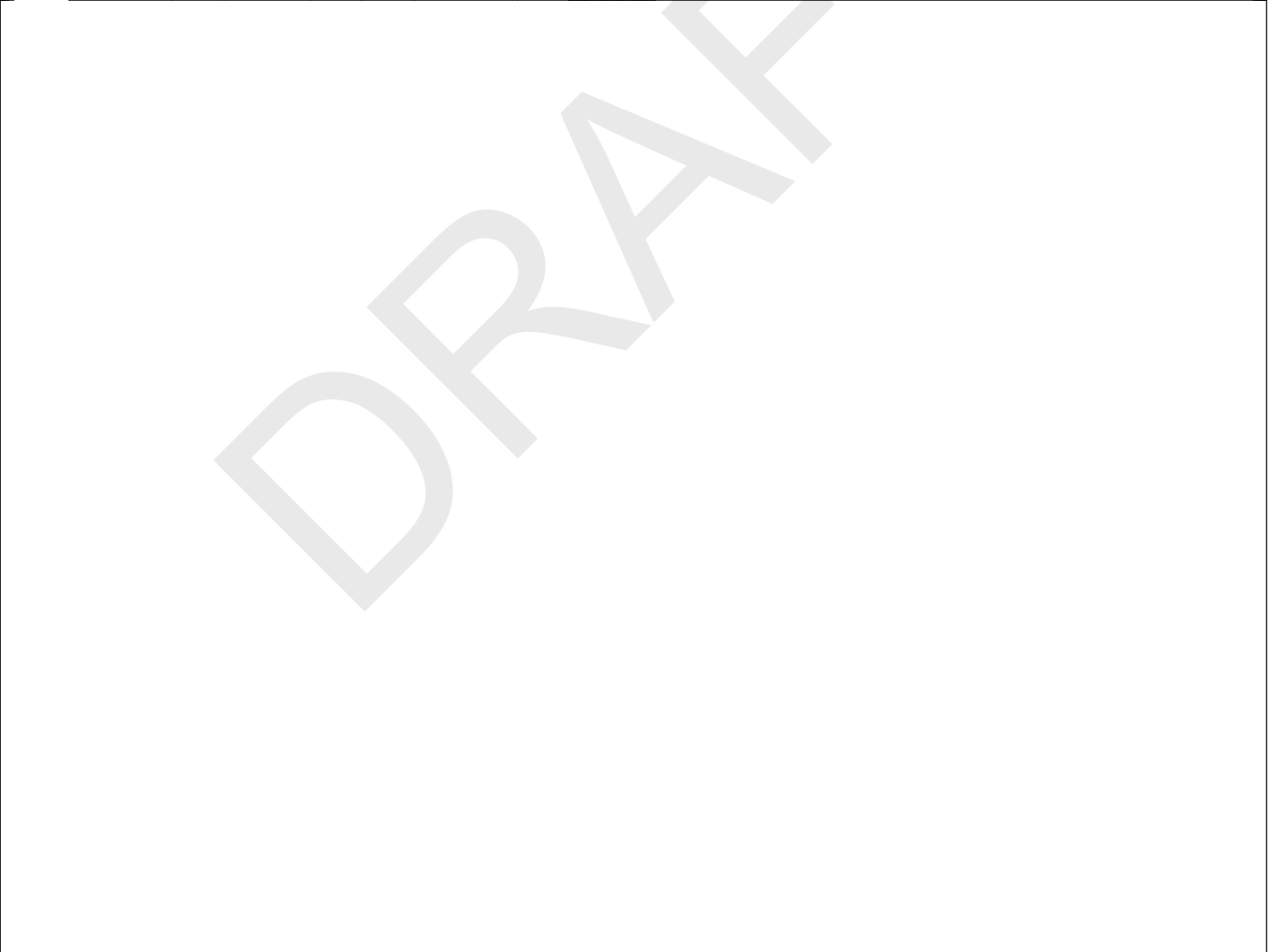
Project Number **1044.02.01** Well Number **CR-15B** Sheet **1 of 1**

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	Interval	Percent Recovery	Collection Method	Sample Data			Lithologic Column	Soil Description
					Number	Name (Type)	Blows/6"		

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

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-15C	Sheet 1 of 1
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Project Name Seaport Landing Project Location 500 North Custer Street, Aberdeen, WA Start/End Date 10/14/2015 to 10/14/2015 Driller/Equipment Cascade Drilling, LP/GeoProbe Track rig Geologist/Engineer M. Murray Sample Method GeoProbe	TOC Elevation (feet) Surface Elevation (feet) Northing Easting Hole Depth 5.0-feet Outer Hole Diam 2.25-inch
--	---

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				

1				GP		CR15C-SSD				0.0 to 0.3 feet: No recovery.
2				GP		CR15C-SBSD				0.3 to 5.0 feet: SILTY SAND (MLS); blackish gray; 30% fines, fine, medium plasticity; 70% sand, fine.
3										
4										
5				GP		CR15C-5.0				

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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-15D** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1										0.0 to 7.0 feet: No recovery.
2										
3										
4										
5										
6										
7										
8										7.0 to 8.1 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
9										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.
10										

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Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-16A** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Lithologic Column	Soil Description
					Number	Name (Type)	Blows/6"		

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

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-16B** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				

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									
12								11.0 to 12.0 feet: Woodwaste; reddish brown; 80% woodwaste; 20% sandy silt; slight sheen.	
13				GP		CR16B-13.0			12.0 to 15.0 feet: SILTY SAND (SM); gray; 20% fines, medium to high plasticity; 80% sand, fine to medium.
14									
15									

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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-16C** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				

1										0.0 to 4.0 feet: No recovery.
2										
3										
4										4.0 to 5.0 feet: Woodwaste; 80% woodwaste; 20% sandy silt, gray.
5										5.0 to 8.5 feet: No recovery.
6										
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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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-17C	Sheet 1 of 1
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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	Interval	Percent Recovery	Sample Data				Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)	Blows/6"		
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									
9								8.0 to 10.0 feet: SILTY SAND (SM); grayish brown; 40% fines, high plasticity; 60% sand; fine, trace woodwaste.	
10				GP		CR17C-9.5			



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-17D** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				

1				CS		CR17D-SSD				0.0 to 2.0 feet: No recovery.
2				CS		CR17D-SBSD				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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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.

Project Number
1044.02.01

Well Number
CR-18A

Sheet
1 of 1

Project Name **Seaport Landing**
 Project Location **500 North Custer Street, Aberdeen, WA**
 Start/End Date **10/16/2015 to 10/16/2015**
 Driller/Equipment **Cascade Drilling, LP/GeoProbe Track rig**
 Geologist/Engineer **M. Murray**
 Sample Method **GeoProbe**

TOC Elevation (feet)
 Surface Elevation (feet)
 Northing
 Easting
 Hole Depth **10.0-feet**
 Outer Hole Diam **2.25-inch**

Mudline

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1										0.0 to 4.5 feet: No recovery.
2										
3										
4										
5										4.5 to 5.0 feet: Woodwaste; 100% woodwaste.
6										5.0 to 7.8 feet: No recovery.
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.

NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-18B	Sheet 1 of 1
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Project Name Seaport Landing Project Location 500 North Custer Street, Aberdeen, WA Start/End Date 10/16/2015 to 10/16/2015 Driller/Equipment Cascade Drilling, LP/GeoProbe Track rig Geologist/Engineer M. Murray Sample Method GeoProbe	TOC Elevation (feet) Surface Elevation (feet) Northing Easting Hole Depth 12.0-feet Outer Hole Diam 2.25-inch
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Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				

1				CS						0.0 to 3.0 feet: No recovery.
2				CS						
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19A** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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.
5										3.7 to 4.0 feet: SANDY SILT (MLS); grayish brown; 60% fines; 40% sand, fine.
6										4.0 to 5.0 feet: Woodwaste; 80% woodwaste; 20% sandy silt.
7										5.0 to 8.0 feet: No recovery.
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.



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19B** Sheet **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	Interval	Percent Recovery	Sample Data				Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)	Blows/6"		
1				CS		CR19B-0-10cm		0.0 to 2.0 feet: No recovery.	
2								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.	
3									
4								4.5 to 5.0 feet: Woodwaste; 80% woodwaste; 20% silty sand.	
5									
6								5.0 to 7.5 feet: No recovery.	
7									
8								7.5 to 8.7 feet: Woodwaste; 80% woodwaste; 20% silty sand.	
9									
10				GP		CR19B-10		8.7 to 10.0 feet: SANDY SILT (MLS) ; grayish black; 50% fines, plastic; 35% sand, fine; 15% woodwaste, coarse chucks.	



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.	Project Number 1044.02.01	Well Number CR-19C	Sheet 1 of 1
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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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1										0.0 to 2.4 feet: No recovery.
2										
3										2.4 to 5.0 feet: <i>SILTY SAND (SM); blackish brown; 40% fines, high plasticity; 60% sand, fine; trace woodwaste.</i>
4										@ 4.0 to 4.1 feet: Woodwaste.
5										@ 4.5 to 4.6 feet: Woodwaste.

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NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19D** Sheet **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	Interval	Percent Recovery	Sample Data				Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)				
1									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										



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc.

Project Number
1044.02.01

Well Number
CR-19E

Sheet
1 of 1

Project Name **Seaport Landing**
 Project Location **500 North Custer Street, Aberdeen, WA**
 Start/End Date **10/16/2015 to 10/16/2015**
 Driller/Equipment **Cascade Drilling, LP/GeoProbe Track rig**
 Geologist/Engineer **M. Murray**
 Sample Method **GeoProbe**

TOC Elevation (feet)
 Surface Elevation (feet)
 Northing
 Easting
 Hole Depth **10.0-feet**
 Outer Hole Diam **2.25-inch**

Mudline

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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										
6										5.0 to 7.7 feet: No recovery.
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.

NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19F** Sheet **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	Interval	Percent Recovery	Sample Data				Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)				
1				CS		CR19F-SSD			0.0 to 2.5 feet: No recovery.	
2				CS		CR19F-SBSD				
						CR19F-SBSD-DUP				
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										



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19G** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Lithologic Column	Soil Description
					Number	Name (Type)	Blows/6"		
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									



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19I** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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.
3										@ 1.0 to 3.0 feet: loose.
4										
5										
6										
7										
8										
9										
10										





NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-19J** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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										


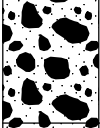




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Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-20** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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.
5				GP		CR20-GW-5.0				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.
6										@ 5.0 to 5.3 feet: Woodwaste; 80% woodwaste, primarily large woodchips; 20% black silty sand.
7										7.0 to 7.5 feet: CONCRETE.
8										7.5 to 10.0 feet: No recovery.
9										
10										

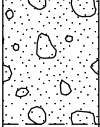
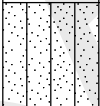


NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-21** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
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				



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-22** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1										0.0 to 2.0 feet: No recovery.
2										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.
3				GP		CR22-S-3.0				3.0 to 4.5 feet: SILTY SAND (SM); reddish brown, 40% fines, medium plasticity; 60% sand, coarse; trace gravel.
4						PID = 2.0 ppm				
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)
7										5.0 to 7.0 feet: No recovery.
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 .



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-23** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1										0.0 to 1.0 feet: No recovery.
2				GP		CR23-S-3.0				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						PID = 30.8 ppm				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.
5										3.0 to 4.0 feet: POORLY GRADED SAND (SP); gray; 20% fines; 70% sand, poorly graded, medium; 10% gravel. (FILL)
6										4.0 to 5.0 feet: Woodwaste; 80% woodwaste; 20% gray sandy silt.
7										5.0 to 7.5 feet: No recovery.
8										7.5 to 9.0 feet: Woodwaste; 80% woodwaste; 20% gray sandy silt.
9										9.0 to 10.0 feet: SILT w/ WOODWASTE (ML); dark brown; 70% fines, medium plasticity; 30% woodwaste, primarily bark chips.
10										



NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-25** Sheet **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	Interval	Percent Recovery	Sample Data				Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)				

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			

DRAFT



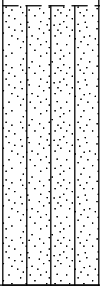
NOTES:

Geologic Borehole Log/Well Construction

Maul Foster & Alongi, Inc. Project Number **1044.02.01** Well Number **CR-26** Sheet **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	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				

1				CS		CR26-SSD				0.0 to 1.0 feet: No recovery.
2				CS		CR26-SBSD				1.0 to 5.0 feet: SILTY SAND (SM); blackish gray; 30% fines, high plasticity; 70% sand, fine.
3										
4										
5										

DRAFT



NOTES:

APPENDIX D
TERRESTRIAL ECOLOGICAL EVALUATION

DRAFT



REDACTED

DRAFT



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
<p>NOTES:</p> <p>Model parameters based on recommended exposure factors in Ecology (2017), Table 9-1.</p> <p>cm² = square centimeter.</p> <p>kg = kilogram(s).</p> <p>mg/cm²/day = milligrams per square centimeter per day.</p> <p>mg/day = milligrams per day.</p> <p>mg/kg = milligrams per kilogram.</p> <p>mg/kg/day = milligrams per kilogram per day.</p> <p>PCB = polychlorinated biphenyl.</p> <p>pg/g = picograms per gram.</p> <p>TEQ = toxicity equivalent.</p> <p>^aSC_C derived using Equation 9-1 from Ecology (2017).</p> <p>^bObtained from Ecology CLARC database.</p> <p>^aDerived using Equation 9-3 from Ecology (2017).</p>				

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 to 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.

Page 2

**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

20194

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **ADN06** Turn-around Requested: **STANDARD**
 ARI Client Company: **Naval Foster + Alongi** Phone: **(503) 501-5212**
 Client Contact: **Matt Novak**
 Client Project Name: **Seaport Landing**
 Client Project #: **10M-02.01-02**
 Samplers: **RD, J, P, M, R, M**

Page: **5** of **5**
 Date: **10/13** Ice Present? **NPS**
 No. of Coolers: Cooler Temps:

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



Analysis Requested

TPH	metals	PAH	PB	SOPs	TDC	Mercury	Asbestos	Phenol	Dioxin/Furans	metals
X	X	X	X	X	X	X		X	X	X
X	X	X	X	X	X	X		X	X	X
X	X	X	X	X	X	X		X	X	X
X	X	X	X	X	X	X		X	X	X
X	X	X	X	X	X	X		X	X	X
X	X	X	X	X	X	X		X	X	X

Sample ID	Date	Time	Matrix	No. Containers
CR-07-SSD-Comp	10/13/15	1000	S	4
CR-23-S-9.0	10/13/15	1320	S	5
CR-22-S-3.0	10/13/15	1400	S	5
CR-23-GW-6.0	10/12/15	1310	GW	8
CR-22-GW-9.0	10/13/15	1345	GW	8

Comments/Special Instructions

Relinquished by: (Signature) **[Signature]** Date & Time: **10/14/15 10:20 AM**
 Printed Name: **Doranne Beggs**
 Company: **MFA**

Received by: (Signature) **[Signature]** Date & Time: **10/14/15 10:20 AM**
 Printed Name: **Arcie Triggs**
 Company: **M.C. DEL**

Relinquished by: (Signature) **[Signature]** Date & Time: **10/14/15 12:36**
 Printed Name: **EMILY LITWIN**
 Company: **ART**

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.

ADN06: 00000



Cooler Receipt Form

ARI Client: Maul Foster

Project Name: _____

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: AONO

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) 0.2 4.3 9.8 5.0 4.1
 Time: _____
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D002565

Cooler Accepted by: WJ 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: WJ 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 → "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



ARI Job No: AONO

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 DOC FLT FLT	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-19095 AONOD	CR23-GW-6.0						TOT MS													
15-19096 AONOE	CR22-GW-9.0						TOT MS													
15-19097 AONOF	CR23-GW-6.0						DIS MS													
15-19098 AONOG	CR22-GW-9.0						DIS MS													

AONO: 00005

Checked By: [Signature] Date: 10/16/15

Sample ID Cross Reference Report



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



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 \geq 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 $\geq 40\%$ 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

ORGANICS ANALYSIS DATA SHEET

PSDDA Semivolatiles by SW8270D GC/MS

Extraction Method: SW3546

Page 1 of 2

Sample ID: CR-07-SSD-COMP
SAMPLE

Lab Sample ID: AON0A

LIMS ID: 15-19092

Matrix: Soil

Data Release Authorized: *mmw*

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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: CR-07-SSD-COMP
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%

ORGANICS ANALYSIS DATA SHEET

PSDDA Semivolatiles by SW8270D GC/MS

Extraction Method: SW3546

Page 1 of 2

Sample ID: CR23-S-3.0

SAMPLE

Lab Sample ID: AON0B

LIMS ID: 15-19093

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 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

ORGANICS ANALYSIS DATA SHEET

PSDDA Semivolatiles by SW8270D GC/MS

Extraction Method: SW3546

Page 2 of 2

Sample ID: CR23-S-3.0

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%

ORGANICS ANALYSIS DATA SHEET

PSDDA Semivolatiles by SW8270D GC/MS

Extraction Method: SW3546

Page 1 of 2

Sample ID: CR22-s-3.0

SAMPLE

Lab Sample ID: AONOC

LIMS ID: 15-19094

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 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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: CR22-S-3.0
SAMPLE

Lab Sample ID: AONOC
 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%
dl4-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%

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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SWB270D GC/MS
 Page 1 of 2

Sample ID: LCS-102015
LAB CONTROL

Lab Sample ID: LCS-102015
 LIMS ID: 15-19092
 Matrix: Soil
 Data Release Authorized: *MMW*
 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: 10/20/15
 Date Analyzed: 10/28/15 17:10
 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	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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
 Page 2 of 2

Sample ID: LCS-102015
 LAB CONTROL

Lab Sample ID: LCS-102015
 LIMS ID: 15-19092
 Matrix: Soil
 Date Analyzed: 10/28/15 17:10

QC Report No: AON0-Maul Foster & Alongi
 Project: Seaport Landing
 1044.02.01-02

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 Injection Date: 28-OCT-2015 15:57
 Lab File ID: cc1028.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: CC1028 Quant Type: ISTD
 Method: /chem1/nt10.i/20151028.b/ABN.m

COMPOUND	RRF / AMOUNT		RFS	CCAL		MIN		MAX		CURVE TYPE
	RRF	AMOUNT		RRF5	RRF	%D / %DRIFT	%D / %DRIFT	%D / %DRIFT		
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 Injection Date: 28-OCT-2015 15:57
 Lab File ID: cc1028.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: CC1028 Quant Type: ISTD
 Method: /chem1/nt10.i/20151028.b/ABN.m

COMPOUND	RRF / AMOUNT	RFS	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 Injection Date: 28-OCT-2015 15:57
 Lab File ID: cc1028.d Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: CC1028 Quant Type: ISTD
 Method: /chem1/nt10.i/20151028.b/ABN.m

COMPOUND	___		CCAL		MIN		MAX		CURVE TYPE
	RRF /	AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT		
76 Benzo (a) pyrene	1.03138	0.96345	0.96345	0.96345	0.700	-6.58620	20.00000	Averaged	
78 Indeno (1,2,3-cd) pyrene	1.37485	1.32873	1.32873	1.32873	0.500	-3.35477	20.00000	Averaged	
79 Dibenzo (a,h) anthracene	1.13622	1.06501	1.06501	1.06501	0.400	-6.26771	20.00000	Averaged	
80 Benzo (g,h,i) perylene	1.23143	1.11783	1.11783	1.11783	0.500	-9.22455	20.00000	Averaged	
90 N-Nitrosodimethylamine	0.53343	0.72845	0.72845	0.72845	0.010	36.55981	20.00000	Averaged <-	
91 Aniline	1.56324	1.70839	1.70839	1.70839	0.010	9.28518	20.00000	Averaged	
93 Benzidine	0.38521	0.19632	0.19632	0.19632	0.010	-49.03409	20.00000	Averaged <-	
103 Pyridine	0.85366	1.19979	1.19979	1.19979	0.010	40.54664	20.00000	Averaged <-	
105 1-methylnaphthalene	0.76506	0.71103	0.71103	0.71103	0.010	-7.06220	20.00000	Averaged	
111 Azobenzene (1,2-DP-Hydrazin	1.22084	1.07876	1.07876	1.07876	0.010	-11.63732	20.00000	Averaged	
187 Total Benzofluoranthenes	1.04123	0.97996	0.97996	0.97996	0.010	-5.88442	20.00000	Averaged	
99 Perylene	0.99701	0.93856	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	0.32555	0.010	-7.87320	20.00000	Averaged	

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: MB-102015
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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
 LIMS ID: 15-19092
 Matrix: Soil
 Date Analyzed: 10/28/15 16:33

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	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 ug/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%

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
 Page 2 of 2

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%

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: *RB*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
 Page 2 of 2

Sample ID: CR22-GW-9.0
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%

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

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: *AS*
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

Sample Amount LCS: 500 mL
LCSD: 500 mL

Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55

Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL

Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ

Dilution Factor LCS: 1.00
LCSD: 1.00

GPC Cleanup: NO

Analyte	Spike		LCS		Spike		LCSD		RPD
	LCS	Added-LCS	Recovery	LCSD	Added-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%		

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: 15-19095
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	Spike		LCS		Spike		LCSD		RPD
	LCS	Added-LCS	Recovery	LCS	Added-LCSD	Recovery	LCSD		
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.

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: 15-19095
 Matrix: Ground Water
 Data Release Authorized: *[Signature]*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
 Page 2 of 2

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
 LIMS ID: 15-19095
 Matrix: Ground Water
 Date Analyzed: 10/23/15 13:49

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	< 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

12 10/23/15

COMPOUND	RRF / AMOUNT	RF25	CCAL RF25	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

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

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

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR22-S-3.0

Lab Sample ID: AONOC

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR22-S-3.0

Lab Sample ID: AONOC

LIMS ID: 15-19094

Matrix: Soil

Data Release Authorized: *MW*

Reported: 11/06/15

QC Report No: AONO-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	
37C14-2,3,7,8-TCDD			98.6	35-197	

Reported in Percent Recovery

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

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	
37C14-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

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: *WW*
 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

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: *mm*

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
 Page 1 of 1

Sample ID: MB-102315

Lab Sample ID: MB-102315
 LIMS ID: 15-19093
 Matrix: Soil
 Data Release Authorized: *mm*
 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	
37C14-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

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%

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%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR22-S-3.0
SAMPLE

Lab Sample ID: AONOC
LIMS ID: 15-19094
Matrix: Soil
Data Release Authorized: *AB*
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
Florisol 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%

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT</u>	<u>OUT</u>
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

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: *[Signature]*
 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)

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: 15-19092
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
Florisol 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%

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%

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%

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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: *AS*
 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

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%


**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 15-19092	Method Blank HC ID: ---	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 78.7%
AON0A 15-19092	CR-07-SSD-COMP HC ID: DIESEL/MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 10	Diesel Range Motor Oil Range o-Terphenyl	78 160	180 520 76.7%
AON0B 15-19093	CR23-S-3.0 HC ID: DIESEL/MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	6.0 12	21 51 71.5%
AON0C 15-19094	CR22-S-3.0 HC ID: DIESEL/MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 10	Diesel Range Motor Oil Range o-Terphenyl	57 110	120 980 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

(OTER) = o-Terphenyl

LCS/MB LIMITS

QC LIMITS

(50-150)

(50-150)

Prep Method: SW3546
Log Number Range: 15-19092 to 15-19094




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%
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Results reported in mg/kg

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

**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 15-19095	Method Blank HC ID: ---	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 74.1%
AON0D 15-19095	CR23-GW-6.0 HC ID: DRO/MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	3.4 3.2 47.6%
AON0E 15-19096	CR22-GW-9.0 HC ID: DIESEL/MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.45 0.96 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON0-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

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%
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Results reported in mg/L

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Ground Water
Date Received: 10/14/15

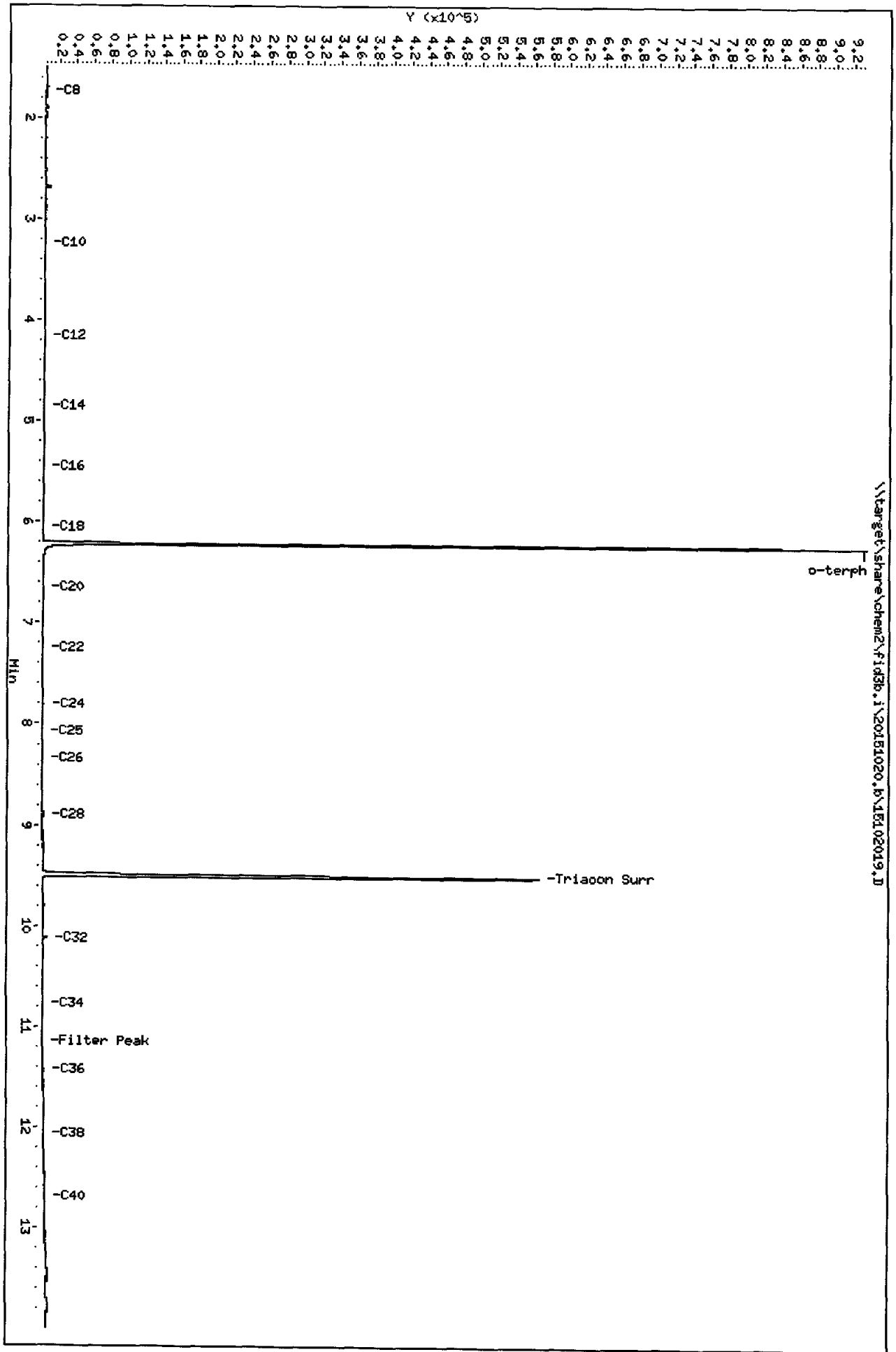
ARI Job: AON0
Project: Seaport Landing
1044.02.01-02

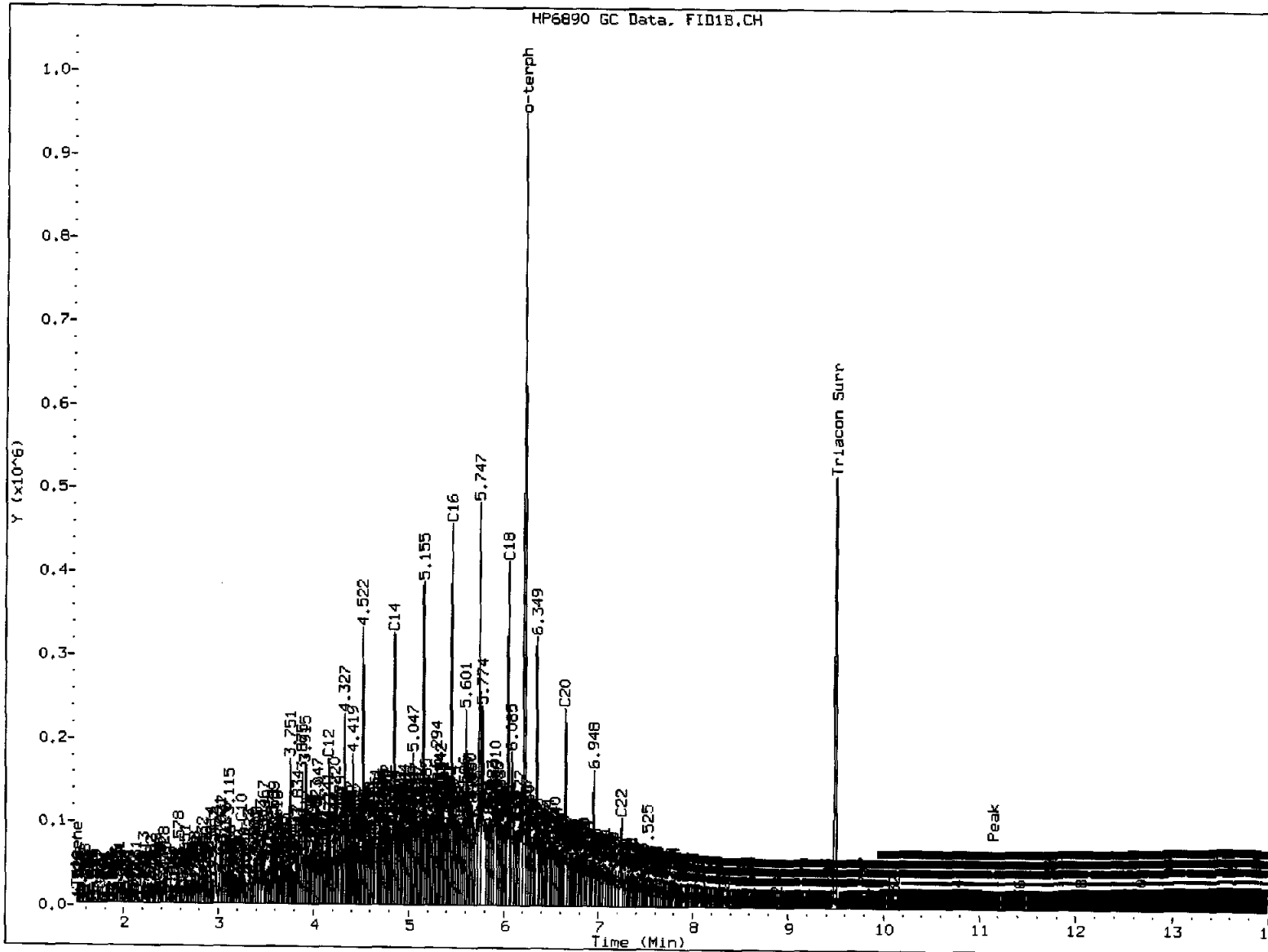
<u>ARI ID</u>	<u>Client ID</u>	<u>Samp Amt</u>	<u>Final Vol</u>	<u>Prep Date</u>
15-19095-101915MB1	Method Blank	500 mL	1.00 mL	10/19/15
15-19095-101915LCS1	Lab Control	500 mL	1.00 mL	10/19/15
15-19095-AON0D	CR23-GW-6.0	500 mL	1.00 mL	10/19/15
15-19096-AON0E	CR22-GW-9.0	500 mL	1.00 mL	10/19/15

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 Sample Info: AONORBS1

Instrument: fid3b.i
 Operator: HL
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Column phase: RTX-1





MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

Analyst: ML

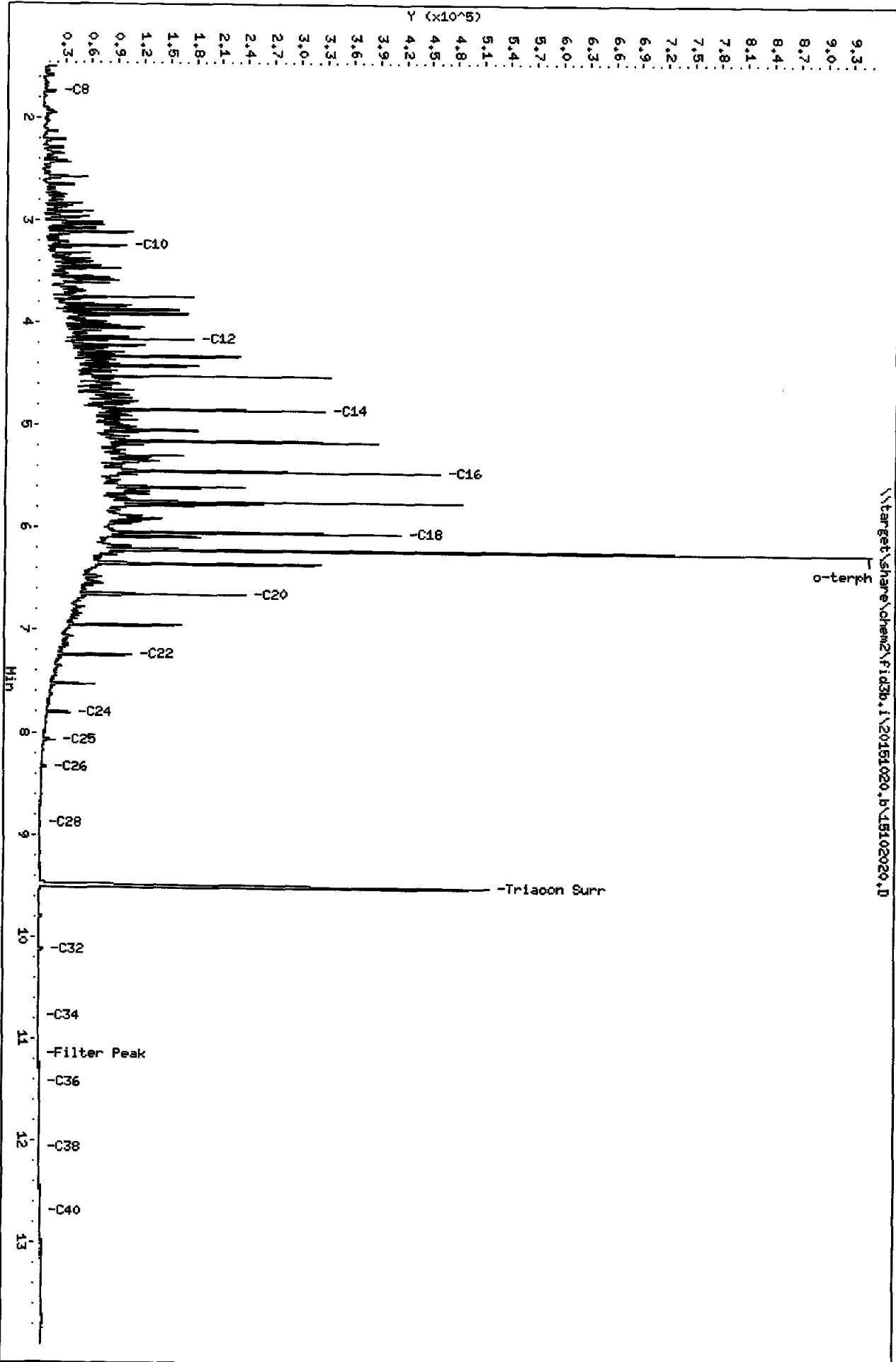
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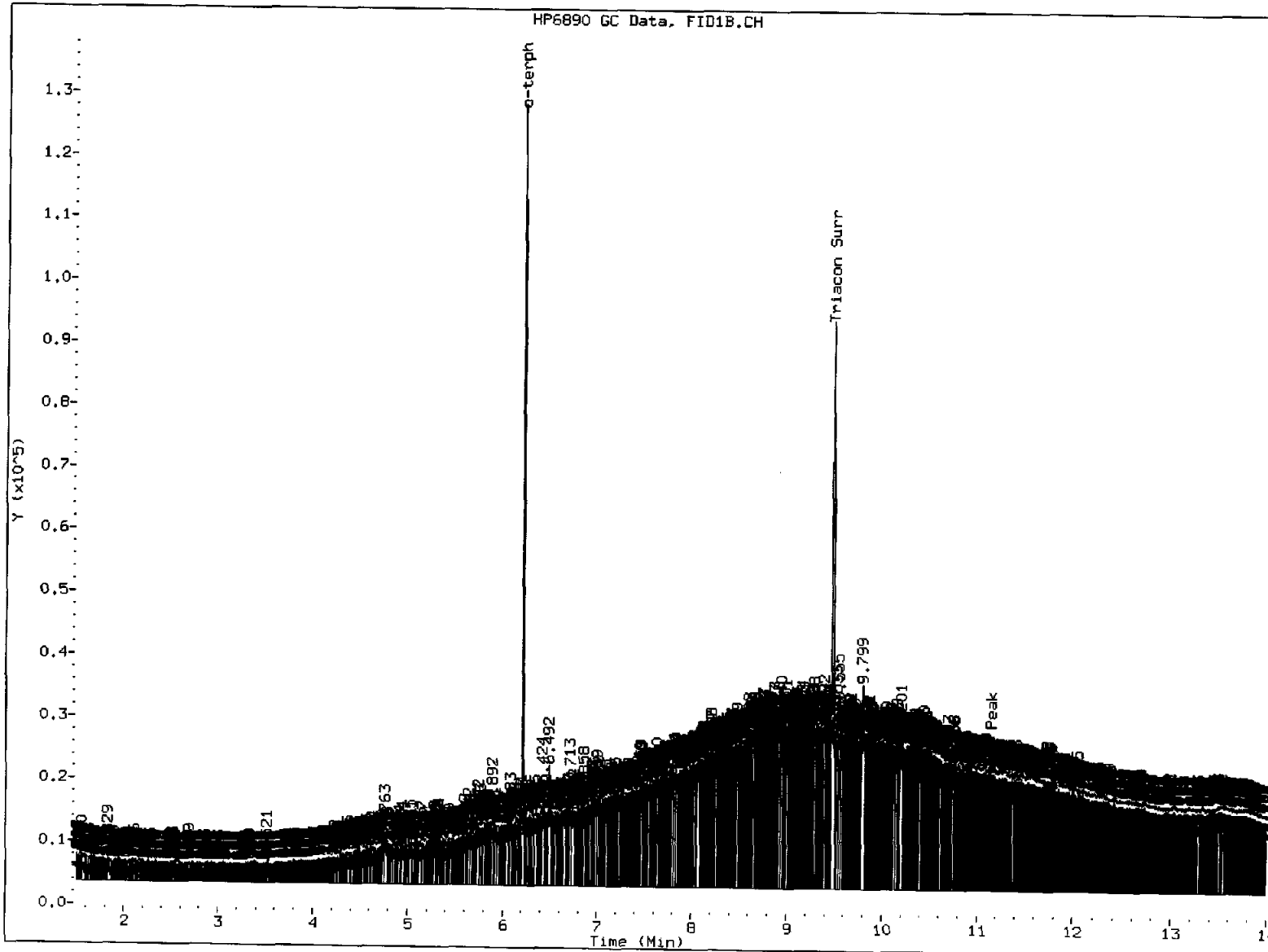
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Sample Info: AQN0LCSS1

Instrument: fid3b.i
Operator: ML
Column diameter: 0.25

Column phase: RTX-1

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MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skimmed surrogate

Analyst: ML

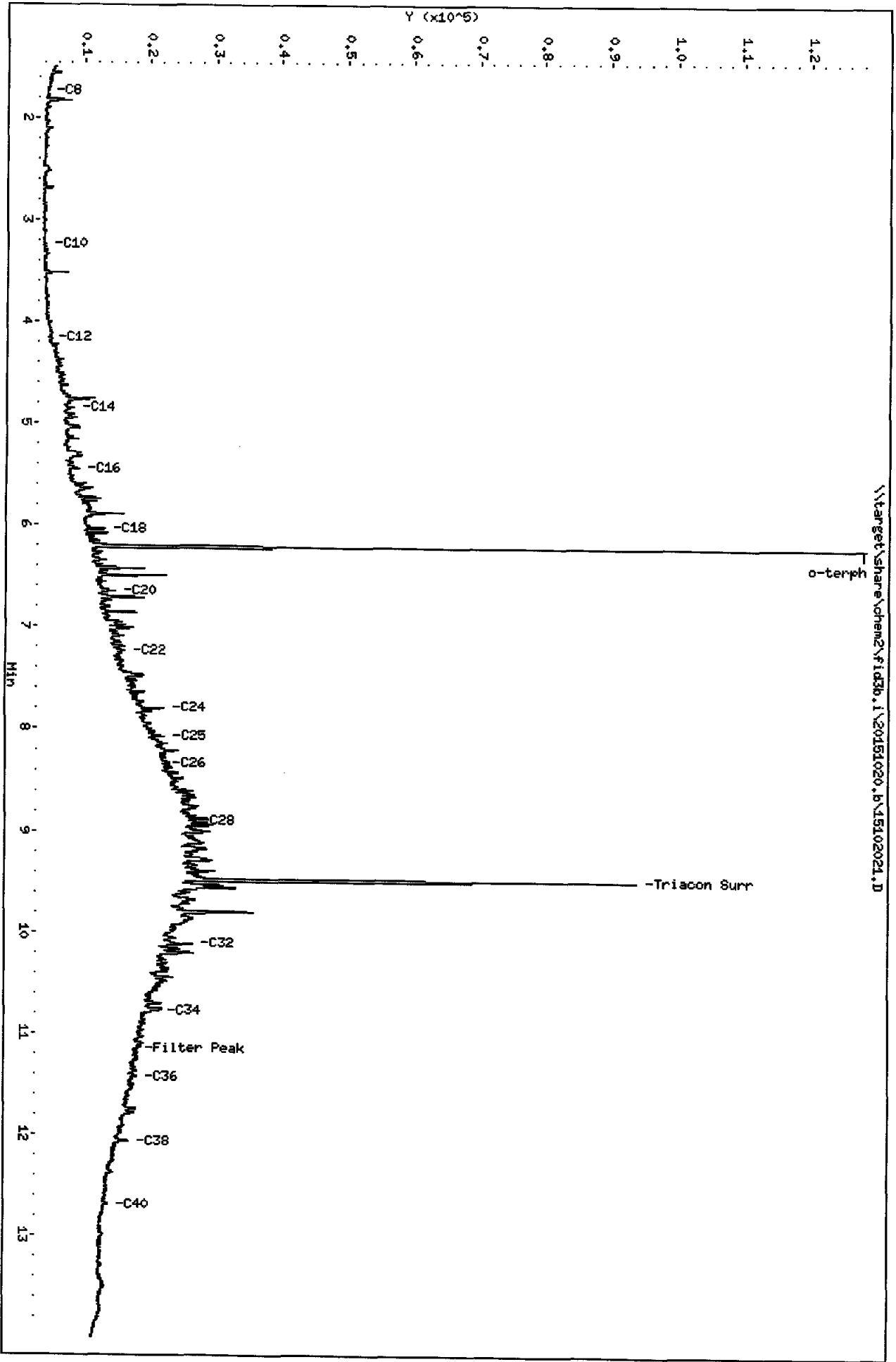
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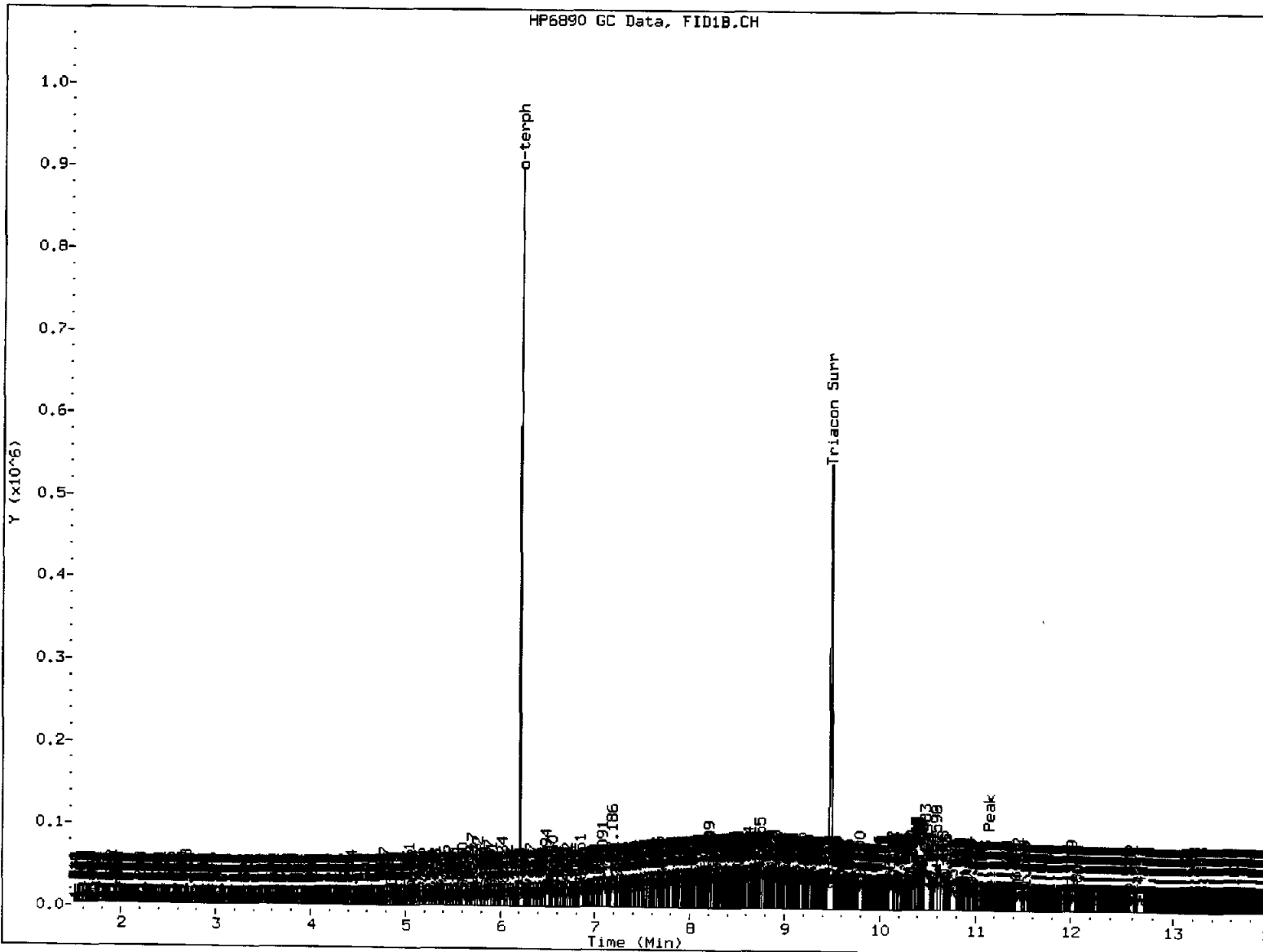
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Client ID: CR-07-SSD-COMP
Sample Info: ACHN09_10

Instrument: fid3b.i
Operator: HL
Column diameter: 0.25

Column phases: RTX-1

Operator: HL
Column diameter: 0.25





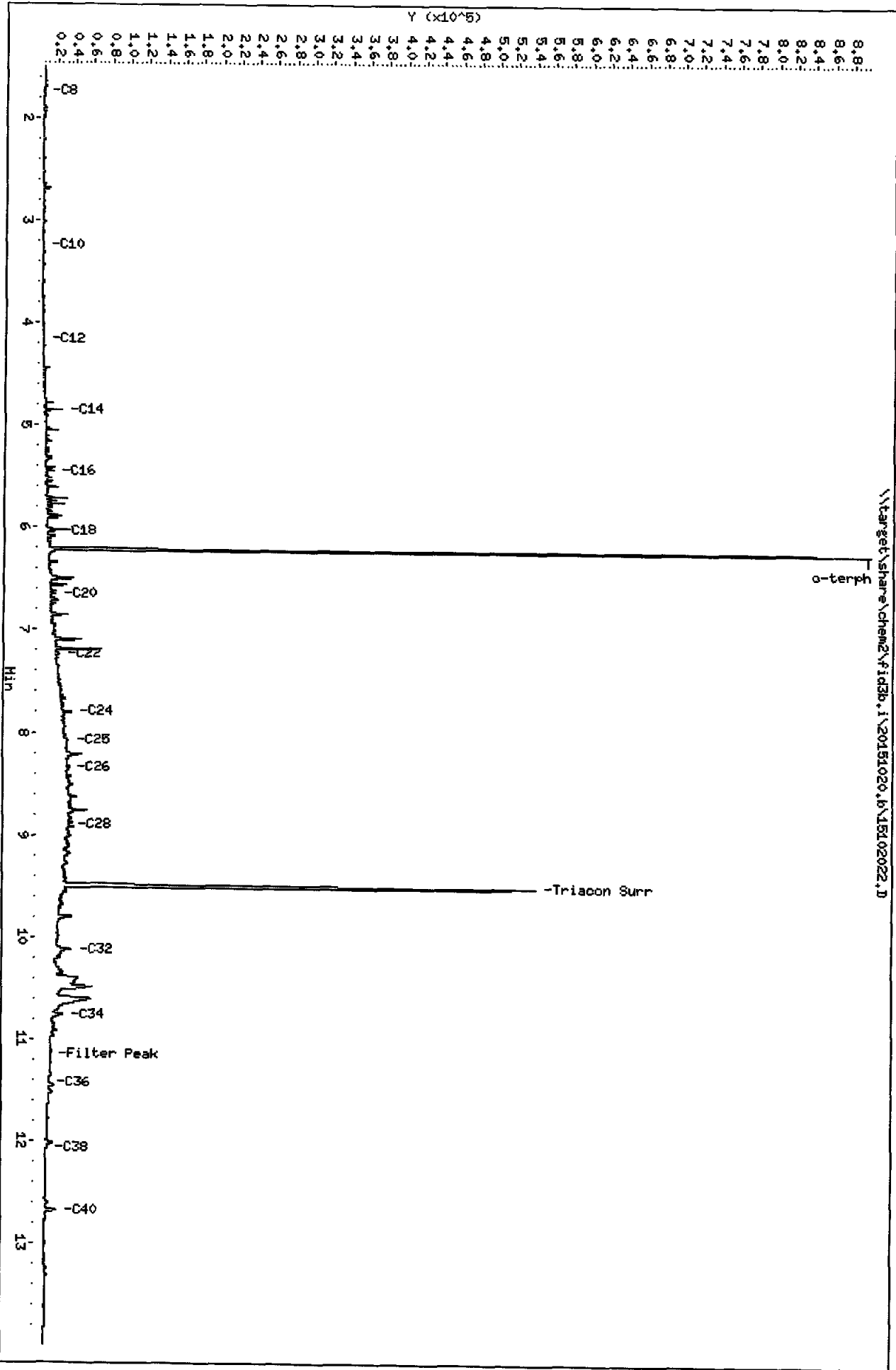
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skimmed surrogate

Analyst: ML

Date: 10/21/15

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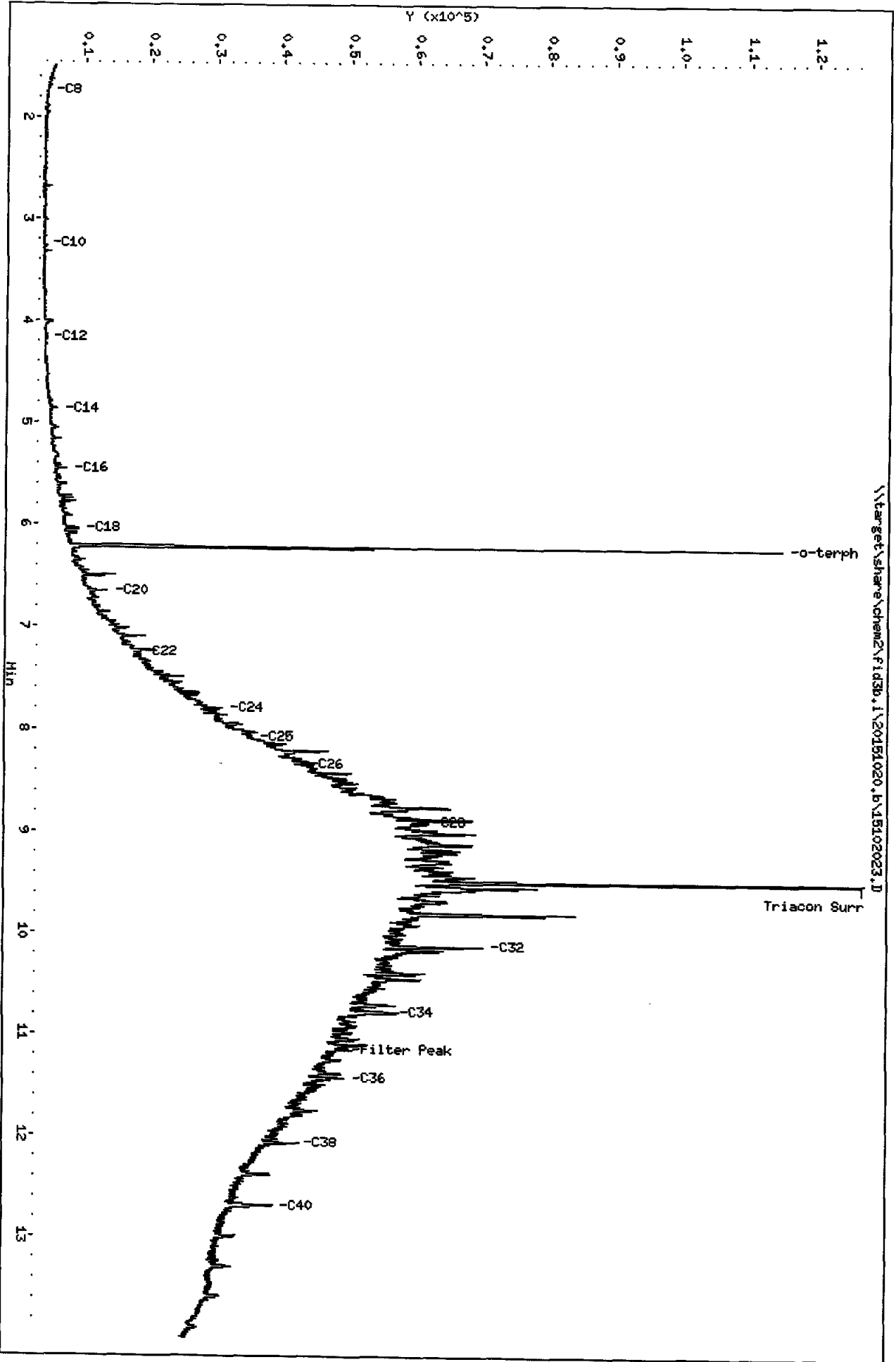


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Client ID: CR22-S-3.0
Sample Info: AONOC.10

Instrument: fid3b.i
Operator: HL
Column diameter: 0.25

Column phase: RTX-1

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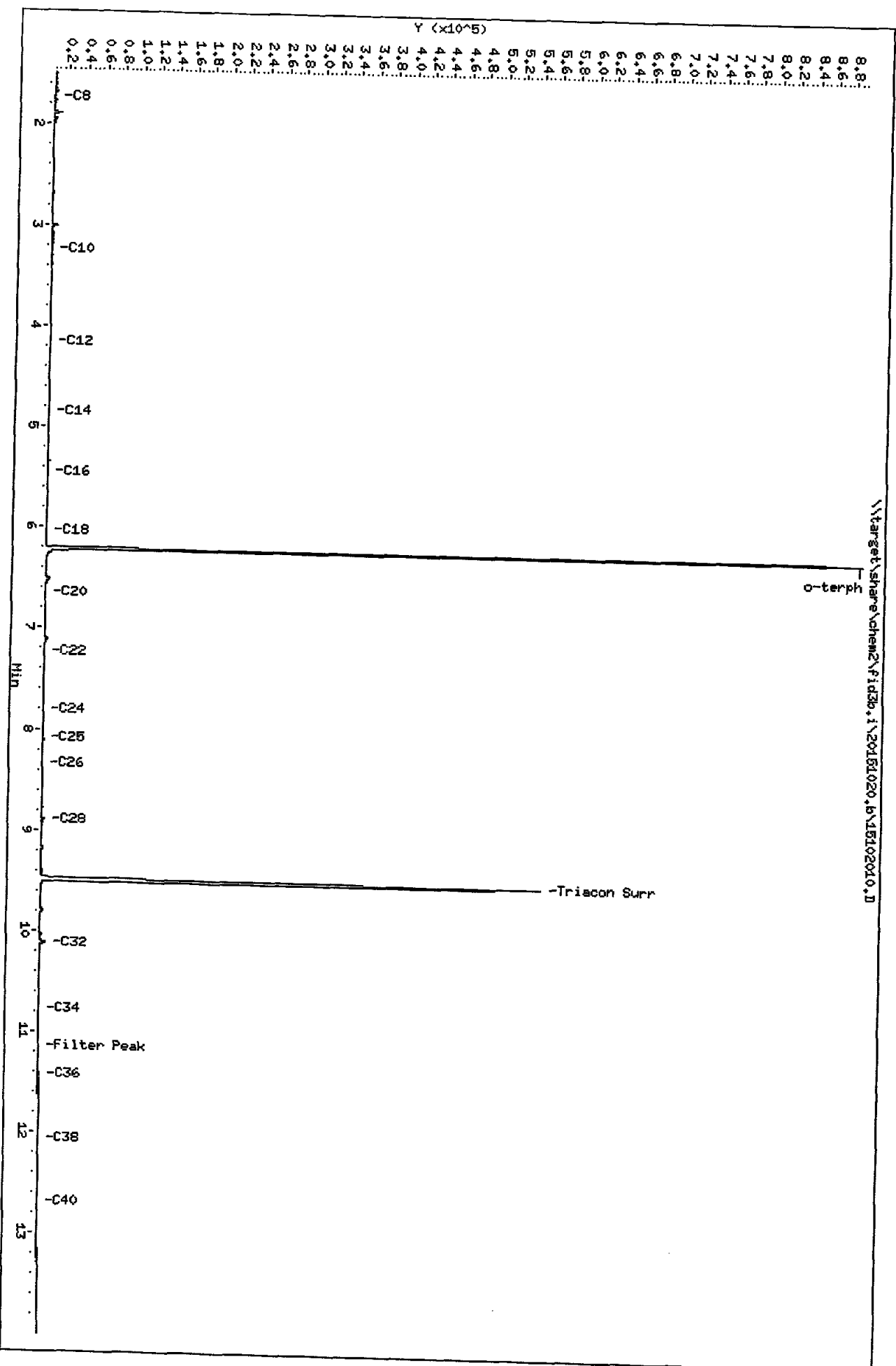


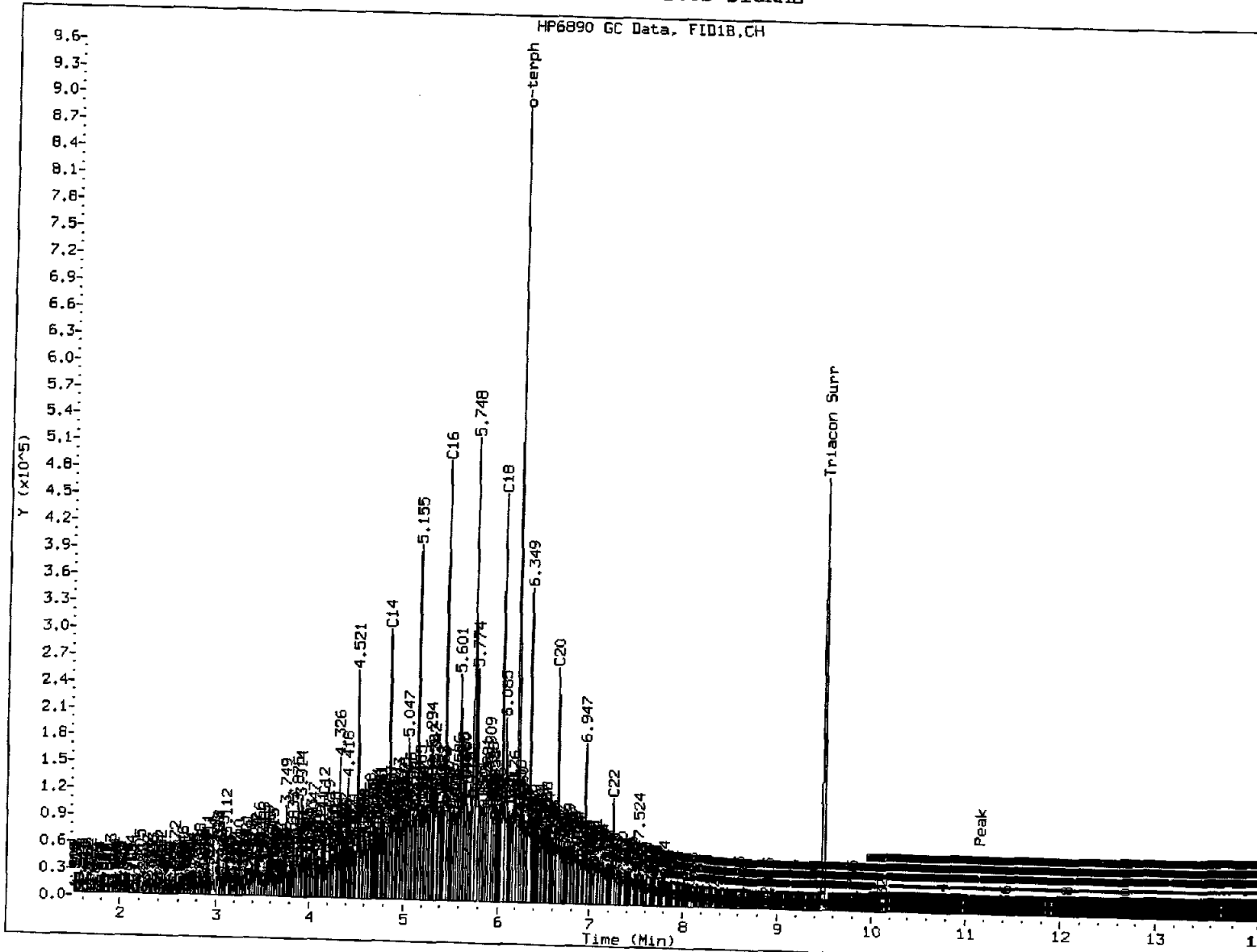
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Sample Info: AONONBML

Instrument: fid3b.i

Column phase: RTX-1

Operator: HL
Column diameter: 0.25



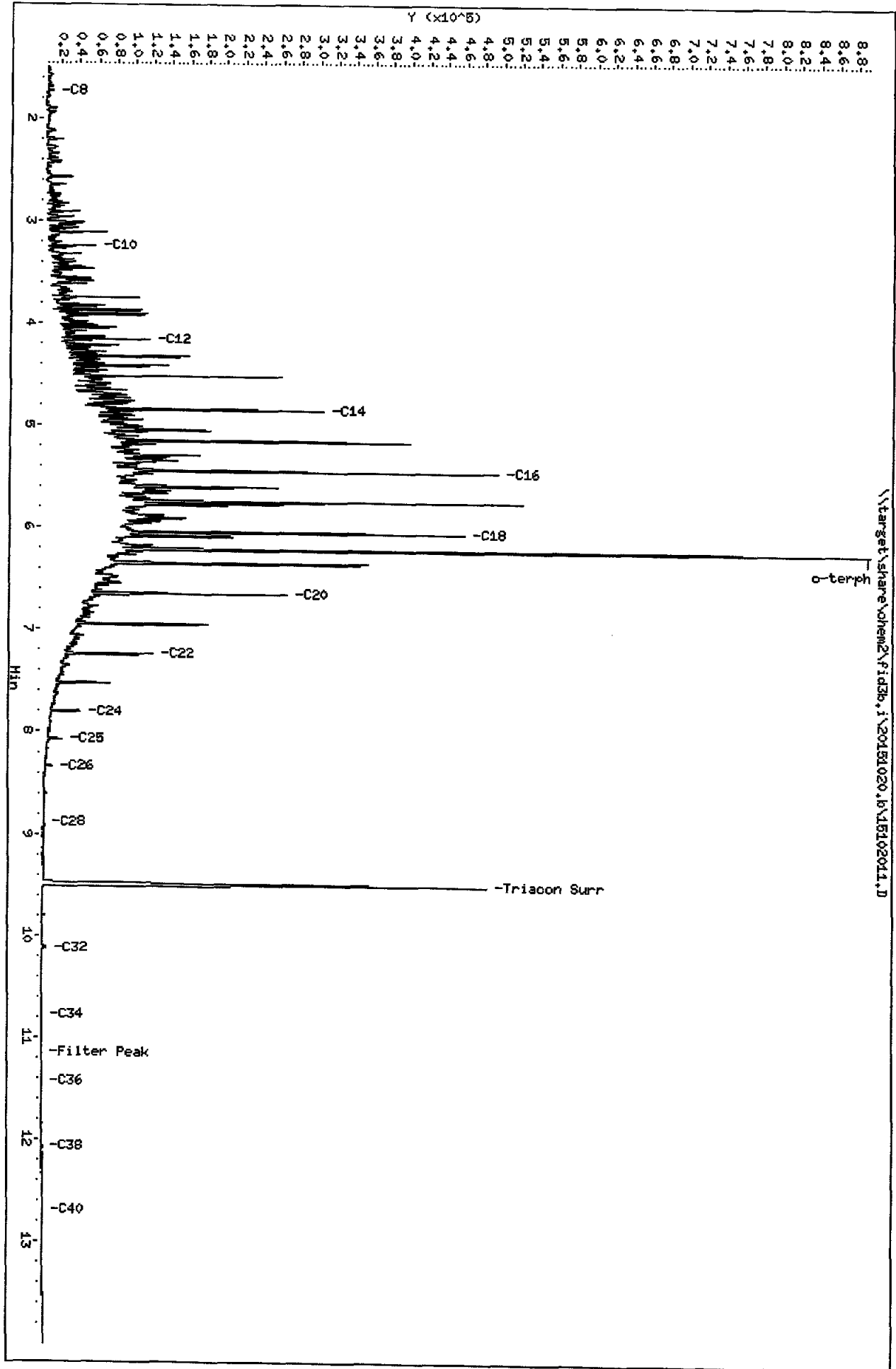


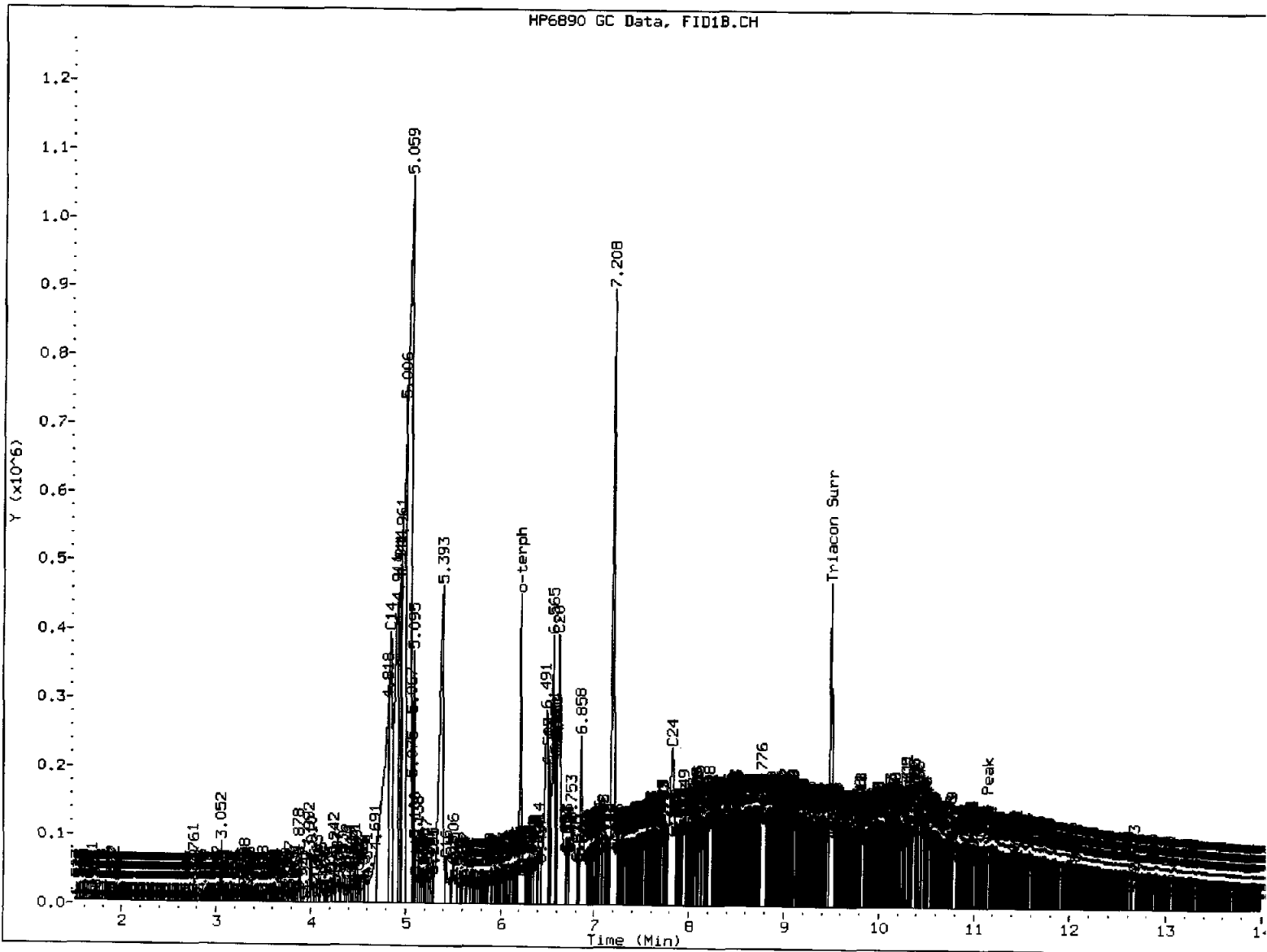
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

Analyst: ml

Date: 10/21/15





MANUAL INTEGRATION

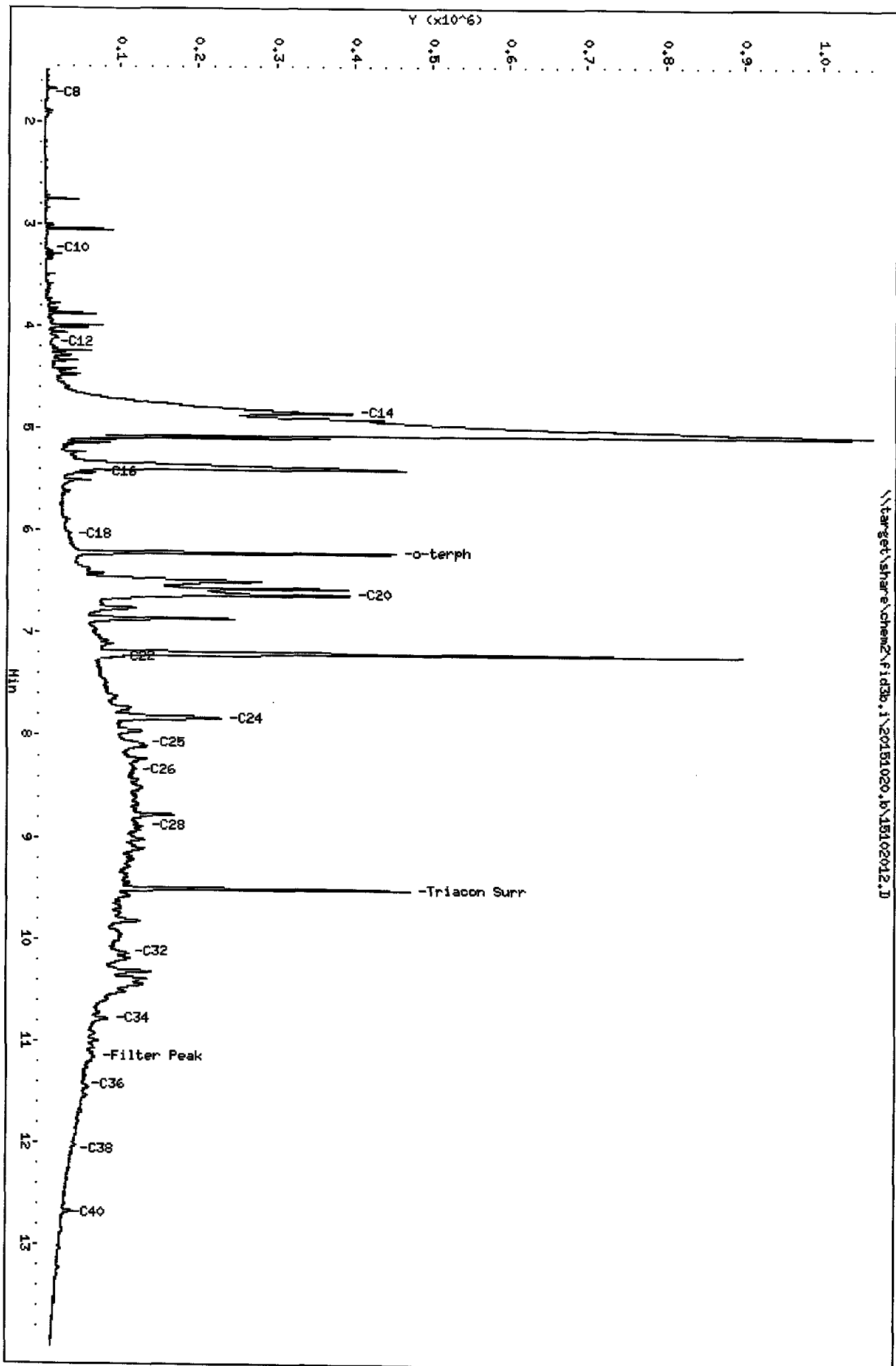
- 1. Baseline correction
- 3. Peak not found
- ⑤. Skipped surrogate

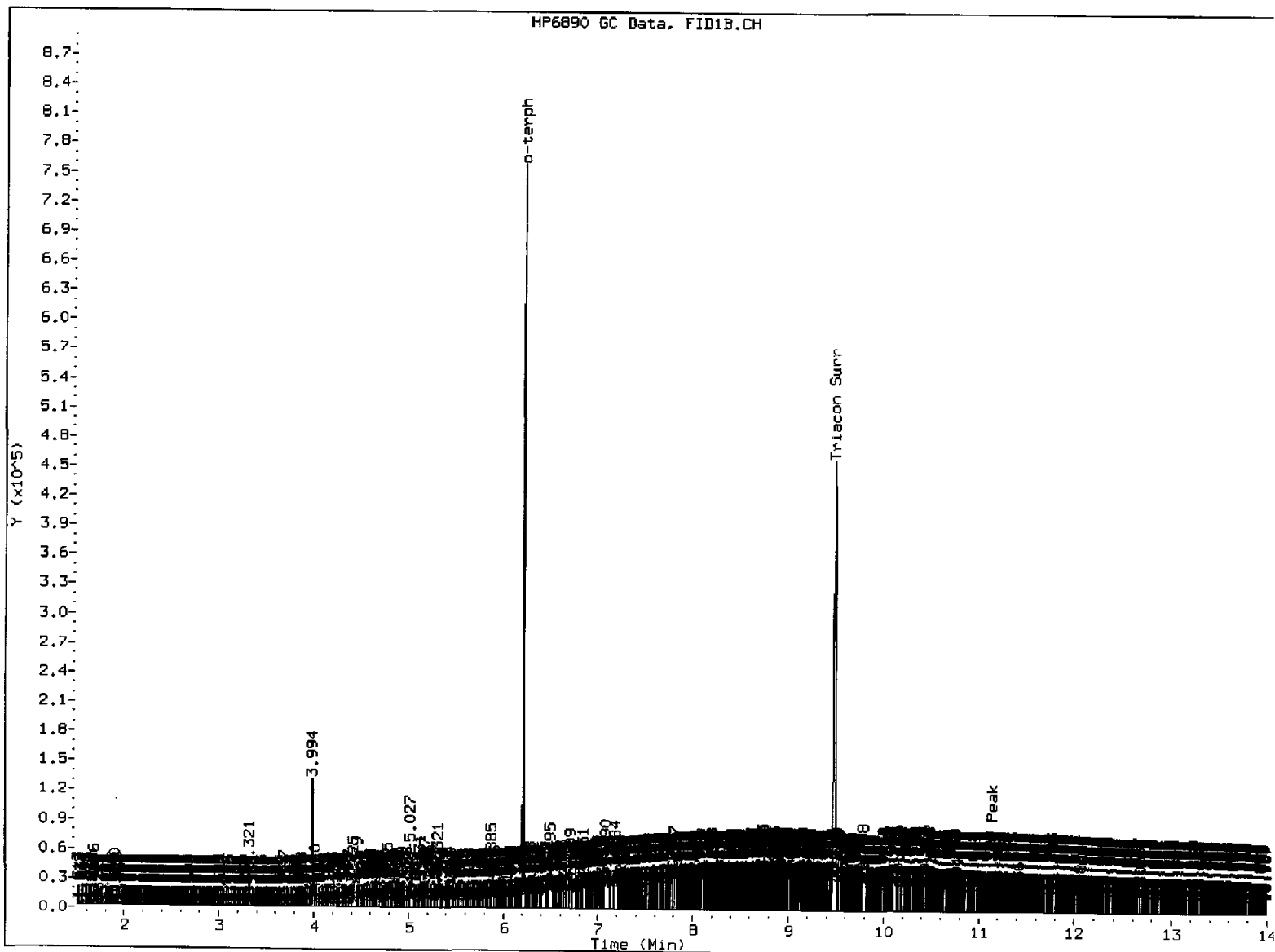
Analyst: M

Date: 10/21/15

Column phase: RTX-1

Operator: HL
Column diameter: 0.25





MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skimmed surrogate

Analyst: ML

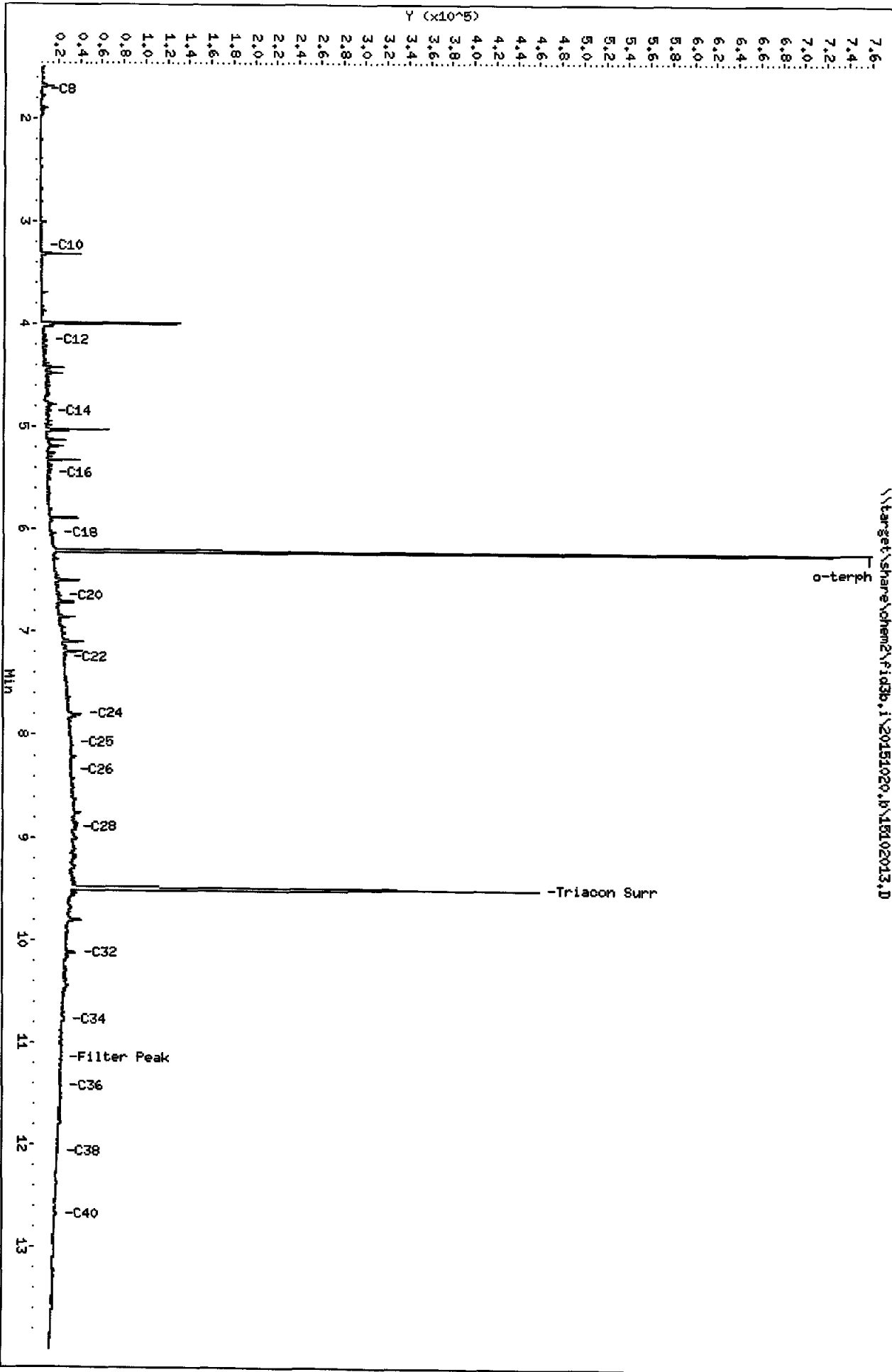
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Sample Info: ADN0E

Instrument: fid3b.i
Operator: ML
Column diameter: 0.25

Column phase: RTX-1

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INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


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: 10/28/15

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CR23-S-3.0

SAMPLE

Lab Sample ID: AON0B

LIMS ID: 15-19093

Matrix: Soil

Data Release Authorized: *EF*

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CR22-S-3.0
SAMPLE

Lab Sample ID: AONOC
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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

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

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

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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: *EF*
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

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: CR23-GW-6.0
SAMPLE

Lab Sample ID: AON0F
LIMS ID: 15-19097
Matrix: Ground Water
Data Release Authorized: *[Signature]*
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

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: CR22-GW-9.0
SAMPLE

Lab Sample ID: AON0G
LIMS ID: 15-19098
Matrix: Ground Water
Data Release Authorized: *[Signature]*
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

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: *Ed*
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

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%

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

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%

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

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: *GH*
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%

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

**INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS**

Sample ID: LAB CONTROL

Page 1 of 1

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%

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: *[Signature]*
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

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%



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.

Page 2

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

AON1 : 00002

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **1047**
 Turn-around Requested: **Standard**
 ARI Client Company: **MFA**
 Phone: **503 501 5212**
 Client Contact: **Mandi Novak**
 Client Project Name: **Seaport Landings**
 Client Project #: **1047.02.01-02**
 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

Page: **1** of **5**
 Date: _____
 No. of Coolers: _____
 Ice Present? _____
 Cooler Temps: _____

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested						Notes/Comments	
					Metals	PCB	PAH	SVOCs	TOC	Mercury		
CR11-14-SB5D-COMP	10/13/15	1030	sed	2	<input checked="" type="checkbox"/>							
LS05	10/13/15	0839	sed	1								
LS08	10/13/15	0905	sed	1								
LS06	10/13/15	0855	sed	1								
LS07	10/13/15	0915	sed	1								
CR-24-SD-COMP	10/13/15	0918	sed	4	<input checked="" type="checkbox"/>							
LS01	10/13/15	0928	sed	1								
LS02	10/13/15	0938	sed	1								
LS03	10/13/15	0945	sed	1								
LS04	10/13/15	0955	sed	1								
Comments/Special Instructions					Relinquished by: (Signature) <i>Roxanne Degens</i>	Received by: (Signature) <i>Archie Degens</i>	Relinquished by: (Signature) _____	Received by: (Signature) <i>WE</i>				
					Printed Name: Roxanne Degens	Printed Name: Archie Degens	Printed Name: _____	Printed Name: EMILY LITWIN				
					Company: MFA	Company: M.C. DEL	Company: _____	Company: ARI				
					Date & Time: 10/14/15 10:20(A)	Date & Time: 10/14/15 10:20(A)	Date & Time: _____	Date & Time: 10/14/15 12:35				

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, notwithstanding 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.



Cooler Receipt Form

ARI Client: Maul Foster

Project Name: _____

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: ADN1

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)
Time: 0.2 4.3 6.8 9.0 4.1

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: _____

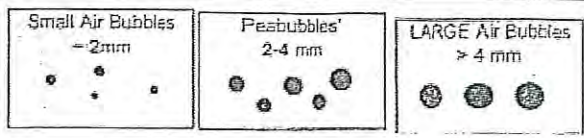
Samples Logged by: ul Date: 10/15/15 Time: 1055

**** 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



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



Analytical Resources,
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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 \geq 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.



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- 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 $\geq 40\%$ 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)**



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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

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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 $\mu\text{g}/\text{kg}$ (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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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Reported in $\mu\text{g}/\text{kg}$ (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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR11-SBSD-23
SAMPLE

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized: *mmw*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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Reported in $\mu\text{g}/\text{kg}$ (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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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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%

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: *MMW*
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	---

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2



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
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Reported in $\mu\text{g}/\text{kg}$ (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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

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	---

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2



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
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Reported in $\mu\text{g}/\text{kg}$ (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%

Sample ID: CR13-SBSD-11
 SAMPLE

Lab Sample ID: AON1S
 LIMS ID: 15-19070
 Matrix: Sediment
 Data Release Authorized: *mm*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR14-SBSD-12
SAMPLE

Lab Sample ID: AON1T
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized: *DDW*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 1

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.

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: *mm*
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%

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)

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-102315
METHOD BLANK

Lab Sample ID: MB-102315
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: 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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *mm*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR12-SBSD-15

Extraction Method: SW3546

MATRIX SPIKE

Page 1 of 1

Lab Sample ID: AON1R

QC Report No: AON1-Maul Foster & Alongi

LIMS ID: 15-19069

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *mmw*

Date Sampled: 10/13/15

Reported: 11/12/15

Date Received: 10/14/15

Date Extracted: 10/23/15

Sample Amount: 10.22 g-dry-wt

Date Analyzed: 11/05/15 18:17

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 43.4%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR12-SBSD-15

Extraction Method: SW3546

MATRIX SPIKE DUPLICATE

Page 1 of 1

Lab Sample ID: AON1R

QC Report No: AON1-Maul Foster & Alongi

LIMS ID: 15-19069

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *TWW*

Date Sampled: 10/13/15

Reported: 11/12/15

Date Received: 10/14/15

Date Extracted: 10/23/15

Sample Amount: 10.20 g-dry-wt

Date Analyzed: 11/05/15 17:41

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 43.4%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS
Extraction Method: SW3546

Sample ID: CR13-SBSD-11
SAMPLE

Page 1 of 1

Lab Sample ID: AON1S
LIMS ID: 15-19070
Matrix: Sediment
Data Release Authorized: *VW*
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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *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

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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

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

QC Report No: AON1-Maul Foster & Alongi

LIMS ID: 15-19069

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *mmw*

Date Sampled: NA

Reported: 11/12/15

Date Received: NA

Date Extracted: 10/23/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 11/05/15 15:17

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR12-SBSD-15
MATRIX SPIKE

Page 1 of 1

Lab Sample ID: AON1R
LIMS ID: 15-19069
Matrix: Sediment
Data Release Authorized: *mm*
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

Final Extract Volume MS: 1.0 mL

MSD: 11/05/15 17:41

MSD: 1.0 mL

Instrument/Analyst MS: NT10/YZ

Dilution Factor MS: 1.00

MSD: NT10/YZ

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 Injection Date: 05-NOV-2015 14:04
 Lab File ID: CC1105A.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:39
 Lab Sample ID: CC1105A Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	MIN		MAX		CURVE TYPE
			RRF	%D / %DRIFT	%D / %DRIFT		
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	

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

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

Sample ID: CR11-SBSD-23

Lab Sample ID: AON1Q
LIMS ID: 15-19068
Matrix: Sediment
Data Release Authorized: *mm*
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	
37C14-2,3,7,8-TCDD			94.3	35-197	

Reported in Percent Recovery

Sample ID: MB-102315

Lab Sample ID: MB-102315
 LIMS ID: 15-19093
 Matrix: Soil
 Data Release Authorized: *mmw*
 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

Sample ID: MB-102315

Lab Sample ID: MB-102315
 LIMS ID: 15-19093
 Matrix: Soil
 Data Release Authorized: *mmw*
 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	
37C14-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

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 EMPC
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

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
 LIMS ID: 15-19093
 Matrix: Soil
 Data Release Authorized: *WVW*
 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

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: *W*
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

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%

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%

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: *AS*
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%

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: *[Signature]*
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%

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%

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.

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: *[Signature]*
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%

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: *AS*
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%

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: *[Signature]*
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%

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: 15-19070
Matrix: Sediment
Data Release Authorized: *[Signature]*
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)

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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


**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 15-19057	CR-24-SSD-COMP HC ID: DIESEL/MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 10	Diesel Range Motor Oil Range o-Terphenyl	95 190	370 850 74.0%
MB-101915 15-19068	Method Blank HC ID: ---	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 78.7%
AON1Q 15-19068	CR11-SBSD-23 HC ID: MOTOR OIL	10/19/15	10/20/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	7.0 14	< 7.0 U 19 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.

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID

Page 1 of 1

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

Sample Amount MS: 7.15 g-dry-wt

MSD: 7.15 g-dry-wt

Date Analyzed MS: 10/20/15 19:39

Final Extract Volume MS: 1.0 mL

MSD: 10/20/15 20:00

MSD: 1.0 mL

Instrument/Analyst MS: FID3B/ML

Dilution Factor MS: 1.00

MSD: FID3B/ML

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.

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: *[Signature]*

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

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

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

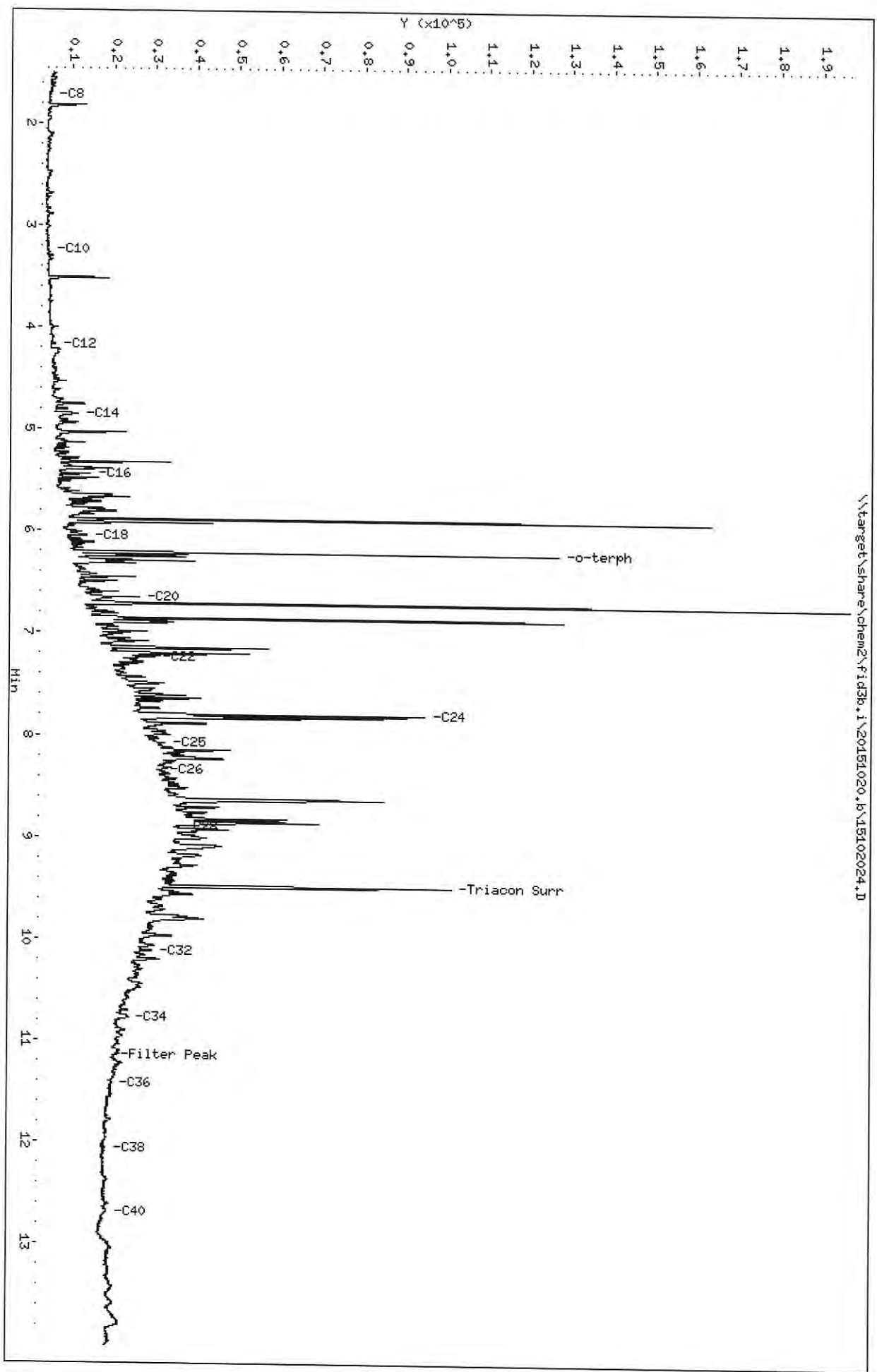
(50-150)

(50-150)

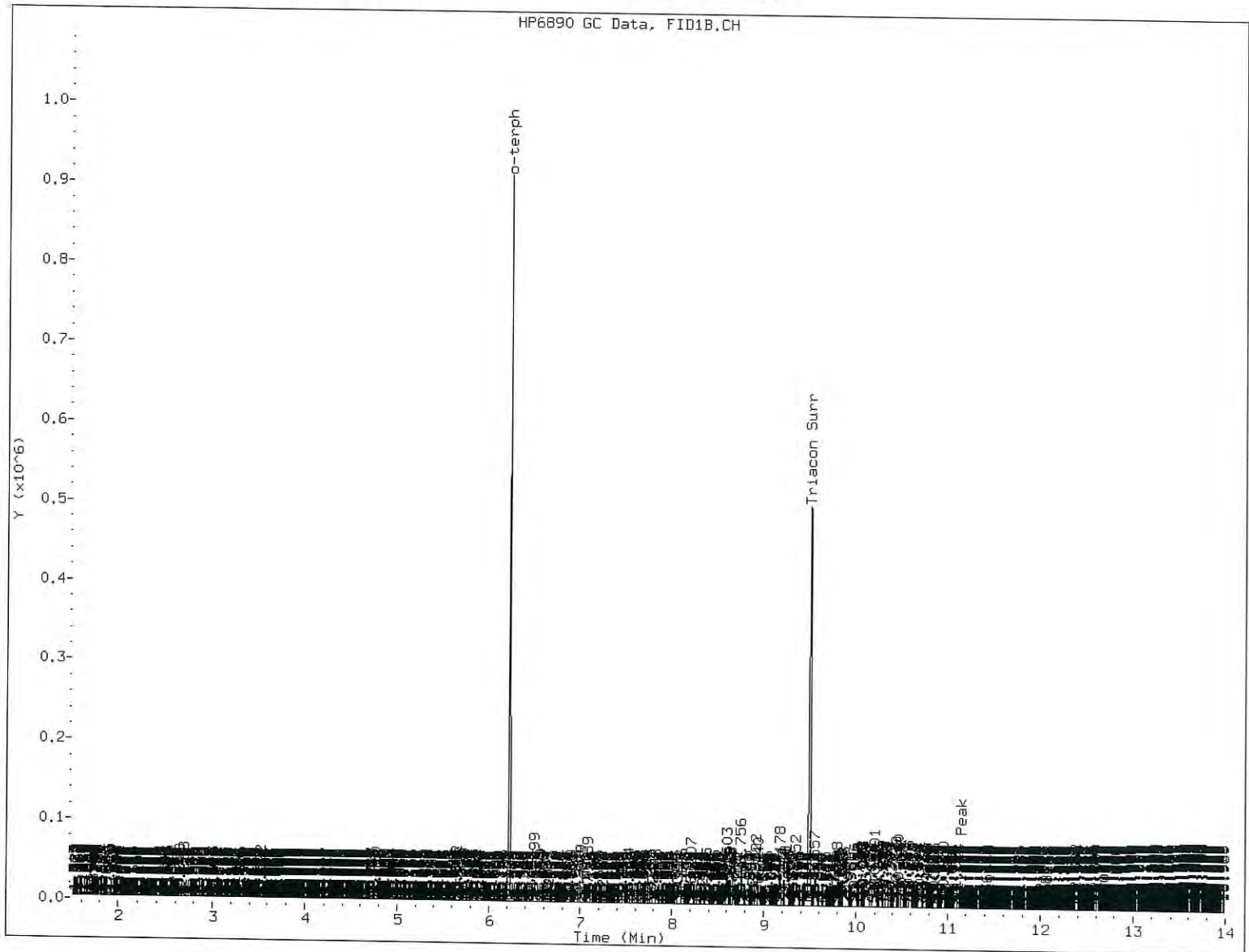
Prep Method: SW3546
Log Number Range: 15-19057 to 15-19068

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: AONLF.10
Column phase: RTX-1

Instrument: fid3b.i
Operator: HL
Column diameter: 0.25



HP6890 GC Data, FID1B.CH



MANUAL INTEGRATION

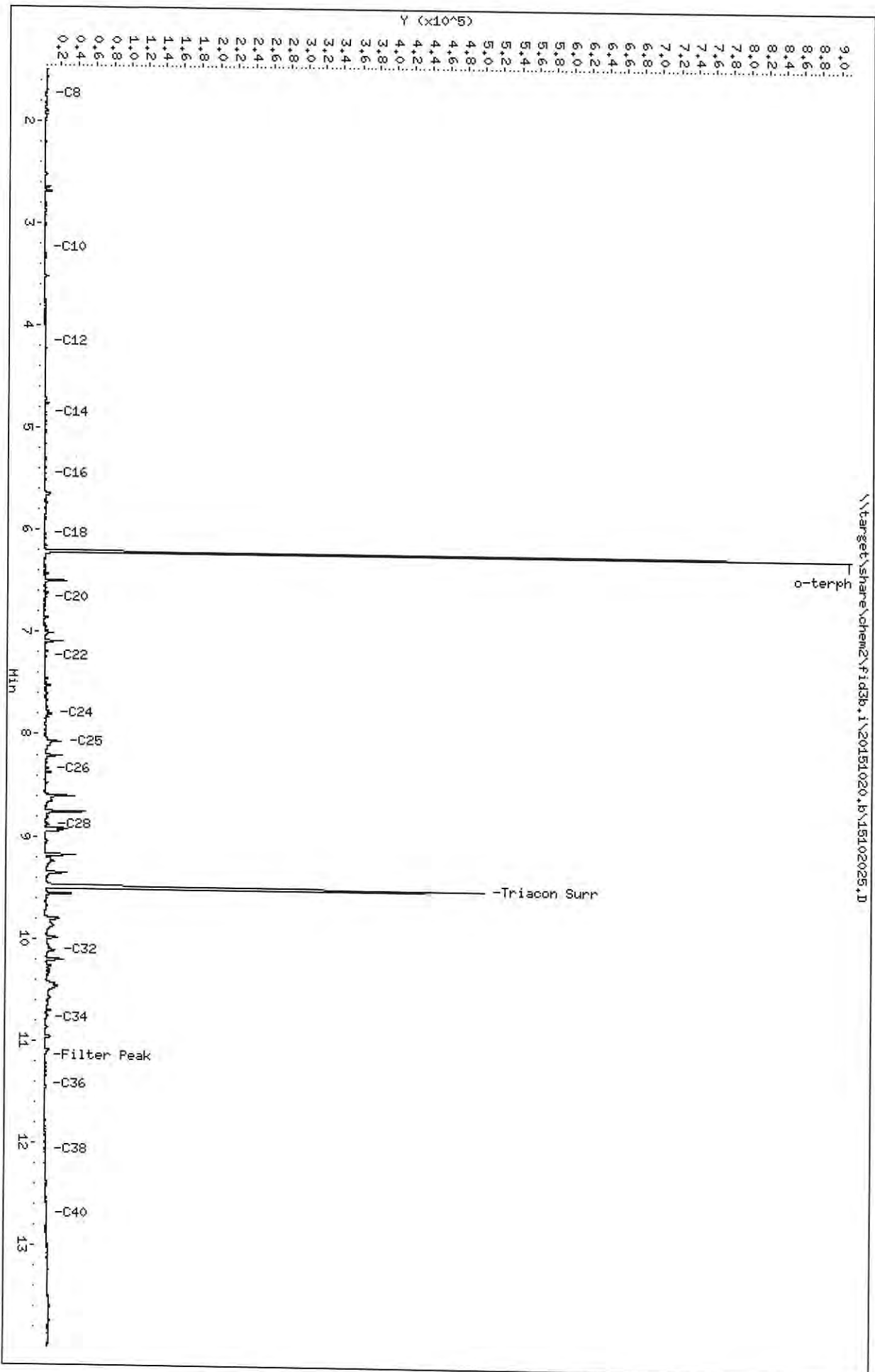
- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

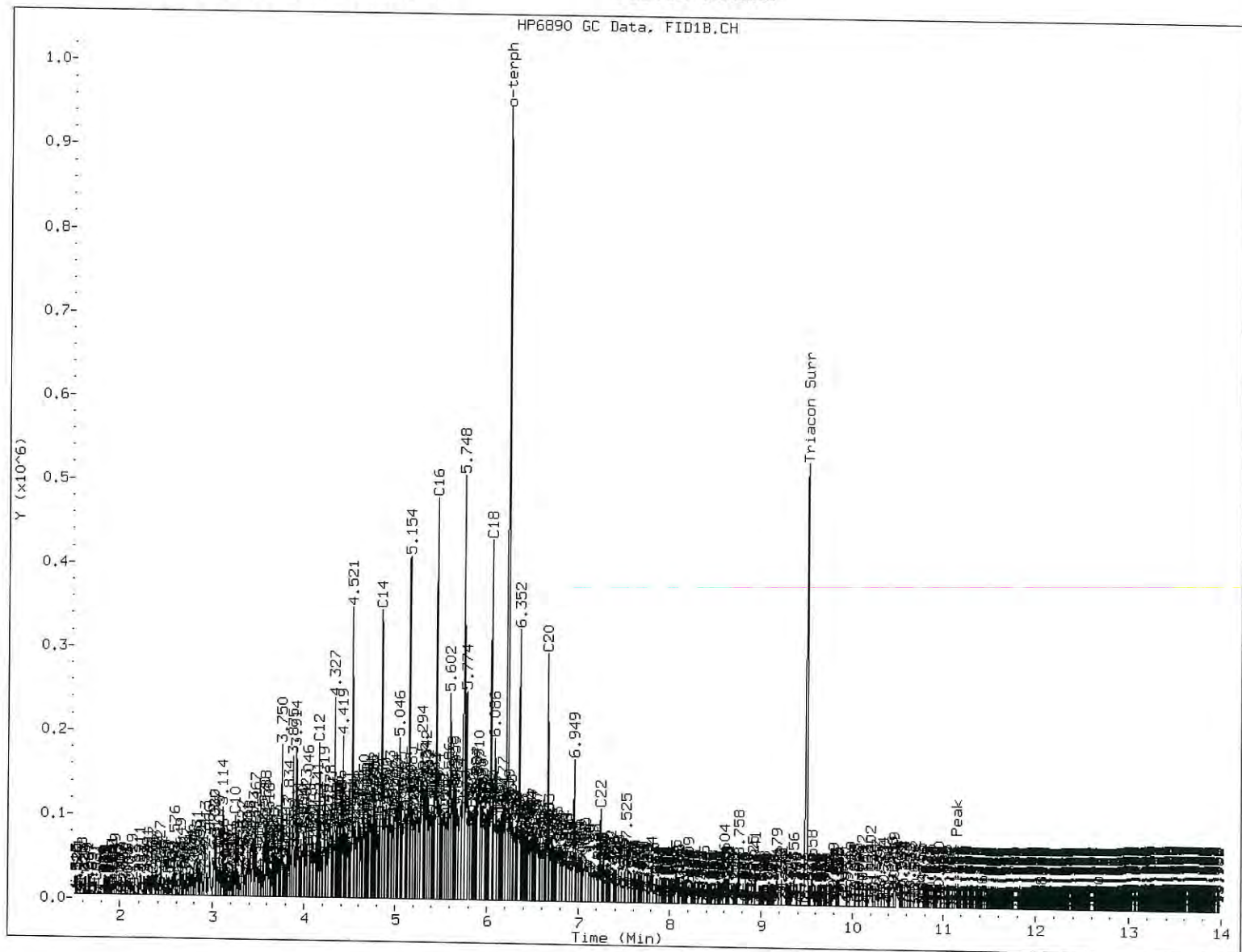
Analyst: ML

Date: 10/21/15

Data File: \\target\share\chem2\fid3b.i\20151020.b\15102025.D
Date: 20-10-2015 19:17
Client ID: CR11-SBSD-23
Sample Info: AON10
Column phase: RTX-1

Instrument: fid3b.i
Operator: HL
Column diameter: 0.25



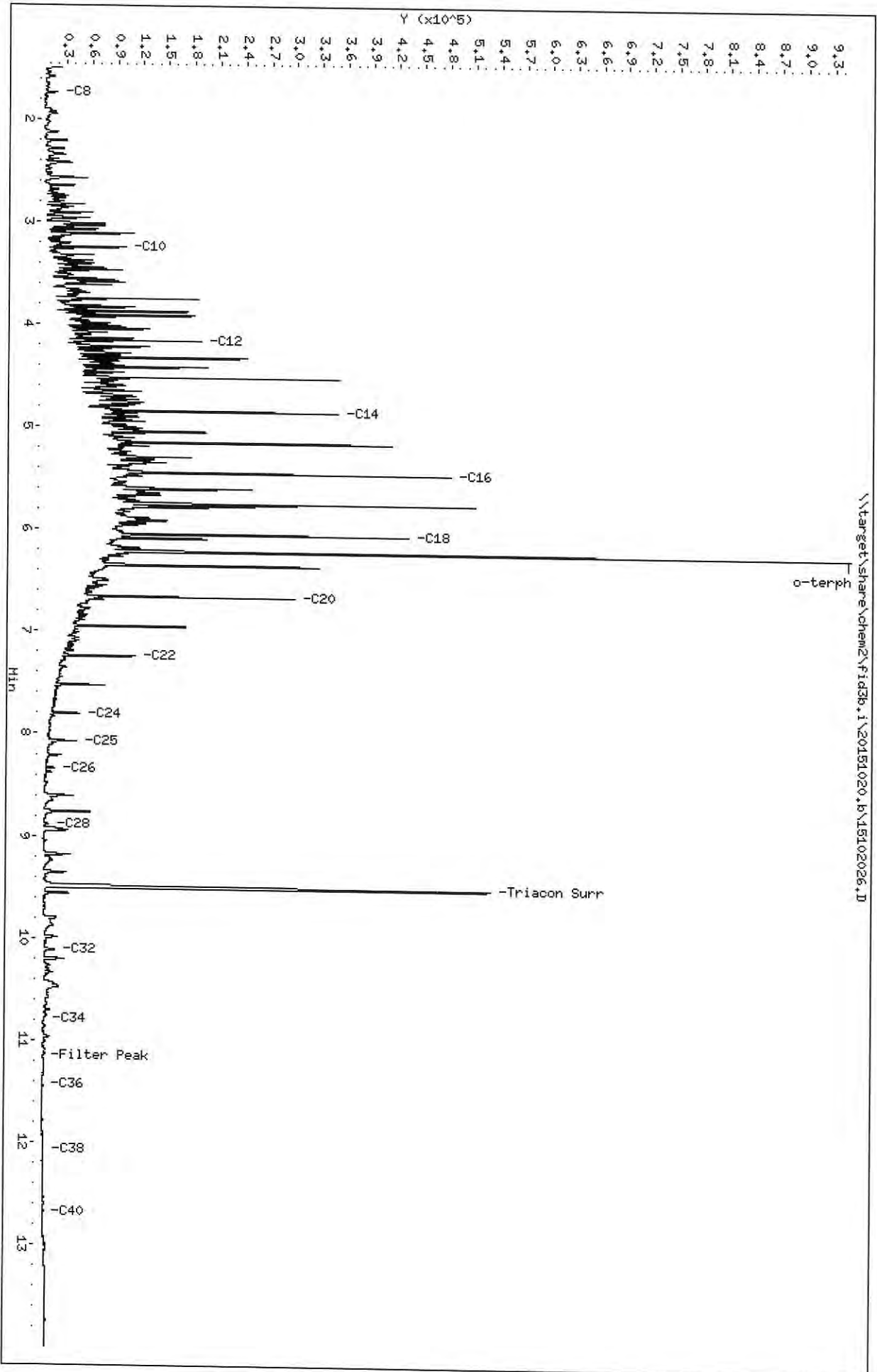


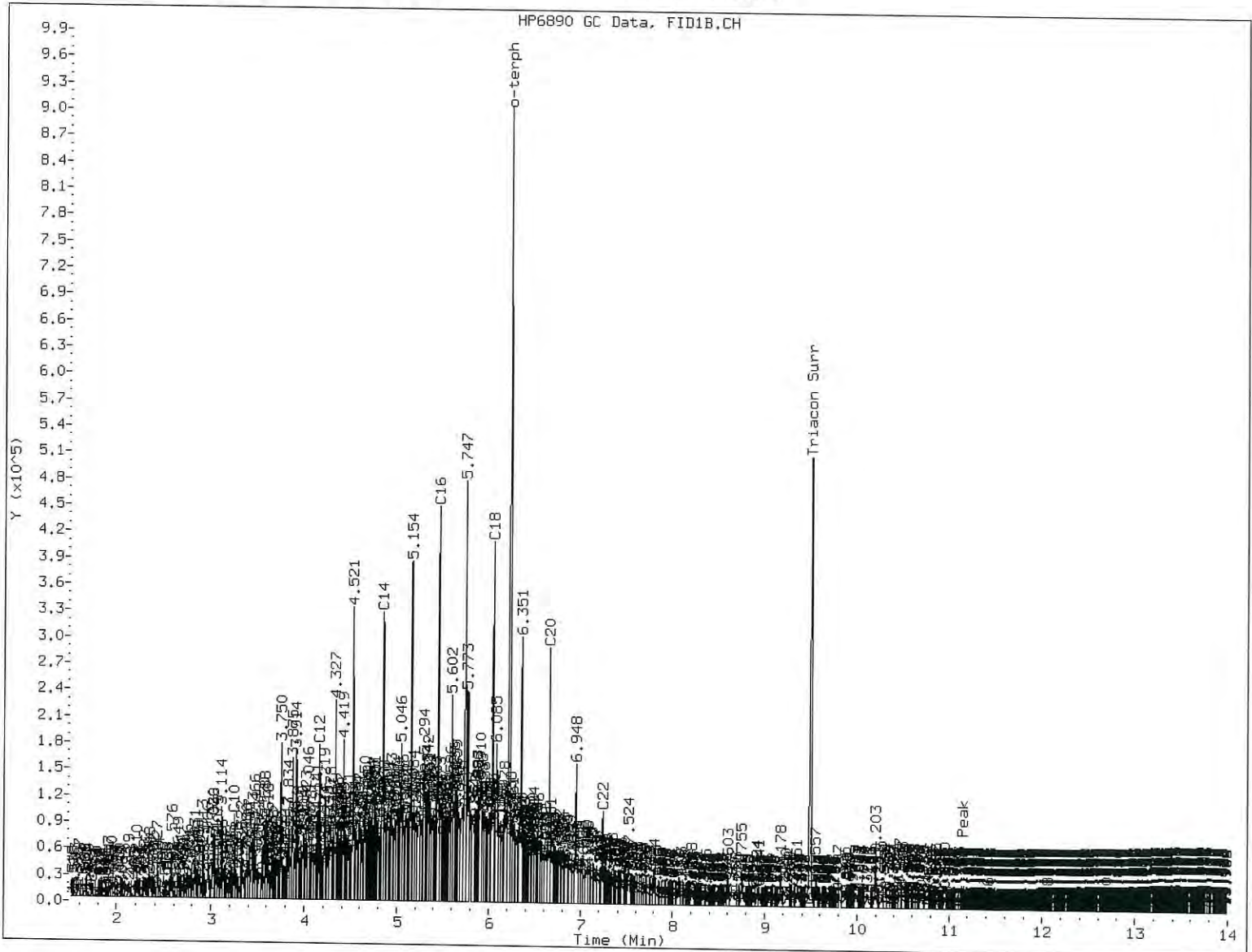
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤. Skimmed surrogate

Analyst: ML

Date: 10/21/15





MANUAL INTEGRATION

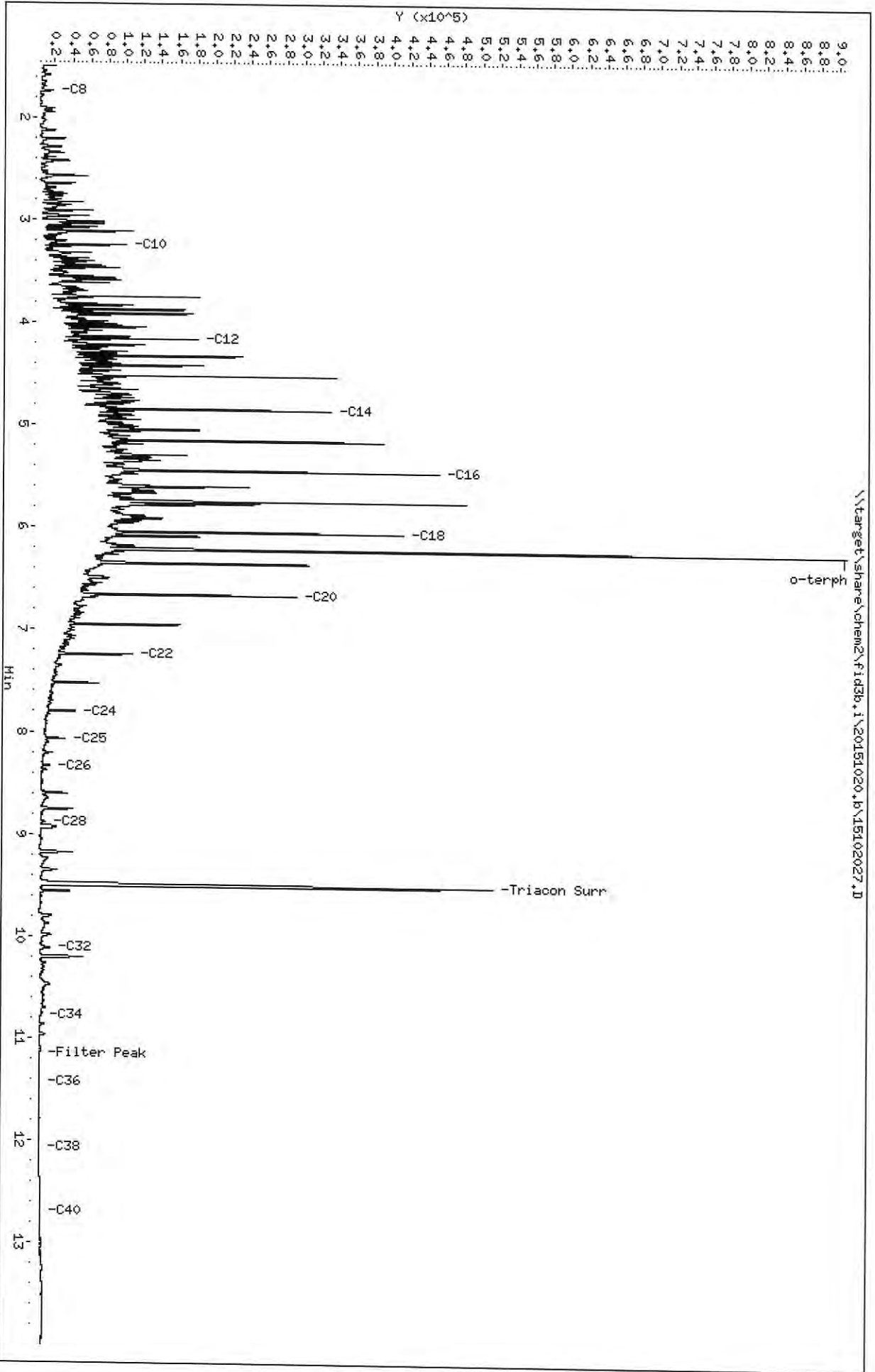
- 1. Baseline correction
- 3. Peak not found
- ⑤. Skipped surrogate

Analyst: ml

Date: 10/21/15

Column phase: RTX-1

Instrument: fid3b.i
Operator: HL
Column diameter: 0.25



SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: W
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

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: *WJ*
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

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: *w*
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

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: w
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

SAMPLE RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



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

METHOD BLANK RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



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	10/19/15	Percent	< 0.01 U	ICB
Total Organic Carbon	11/11/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AON1-Maul Foster & Alongi



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/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
AON1-Maul Foster & Alongi



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%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

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

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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%

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CR12-SBSD-15

SAMPLE

Lab Sample ID: AON1R

LIMS ID: 15-19069

Matrix: Sediment

Data Release Authorized: *[Signature]*

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

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

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

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

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

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

INORGANICS ANALYSIS DATA SHEET
TCLP METALS
Page 1 of 1

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%

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: *ef*

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: BA02 Turn-around Requested: Standard Page: 3 of 5

ARI Client Company: MFA Phone: 503 501 5212 Date: 10/17 Ice Present?

Client Contact: Mad. Novak No. of Coolers: Cooler Temps:

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					Notes/Comments		
					SVOCs	PCBS	Mercury	metals	PTH		TDC	Asbestos
C209a-SSD-COMP	10/13/15	1140	Sed	4	X	X	X	X	X	X	X	
C209b-SSD-COMP	10/13/15	1145	Sed	4	X	X	X	X	X	X	X	
BA01-0-10cm		1109	Sed	1								
BA01-10cm-1		1100	Sed	1								
BA01-1-Z		1050	Sed	1								
BA02-0-10cm		1105	Sed	1								
BA02-10cm-1		1107	Sed	1								
BA02-1-Z		1110	Sed	1								
BA03-0-10cm		1113	Sed	1								
BA03-10cm-1		1115	Sed	1								
Comments/Special Instructions	Relinquished by: (Signature) <u>[Signature]</u> Received by: (Signature) <u>[Signature]</u>				Relinquished by: (Signature) <u>[Signature]</u> Received by: (Signature) <u>[Signature]</u>				Notes/Comments			
	Printed Name: <u>Roxanne Degens</u> Printed Name: <u>Arcis Triggs</u>				Printed Name: <u>M.C. DeC</u> Printed Name: <u>EMILY L HAIN</u>							
	Company: <u>MFA</u> Company: <u>M.C. DeC</u>				Company: <u>M.C. DeC</u> Company: <u>ARI</u>							
	Date & Time: <u>10/14/15 10:20</u> Date & Time: <u>10/14/15 10:20A</u>				Date & Time: <u>10/14/15 10:20A</u> Date & Time: <u>10/14/15 10:35</u>							

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 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: **ADN2** 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 Madri Navab** No. of Coolers: **1** Cooler Temps:



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

Client Project Name: **Sergeant Leuchins** Analysis Requested

Client Project #: **1044.02.01-02** Samplers: **JTP/MEM/ED**

Sample ID	Date	Time	Matrix	No. Containers
BA03-1-2	10/13	1117	Sed	1
BA04-0-10cm	10/13	1120	Sed	1
BA04-10cm-1	10/13	1125	Sed	1
BA04-1-2	10/13	1127	Sed	1
BA05-0-10cm	10/13	1130	Sed	1
BA05-10cm-1	10/13	1132	Sed	1
BA05-1-2	10/13	1135	Sed	1
BA06-0-10cm	10/13	1140	Sed	1
BA06-10cm-1	10/13	1142	Sed	1
BA06-1-2	10/13	1145	Sed	1

Comments/Special Instructions: **Archive all samples.**

Relinquished by: (Signature) **Reanne Rogers** Received by: (Signature) **W**

Printed Name: **Reanne Rogers** Company: **MFA**

Relinquished by: (Signature) **Archie Triggs** Received by: (Signature) **W**

Printed Name: **Archie Triggs** Company: **ARI**

Date & Time: **10/15 1020** Date & Time: **10/14/15 1236**

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.



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) 9.2 4.3 9.8 9.0 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: 12/3

**** 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



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 RE



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 \geq 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.



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- 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 $\geq 40\%$ 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)



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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

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR09a-SSD-COMP
SAMPLE

Lab Sample ID: AON2A
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized: *AB*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

**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%

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: *AB*
 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
TOTBEA	Total Benzofluoranthenes	39	34 J

AON2: 00013 RE

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

**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
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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%

AONZ = 00014 RL

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SWB270 GC/MS
Page 1 of 2

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19072
Matrix: Sediment
Data Release Authorized: *mmw*
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
 Page 2 of 2

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)



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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-102315

METHOD BLANK

Lab Sample ID: MB-102315

LIMS ID: 15-19072

Matrix: Sediment

Data Release Authorized: *MW*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR09a-SSD-COMP

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AON2A

QC Report No: AON2-Maul Foster & Alongi

LIMS ID: 15-19072

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *[Signature]*

Date Sampled: 10/13/15

Reported: 12/04/15

Date Received: 10/14/15

Date Extracted: 10/23/15

Sample Amount: 10.54 g-dry-wt

Date Analyzed: 11/05/15 20:05

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 38.0%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

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

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 = 00020 RE

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

QC Report No: AON2-Maul Foster & Alongi

LIMS ID: 15-19072

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *W*

Date Sampled: NA

Reported: 11/12/15

Date Received: NA

Date Extracted: 10/23/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 11/05/15 15:17

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOI</u>	<u>OUT</u>
MB-102315	64.3%	83.6% Q	0	0
LCS-102315	58.1%	65.6% Q	0	0
CRO9a-SSD-COMP	45.7%	55.6% Q	0	0
CRO96-SSD-COMP	57.1%	68.8% Q	0	0

QC LIMITS

(FPH) = 2-Fluorophenol
(TER) = d14-p-Terphenyl

(27-120) (27-120)
(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 Injection Date: 05-NOV-2015 14:04
 Lab File ID: CC1105A.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:39
 Lab Sample ID: CC1105A Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX RRF	%D / %DRIFT	CURVE TYPE
19 1 2-Fluorophenol	1.04543	0.98207	0.010	-6.06090	20.00000		Averaged
13 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000		Averaged
17 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000		Averaged
19 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
112 1,2-Dichlorobenzene	1.62946	1.72457	0.010	5.83701	20.00000		Averaged
113 2-Methylphenol	0.93390	0.81370	0.010	-12.87015	20.00000		Averaged
115 4-Methylphenol	0.91605	0.81780	0.010	-10.72571	20.00000		Averaged
116 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 <-
19 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
179 Dibenzo(a,h)anthracene	1.15706	1.04200	0.010	-9.94423	20.00000		Averaged
190 N-Nitrosodimethylamine	0.44352	0.46419	0.010	4.66003	20.00000		Averaged

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

Sample ID: CR09a-SSD-COMP

Lab Sample ID: AON2A
 LIMS ID: 15-19072
 Matrix: Sediment
 Data Release Authorized: *AS*
 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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

Sample ID: CR09a-SSD-COMP

Lab Sample ID: AON2A
 LIMS ID: 15-19072
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 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 RE

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: *[Signature]*
 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

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

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

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
 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	
37C14-2,3,7,8-TCDD			108	35-197	

Reported in Percent Recovery

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: AONO-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

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	
37C14-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

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: *WW*
 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

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
 Page 1 of 1

**Sample ID: CR09a-SSD-COMP
 SAMPLE**

Lab Sample ID: AON2A
 LIMS ID: 15-19072
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 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%

AON2: 00033 RL

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
 Page 1 of 1

**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%

AON2: 00034RL

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%

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)

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AON2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-102015	96.2%	59-115	74.8%	58-112	0
LCS-102015	96.0%	59-115	73.2%	58-112	0
CRO9a-SSD-COMP	78.2%	47-120	75.5%	53-116	0
CRO96-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



Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

A handwritten signature in black ink, appearing to be 'JF' or similar, written over the 'Data Release Authorized' line.

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

SAMPLE RESULTS-CONVENTIONALS
AON2-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 12/04/15

A handwritten signature in black ink, appearing to be 'JF' or similar, written over the 'Data Release Authorized:' line.

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



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



Matrix: Sediment
Data Release Authorized:
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



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%

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: *[Signature]*

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

AON2-00043 RE

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: *[Signature]*

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

AONZ= 00044 RL

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON1MB
LIMS ID: 15-19071
Matrix: Sediment
Data Release Authorized:
Reported: 10/29/15

af

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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

Page 1 of 1638

1 of 96



Cooler Receipt Form

ARI Client: Maul Foster

Project Name: _____

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: AON3

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) 9.2 4.3 6.8 5.0 4.1

Time: _____ Temp Gun ID#: D002565

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: wl 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 YES NO 9/17/15

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____




Samples Logged by: wl 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
ex 7 500-ml amber glass bottles labeled "seep"
in cooler, not on COCs

By: wl Date: 10/16/15

			Small → "sm" (< 2 mm)
			Peabubbles → "pb" (2 to < 4 mm)
			Large → "lg" (4 to < 6 mm)
			Headspace → "hs" (> 6 mm)



ARI Job No: AON3

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-482
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	TRN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET DOC FLT FLT	PARAMETER	ADJUSTED LOT TO NUMBER	AMOUNT ADDED	DATE/BY
15-19217 ACW3C	CR21-GW-10						TOT MS									N				
15-19218 ACW3D	CR20-GW-5.0						TOT MS									N				
15-19219 ACW3E	CR21-GW-10						DIS MS									Y				
15-19220 ACW3F	CR20-GW-5.0						DIS MS									Y				
15-19221 ACW3G	Seep-01						TOT MS									N	pH	42	4ml	10/16/15 MS
15-19363 ACW3H	Seep-01						DIS MS									N	↓	↓	↓	10/16/15 MS

preserved G in Lab
10/16/15 MS

filtered + preserved H in Lab
10/16/15 MS

RE: Aberdeen sediment, soil, and groundwater login

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:

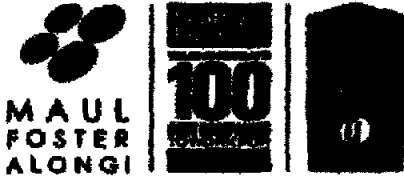
- NWTPH-Dx
- 8270D full list
- Mercury (EPA 7470 – please use the same method used for the groundwater analysis)
- PCB Aroclors (standard list plus Aroclor 1268)

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).

RE: Aberdeen sediment, soil, and groundwater login

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@arlabs.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

RE: Aberdeen sediment, soil, and groundwater login

--

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.

RE: Aberdeen sediment, soil, and groundwater login

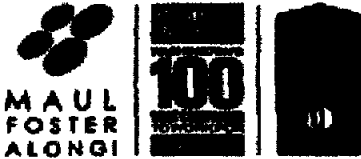
Subject: RE: Aberdeen sediment, soil, and groundwater login
From: Mary Benzinger <mbenzinger@maulfoster.com>
Date: 10/19/2015 8:48 AM
To: Mark Harris <markh@arilabs.com>
CC: Roxanne Degens <rdegens@maulfoster.com>, Mike Murray <mmurray@maulfoster.com>

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

RE: Aberdeen sediment, soil, and groundwater login

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, LMG | MAUL FOSTER & ALONGI, INC.

d. 503 501 5226 | p. 971 544 2139 | c. 908 310 0435 | f. 971 544 2140 | www.maulfooster.com
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

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From: Mark Harris [<mailto:markh@artlabs.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:

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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.

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.

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>

> TOC

> TVS

> Total solids

> Ammonia

> Total sulfides

>

> Also, what bottle do you need for phenol?

>

> Thanks! |

>

>

> Sent from my Verizon Wireless 4G LTE smartphone

--

Mark Harris
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How was your customer experience?

RE: Aberdeen sediment, soil, and groundwater login

Please take our 5 minute online customer survey <<https://www.surveymonkey.com/s/WPDBVJK>>.

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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 to 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

Page 2

**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.

Sample ID Cross Reference Report



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



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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 \geq 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).



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- 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 $\geq 40\%$ 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)



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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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR20-S-5.0
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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: CR20-S-5.0
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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR21-S-5.0
SAMPLE

Lab Sample ID: AON3B
 LIMS ID: 15-19216
 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 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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW9270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: CR21-S-5.0
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%

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/MS 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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
 Page 1 of 2

Sample ID: LCS-102015
LAB CONTROL

Lab Sample ID: LCS-102015
 LIMS ID: 15-19215
 Matrix: Soil
 Data Release Authorized: *mm*
 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: 10/20/15
 Date Analyzed: 10/28/15 17:10
 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	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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
 Page 2 of 2

Sample ID: LCS-102015
 LAB CONTROL

Lab Sample ID: LCS-102015
 LIMS ID: 15-19215
 Matrix: Soil
 Date Analyzed: 10/28/15 17:10

QC Report No: AON3-Maul Foster & Alongi
 Project: Seaport Landing
 1044.02.01-02

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.

AON0MB\$1

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				
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08				
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ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
 LIMS ID: 15-19215
 Matrix: Soil
 Data Release Authorized: *mmw*
 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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: MB-102015
METHOD BLANK

Lab Sample ID: MB-102015
 LIMS ID: 15-19215
 Matrix: Soil
 Date Analyzed: 10/28/15 16:33

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	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	91.8%	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%

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
 Page 2 of 2

Sample ID: CR21-GW-10
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%

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
 Page 2 of 2

Sample ID: CR20-GW-5.0
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%

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

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%

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/MS 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

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

Sample Amount LCS: 500 mL
LCSD: 500 mL

Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55

Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL

Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ

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%

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.

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	AOPOLCSW1	AOPOLCSW1	15102305	10/23/15
02	AOPOLCSDW1	AOPOLCSDW1	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
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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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 2 of 2

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
LIMS ID: 15-19217
Matrix: Ground Water
Date Analyzed: 10/23/15 13:49

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	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%

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR20-S-5.0

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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
Page 1 of 1

Sample ID: CR20-S-5.0

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	
37C14-2,3,7,8-TCDD			94.5	35-197	

Reported in Percent Recovery

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: *mm*
 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	
37C14-2,3,7,8-TCDD			109	35-197	

Reported in Percent Recovery

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: *mm*
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

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: *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: 11/04/15 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	
37C14-2,3,7,8-TCDD			90.1	35-197	

Reported in Percent Recovery

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: AONO-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
Page 1 of 1

Sample ID: OPR-102315

Lab Sample ID: OPR-102315
LIMS ID: 15-19093
Matrix: Soil
Data Release Authorized: *MMW*
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	
37C14-2,3,7,8-TCDD			106	35-197	

Reported in Percent Recovery

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: *WW*
 Reported: 11/06/15

QC Report No: AONO-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.

AONOMB

Lab Name: ANALYTICAL RESOURCES, INC.

Contract: MAUL FOSTER

Lab Code: AON0

Project: SEAPORT LANDING

Matrix: (Soil/Water/Ash/Tissue/Oil) SOIL

Lab Sample ID: AONOMBS

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

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: *mmw*

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: ASI/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

Page 1 of 1

Sample ID: MB-102315

Lab Sample ID: MB-102315

LIMS ID: 15-19093

Matrix: Soil

Data Release Authorized: *MMW*

Reported: 11/06/15

QC Report No: AONO-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

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: *[Signature]*
 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%

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: *AS*
 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%

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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: *AB*
 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)

4
PCB METHOD BLANK SUMMARY

BLANK NO.

AON0MBS1

Lab Name: ANALYTICAL RESOURCES INC	Client: MAUL FOSTER & ALONGI
ARI Job No.: AONO	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	CRO9A-SSD-COMP	AON2A	10/24/15
13	CRO96-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

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%

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: *[Signature]*
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%

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: *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 01:07
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%

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%

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SWS082A
 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: *B*
 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

4
PCB METHOD BLANK SUMMARY

BLANK NO.

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

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW9082A
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: *AS*
 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%

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 o-Terphenyl	10	< 10 U 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 o-Terphenyl	130	2,600 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 o-Terphenyl	120	3,600 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
101915MB	78.7%	0
101915LCS	74.5%	0
CR20-S-5.0	74.9%	0
CR21-S-5.0	69.3%	0

LCS/MS LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

(50-150)

Prep Method: SW3546
Log Number Range: 15-19215 to 15-19216

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: *AB*
 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

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/14/15

ARI Job: AON3
Project: Seaport Landing
1044.02.01-02

<u>ARI ID</u>	<u>Client ID</u>	<u>Client Amt</u>	<u>Final Vol</u>	<u>Basis</u>	<u>Prep Date</u>
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

AON3: 00177

AON3: 00068

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 o-Terphenyl	0.20	< 0.20 U 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 o-Terphenyl	0.20	3.1 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 o-Terphenyl	0.20	1.6 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 o-Terphenyl	0.20	0.33 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

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: *AD*

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%
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Results reported in mg/L

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Ground Water
Date Received: 10/14/15

ARI Job: AON3
Project: Seaport Landing
1044.02.01-02

<u>ARI ID</u>	<u>Client ID</u>	<u>Samp Amt</u>	<u>Final Vol</u>	<u>Prep Date</u>
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

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	ng/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	U
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

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: *af*
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

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%

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: *[Signature]*
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

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: *[Signature]*
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

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

EF

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

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

Handwritten initials

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%

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: *AS*
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	ng/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

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: *EJ*
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

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

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

EF

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%

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

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: *[Signature]*
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

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: *[Signature]*
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-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: Seap-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	0.08	+/- 0.0001	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

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%

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	ng/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

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%

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

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%

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

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%

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: *[Signature]*
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

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

EF

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



Cooler Receipt Form

ARI Client: Malyi 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: _____

Temp Gun ID#: D002565

If cooler temperature is out of compliance fill out form 00070F

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: _____

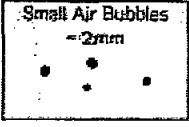
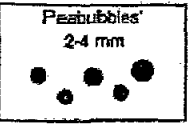
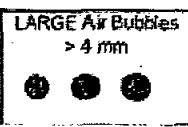
Samples Logged by: wl Date: 10/20/15 Time: _____

**** 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 → "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



17.400

ARI Project: AOT3

Laboratory: Materials Testing & Consulting, InARI Client: Maul Foster & Alongi
 Lab Contact: Harold Benny Project ID: Seaport Landing
 Lab Address: 4611 S. 134th Pl ARI PM: Mark Harris
 Tukwila, WA 98168 Phone: 206-695-6210
 Phone: 360-255-9802 Fax: 206-695-6201
 Fax: 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 successors, 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, notwithstanding 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 <i>up</i>	Company <i>ARI</i>	Date <i>10/19/15</i>	Time <i>1343</i>	
Received by <i>au</i>	Company <i>MTC</i>	Date <i>10/19/15</i>	Time <i>1350</i>	

Sample ID Cross Reference Report



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 \geq 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.



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- 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 $\geq 40\%$ 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)



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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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR19D-SSD-CONV
SAMPLE

Lab Sample ID: AOT3A
 LIMS ID: 15-19369
 Matrix: Sediment
 Data Release Authorized: *AB*
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: MB-102815
METHOD BLANK

Lab Sample ID: MB-102815
 LIMS ID: 15-19369
 Matrix: Sediment
 Data Release Authorized: *AB*
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
 Page 1 of 1

Sample ID: LCS-102815
 LAB CONTROL

Lab Sample ID: LCS-102815
 LIMS ID: 15-19369
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 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)

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOT3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>PHL</u>	<u>2FP</u>	<u>TBP</u>	<u>2CP</u>	<u>TOT</u>	<u>OUT</u>
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



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



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



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/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



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/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



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

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



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: <u>Seaport Landing</u>	Date Received: <u>October 19, 2015</u>
Project #: <u>AOT3</u>	Sampled By: <u>Others</u>
Client: <u>Analytical Resources, Inc.</u>	Date Tested: <u>November 20, 2015</u>
Source: <u>CR19D-SSD-CONV</u>	Tested By: <u>A. Urban, B. Goble, C. Laramie</u>
MTC Sample#: <u>T15-2434</u>	

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.

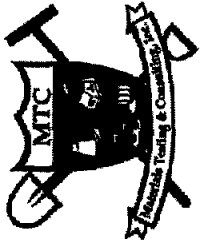
All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Reviewed by: _____

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

AOT3 : 00019

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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
											8 to 9	9 to 10	> 10	
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	<200 (<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.

E. Goble

Reviewed by:

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
AVE	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
STDEV	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
%RSD	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
	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
	10/16/2015	11/5/2015	11/9/2015	98.1		11.9
CR19D-SSD-CONV						

* 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: *[Signature]*

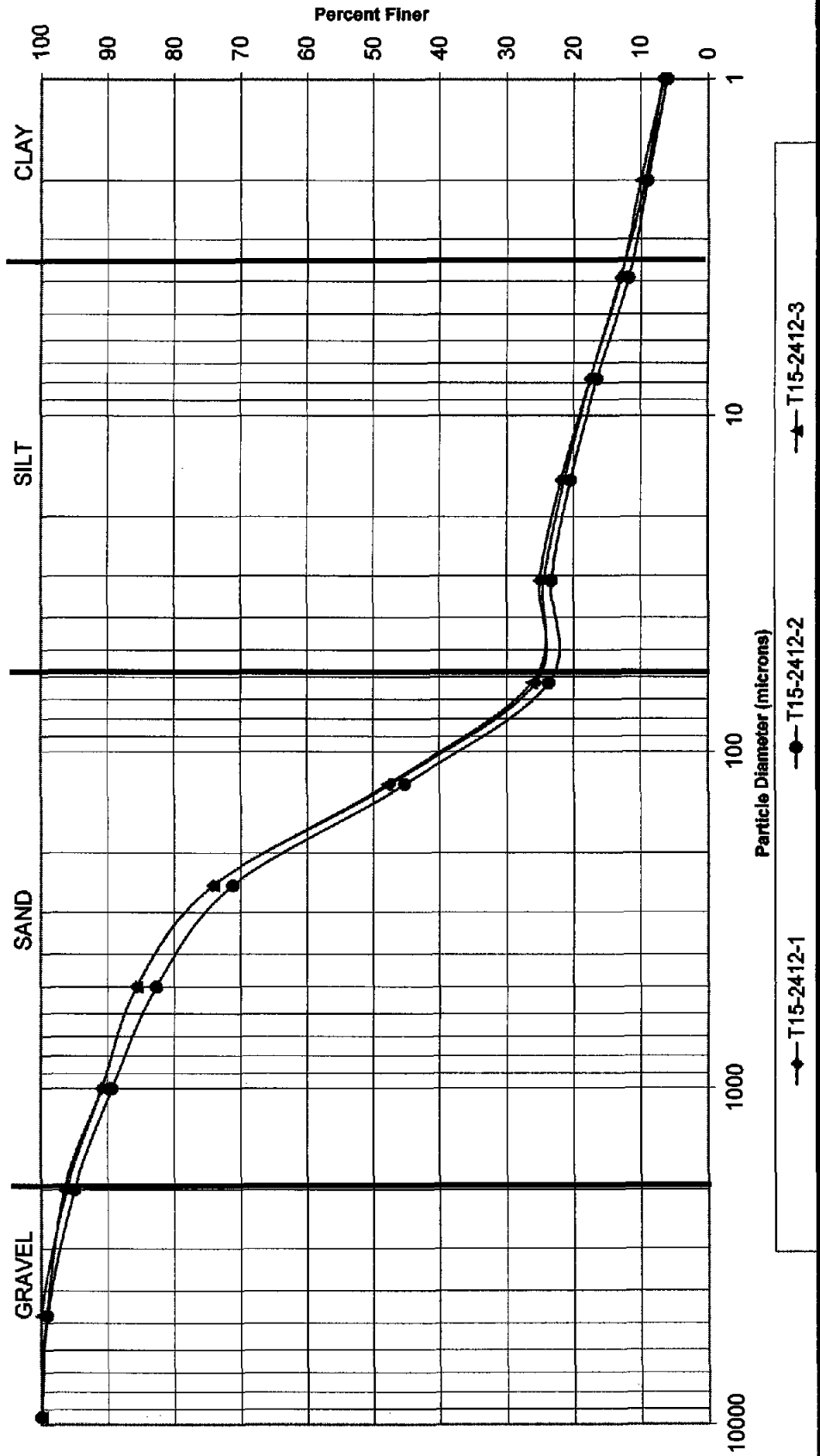
AOT3 : 00023

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



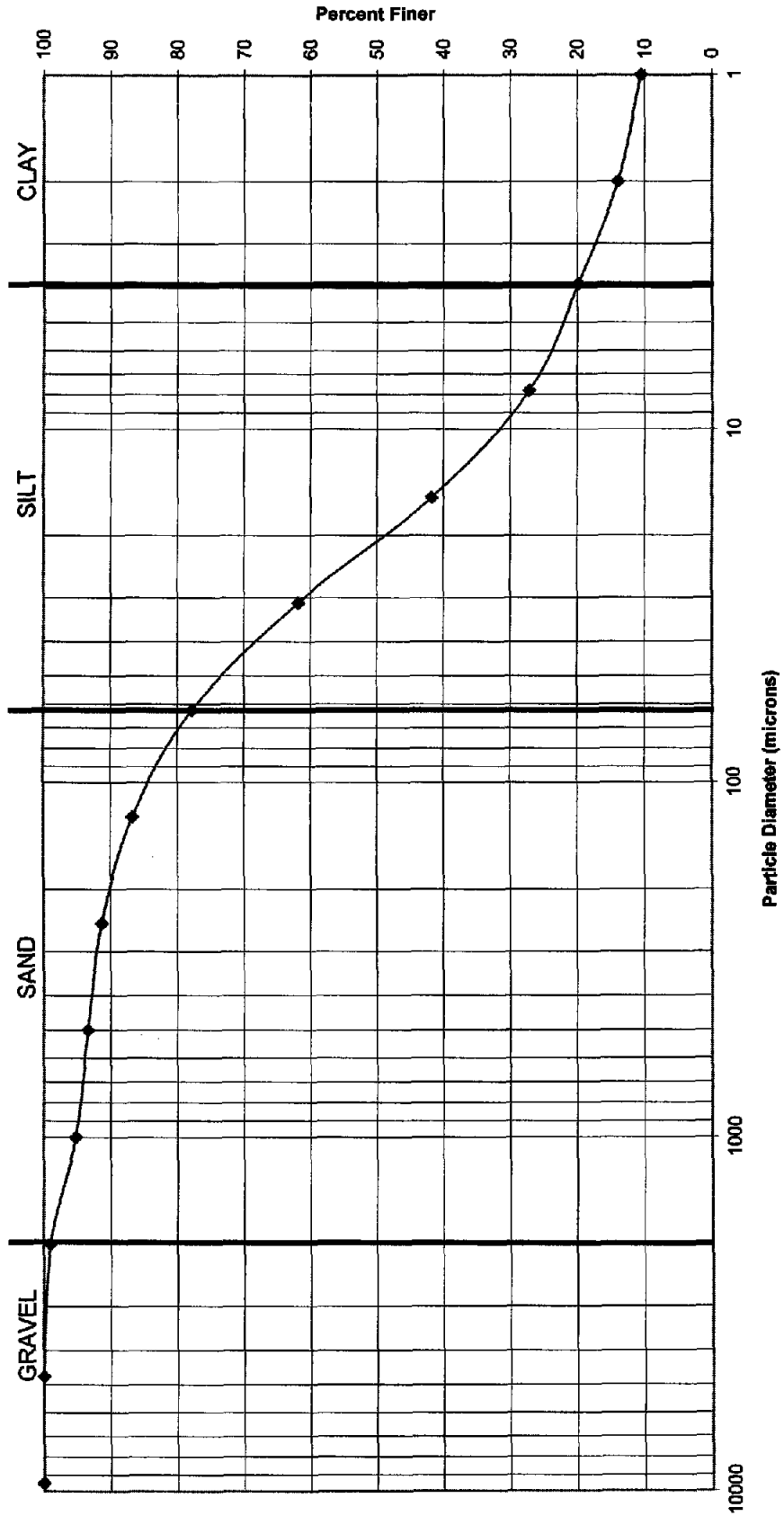
PSEP Grain Size Distribution

Triplicate Sample Plot





PSEP Grain Size Distribution



—◆— CR19D-SSD-CONV



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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **ADVB** Turn-around Requested: **Standard**

ARI Client Company: **Marshall Foster & Alving** Phone: **(503) 501-5212**

Client Contact: **Madi Novak**

Client Project Name: **Solvent Landfill**

Client Project #: **104M DZ.01-02** Samplers: **DZ + MPM**

Page: **1** of **3**

Date: **10/15/15** Ice Present? **yes**

No. of Coolers: **1** Cooler Temps: **yes**

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						Notes/Comments										
					Archic	TPH	Dioxin/Furans	PAH	TC	Phenol		PBB	Meats	Asbestos	Misc						
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																
CR17-D-SBSD		10:15	sed	2	X																
CR19B-0-10cm		11:15	sed	1	X																
CR19B-10.0		11:17	sed	1	X																
CR19D-0-10cm		12:15	sed	1	X																
CR19D-9.0		12:20	sed	1	X																
CR18A-9.0		13:25	sed	1	X																
CR08A-SBSD		17:20	sed	5	X																
Comments/Special Instructions Archic all remaining volume.					Received by: Archie J. J. (Signature)	Relinquished by: Archie J. J. (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)	Relinquished by: Chris Arnold (Signature)	Received by: Chris Arnold (Signature)
					Printed Name: Archie J. J.	Printed Name: Archie J. J.	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold	Printed Name: Chris Arnold
					Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA	Company: MFA
					Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15	Date & Time: 10/15/15

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 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.

ADVB: 00002

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **PNV8** Turn-around Requested: **STANDARD**

ARI Client Company: **WALL FOSTER & ALONGI** Phone: **503 5015212**

Client Contact: **MAAT NORDK**

Client Project Name: **SEAPORT LANDING**

Client Project #: **10/14/02/01-02**

Samplers: **RD+MAM**

Page: **2** of **3**

Date: **10/15/15** Ice Present? **Yes**

No. of Coolers: **1** Cooler Temps: **1**

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested						Notes/Comments							
					TOL	PAH	PCB	Phenol	metals	Archive		Dioxin / Furans	TPH-DX	TPH-DX / Mercury	Asbestos			
CR10-SSD-Comp	10/14/15	10:00	S	3	X	X	X	X	X	X	X	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													
CR02-SSD-COMP	10/14/15	1000	S	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Comments/Special Instructions Archive all remaining volume.					Relinquished by: (Signature) <i>[Signature]</i>		Received by: (Signature) <i>[Signature]</i>		Relinquished by: (Signature) <i>[Signature]</i>		Received by: (Signature) <i>[Signature]</i>		Notes/Comments					
					Printed Name: Roxanne Dopsis		Printed Name: Archie Trisitt		Printed Name: Christine		Printed Name: Chris Thuel							
					Company: MFA		Company: M.C. DEL		Company: ARI		Company: ARI							
					Date & Time: 10/16		Date & Time: 10/14/15		Date & Time: 10/16/15		Date & Time: 10/16/15							

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.

000003: 0008



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: AOVB

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: _____ Temp Gun ID#: D002865

If cooler temperature is out of compliance fill out form D0070F

Cooler Accepted by: CA Date: 10/12/15 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? (NA) 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: 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: _____

<p>Small Air Bubbles ~2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles > 4 mm</p>	<p>Small → "sm" (< 2 mm)</p> <p>Peabubbles → "pb" (2 to < 4 mm)</p> <p>Large → "lg" (4 to < 6 mm)</p> <p>Headspace → "hs" (> 6 mm)</p>
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Sample ID Cross Reference Report



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



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 \geq 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 $\geq 40\%$ 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR17-D-SSD
SAMPLE

Lab Sample ID: AOV8C
LIMS ID: 15-19493
Matrix: Sediment
Data Release Authorized: *AB*
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	Fyrene	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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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 $\mu\text{g}/\text{kg}$ (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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR17-D-SBSD
SAMPLE

Lab Sample ID: AOV8D
 LIMS ID: 15-19494
 Matrix: Sediment
 Data Release Authorized: *AB*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

**Sample ID: CR08A-SBSD
 SAMPLE**

Lab Sample ID: AOV8J
 LIMS ID: 15-19500
 Matrix: Sediment
 Data Release Authorized: *AS*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

**Sample ID: CR10-SSD-COMP
SAMPLE**

Lab Sample ID: AOV8K
 LIMS ID: 15-19501
 Matrix: Sediment
 Data Release Authorized: *AS*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

**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
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Reported in $\mu\text{g}/\text{kg}$ (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%

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: *B*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

**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
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Reported in $\mu\text{g}/\text{kg}$ (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%

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

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: *[Signature]*
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
Date Analyzed MS: 10/30/15 19:05
MSD: 10/30/15 19:41
Instrument/Analyst MS: NT10/YZ
MSD: NT10/YZ
GPC Cleanup: Yes

Sample Amount MS: 10.12 g-dry-wt
MSD: 10.12 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
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.

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SWB270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR08A-SBSD
MATRIX SPIKE

Lab Sample ID: AOV8J
 LIMS ID: 15-19500
 Matrix: Sediment
 Data Release Authorized: *AS*
 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	---

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

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	---

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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
 Page 2 of 2

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)

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: MB-102415
METHOD BLANK

Lab Sample ID: MB-102415
 LIMS ID: 15-19500
 Matrix: Sediment
 Data Release Authorized: *AS*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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		CCAL		MIN		MAX		CURVE TYPE
	RRF	AMOUNT	RRF5	RRF5	RRF	%D / %DRIPT	%D / %DRIPT		
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 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	MAX %D / %DRIFT	CURVE TYPE
38 2-Nitroaniline	0.31622	0.35585	0.35585	0.010	12.53104	Averaged
39 Dimethylphthalate	1.36783	1.32388	1.32388	0.010	-3.21284	Averaged
40 Acenaphthylene	1.73670	1.66151	1.66151	0.900	-4.32942	Averaged
41 2,6-Dinitrotoluene	0.28981	0.29600	0.29600	0.100	2.13428	Averaged
43 3-Nitroaniline	0.28271	0.21623	0.21623	0.010	-23.51299	Averaged
44 Acenaphthene	1.04524	1.05083	1.05083	0.100	0.53450	Averaged
45 2,4-Dinitrophenol	24.71689	20.00000	0.21203	0.030	23.58447	Quadratic
46 Dibenzofuran	1.57152	1.51619	1.51619	0.800	-3.52039	Averaged
47 4-Nitrophenol	9.37250	10.00000	0.24621	0.010	-6.27500	Quadratic
48 2,4-Dinitrotoluene	0.39543	0.40859	0.40859	0.200	3.32881	Averaged
50 Diethylphthalate	1.32554	1.31047	1.31047	0.010	-1.13655	Averaged
49 Fluorene	1.34379	1.20883	1.20883	0.100	-10.04354	Averaged
51 4-Chlorophenyl-phenylether	0.68765	0.65187	0.65187	0.100	-5.20323	Averaged
52 4-Nitroaniline	0.30110	0.25121	0.25121	0.010	-16.56968	Averaged
53 4,6-Dinitro-2-methylphenol	20.80121	20.00000	0.15246	0.001	4.00604	Quadratic
54 N-Nitrosodiphenylamine	0.54831	0.50988	0.50988	0.010	-7.00857	Averaged
55 2,4,6-Tribromophenol	0.34466	0.36287	0.36287	0.010	5.28225	Averaged
56 4-Bromophenyl-phenylether	0.27932	0.26556	0.26556	0.100	-4.92601	Averaged
57 Hexachlorobenzene	0.36460	0.32067	0.32067	0.100	-12.05077	Averaged
58 Pentachlorophenol	10.21740	10.00000	0.21002	0.010	2.17396	Quadratic
60 Phenanthrene	1.02053	0.94907	0.94907	0.700	-7.00175	Averaged
61 Anthracene	1.04166	1.00682	1.00682	0.700	-3.34414	Averaged
62 Carbazole	0.87135	0.84632	0.84632	0.010	-2.87351	Averaged
63 Di-n-butylphthalate	1.31288	1.36435	1.36435	0.010	3.92112	Averaged
64 Fluoranthene	1.11470	1.03055	1.03055	0.600	-7.54914	Averaged
65 Pyrene	1.18016	1.09600	1.09600	0.600	-7.13137	Averaged
66 Terphenyl-d14	0.74289	0.68480	0.68480	0.010	-7.82036	Averaged
67 Butylbenzylphthalate	0.50597	0.49895	0.49895	0.010	-1.38563	Averaged
68 Benzo(a)anthracene	1.12072	1.04909	1.04909	0.700	-6.39155	Averaged
70 3,3'-Dichlorobenzidine	0.75137	0.60645	0.60645	0.010	-19.28827	Averaged
71 Chrysene	0.97701	0.88490	0.88490	0.700	-9.42727	Averaged
72 bis(2-Ethylhexyl)phthalate	0.52679	0.48145	0.48145	0.010	-8.60659	Averaged
73 Di-n-octylphthalate	1.07536	0.91056	0.91056	0.010	-15.32476	Averaged
74 Benzo(b)fluoranthene	1.08810	1.04396	1.04396	0.700	-4.05689	Averaged
75 Benzo(k)fluoranthene	1.08482	1.12636	1.12636	0.700	3.82913	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	CCAL		MIN	MAX		CURVE TYPE	
	RRF / AMOUNT	RF5		RRF5	RRF		%D / %DRIFT
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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-102415

METHOD BLANK

Lab Sample ID: MB-102415

LIMS ID: 15-19500

Matrix: Sediment

Data Release Authorized: *MMJ*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR17-D-SSD

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOV8C

QC Report No: AOV8-Maul Foster & Alongi

LIMS ID: 15-19493

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MMW*

Date Sampled: 10/15/15

Reported: 11/23/15

Date Received: 10/16/15

Date Extracted: 10/24/15

Sample Amount: 10.42 g-dry-wt

Date Analyzed: 10/30/15 17:17

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 42.2%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR17-D-SBSD

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOV8D

QC Report No: AOV8-Maul Foster & Alongi

LIMS ID: 15-19494

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: 10/15/15

Reported: 11/23/15

Date Received: 10/16/15

Date Extracted: 10/24/15

Sample Amount: 10.29 g-dry-wt

Date Analyzed: 10/30/15 17:53

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 48.8%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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%
dl4-p-Terphenyl	88.2% Q

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR08A-SBSD

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOV8J

QC Report No: AOV8-Maul Foster & Alongi

LIMS ID: 15-19500

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *TW*

Date Sampled: 10/15/15

Reported: 11/23/15

Date Received: 10/16/15

Date Extracted: 10/24/15

Sample Amount: 10.11 g-dry-wt

Date Analyzed: 10/30/15 18:29

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 32.7%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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%
d14-p-Terphenyl	69.8% Q

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: CR08A-SBSD

MATRIX SPIKE

Lab Sample ID: AOV8J

LIMS ID: 15-19500

Matrix: Sediment

Data Release Authorized: *MM*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: CR08A-SBSD

MATRIX SPIKE DUPLICATE

Lab Sample ID: AOV8J

LIMS ID: 15-19500

Matrix: Sediment

Data Release Authorized: *MMW*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR10-SSD-COMP

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOV8K

QC Report No: AOV8-Maul Foster & Alongi

LIMS ID: 15-19501

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: 10/14/15

Reported: 11/23/15

Date Received: 10/16/15

Date Extracted: 10/24/15

Sample Amount: 10.11 g-dry-wt

Date Analyzed: 10/30/15 20:17

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 51.9%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR08a-SSD-COMP

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOV8T

QC Report No: AOV8-Maul Foster & Alongi

LIMS ID: 15-19510

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: 10/14/15

Reported: 11/23/15

Date Received: 10/16/15

Date Extracted: 10/24/15

Sample Amount: 10.31 g-dry-wt

Date Analyzed: 10/30/15 20:53

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 48.5%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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%
dl4-p-Terphenyl	75.4% Q

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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

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

QC Report No: AOV8-Maul Foster & Alongi

LIMS ID: 15-19500

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *mmw*

Date Sampled: NA

Reported: 11/23/15

Date Received: NA

Date Extracted: 10/24/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 10/30/15 16:42

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Page 1 of 1

Sample ID: CR08A-SBSD

MATRIX SPIKE

Lab Sample ID: AOV8J

LIMS ID: 15-19500

Matrix: Sediment

Data Release Authorized: *MMW*

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

Final Extract Volume MS: 1.0 mL

MSD: 10/30/15 19:41

MSD: 1.0 mL

Instrument/Analyst MS: NT10/YZ

Dilution Factor MS: 1.00

MSD: NT10/YZ

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			MAX		CURVE TYPE
			RRF	%D	%DRIFT	%D	%DRIFT	
\$ 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		

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

Sample ID: CR17-D-SSD

Lab Sample ID: AOV8C
 LIMS ID: 15-19493
 Matrix: Sediment
 Data Release Authorized: *mm*
 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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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

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: *mmw*
 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

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR08a-SSD-COMP

Lab Sample ID: AOV8T

LIMS ID: 15-19510

Matrix: Sediment

Data Release Authorized: *mmw*

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	
37C14-2,3,7,8-TCDD			103	35-197	

Reported in Percent Recovery

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: *WWW*
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

Sample ID: OPR-102615

Lab Sample ID: OPR-102615
 LIMS ID: 15-19544
 Matrix: Sediment
 Data Release Authorized: *mmw*
 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	
37C14-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

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: ASI/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

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: *mm*
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

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

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: *AS*
 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%

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: *[Signature]*
 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%

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: *B*
 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%

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%



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: *[Signature]*
 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%

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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

Sample Amount MS: 5.15 g-dry-wt

MSD: 5.15 g-dry-wt

Date Analyzed MS: 10/29/15 21:20

Final Extract Volume MS: 5.0 mL

MSD: 10/29/15 21:41

MSD: 5.0 mL

Instrument/Analyst MS: ECD7/JGR

Dilution Factor MS: 1.00

MSD: ECD7/JGR

MSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: 48.5%

Acid Cleanup: Yes

Florisil Cleanup: No

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.

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: *[Signature]*
 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%

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: *[Signature]*
 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%

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: *[Signature]*

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)

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%

**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 15-19493	Method Blank HC ID: ---	10/23/15	10/28/15	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 74.0%
AOV8C 15-19493	CR17-D-SSD HC ID: DIESEL/MOTOR OIL	10/23/15	10/28/15	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	8.6 17	24 46 62.5%
AOV8J 15-19500	CR08A-SBSD HC ID: DIESEL/MOTOR OIL	10/23/15	10/29/15	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	7.4 15	26 74 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV8-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

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: *MW*

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

Sample Amount MS: 5.80 g-dry-wt

MSD: 5.80 g-dry-wt

Date Analyzed MS: 10/28/15 23:41

Final Extract Volume MS: 1.0 mL

MSD: 10/29/15 00:03

MSD: 1.0 mL

Instrument/Analyst MS: FID3B/ML

Dilution Factor MS: 1.00

MSD: FID3B/ML

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.

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: *mmw*
 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

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

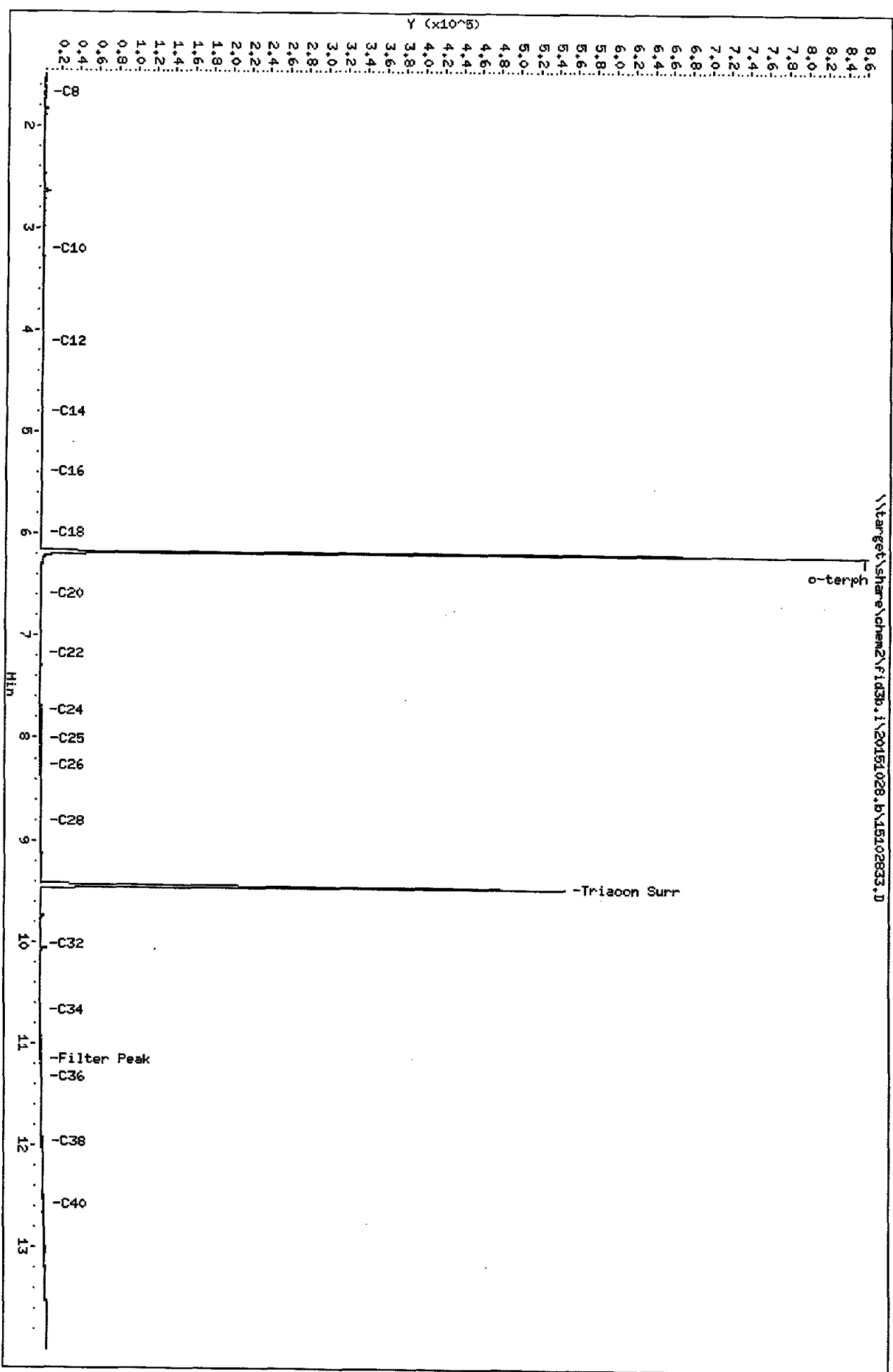
Matrix: Sediment
Date Received: 10/16/15

ARI Job: AOV8
Project: Seaport Landing
1044.02.01-02

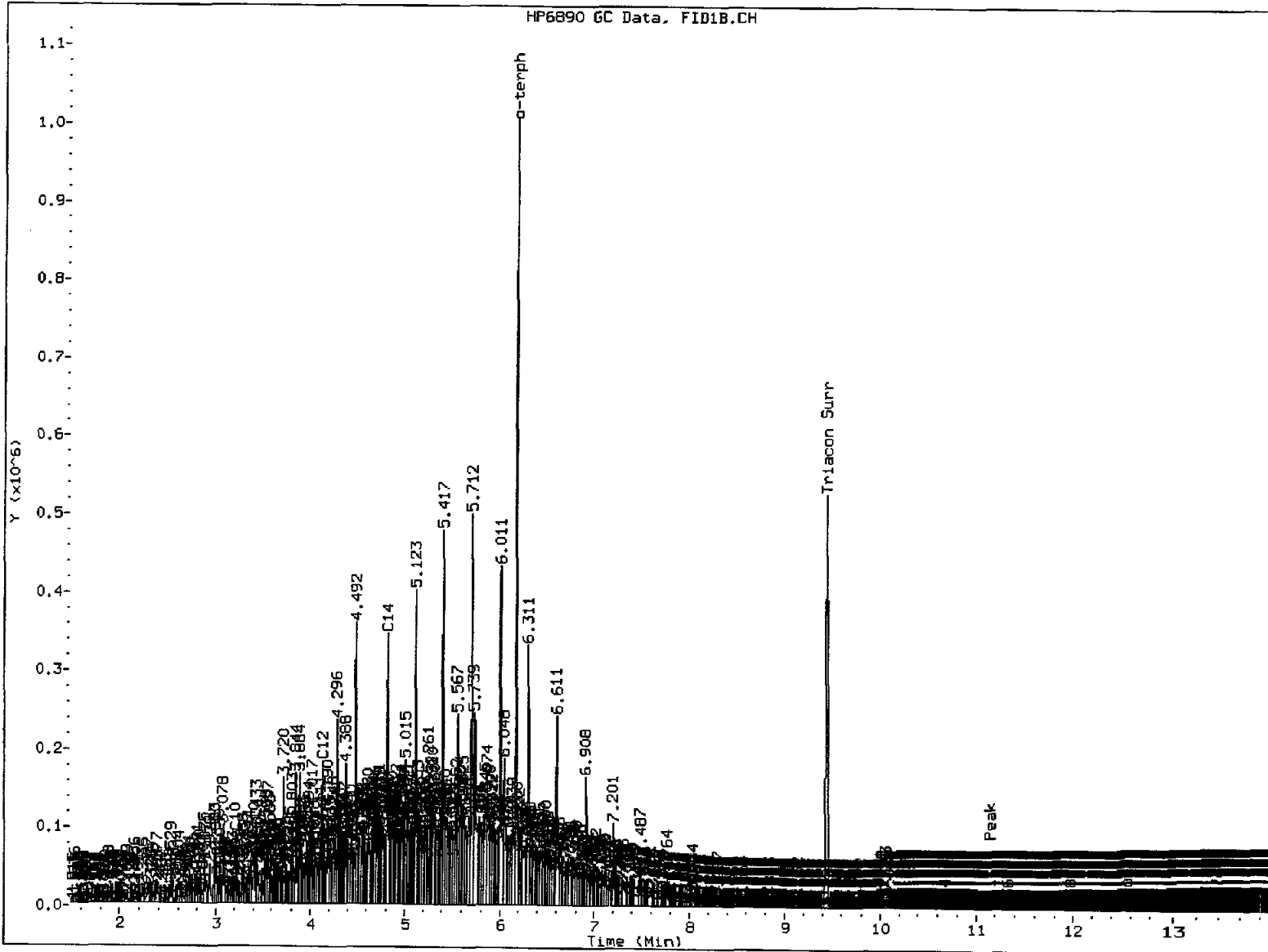
ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19493-102315MB1	Method Blank	10.0 g	1.00 mL	-	10/23/15
15-19493-102315LCS1	Lab Control	10.0 g	1.00 mL	-	10/23/15
15-19493-AOV8C	CR17-D-SSD	5.80 g	1.00 mL	D	10/23/15
15-19493-AOV8CMS	CR17-D-SSD	5.80 g	1.00 mL	D	10/23/15
15-19493-AOV8CMSD	CR17-D-SSD	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

AOV8: 00070



HP6890 GC Data, FID1B.CH

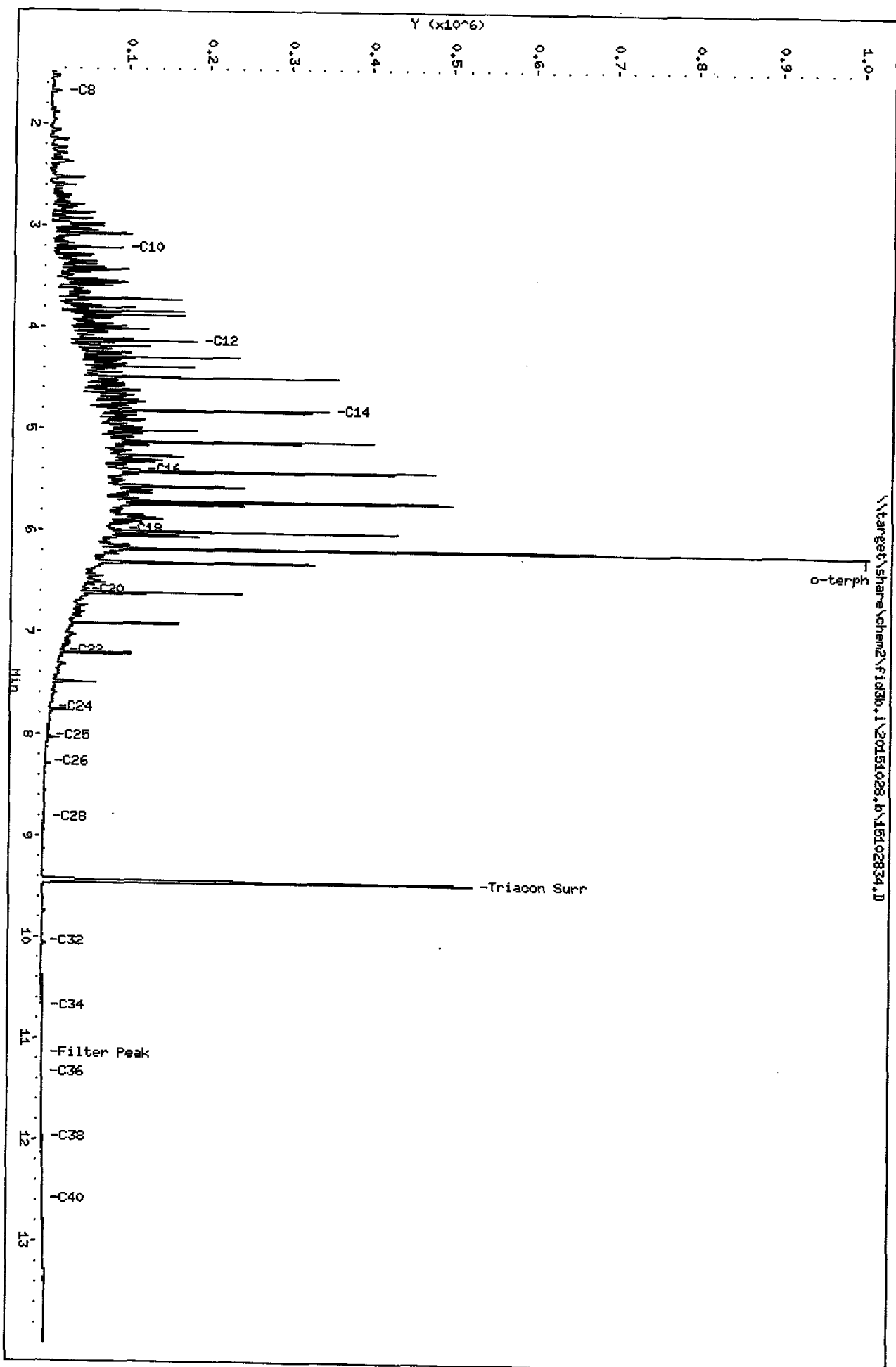


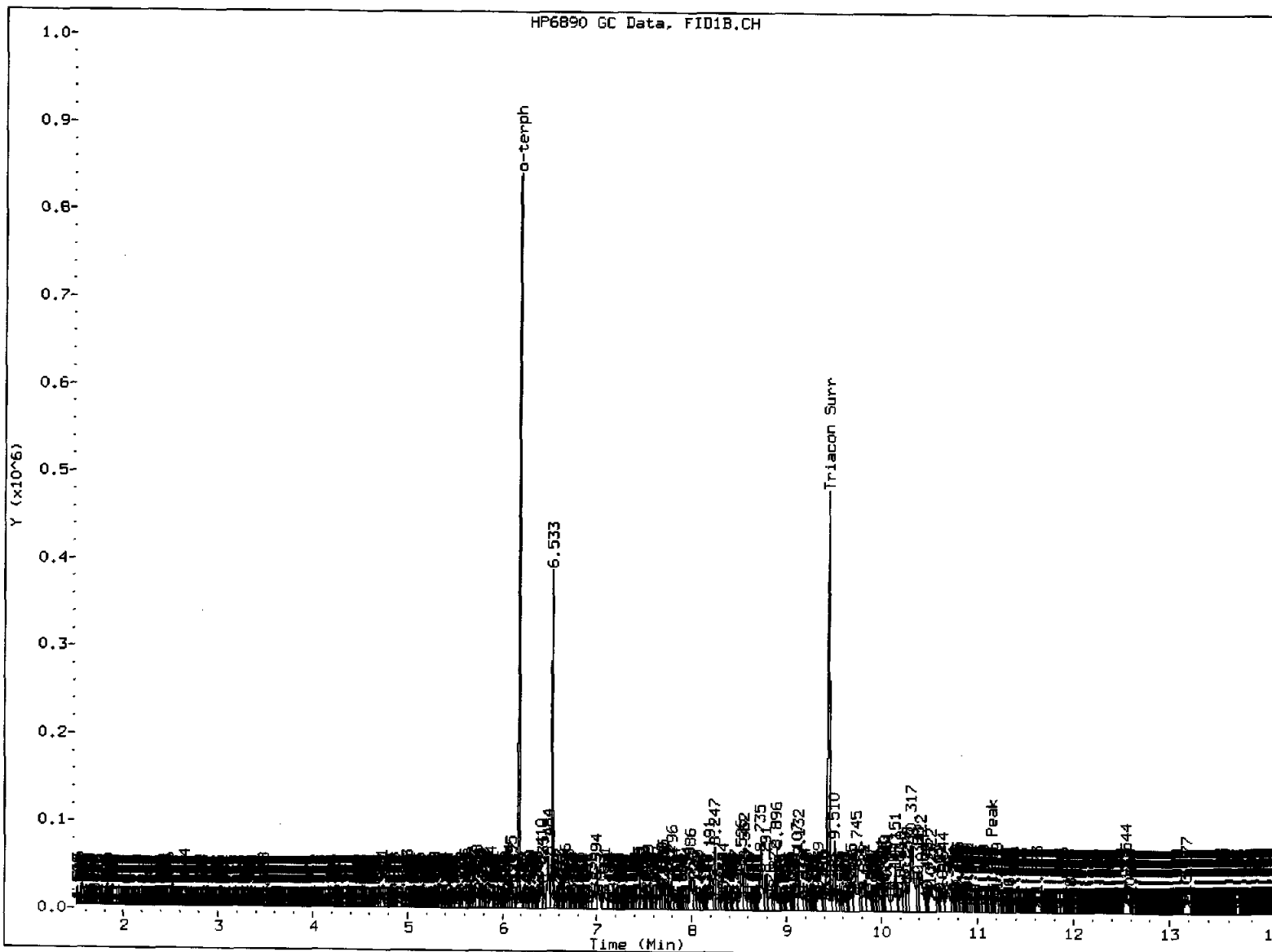
MANUAL INTEGRATION

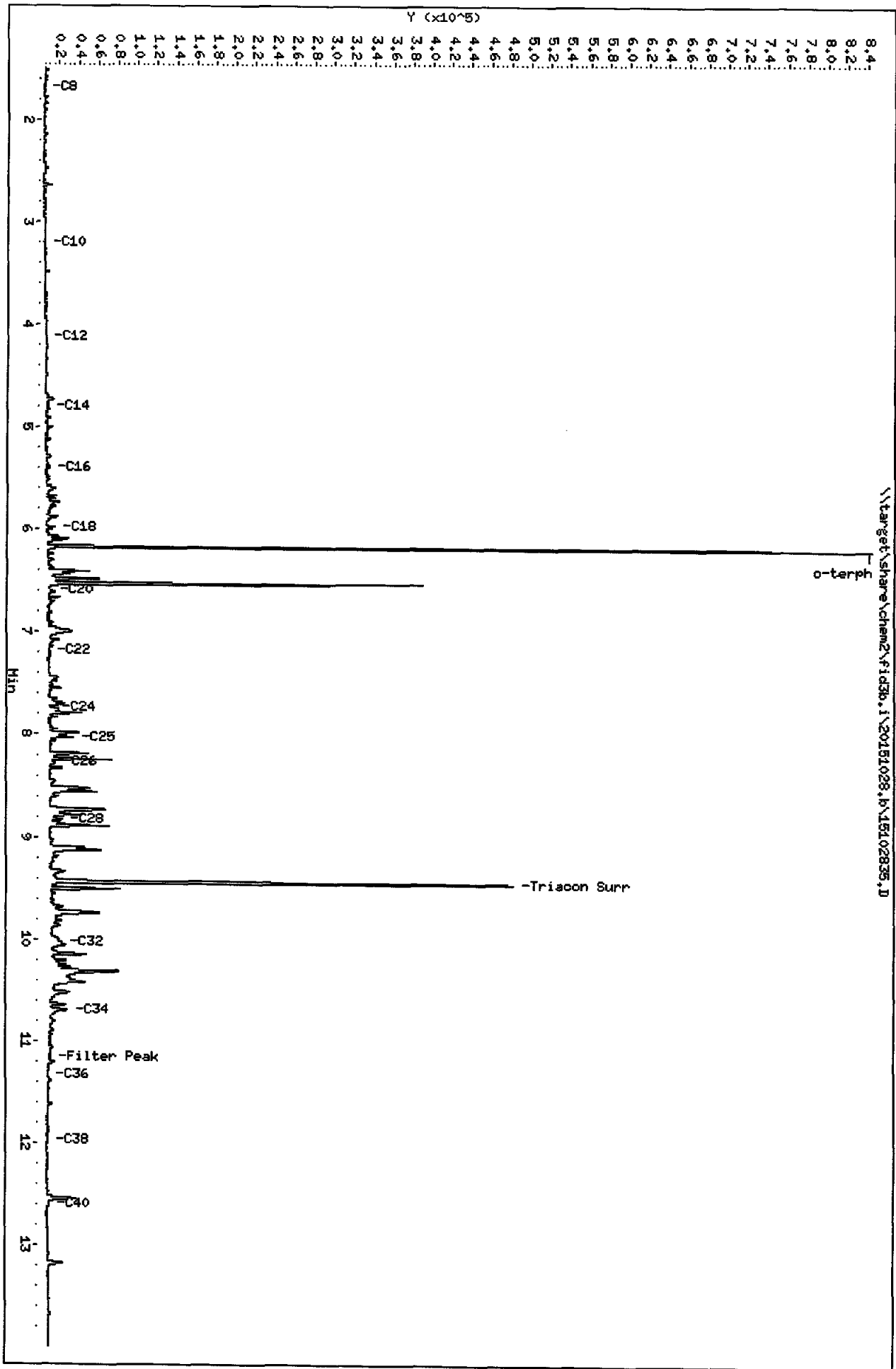
- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

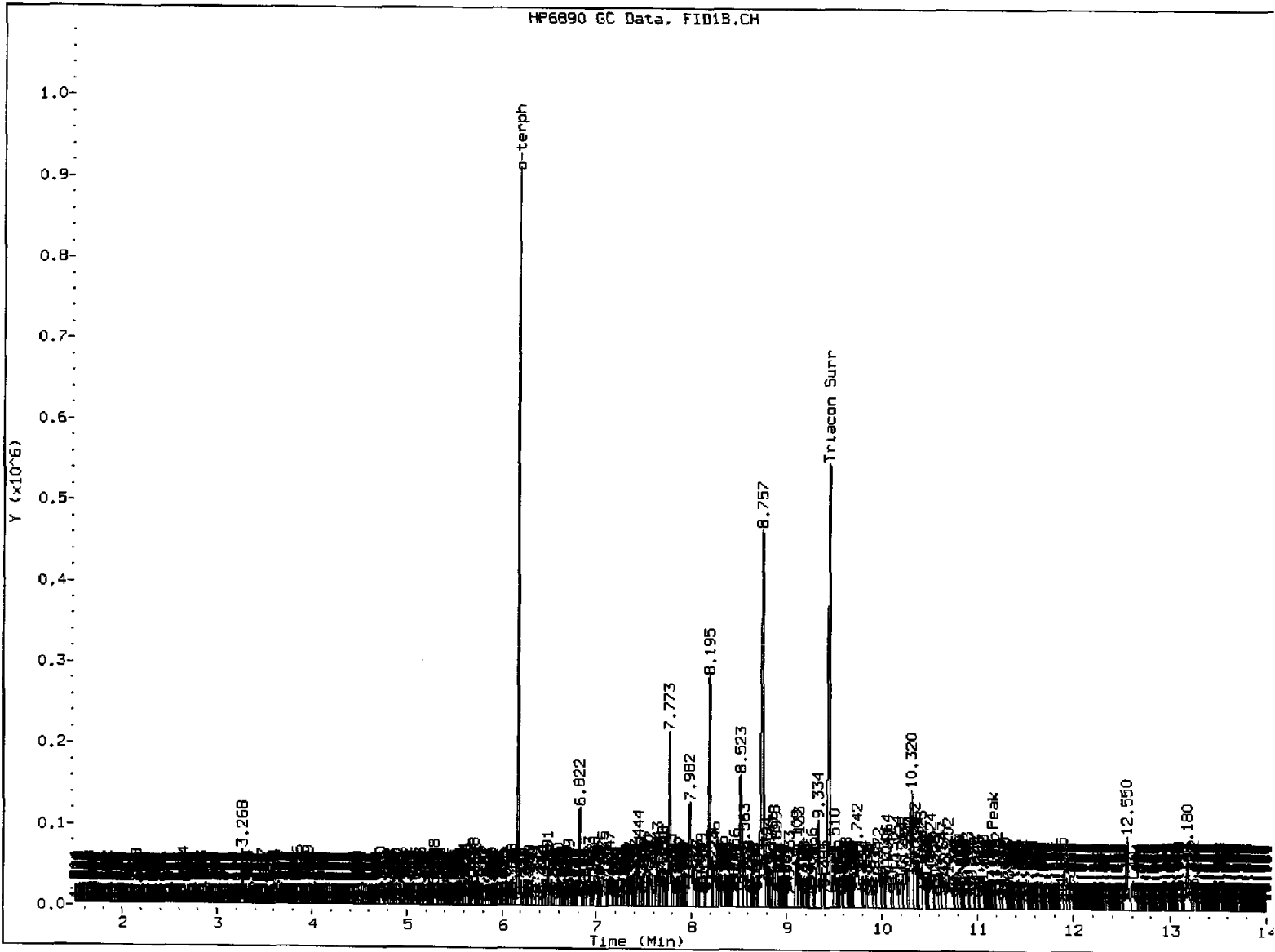
Analyst: MM

Date: 10/29/15









MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤. Skimmed surrogate

Analyst: ML

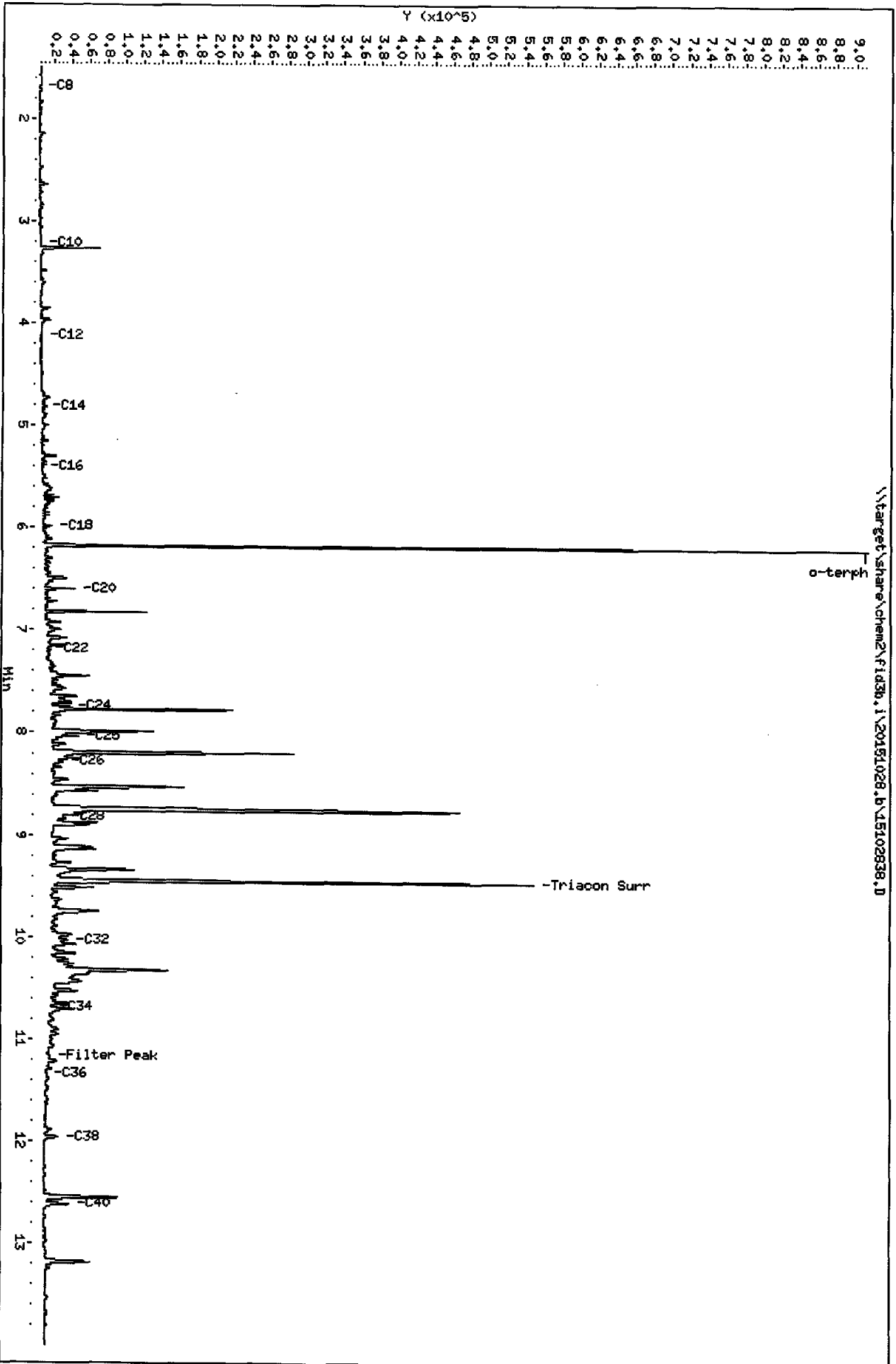
Date: 10/29/15

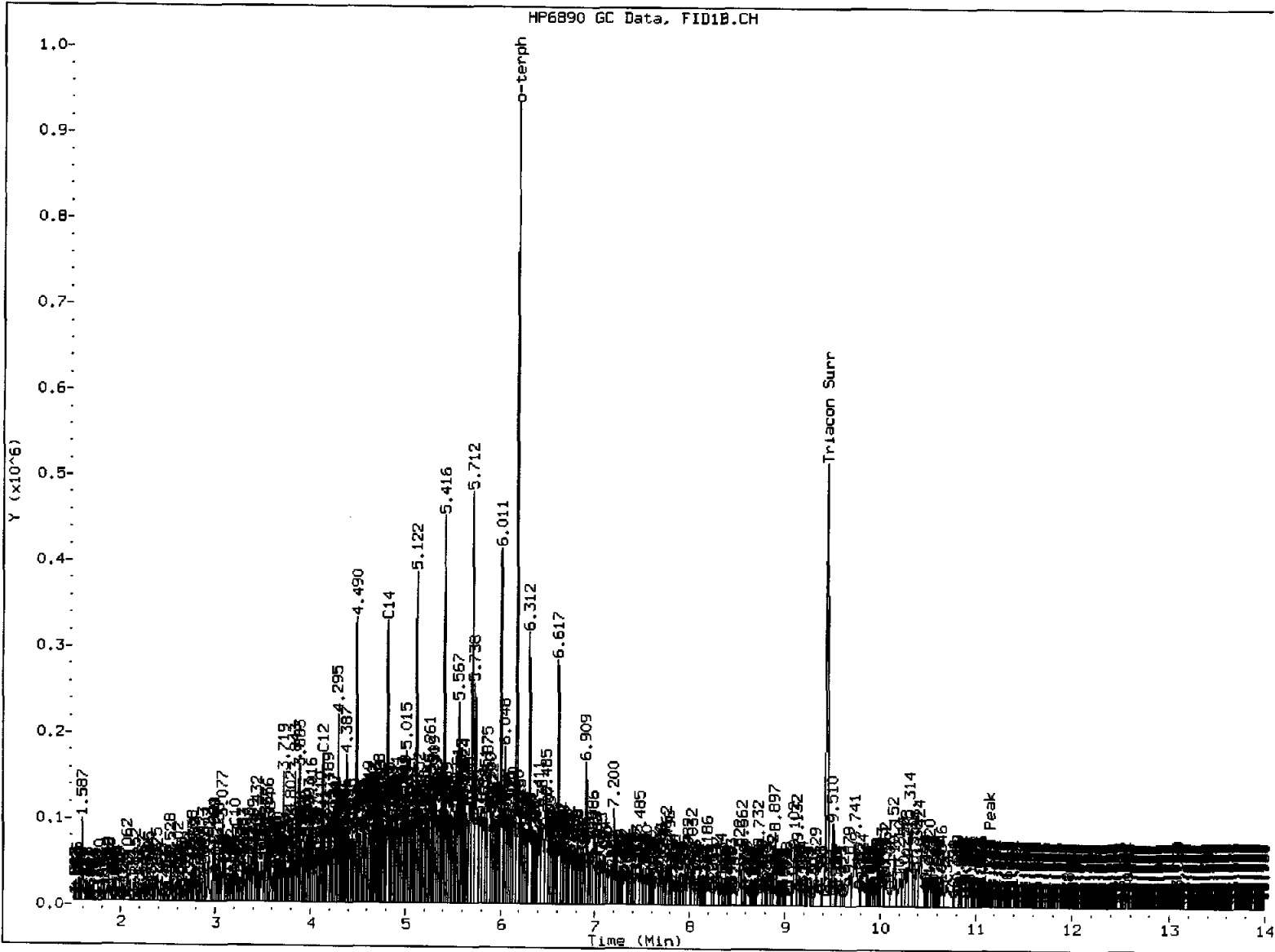
Data File: \\target\share\chem2\fid3b.j\20151028.j\15102839.D
Date: 29-OCT-2015 00:24
Client ID: CRO98-S85D
Sample Info: AOV8J

Instrument: fid3b.1

Column phase: RTX-1

Operator: HL
Column diameter: 0.25



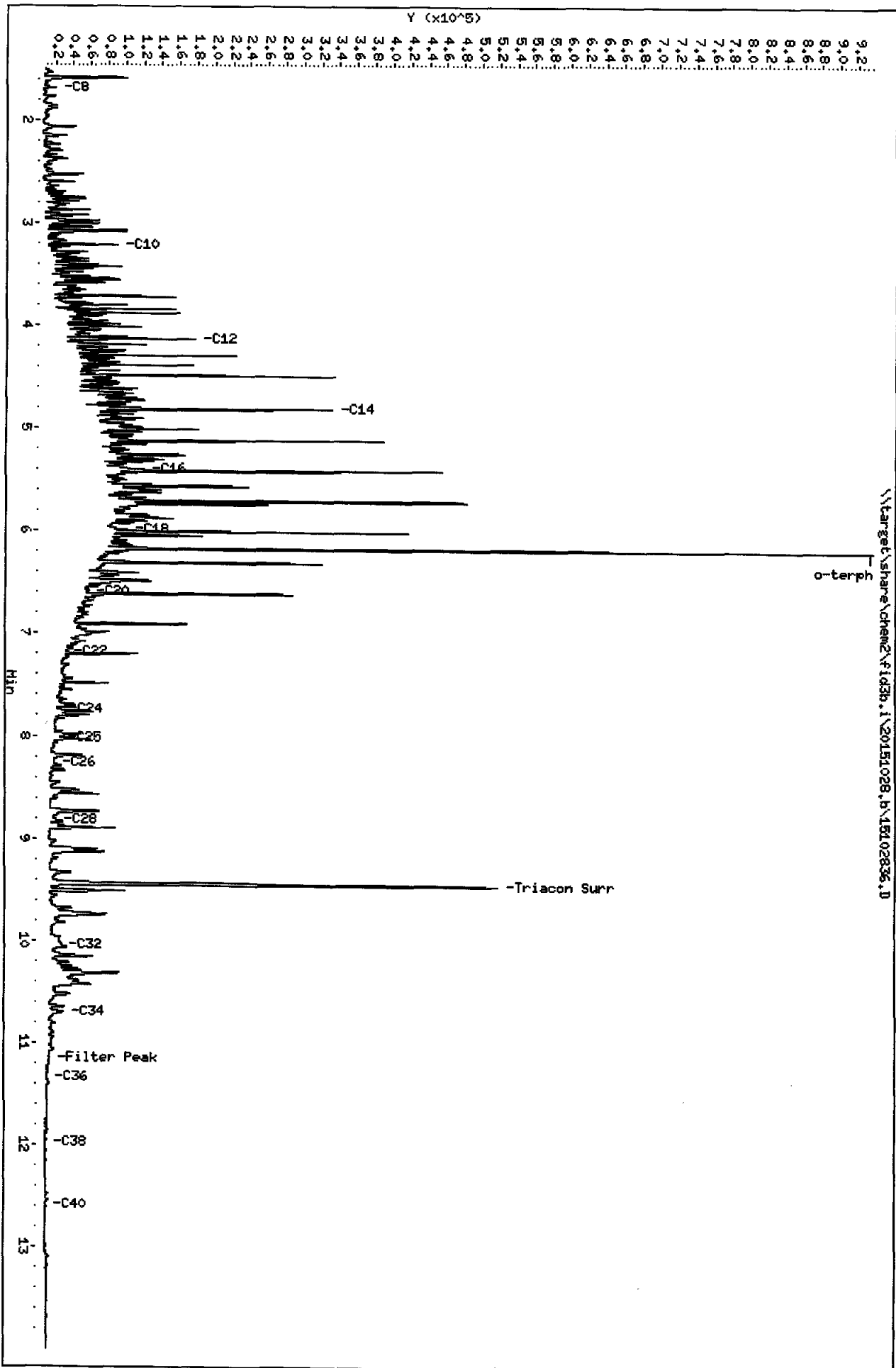


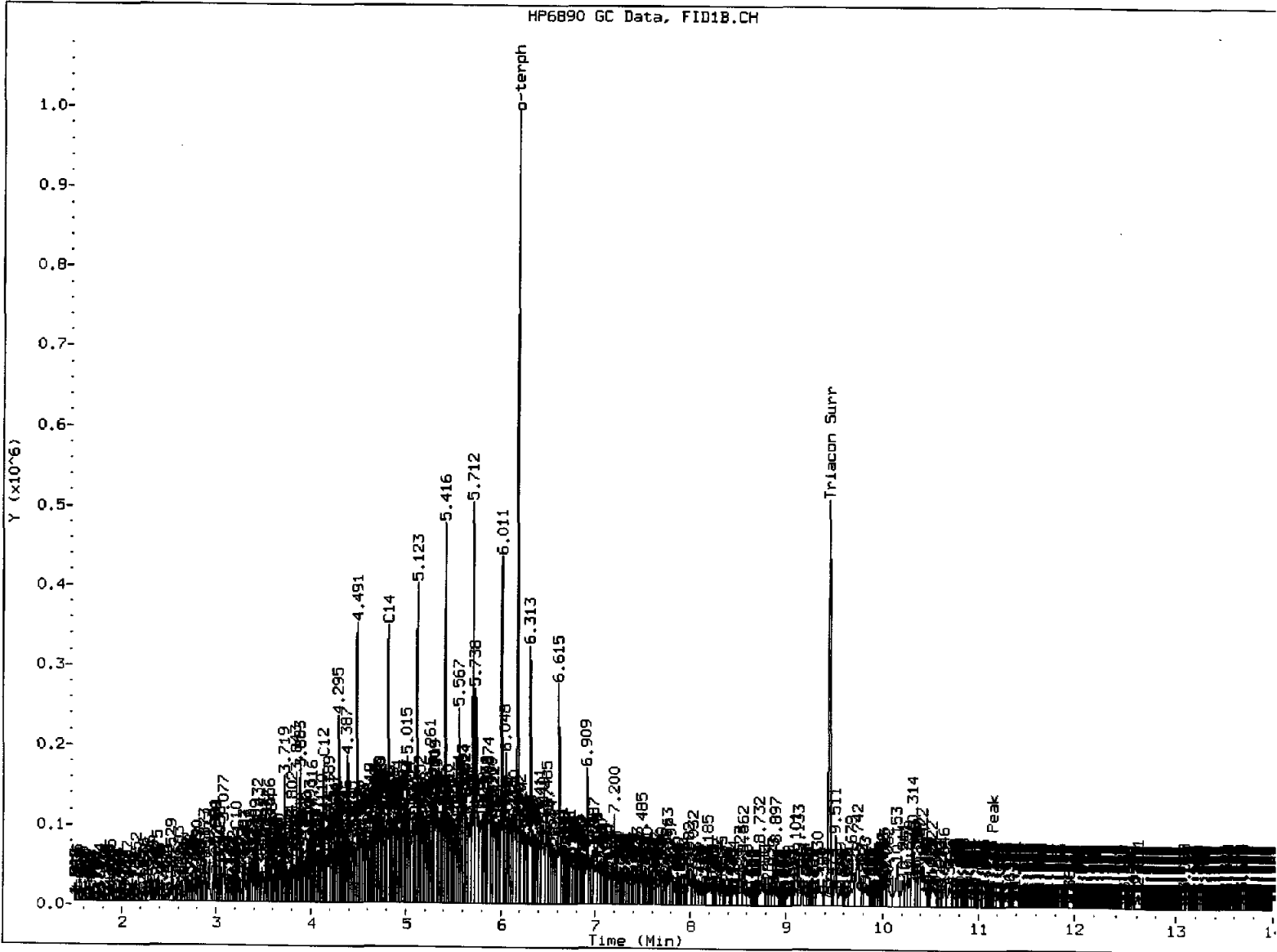
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skimmed surrogate

Analyst: ML

Date: 10/29/15



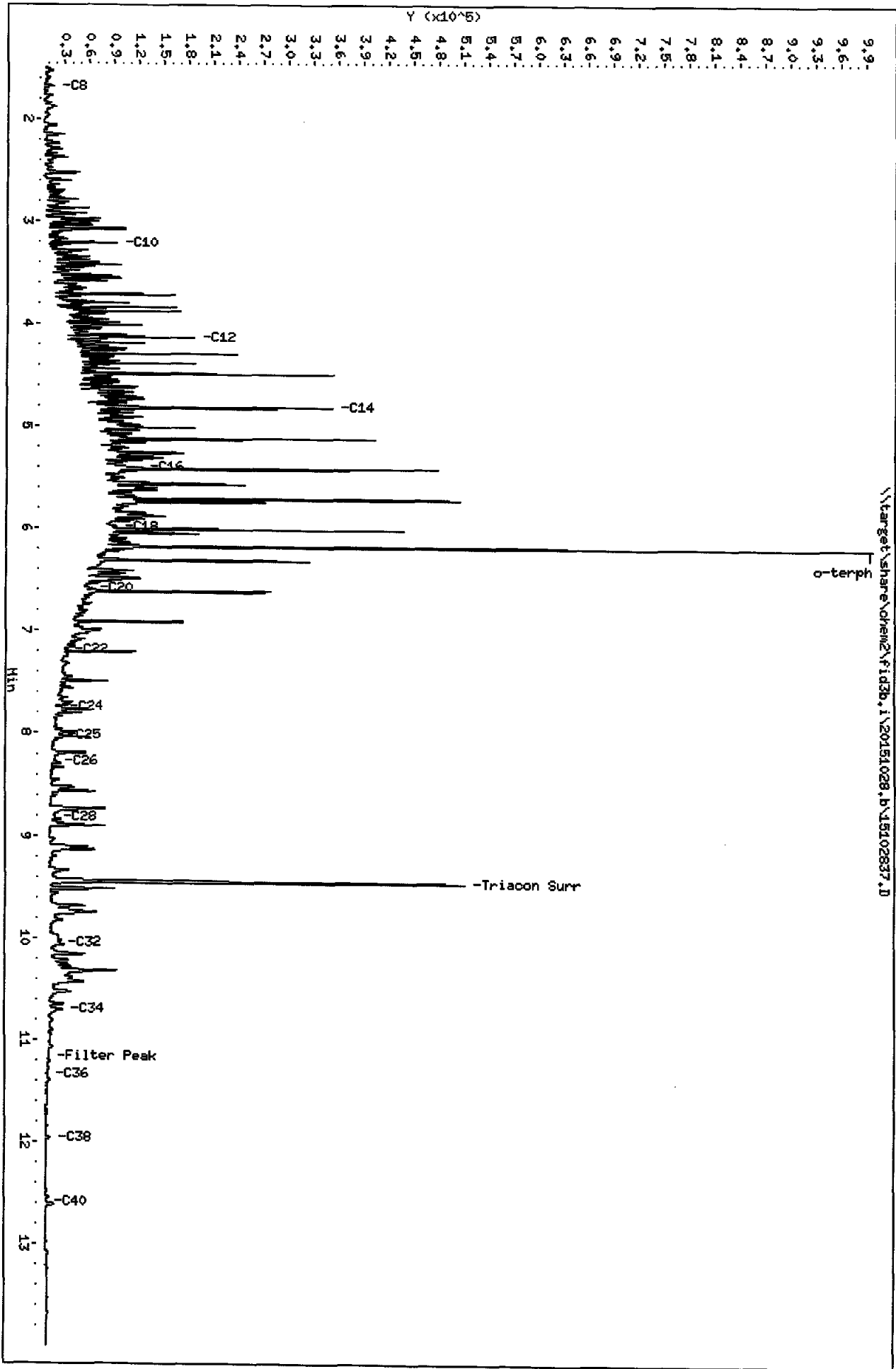


MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skimmed surrogate

Analyst: ML

Date: 10/29/15



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

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: CRO8A-SBSD
SAMPLE

Lab Sample ID: AOV8J

LIMS ID: 15-19500

Matrix: Sediment

Data Release Authorized: *EJ*

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

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

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

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: *EF*

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

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



Matrix: Sediment
Data Release Authorized: *W*
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



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: 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



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



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



Matrix: Sediment
Data Release Authorized: *W*
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



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



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/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



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

Mark Harris
Analytical Resources, Incorporated
4611 S. 134th Place Suite 100
Tukwila, WA 98168



INDUSTRIAL
HYGIENE
SERVICES

Laboratory | Management | Training

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,

A handwritten signature in black ink, appearing to read "Nick Ly".

Nick Ly, Technical Director



Lab Code: 102063-0

1.888.NVL.LABS Enc.: Sample Results
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

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

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

Attention: Mr. Mark Harris
Project Location: N-A

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

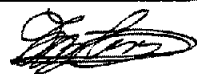
Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: %
Fine particles, Mineral grains, Mica	Cellulose	None Detected ND
Paint		

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 Prysyzhnyuk	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



Company Analytical Resources, Incorporated NVL Batch Number 1519449.00
 Address 4611 S. 134th Place Suite 100 TAT 5 Days AH No. _____
Tukwila, WA 98168 Rush TAT _____
 Project Manager Mr. Mark Harris Due Date 10/30/2015 Time 12:15 PM
 Phone (206) 695-6200 Email markh@arilabs.com
 Fax (206) 695-6202

Project Name/Number: ARI Project AOV8 Project Location: N-A
Seaport Landing

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					
<input type="checkbox"/> Faxed <input type="checkbox"/> Emailed					
Special Instructions:					

Date: 10/23/2015
 Time: 5:41 PM
 Entered By: Justin Shearer

SUBCONTRACTOR ANALYSIS REQUEST
 CUSTODY TRANSFER 10/20/15



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: PSSDA
 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 successors, 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, notwithstanding 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 12 832 695 03 957 6 9540	Date 10/22/15
Relinquished by wl	Company ARI	Date 10/22/15 Time 9:27
Received by Max	Company NVL	Date 10/23/15 Time 12:50 PM



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



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: A0V9

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#: DD02865

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 : YES Date/Time: _____ Equipment: _____ Split by: _____

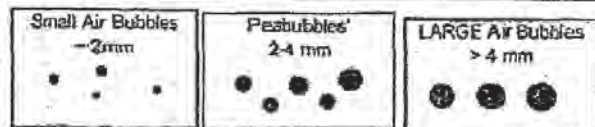
Samples Logged by: WJ Date: 10/20/15 Time: 1237

**** 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 → "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

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Please take our 5 minute online customer survey<<https://www.surveymonkey.com/s/WPDBVJK>>.

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--

Mark Harris
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Analytical Resources, Inc.
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markh@arilabs.com

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--

Mark Harris
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markh@arilabs.com

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If you have received this correspondence in error, please notify sender immediately. Thank you.

--

Mark Harris
Project Manager
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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



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



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 \geq 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.



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- 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 $\geq 40\%$ 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)**



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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

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: *AS*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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 $\mu\text{g}/\text{kg}$ (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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: MB-102415
METHOD BLANK

Lab Sample ID: MB-102415
LIMS ID: 15-19535
Matrix: Sediment
Data Release Authorized: *AS*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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%

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: 15-19535
Matrix: Sediment
Data Release Authorized: *[Signature]*
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
 Page 2 of 2

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)

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 2

Sample ID: CR26-SBSD
SAMPLE

Lab Sample ID: AOV9E
LIMS ID: 15-19539
Matrix: Sediment
Data Release Authorized: *AB*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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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%

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: 15-19539
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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Reported in $\mu\text{g}/\text{kg}$ (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%

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: 15-19539
Matrix: Sediment
Data Release Authorized: *[Signature]*
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 2 of 2

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)

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 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 / %DRIPT	MAX %D / %DRIPT	CURVE TYPE
1 2-Fluorophenol	1.12958	1.25667	1.25667	0.010	11.25129	20.00000	Averaged
2 Phenol-d5	1.36520	1.77230	1.77230	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	7.61653	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	0.57822	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 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	MIN	MAX	CURVE TYPE	
			RRF5	RRF	%D / %DRIFT	%D / %DRIFT	
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		CCAL		MIN		MAX		CURVE TYPE
	RRF	AMOUNT	RRFS	MIN	RRF	%D / %DRIFT	%D / %DRIFT		
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 Benzo(a)fluoranthenes	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		

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-102415

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR08b-SBSD

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOV9A

QC Report No: AOV9-Maul Foster & Alongi

LIMS ID: 15-19535

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: 10/15/15

Reported: 11/20/15

Date Received: 10/16/15

Date Extracted: 10/24/15

Sample Amount: 10.27 g-dry-wt

Date Analyzed: 10/30/15 21:29

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 46.0%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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

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

QC Report No: AOV9-Maul Foster & Alongi

LIMS ID: 15-19535

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *WV*

Date Sampled: NA

Reported: 11/20/15

Date Received: NA

Date Extracted: 10/24/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 10/30/15 16:42

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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		MAX		CURVE TYPE
			RRF	%D / %DRIFT	%D / %DRIFT		
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	

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-103015

METHOD BLANK

Lab Sample ID: MB-103015

LIMS ID: 15-19539

Matrix: Sediment

Data Release Authorized: *mmw*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS
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: *mm*
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

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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



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

QC Report No: AOV9-Maul Foster & Alongi

LIMS ID: 15-19539

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *mmw*

Date Sampled: NA

Reported: 11/20/15

Date Received: NA

Date Extracted: 10/30/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 11/05/15 21:52

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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 Injection Date: 05-NOV-2015 14:04
 Lab File ID: CC1105A.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:39
 Lab Sample ID: CC1105A Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

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
13 Phenol	1.55661	1.46467	0.010	-5.90683	20.00000	Averaged
17 1,3-Dichlorobenzene	1.76229	1.78433	0.010	1.25101	20.00000	Averaged
19 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	0.81760	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<-
5 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

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: *mm*
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

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

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: *mm*
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

Sample ID: MB-102615

Lab Sample ID: MB-102615
LIMS ID: 15-19544
Matrix: Sediment
Data Release Authorized: *mm*
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: ASI/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

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: **WWW**
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

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	
37C14-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

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

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CRO8b-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%

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: *[Signature]*
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%

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%

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: *RB*

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)

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT</u>	<u>OUT</u>
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



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: *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
15-19535	HC ID: ---		FID3B	1.0	Motor Oil Range o-Terphenyl	10	< 10 U 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 o-Terphenyl	18	280 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOV9-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

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%
-------------	-------

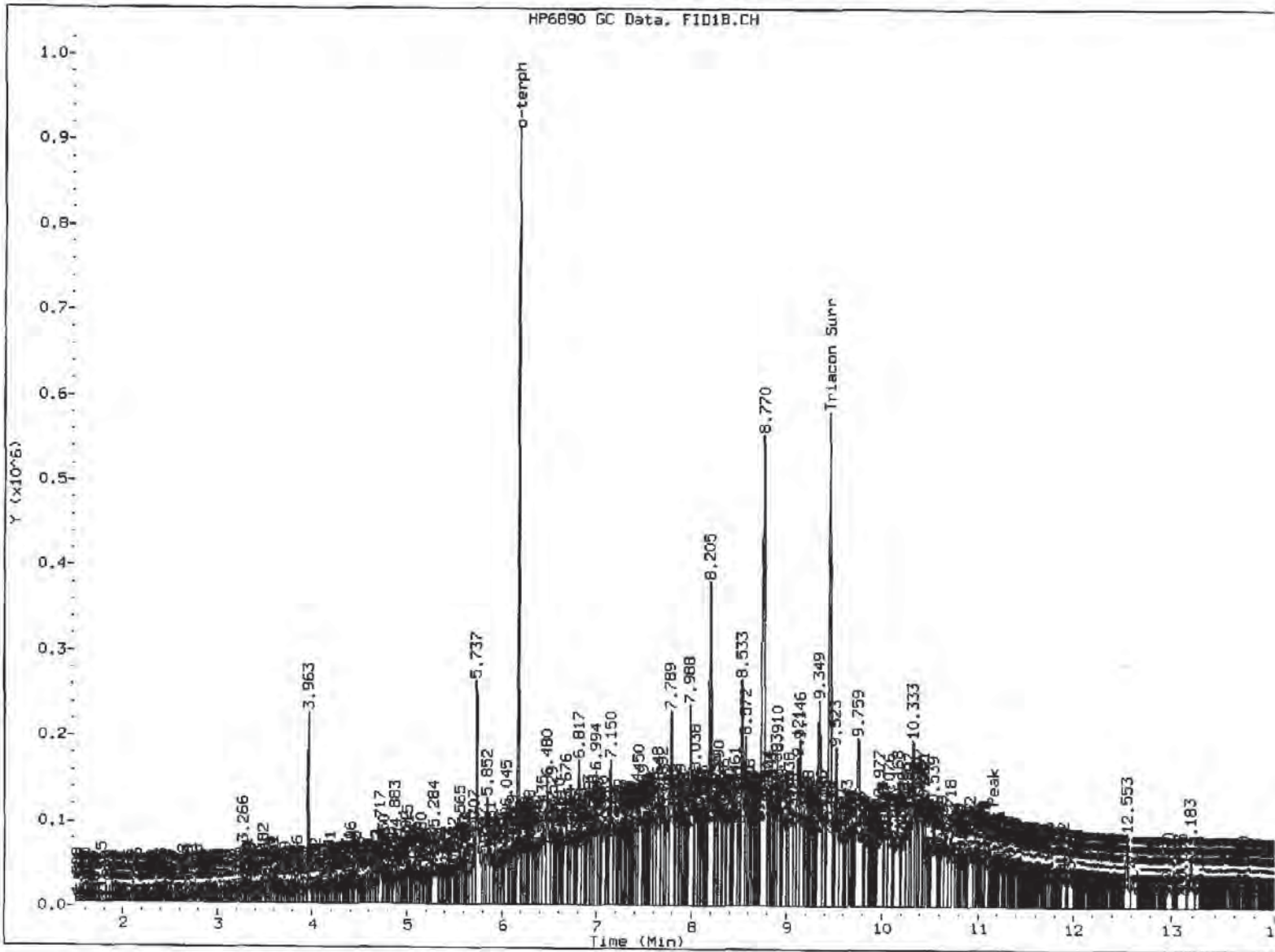
Results reported in mg/kg

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

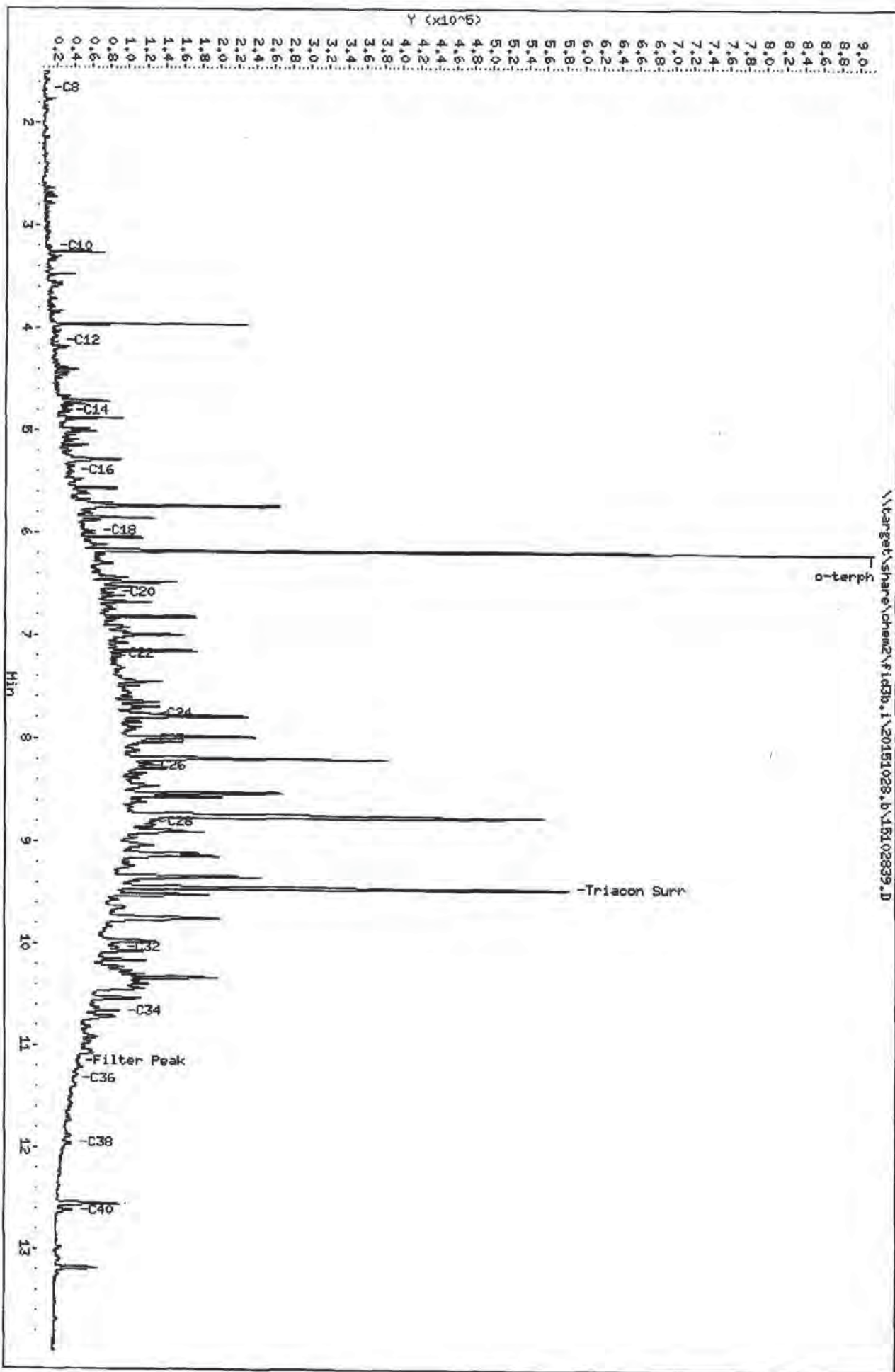


MANUAL INTEGRATION

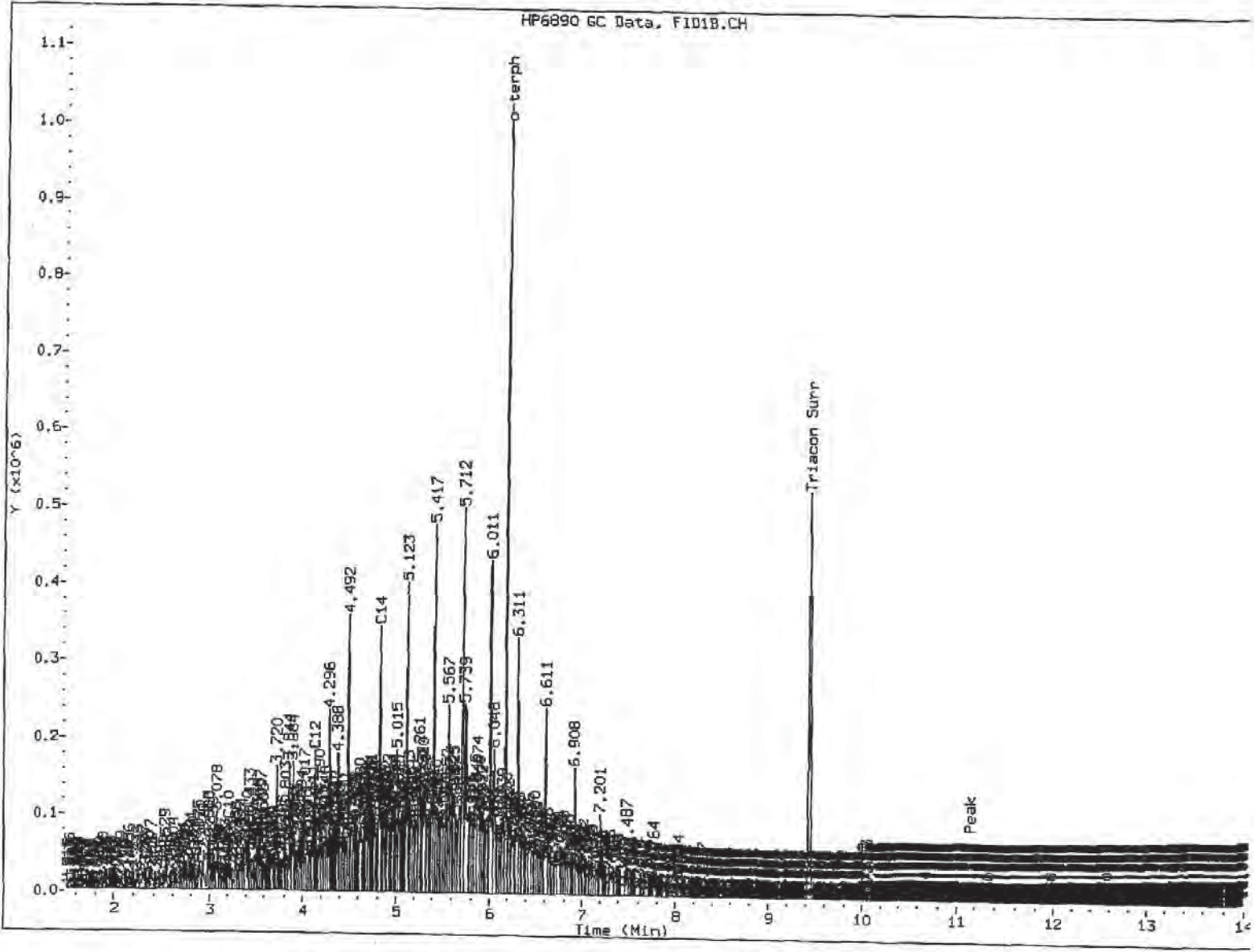
- 1. Baseline correction
- 3. Peak not found
- ⑤. Skimmed surrogate

Analyst: µ

Date: 10/29/15



HP6890 GC Data, FID1B.CH



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: ML

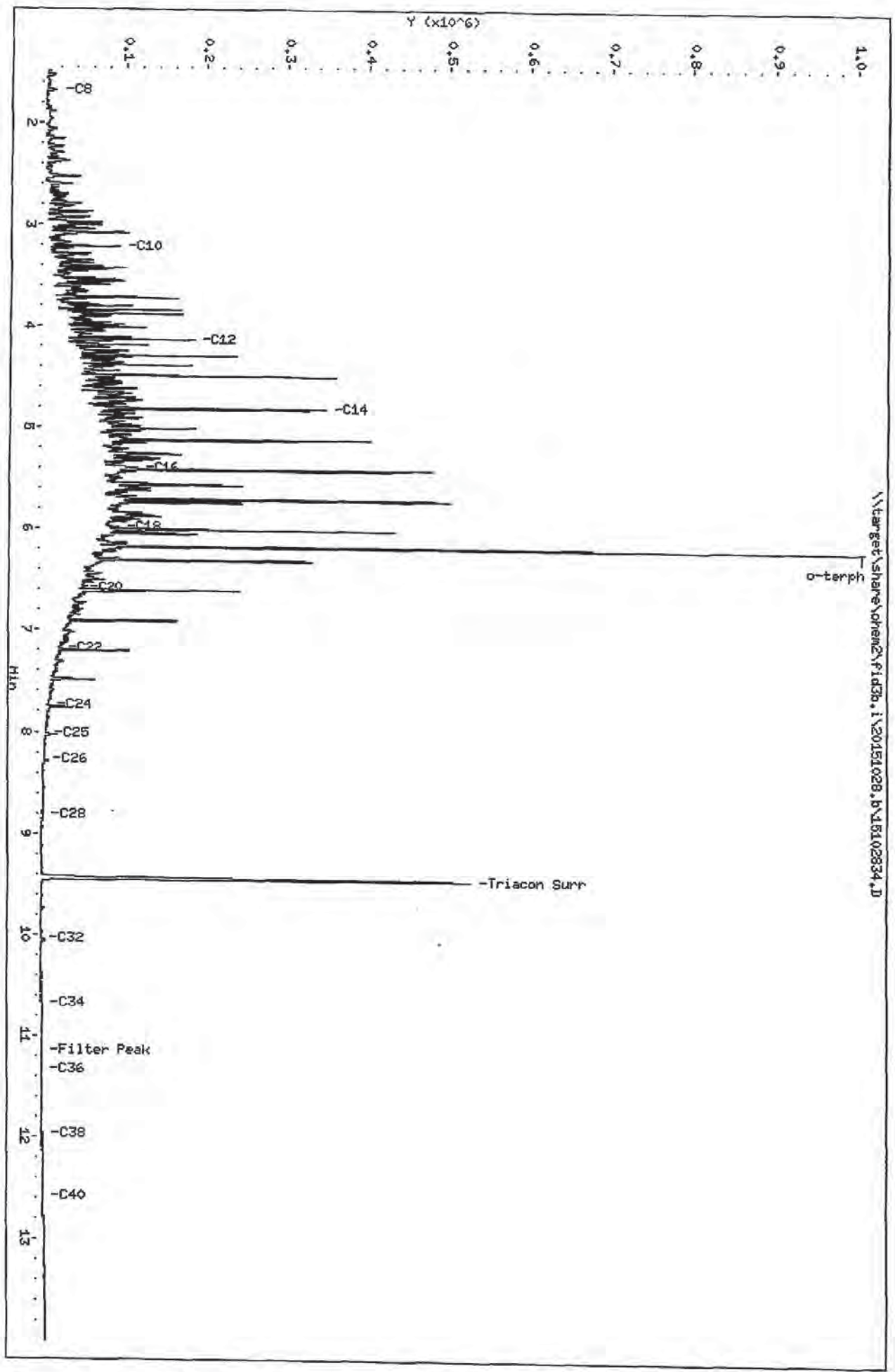
Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102834.D
Date: 28-OCT-2015 22:59
Client ID: ROW8LCSS1
Sample Info: ROW8LCSS1

Instrument: fid3b.i
Operator: HL
Column diameter: 0.25

Column phase: RTX-1

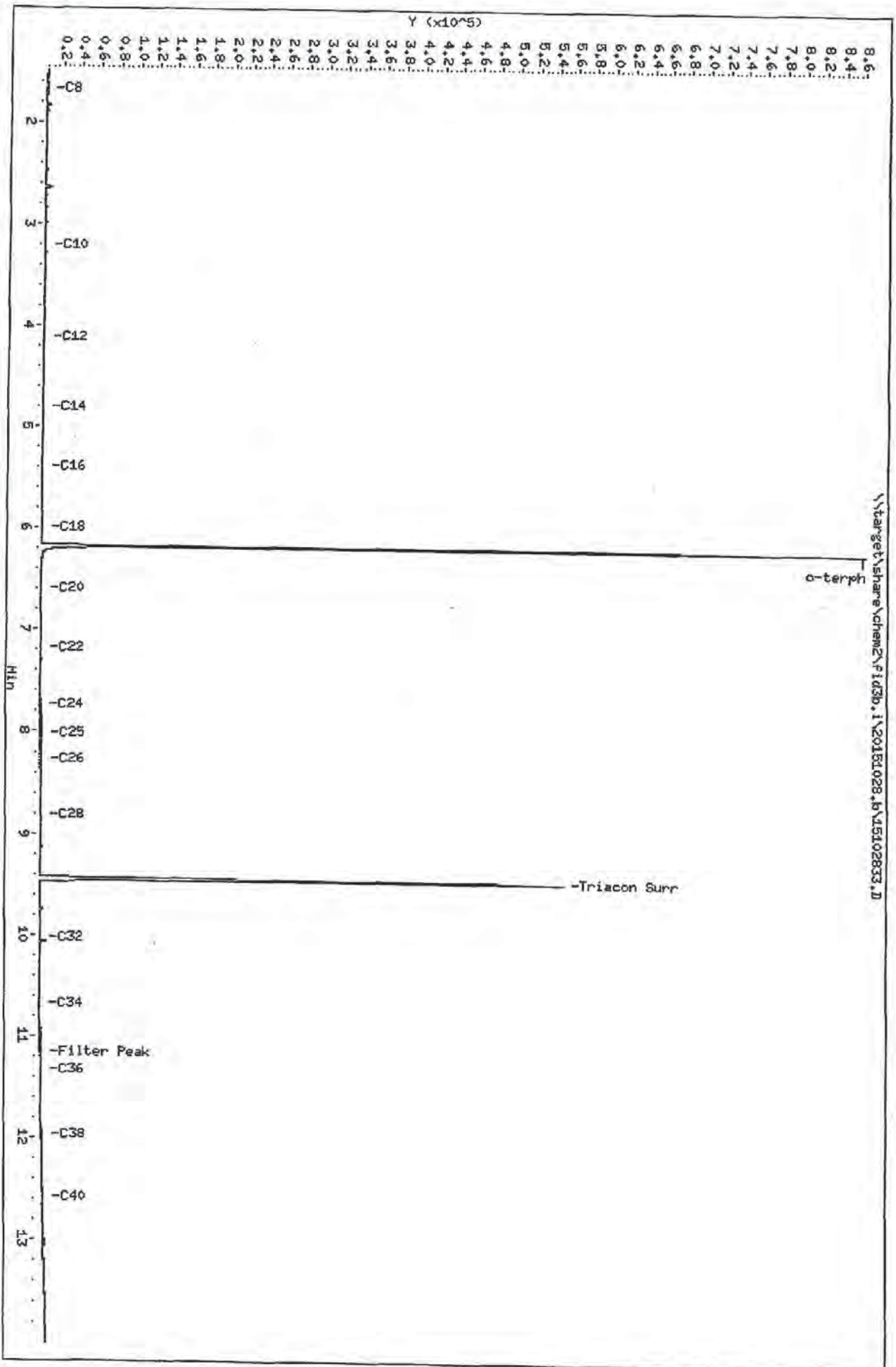
\\target\share\chem2\fid3b.i\20151028.b\15102834.D



Data File: \\target\share\chem2\FID3b,1\20151028,b\15102833.D
 Date: 28-OCT-2015 22:38
 Client ID: AOV9HBS1
 Sample Info: AOV9HBS1

Column phase: RTX-1

Instrument: FID3b,1
 Operator: HL
 Column diameter: 0.25



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

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: *EF*

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

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: *ef*

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

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%

October 30, 2015

Mark Harris
Analytical Resources, Incorporated
4611 S. 134th Place Suite 100
Tukwila, WA 98168



INDUSTRIAL
HYGIENE
SERVICES

Laboratory | Management | Training

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,

A handwritten signature in black ink, appearing to read 'Nick Ly'.

Nick Ly, Technical Director

1.888.NVL.LABS Enc.: Sample Results
1.888.(685.5227)
www.nvllabs.com



Lab Code: 102063-0

page 1 of 4

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

AOV9 : 00064

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: Analytical Resources, Incorporated
Address: 4611 S. 134th Place Suite 100
Tukwila, WA 98168

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

Attention: Mr. Mark Harris
Project Location: N-A

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:
Binder/Filler, Mineral grains

Other Fibrous Materials:%
Cellulose
Glass fibers

Asbestos Type: %
None Detected ND

Sampled by: Client

Analyzed by: Fiona Chui

Reviewed by: Nick Ly

Date: 10/28/2015

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



Company Analytical Resources, Incorporated NVL Batch Number **1519447.00**
 Address 4611 S. 134th Place Suite 100 TAT 5 Days AH No.
 Tukwila, WA 98168 Rush TAT
 Project Manager Mr. Mark Harris Due Date 10/30/2015 Time 12:15 PM
 Phone (206) 695-6200 Email markh@arilabs.com
 Fax (206) 695-6202

Project Name/Number: ARI Project AOV9 Project Location: N-A
 Seaport Landing

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					
<input type="checkbox"/> Faxed <input type="checkbox"/> Emailed					
Special Instructions:					

Date: 10/23/2015
 Time: 5:31 PM
 Entered By: Justin Shearer

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 10/20/15



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 successors, 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, notwithstanding 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	12 832 696 03 5576 9440	Date	10/22/15
Relinquished by	WJ	Company	ARI	Date	10/22/15
Received by	Maxwell	Company	NVL	Date	10/23/15
				Time	12:15 UPS

1519447

AOV9: 00067



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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 4001 Turn-around Requested: 3 of 3

ARI Client Company: New Poston & Alangi, Inc Phone: (503) 501-2212

Client Contact: Madi Novak

Client Project Name: Seaport Landing

Client Project #: 1044.0201-02 Samplers: RDA MRN

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					Notes/Comments	
					Phenol	PAH	PBB	Mercury	metals		TDH
CR19F-SB5D	10/16	0940	sed	2	X	X	X	X	X	X	Archive
CR19F-SB5D-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	
CR19F-SSD-CANV	10/16	0950	sed	1	X	X	X	X	X	X	
CR19G-0-10cm	10/16	0927	sed	1							
CR19G-9.0	10/16	0930	sed	1							
CR19F-5.0	10/16	0950	sed	1							
CR19F-9.0	10/16	0945	sed	1							
CR18B-SB5D	10/16	1200	sed	2	X	X	X	X	X	X	no TDH
CR18B-SSD	10/16	1205	sed	4	X	X	X	X	X	X	
Comments/Special Instructions					Relinquished by: (Signature)	Received by: (Signature)					
Archive remaining volume.					Printed Name: <u>Rexanne Diggins</u>	Printed Name: <u>wd</u>					
					Company: <u>MFA</u>	Company: <u>ARI</u>					
					Date & Time: <u>10/16 1520</u>	Date & Time: <u>10/16/15 1520</u>					

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.



Cooler Receipt Form

ARI Client: Maly 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#: D002565

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: 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: _____

<p>Small Air Bubbles - 2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles > 4 mm</p>	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



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 \geq 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.



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Analytical Chemists and
Consultants

- 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 $\geq 40\%$ 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)



**Analytical Resources,
Incorporated**
Analytical Chemists and
Consultants

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR19F-SBSD
SAMPLE

Lab Sample ID: AOW1A
 LIMS ID: 15-19542
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR19F-SBSD-DUP
SAMPLE

Lab Sample ID: AOW1B
 LIMS ID: 15-19543
 Matrix: Sediment
 Data Release Authorized: *AS*
 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
TOTBEA	Total Benzofluoranthenes	40	60

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

**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
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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%

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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR18B-SBSD
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
TOTBEA	Total Benzofluoranthenes	40	180

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: CR18B-SBSD
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
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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%

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: *B*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

Sample ID: CR18B-SSD
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
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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%

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: 15-19542
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 2 of 2

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
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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%

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: 15-19542
Matrix: Sediment
Data Release Authorized: *B*
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
 Page 2 of 2

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 Injection Date: 14-NOV-2015 12:09
 Lab File ID: 15111403.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: ICV 5 Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

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
14 Bis(2-Chloroethyl)ether	1.01930	0.79941	0.79941	0.700	-21.57225	20.00000	Averaged
16 2-Chlorophenol	1.30689	1.28200	1.28200	0.800	-1.90460	20.00000	Averaged
17 1,3-Dichlorobenzene	1.60078	1.54397	1.54397	0.010	-3.54909	20.00000	Averaged
19 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 Injection Date: 14-NOV-2015 12:09
 Lab File ID: 15111403.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: ICV 5 Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Dibenzofuran	1.57152	1.56593	1.56593	0.800	-0.35557	20.00000	Averaged
147 4-Nitrophenol	10.00000	13.43358	0.35747	0.010	34.33584	20.00000	Quadratic<
148 2,4-Dinitrotoluene	0.39543	0.44242	0.44242	0.200	11.88253	20.00000	Averaged
150 Diethylphthalate	1.32554	1.82004	1.82004	0.010	37.30561	20.00000	Averaged<
149 Fluorene	1.34379	1.20933	1.20933	0.100	-10.00593	20.00000	Averaged
151 4-Chlorophenyl-phenylether	0.68765	0.71361	0.71361	0.100	3.77493	20.00000	Averaged
152 4-Nitroaniline	0.30110	0.27918	0.27918	0.010	-7.27836	20.00000	Averaged
153 4,6-Dinitro-2-methylphenol	20.00000	18.45121	0.13467	0.001	-7.74397	20.00000	Quadratic
154 N-Nitrosodiphenylamine	0.54831	0.50803	0.50803	0.010	-7.34588	20.00000	Averaged
155 2,4,6-Tribromophenol	0.34466	0.40646	0.40646	0.010	17.93047	20.00000	Averaged
156 4-Bromophenyl-phenylether	0.27932	0.29241	0.29241	0.100	4.68494	20.00000	Averaged
157 Hexachlorobenzene	0.36460	0.33543	0.33543	0.100	-8.00104	20.00000	Averaged
158 Pentachlorophenol	10.00000	7.95604	0.16235	0.010	-20.43960	20.00000	Quadratic<
160 Phenanthrene	1.02053	0.95681	0.95681	0.700	-6.24361	20.00000	Averaged
161 Anthracene	1.04166	1.02305	1.02305	0.700	-1.78690	20.00000	Averaged
162 Carbazole	0.87135	0.79066	0.79066	0.010	-9.26048	20.00000	Averaged
163 Di-n-butylphthalate	1.31288	1.40257	1.40257	0.010	6.83226	20.00000	Averaged
164 Fluoranthene	1.11470	1.02121	1.02121	0.600	-8.38756	20.00000	Averaged
165 Pyrene	1.18016	1.00630	1.00630	0.600	-14.73179	20.00000	Averaged
166 Terphenyl-d14	0.74289	0.66949	0.66949	0.010	-9.88103	20.00000	Averaged
167 Butylbenzylphthalate	0.50597	0.53414	0.53414	0.010	5.56781	20.00000	Averaged
168 Benzo(a)anthracene	1.12072	1.07562	1.07562	0.700	-4.02433	20.00000	Averaged
170 3,3'-Dichlorobenzidine	0.75137	0.72269	0.72269	0.010	-3.81794	20.00000	Averaged
171 Chrysene	0.97701	0.91661	0.91661	0.700	-6.18140	20.00000	Averaged
172 bis(2-Ethylhexyl)phthalate	0.52679	0.48036	0.48036	0.010	-8.81366	20.00000	Averaged
173 Di-n-octylphthalate	1.07536	0.91915	0.91915	0.010	-14.52593	20.00000	Averaged
174 Benzo(b)fluoranthene	1.08810	1.03403	1.03403	0.700	-4.96944	20.00000	Averaged
175 Benzo(k)fluoranthene	1.08482	0.99545	0.99545	0.700	-8.23784	20.00000	Averaged
176 Benzo(a)pyrene	1.03138	0.99224	0.99224	0.700	-3.79407	20.00000	Averaged
178 Indeno(1,2,3-cd)pyrene	1.37485	1.40557	1.40557	0.500	2.23424	20.00000	Averaged
179 Dibenzo(a,h)anthracene	1.13622	1.09199	1.09199	0.400	-3.89259	20.00000	Averaged
180 Benzo(g,h,i)perylene	1.23143	1.18040	1.18040	0.500	-4.14398	20.00000	Averaged
190 N-Nitrosodimethylamine	0.53343	0.47585	0.47585	0.010	-10.79437	20.00000	Averaged
191 Aniline	1.56324	1.29410	1.29410	0.010	-17.21667	20.00000	Averaged
193 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
199 Perylene	0.99701	0.95088	0.95088	0.010	-4.62702	20.00000	Averaged
198 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

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-103015

METHOD BLANK

Lab Sample ID: MB-103015

LIMS ID: 15-19542

Matrix: Sediment

Data Release Authorized: *THW*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *TWJ*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: CR18B-SBSD

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR18B-SSD

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOW11

QC Report No: AOW1-Maul Foster & Alongi

LIMS ID: 15-19550

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *YWW*

Date Sampled: 10/16/15

Reported: 11/19/15

Date Received: 10/16/15

Date Extracted: 10/30/15

Sample Amount: 10.07 g-dry-wt

Date Analyzed: 11/14/15 22:59

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 52.1%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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%

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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

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

QC Report No: AOW1-Maul Foster & Alongi

LIMS ID: 15-19542

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: NA

Reported: 11/19/15

Date Received: NA

Date Extracted: 10/30/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 11/05/15 21:52

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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 Injection Date: 05-NOV-2015 14:04
 Lab File ID: CC1105A.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:39
 Lab Sample ID: CC1105A Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

COMPOUND	RRF / AMOUNT	RF1	MIN		MAX		CURVE TYPE
			RRF	%D / %DRIFT	%D / %DRIFT		
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

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
 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

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

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: *mm*
 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

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	
37C14-2,3,7,8-TCDD			91.3	35-197	

Reported in Percent Recovery

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: *mm*

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

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	
37C14-2,3,7,8-TCDD			105	35-197	

Reported in Percent Recovery

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

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: *mm*

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	
37C14-2,3,7,8-TCDD			99.1	35-197	

Reported in Percent Recovery

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

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: *[Signature]*
 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

Decachlorobiphenyl	72.8%
Tetrachlorometaxylene	80.5%

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: *[Signature]*
 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%

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: *[Signature]*
 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%

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: 15-19542
 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%

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: *[Signature]*

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)

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

**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: *[Signature]*
Reported: 11/02/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-102315 15-19544	Method Blank HC ID: ---	10/23/15	10/28/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 74.0%
AOW1C 15-19544	CR19F-SSD HC ID: DIESEL/MOTOR OIL	10/23/15	10/29/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	10 20	93 240 72.0%
AOW1I 15-19550	CR18B-SSD HC ID: DIESEL/MOTOR OIL	10/23/15	10/29/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	10 21	44 92 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW1-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
102315MB	74.0%	0
102315LCS	74.6%	0
CR19F-SSD	72.0%	0
CR18B-SSD	70.8%	0

	<u>LCS/MB LIMITS</u>	<u>QC LIMITS</u>
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19544 to 15-19550

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: *mm*
 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%
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Results reported in mg/kg

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Sediment
Date Received: 10/16/15

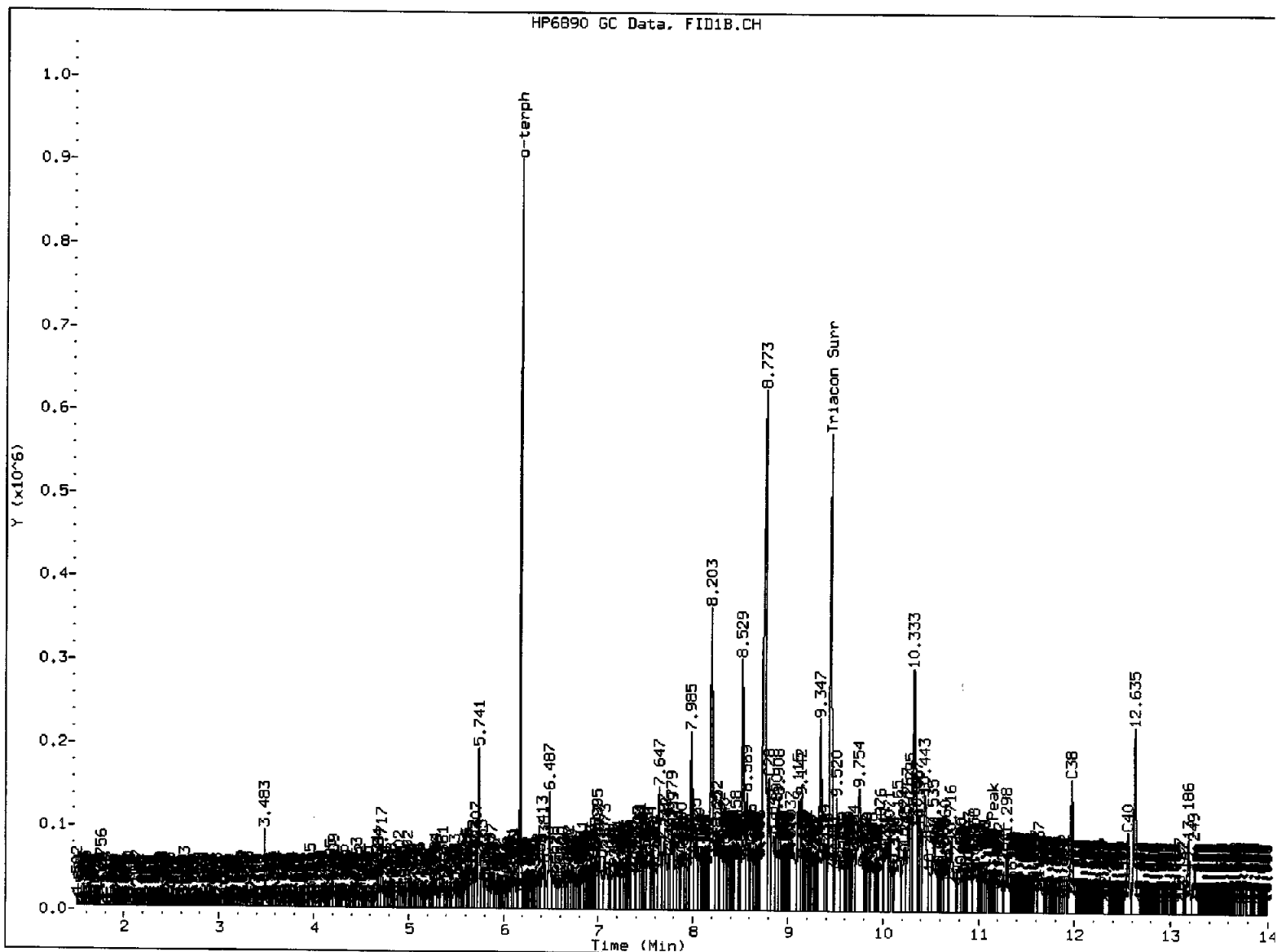
ARI Job: AOW1
Project: Seaport Landing
1044.02.01-02

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

AOW1 : 00052

HP6890 GC Data, FID1B.CH

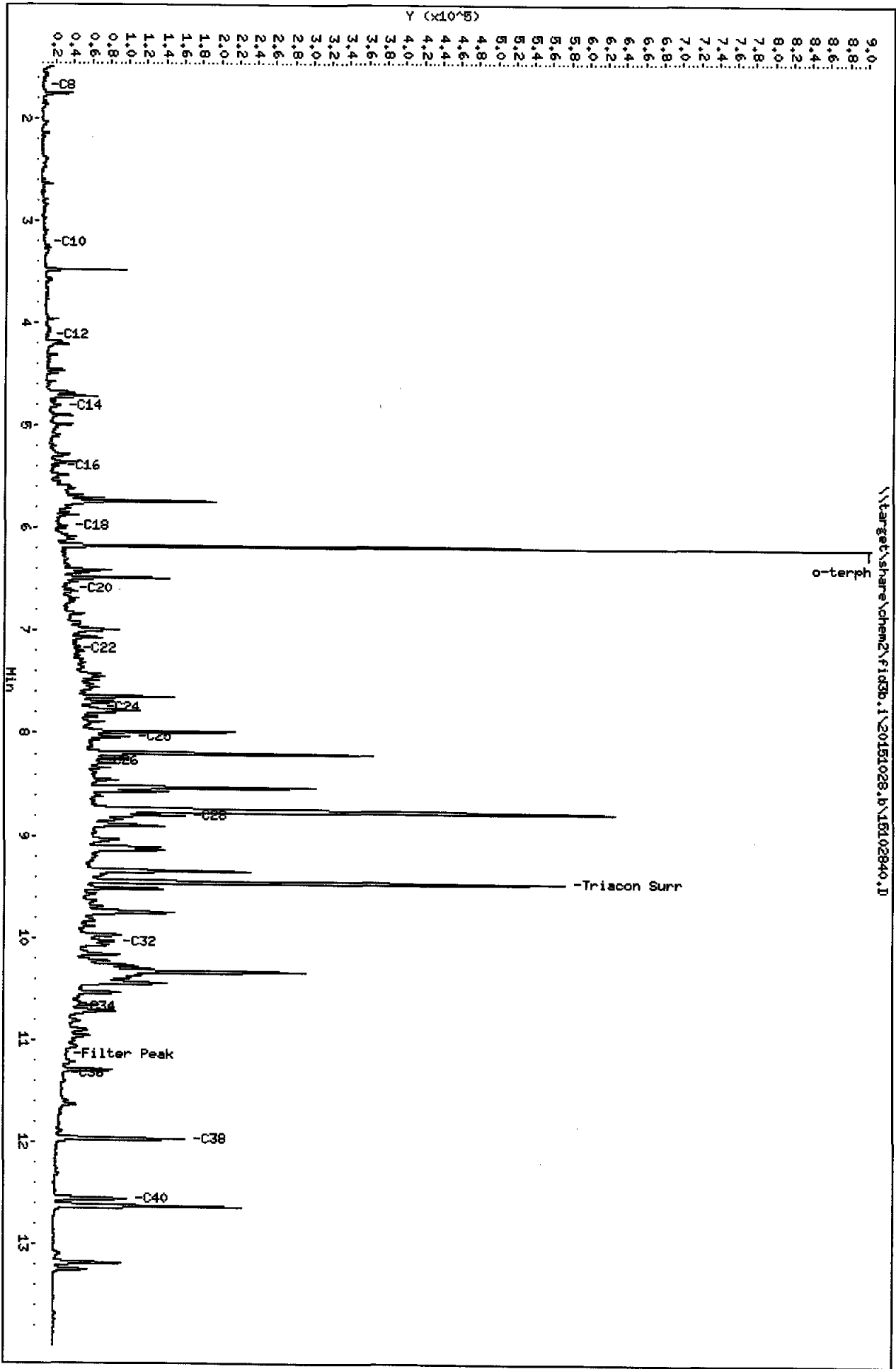


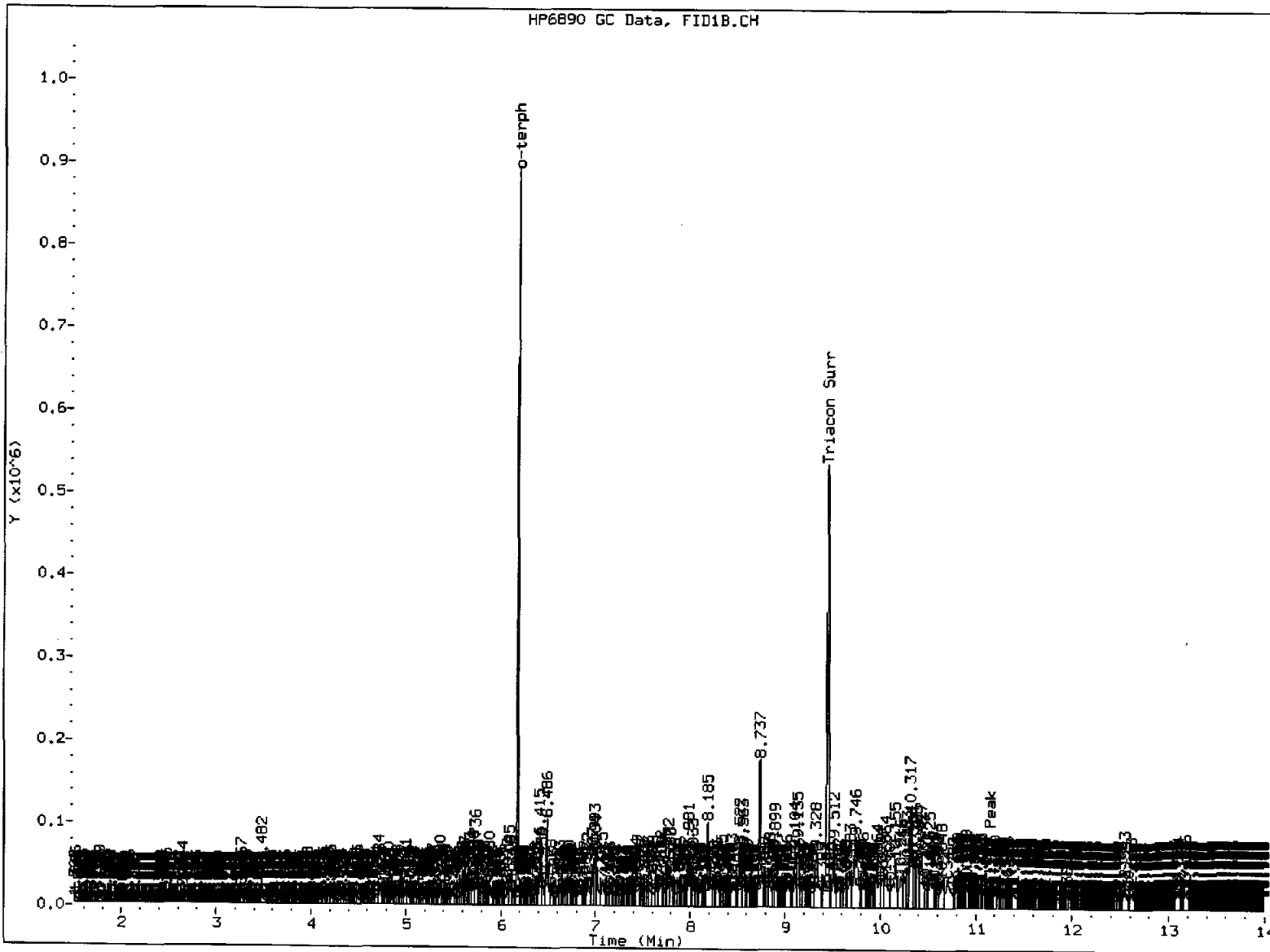
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skimmed surrogate

Analyst: MM

Date: 10/29/15



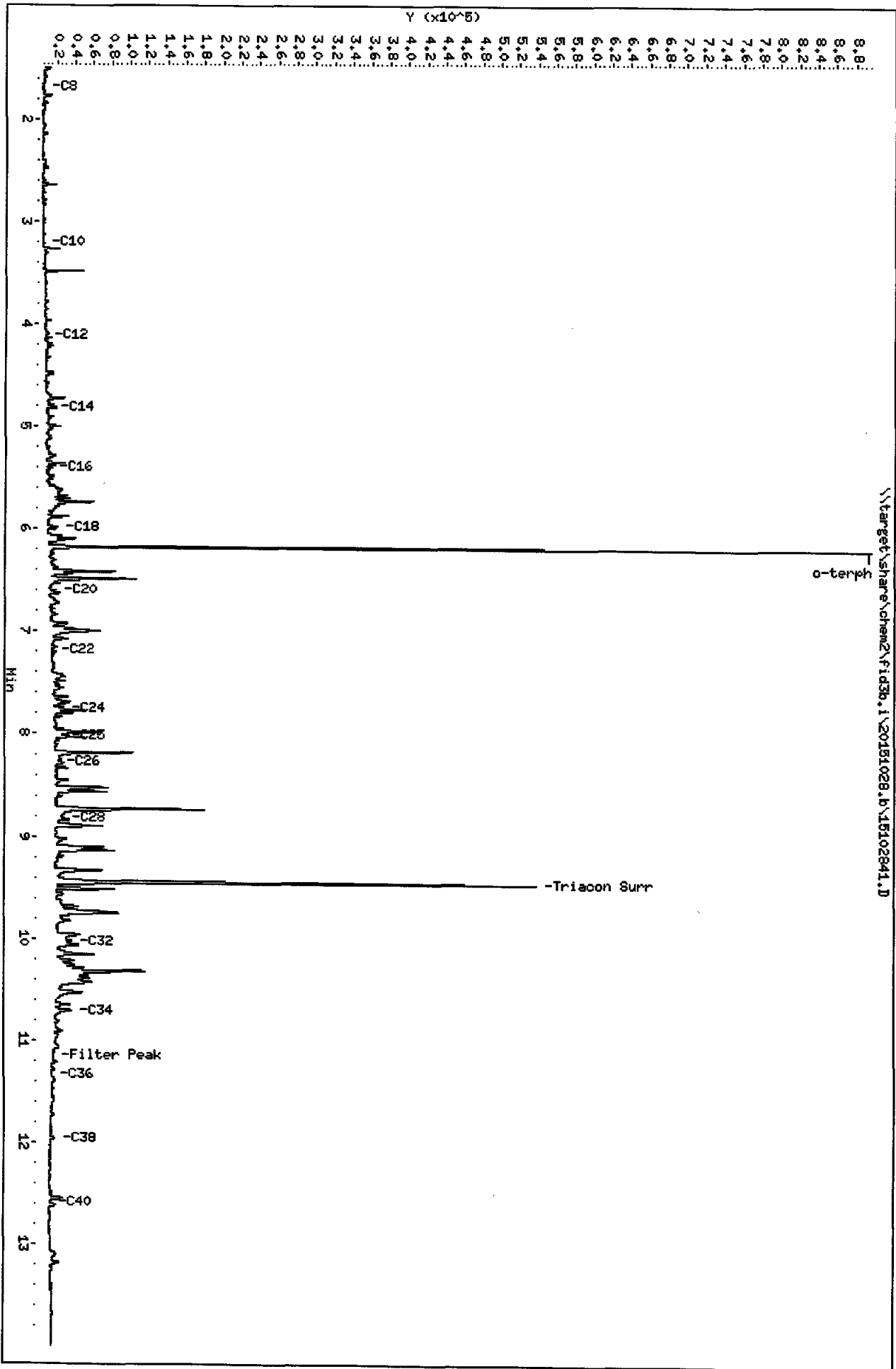


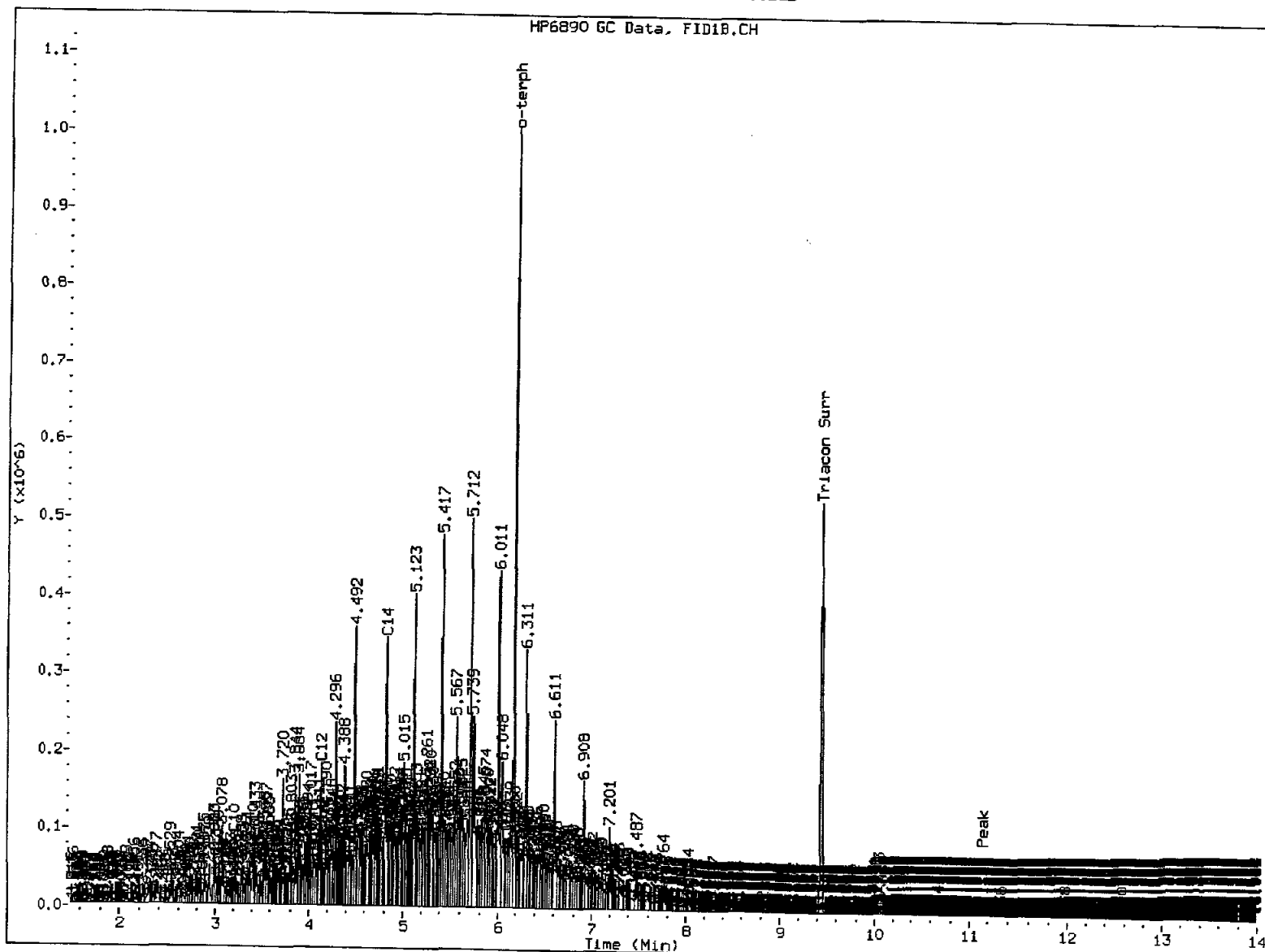
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ② Skimmed surrogate

Analyst: MM

Date: 10/29/15





MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

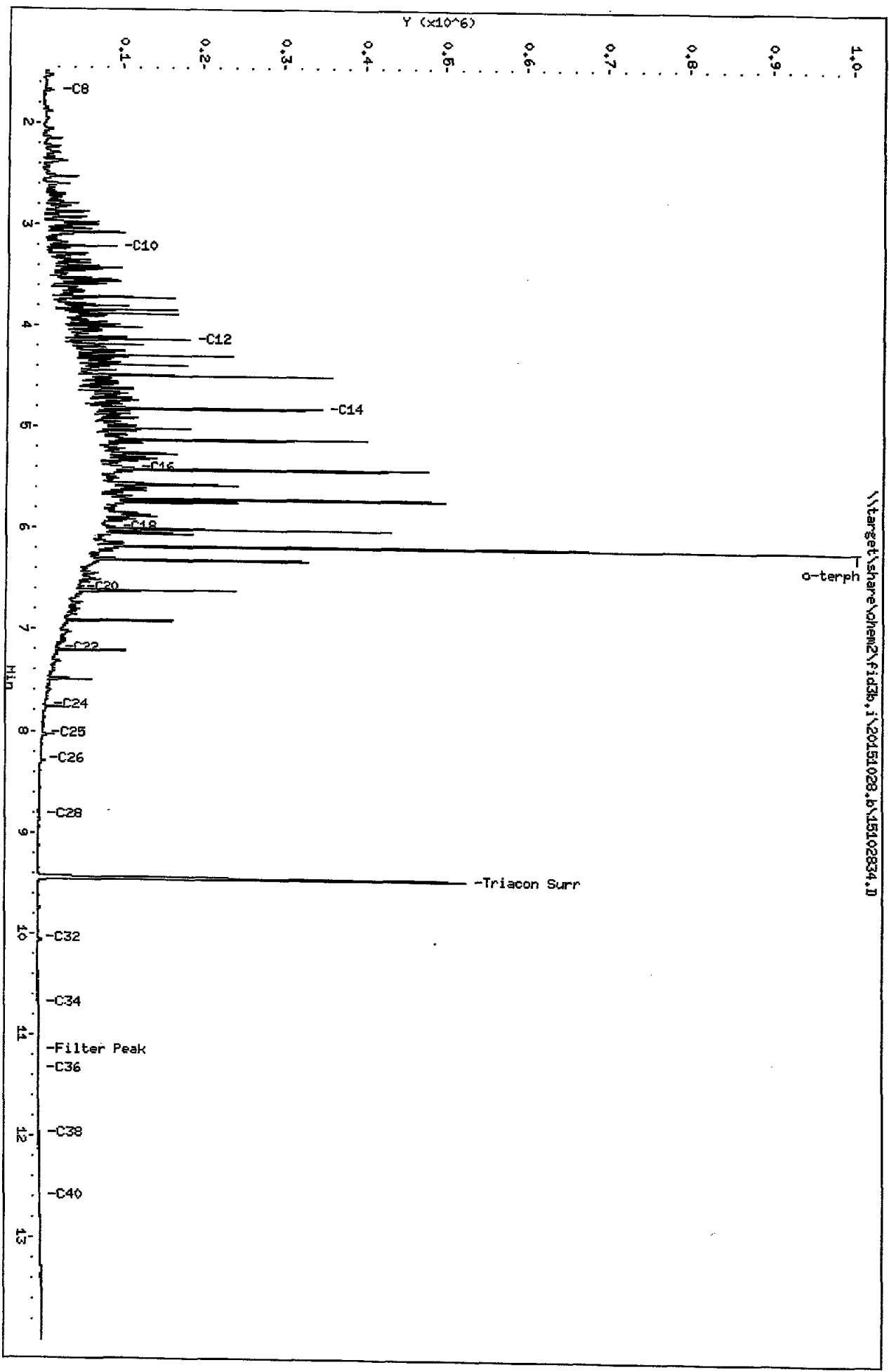
Analyst: MM

Date: 10/29/15

Data File: \\target\share\chem2\fid3b.i\20151028.b\15102834.D
Date: 28-OCT-2015 22:59
Client ID: AOW1LCSS4
Sample Info: AOW1LCSS4

Column phase: RTX-1

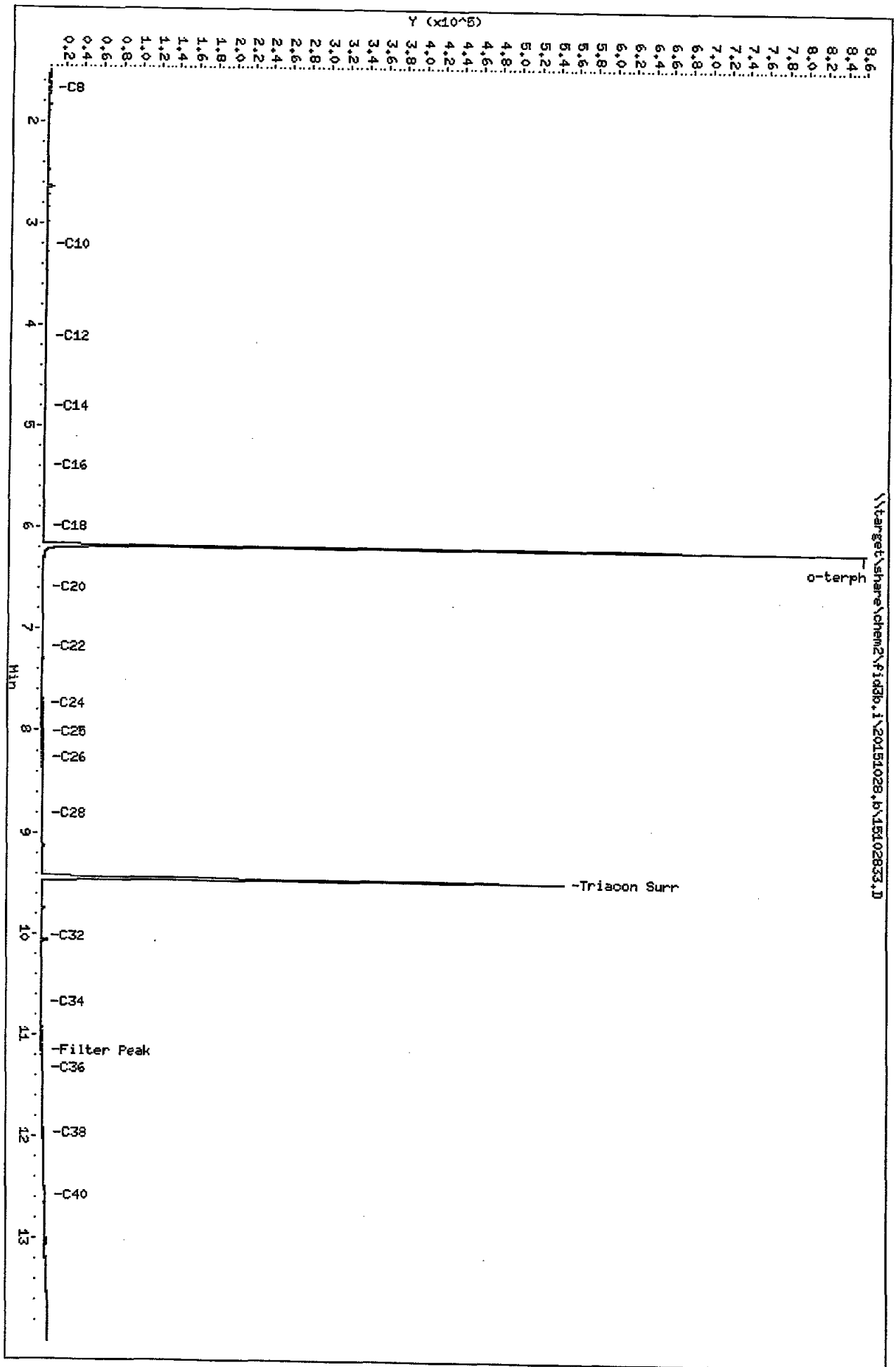
Instrument: fid3b.i
Operator: ML
Column diameter: 0.25



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
AOW1-Maul Foster & Alongi



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



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



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 AOWIC

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



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



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-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



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	11/11/15	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
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



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%

REPLICATE RESULTS-CONVENTIONALS
AOW1-Maul Foster & Alongi



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: AOW1 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



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%

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

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

Handwritten initials

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

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%

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



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

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

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

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

ef

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

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%



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

Page 1 of 73

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **AOW2**
 Turn-around Requested: **Standard**
 ARI Client Company: **Muller Foster & Alving, Inc.** Phone: **(503) 501-5212**
 Client Contact: **Mark 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					Notes/Comments		
					PAH	SVHA	PCB	Mercury	Metals		TPH	Dioxin/Furan
Client Project Name: Seabird Landing					SAMPLERS: RD, JJP, MPM							
Client Project #: 1044.02.01-02					ARCHIVE							
CR16A-5.0	10/14	1415	sed	1	X							
CR16A-1.4	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-5SD	10/14	1626	sed	5	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-5SD												
Comments/Special Instructions					Relinquished by: (Signature) <i>[Signature]</i>			Received by: (Signature) <i>[Signature]</i>				
					Printed Name: Roxanne Degens			Printed Name:				
					Company: MFA			Company:				
					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: **ADN2** Turn-around Requested: **Standard** Page: **1** of **1**

ARI Client Company: **Maul Foster & Hargis, Inc.** Phone: **(503) 501-5212** Date: **10/14/02** Ice Present?

Client Contact: **Mudi Novak** Cooler Temps: No. of Coolers: **1**

Client Project Name: **Seaport Landing** Samplers: **R D MRM, JJP**

Client Project #: **1044.02.01-02**

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						Notes/Comments									
					Asbestos	Dioxin/Fur	TPH	SVPH	TBC	metals		PAH	PCBS							
FBO5	10/14	1130	Soil	1	X															
FBO6	10/14	1118	Soil	1	X															
FBO7	10/14	1135	Soil	1	X															
FBO8	10/14	1140	Soil	1	X															
CR086-SSD-COMP	10/14	1145	Soil	36	X															
CR15A-5	10/14	1300	Soil	1	X															
CR15A-11	10/14	1800	Soil	1	X															
UR15B-0-10cm	10/14	1540	Soil	1	X															
CR15B-5	10/14	1345	Soil	1	X															
CR16A-0-10cm	10/14	1410	Soil	10	X															
Comments/Special Instructions	Relinquished by: <i>[Signature]</i> (Signature) Printed Name: Royanne Deppis Company: MFA Date & Time: 				Relinquished by: <i>[Signature]</i> (Signature) Printed Name: Company: Date & Time: 				Received by: <i>[Signature]</i> (Signature) Printed Name: Company: 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.



Cooler Receipt Form

ARI Client: Maly 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 YES NO

Were custody papers properly filled out (ink, signed, etc.) YES ES 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#: D002565

Cooler Accepted by: wl Date: 10/16/16 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: _____



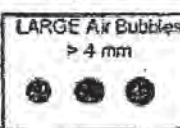
Samples Logged by: wl Date: 10/20/16 Time: 1408

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
<u>CR08A-SSD-COMP</u>	<u>CR08b-SSD-COMP</u>		

Additional Notes, Discrepancies, & Resolutions: * 3 of 5 jars missing from sample CR16C-SSD. 3 extra jars, labeled as CR16C-SSD (crossed out on COC). 1 of 3 jars missing from sample CR16C-SSD. 6 of 6 jars missing from sample CR08b-SSD-COMP. 6 extra jars labeled CR08A-SSD-COMP.

By: wl Date: 10/20/16

			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

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Please take our 5 minute online customer survey<<https://www.surveymonkey.com/s/WPDBVJK>>.

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--

Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

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Please take our 5 minute online customer survey <<https://www.surveymonkey.com/s/WPDBVJK>>.

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--

Mark Harris
Project Manager
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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



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



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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 \geq 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.



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- 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 $\geq 40\%$ 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)



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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

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: *B*
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

Sample ID: CR15C-SSD
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%



ORGANICS ANALYSIS DATA SHEET
 Semivolatiles by SW8270D GC/MS
 Extraction Method: SW3546
 Page 1 of 2

Sample ID: CR15C-SBSD
 SAMPLE

Lab Sample ID: AOW2I
 LIMS ID: 15-19559
 Matrix: Sediment
 Data Release Authorized: *A*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

Sample ID: CR15C-SBSD
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SWB270D GC/MS
Extraction Method: SW3546
Page 1 of 2

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
TOTBEA	Total Benzofluoranthenes	38	220

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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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%

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: *[Signature]*
 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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 2 of 2

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
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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%

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: *AS*
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 2 of 2

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)

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 Injection Date: 14-NOV-2015 12:09
 Lab File ID: 15111403.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: ICV 5 Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

COMPOUND	RRF / AMOUNT	RFS	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 Injection Date: 14-NOV-2015 12:09
 Lab File ID: 15111403.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:03
 Lab Sample ID: ICV 5 Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151114.b\ABN.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Dibenzofuran	1.57152	1.56593	1.56593	0.800	-0.35557	20.00000	Averaged
147 4-Nitrophenol	10.00000	13.43358	0.35747	0.010	34.33584	20.00000	Quadratic<-
148 2,4-Dinitrotoluene	0.39543	0.44242	0.44242	0.200	11.88253	20.00000	Averaged
150 Diethylphthalate	1.32554	1.82004	1.82004	0.010	37.30561	20.00000	Averaged<-
149 Fluorene	1.34379	1.20933	1.20933	0.100	-10.00593	20.00000	Averaged
151 4-Chlorophenyl-phenylether	0.68765	0.71361	0.71361	0.100	3.77493	20.00000	Averaged
152 4-Nitroaniline	0.30110	0.27918	0.27918	0.010	-7.27836	20.00000	Averaged
153 4,6-Dinitro-2-methylphenol	20.00000	18.45121	0.13467	0.001	-7.74397	20.00000	Quadratic
154 N-Nitrosodiphenylamine	0.54831	0.50803	0.50803	0.010	-7.34588	20.00000	Averaged
155 2,4,6-Tribromophenol	0.34466	0.40646	0.40646	0.010	17.93047	20.00000	Averaged
156 4-Bromophenyl-phenylether	0.27932	0.29241	0.29241	0.100	4.68494	20.00000	Averaged
157 Hexachlorobenzene	0.36460	0.33543	0.33543	0.100	-8.00104	20.00000	Averaged
158 Pentachlorophenol	10.00000	7.95604	0.16235	0.010	-20.43960	20.00000	Quadratic<-
160 Phenanthrene	1.02053	0.95681	0.95681	0.700	-6.24361	20.00000	Averaged
161 Anthracene	1.04166	1.02305	1.02305	0.700	-1.78690	20.00000	Averaged
162 Carbazole	0.87135	0.79066	0.79066	0.010	-9.26048	20.00000	Averaged
163 Di-n-butylphthalate	1.31288	1.40257	1.40257	0.010	6.83226	20.00000	Averaged
164 Fluoranthene	1.11470	1.02121	1.02121	0.600	-8.38756	20.00000	Averaged
165 Pyrene	1.18016	1.00630	1.00630	0.600	-14.73179	20.00000	Averaged
166 Terphenyl-d14	0.74289	0.66949	0.66949	0.010	-9.88103	20.00000	Averaged
167 Butylbenzylphthalate	0.50597	0.53414	0.53414	0.010	5.56781	20.00000	Averaged
168 Benzo(a)anthracene	1.12072	1.07562	1.07562	0.700	-4.02433	20.00000	Averaged
170 3,3'-Dichlorobenzidine	0.75137	0.72269	0.72269	0.010	-3.81794	20.00000	Averaged
171 Chrysene	0.97701	0.91661	0.91661	0.700	-6.18140	20.00000	Averaged
172 bis(2-Ethylhexyl)phthalate	0.52679	0.48036	0.48036	0.010	-8.81366	20.00000	Averaged
173 Di-n-octylphthalate	1.07536	0.91915	0.91915	0.010	-14.52593	20.00000	Averaged
174 Benzo(b)fluoranthene	1.08810	1.03403	1.03403	0.700	-4.96944	20.00000	Averaged
175 Benzo(k)fluoranthene	1.08482	0.99545	0.99545	0.700	-8.23784	20.00000	Averaged
176 Benzo(a)pyrene	1.03138	0.99224	0.99224	0.700	-3.79407	20.00000	Averaged
178 Indeno(1,2,3-cd)pyrene	1.37485	1.40557	1.40557	0.500	2.23424	20.00000	Averaged
179 Dibenzo(a,h)anthracene	1.13622	1.09199	1.09199	0.400	-3.89259	20.00000	Averaged
180 Benzo(g,h,i)perylene	1.23143	1.18040	1.18040	0.500	-4.14398	20.00000	Averaged
190 N-Nitrosodimethylamine	0.53343	0.47585	0.47585	0.010	-10.79437	20.00000	Averaged
191 Aniline	1.56324	1.29410	1.29410	0.010	-17.21667	20.00000	Averaged
193 Benzidine	0.38521	0.16659	0.16659	0.010	-56.75226	20.00000	Averaged<-
1103 Pyridine	0.85366	0.79840	0.79840	0.010	-6.47352	20.00000	Averaged
1105 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<-
1187 Total Benzofluoranthenes	1.04123	0.97581	0.97581	0.010	-6.28350	20.00000	Averaged
199 Perylene	0.99701	0.95088	0.95088	0.010	-4.62702	20.00000	Averaged
198 Retene	++++	0.00066	0.00066	0.010	++++	20.00000	Averaged<-
1120 2,3,4,6-Tetrachlorophenol	0.35337	0.33535	0.33535	0.010	-5.09982	20.00000	Averaged

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-103015

METHOD BLANK

Lab Sample ID: MB-103015

LIMS ID: 15-19556

Matrix: Sediment

Data Release Authorized: *MMW*

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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR15C-SSD

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: AOW2F

QC Report No: AOW2-Maul Foster & Alongi

LIMS ID: 15-19556

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: 10/14/15

Reported: 11/19/15

Date Received: 10/16/15

Date Extracted: 10/30/15

Sample Amount: 10.19 g-dry-wt

Date Analyzed: 11/14/15 23:35

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 60.8%

Silica Gel Cleanup: No

Sulfur Cleanup: No

Alumina 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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *mmw*

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

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: *mm*

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%

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

QC Report No: AOW2-Maul Foster & Alongi

LIMS ID: 15-19556

Project: Seaport Landing

Matrix: Sediment

Event: 1044.02.01-02

Data Release Authorized: *MW*

Date Sampled: NA

Reported: 11/19/15

Date Received: NA

Date Extracted: 10/30/15

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 11/05/15 21:52

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT10/YZ

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

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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 Injection Date: 05-NOV-2015 14:04
 Lab File ID: CC1105A.D Init. Cal. Date(s): 19-OCT-2015 19-OCT-2015
 Analysis Type: Init. Cal. Times: 11:52 16:39
 Lab Sample ID: CC1105A Quant Type: ISTD
 Method: \\target\share\chem3\nt10.i\20151105.b\SIM.b\SIMABN2.m

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 <-
5 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

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
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

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: ASI/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

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: *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 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



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: *[Signature]*
 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	
37C14-2,3,7,8-TCDD			94.2	35-197	

Reported in Percent Recovery

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: *mm*
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

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

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: *WW*
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: ASI/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

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: *mm*
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

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

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: *AS*
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%

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: *AB*
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%

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: *[Signature]*
 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 ug/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	64.2%
Tetrachlorometaxylene	74.0%

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: *[Signature]*
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%

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: *AB*
 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)

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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: *[Signature]*
 Reported: 11/02/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
MB-102315 15-19556	Method Blank HC ID: ---	10/23/15	10/28/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	5.0 10	< 5.0 U < 10 U 74.0%
AOW2F 15-19556	CR15C-SSD HC ID: DIESEL/MOTOR OIL	10/23/15	10/29/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	13 25	77 190 74.8%
AOW2O 15-19565	CR08b-SSD-COMP HC ID: DIESEL/MOTOR OIL	10/23/15	10/29/15 FID3B	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	11 22	130 320 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.

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: *mmw*
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%
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Results reported in mg/kg

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: AOW2-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
102315MB	74.0%	0
102315LCS	74.6%	0
CR15C-SSD	74.8%	0
CR08b-SSD-COMP	68.1%	0

(OTER) = o-Terphenyl

LCS/MB LIMITS **QC LIMITS**
(50-150) (50-150)

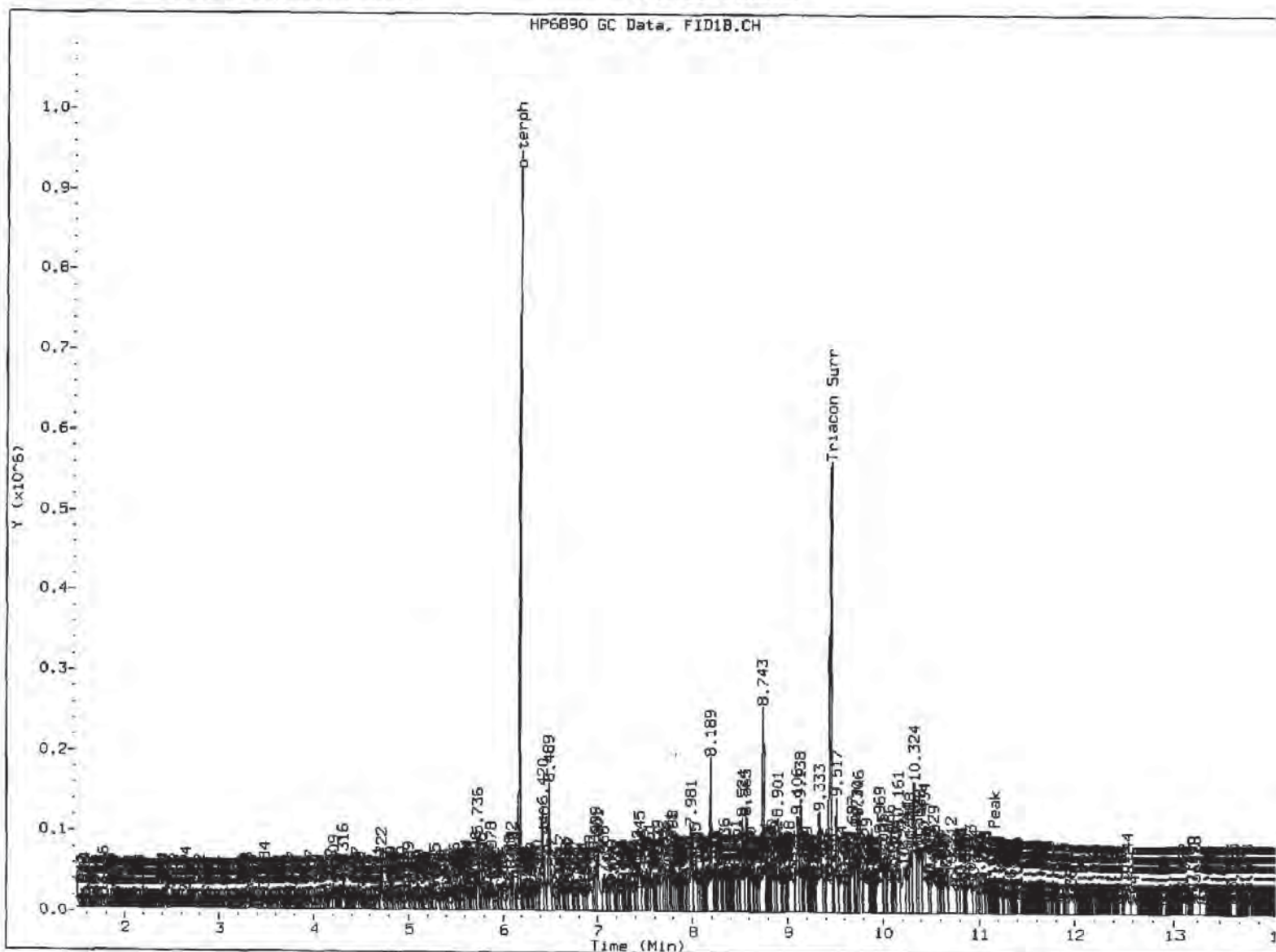
Prep Method: SW3546
Log Number Range: 15-19556 to 15-19565

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

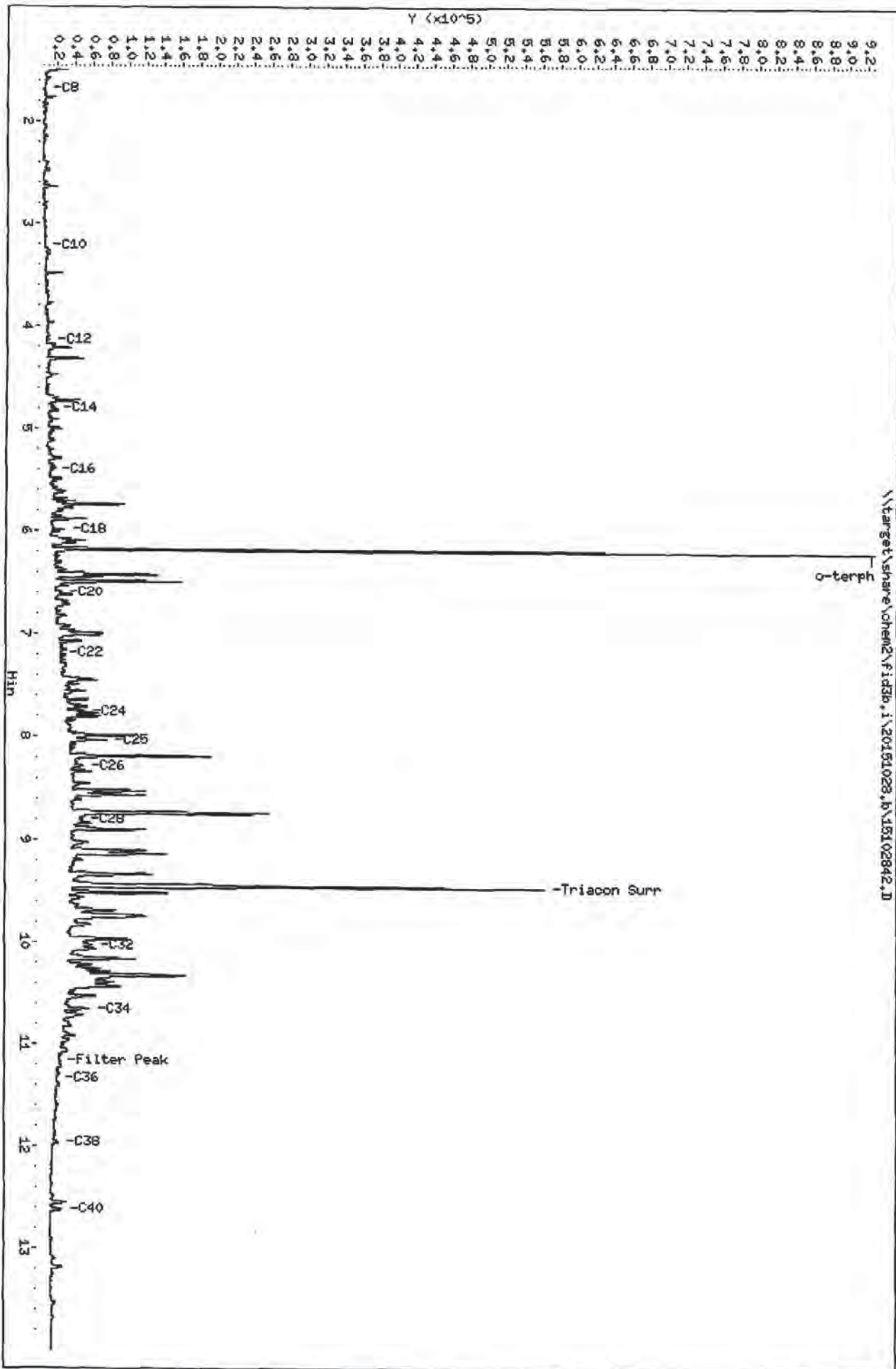


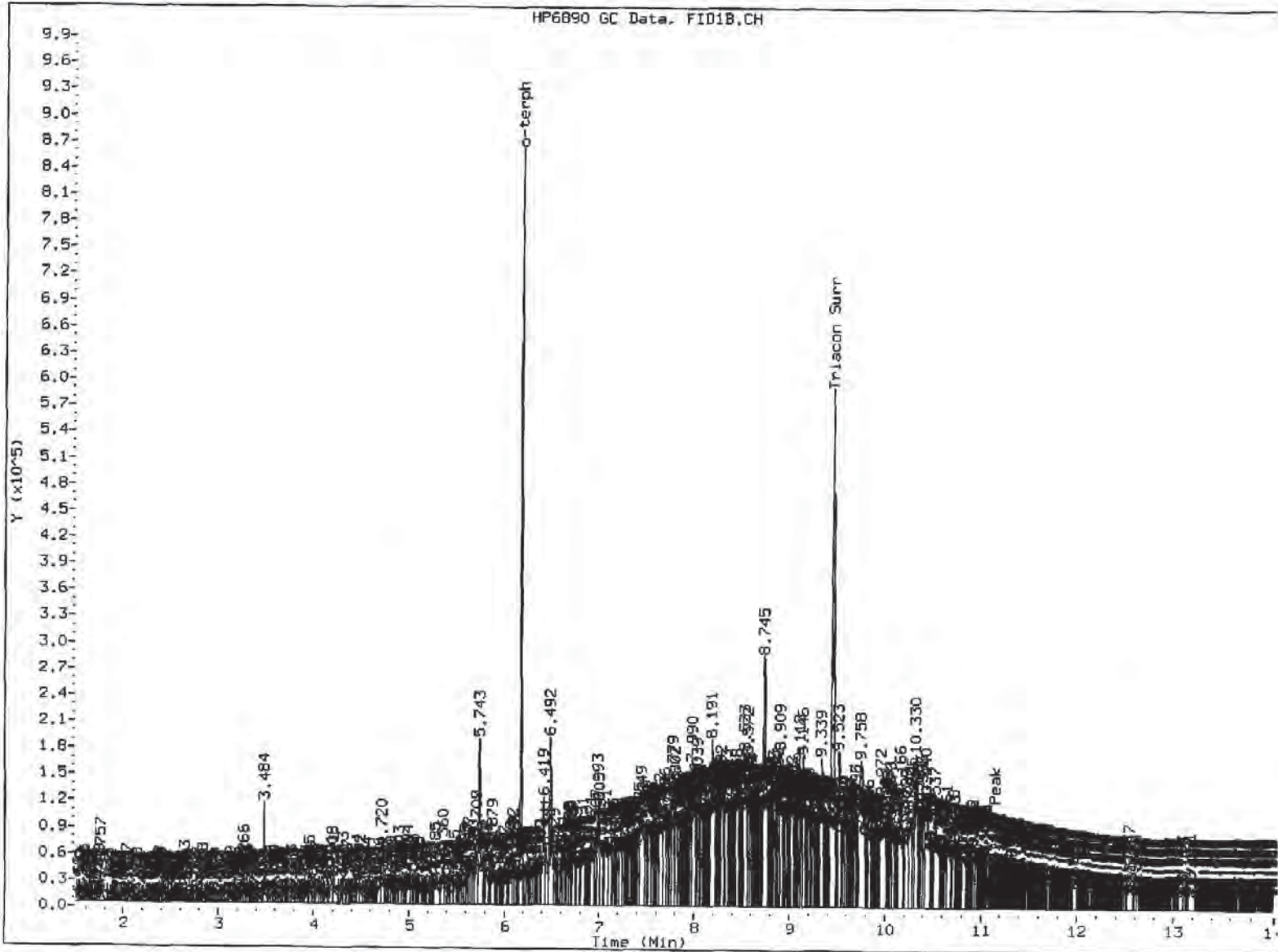
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

Analyst: ML

Date: 10/29/15





MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- 5. Skipped surrogate

Analyst: ML

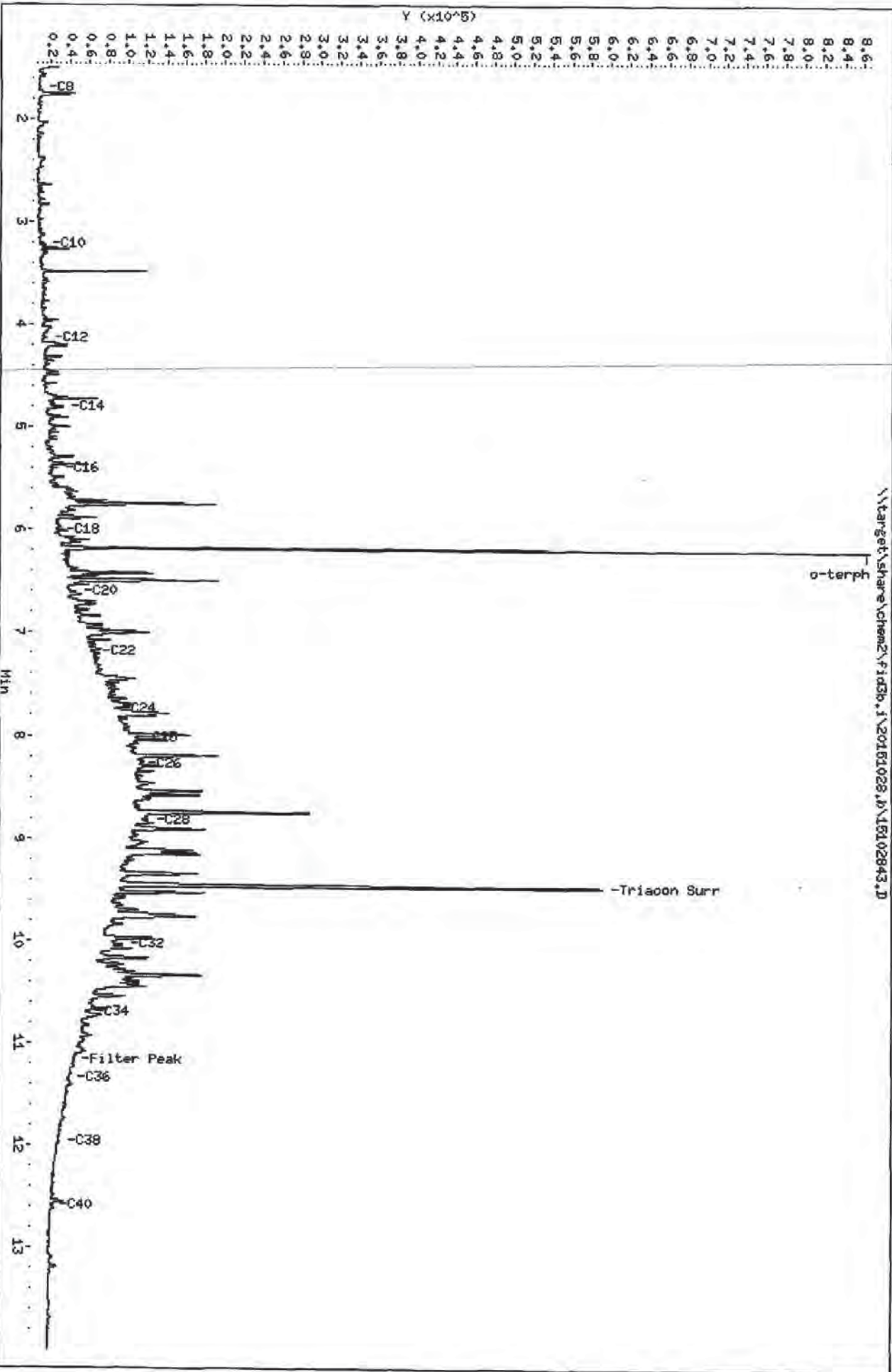
Date: 10/29/15

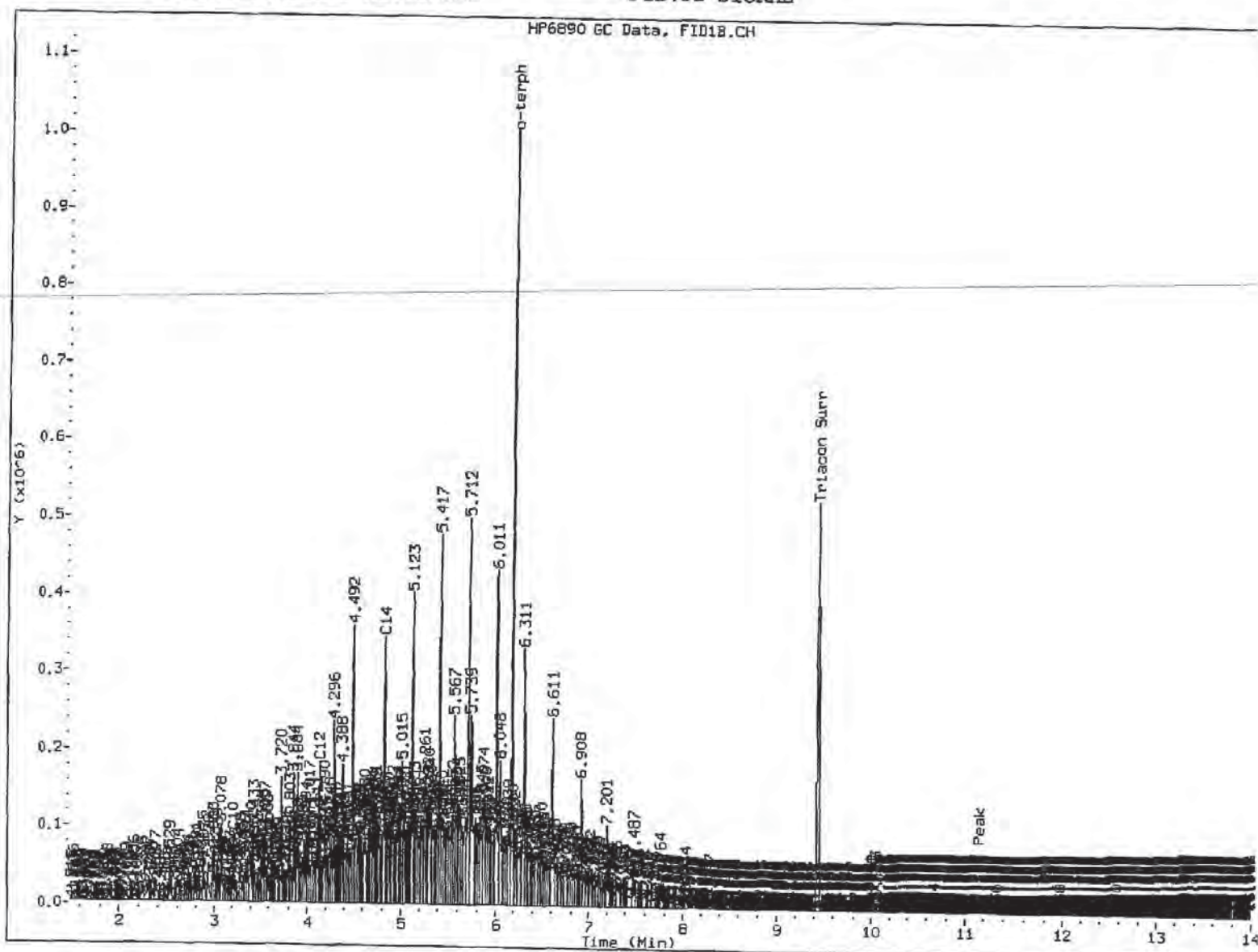
Data File: \\target\share\chem2\fid3b.1\20161028.0\15102843.D
 Date: 29-OCT-2016 02:10
 Client ID: CRO8K-SSD-COMP
 Sample Info: AOW20

Column phase: RTX-1

Instrument: fid3b.1
 Operator: HL
 Column diameter: 0.25

\\target\share\chem2\fid3b.1\20161028.0\15102843.D

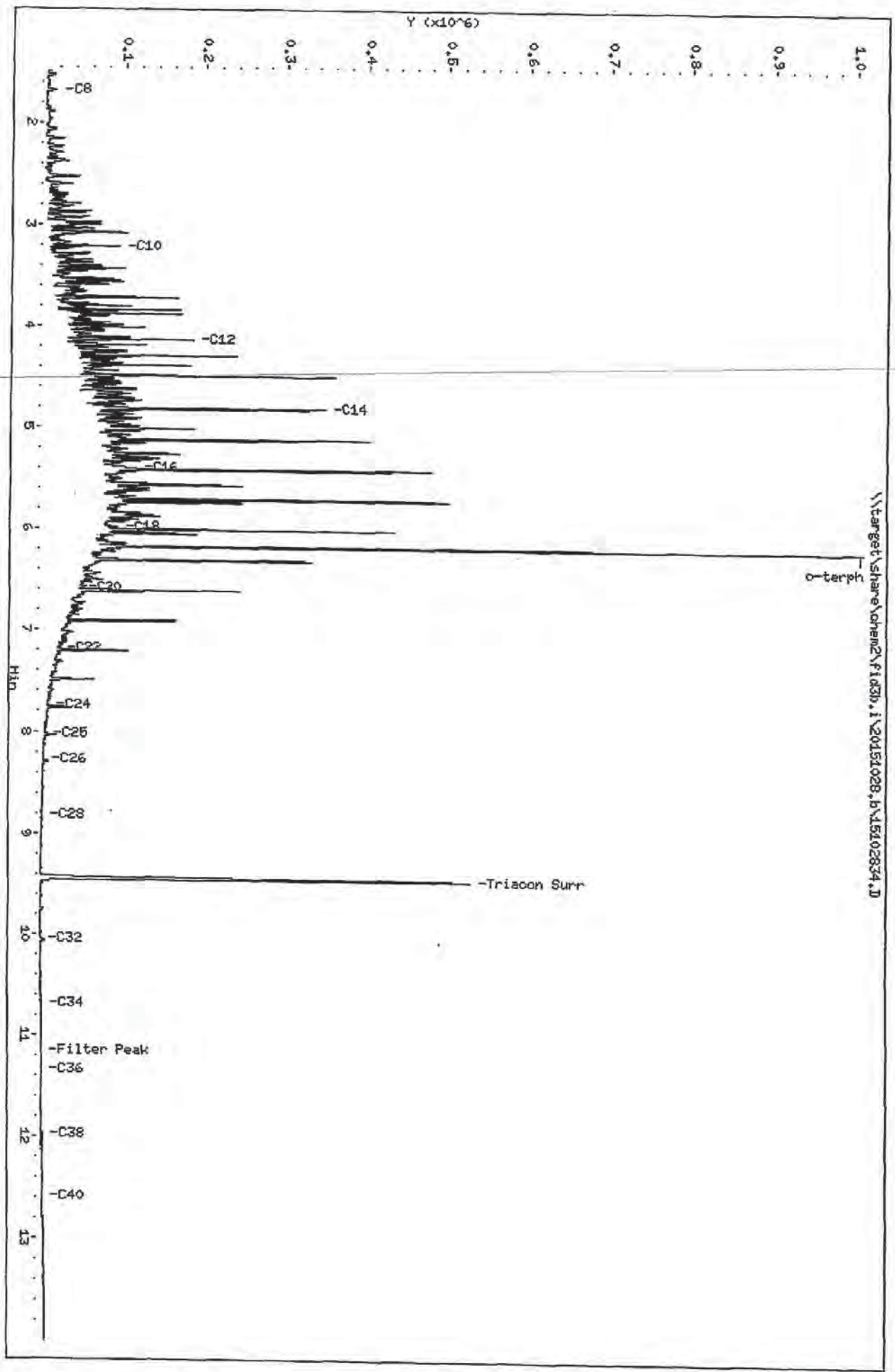




Data File: \\target\share\chem2\fid3b.i\20151028.b\15102834.D
Date: 28-OCT-2015 22:59
Client ID: AOW2LCSS1
Sample Info: AOW2LCSS1

Column phase: RTX-1

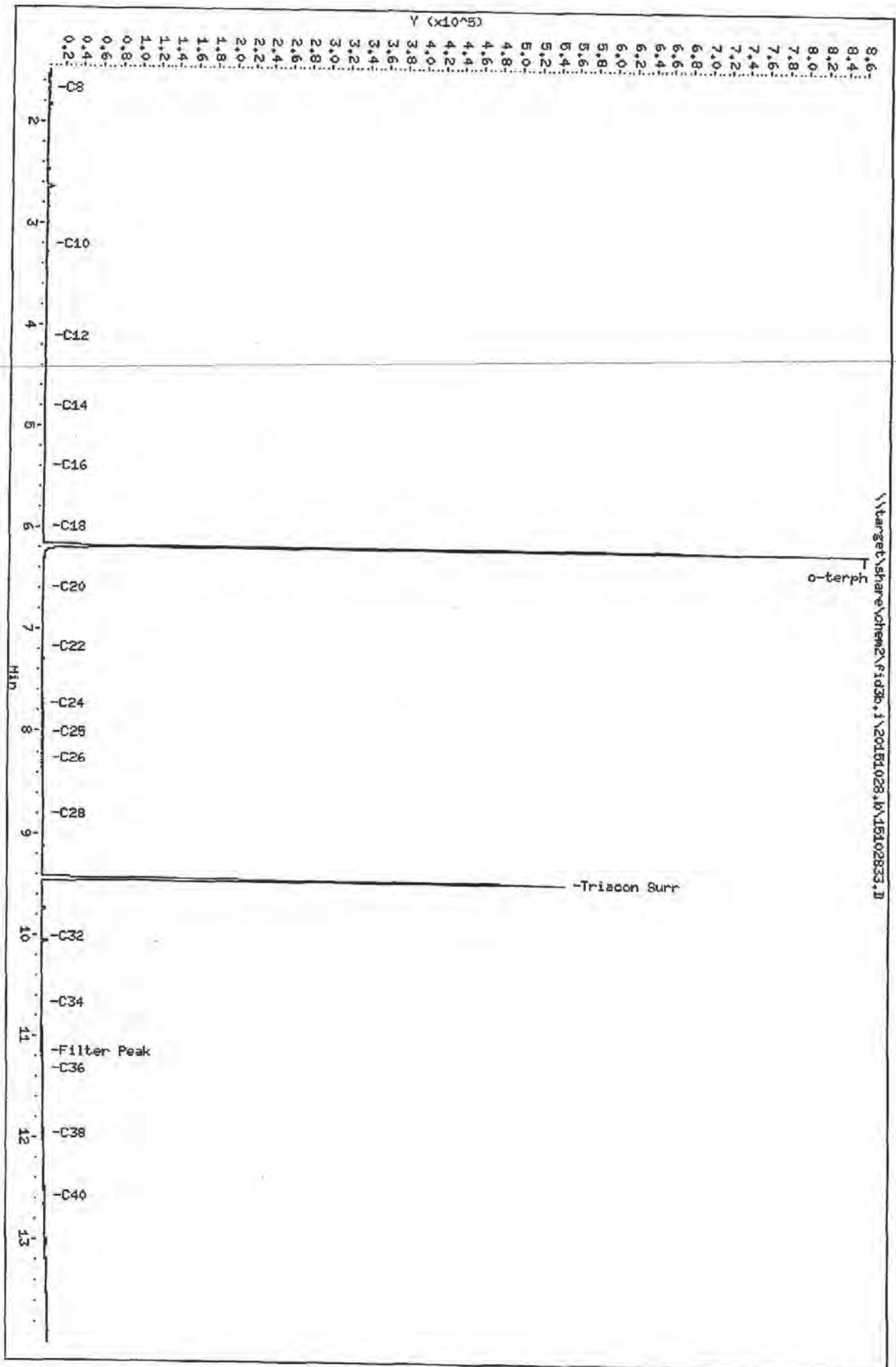
Instrument: fid3b.i
Operator: HL
Column diameter: 0.25



Data File: \\target\share\chem2\Fid3b.i\20151028.b\15102833.D
 Date: 28-OCT-2015 22:38
 Client ID: AOWHBS1
 Sample Info: AOWHBS1

Column phase: RTX-1

Instrument: fid3b.i
 Operator: NL
 Column diameter: 0.25



SAMPLE RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: U
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



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-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



Matrix: Sediment
Data Release Authorized: [initials]
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



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 11/10/15	Percent	< 0.020 U < 0.020 U	ICB ICB

LAB CONTROL RESULTS-CONVENTIONALS
AOW2-Maul Foster & Alongi



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/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



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%

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

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

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: *EF*

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Sample ID: METHOD BLANK

Page 1 of 1

Lab Sample ID: AOW1MB
LIMS ID: 15-19550
Matrix: Sediment
Data Release Authorized:
Reported: 11/07/15

ef

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

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

Mark Harris
Analytical Resources, Incorporated
4611 S. 134th Place Suite 100
Tukwila, WA 98168



INDUSTRIAL
HYGIENE
SERVICES

Laboratory | Management | Training

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,

A handwritten signature in black ink, appearing to read "Nick Ly".

Nick Ly, Technical Director

1.888.NVL.LABS Enc.: Sample Results
1.888.(685.5227)
www.nvllabs.com



Lab Code: 102065-0

page 1 of 4

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

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

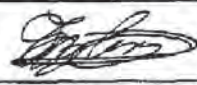
Attention: Mr. Mark Harris
Project Location: N-A

Lab ID: 15116162 **Client Sample #: 15-19565-AOW20**
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 Prysyzhnyuk **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

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES



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-AOW20	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					
<input type="checkbox"/> Faxed <input type="checkbox"/> 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



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

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 successors, 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	17832 695 03 6570 9540	Date	10/22/15
Relinquished by	W	Company	ARI	Date	10/22/15
Received by	<i>[Signature]</i>	Company	NVL	Date	10/23/15
				Time	9:27
				Time	12:10 UPS



ARI Job No.: Acwz (R)

Client ID: Hawi Foster & Alangi

Batch ID: _____

Parameter: BAN/SIM SVOA

Client Project: Seaport Landfill

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
<input checked="" type="checkbox"/> No Anomalies (standard soil/wet sediment/sand/gravel)=	RH 10/21/15
<input type="checkbox"/> Standing Water Decanted (Not shared)= <u>FO</u>	
<input type="checkbox"/> Standing Water Homogenized (Shared samples)=	
<input checked="" type="checkbox"/> Clay/Clumps (Difficult to homogenize)= <u>I, G</u>	RH 10/21/15
<input type="checkbox"/> Rocks (%+size)?	
<input type="checkbox"/> Organics (Leaves/sticks/grass)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Received in 32oz jar(s)=Homogenized in Pyrex dish=	
<input type="checkbox"/> Other (Details)=	
Aqueous:	
<input type="checkbox"/> No Anomalies	
<input type="checkbox"/> Turbid/Color=	
<input type="checkbox"/> Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
<input type="checkbox"/> Emulsions (%)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Other (Details)=	
<input type="checkbox"/> Received in 1.0L Bottle(s)=No Bottle Rinse=	
<input checked="" type="checkbox"/> Other Notes/Comments= (Note problems, concerns, corrective actions). <u>original extracts</u>	
<u>Samples F, I, G lost due to GPC malfunction</u>	
<u>Samples pulled from freezer to re-extract.</u>	
	<u>SR 10/29/15</u>
<input type="checkbox"/> Share Samples Y/N	
<input type="checkbox"/> Multiple Jars <u>Y</u> <u>N</u> <u>0</u>	RH 10/21/15
<input type="checkbox"/> Sample Pre-Screens indicate analyte activity=	
<input type="checkbox"/> Sample weights/volumes reduced based on Pre-Screen=	<u>11/18/15</u>



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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AD001 Turn-around Requested: _____ of 3 Page: _____
 ARI Client Company: Maul Paster & Allogi, Inc Phone: (803) 501-2212 Ice Present? yes
 Client Contact: Madi Novak No. of Coolers: _____ Cooler Temps: _____
 Client Project Name: _____
 Client Project #: 1044.0201-02 DDA MRM Samples: _____

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					Notes/Comments		
					DC	Phenol	PAT	PB	Mercury		metals	TDH
CR19F-SBSD	10/16	0940	sed	2	X	X	X	X	X	X		Archive
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		
CR19F-SSD-CANV	10/16	0950	sed	1	X	X	X	X	X	X		
CR19G-0-10cm	10/16	0927	sed	1	X	X	X	X	X	X		
CR19G-9.0	10/16	0930	sed	1	X	X	X	X	X	X		
CR19F-5.0	10/16	0950	sed	1	X	X	X	X	X	X		
CR19F-9.0	10/16	0945	sed	1	X	X	X	X	X	X		
CR18B-SBSD	10/16	1200	sed	2	X	X	X	X	X	X		
CR18B-SBSD	10/16	1205	sed	4	X	X	X	X	X	X		NO TPAH
Comments/Special Instructions	Archive remaining volume.				Relinquished by: (Signature) <u>[Signature]</u>	Relinquished by: (Signature) <u>[Signature]</u>	Printed Name: <u>REXANNE DEGENS</u>		Printed Name: <u>EMILY LITVIN</u>		Company: <u>ARI</u>	
	Date & Time: <u>10/16 1520</u>				Date & Time: <u>10/16/15</u>		Date & Time: <u>10/16/15</u>		Date & Time: <u>1520</u>		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: Mally Foster
COC No(s): _____ NA
Assigned ARI Job No: _____

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) 2.6
Time: _____

If cooler temperature is out of compliance fill out form 00070F
Cooler Accepted by: wl Date: 10/16/15 Time: 1520 Temp Gun ID#: D002565

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: _____

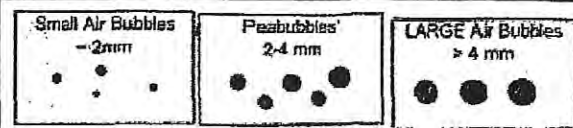
Samples Logged by: wl Date: 10/20/15 Time: 1420

**** 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



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

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%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR18B-SBSD
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%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR18B-SSD
SAMPLE

Lab Sample ID: ART5B
LIMS ID: 15-23181
Matrix: Sediment
Data Release Authorized: *[Signature]*
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%

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT</u>	<u>OUT</u>
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

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: *B*
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)

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: ART5-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT</u>	<u>OUT</u>
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

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

Sample ID Cross Reference Report



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 \geq 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.



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Consultants

- 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 $\geq 40\%$ 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

SAMPLE RESULTS-CONVENTIONALS
ASF7-Maul Foster & Alongi



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: 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



Matrix: Sediment
Data Release Authorized: *W*
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



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	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



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



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%



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: A0V9

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#: DD02865

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: WJ 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



Cooler Receipt Form

ARI Client: MFA
 COC No(s): _____ NA
 Assigned ARI Job No: AUDI

Project Name: Seaport Authority
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 Tracking No: 1287VS210194583688 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#: DecS276

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? 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

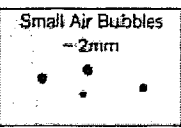
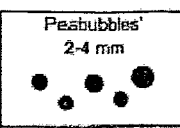
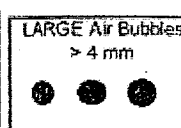
**** Notify Project Manager of discrepancies or concerns ****

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 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 01/14/16

Page 1 of 1



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 DOC FLT FLT	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY		
16-500 AUD1A	Storm-01						TOT pass															
16-501 AUD1B	Storm-01						DIS fail									N						

AUD1 : 00004

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



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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.

Sample ID Cross Reference Report



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



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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 \geq 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.



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- 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 $\geq 40\%$ 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)**



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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

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: *AS*
 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%

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: *AB*
 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%

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: *B*
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

AUD1 : 00013

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

<u>Client ID</u>	<u>NBZ</u>	<u>FBP</u>	<u>TPH</u>	<u>DCB</u>	<u>PHL</u>	<u>2FP</u>	<u>TBP</u>	<u>2CP</u>	<u>TOT</u>	<u>OUT</u>
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 Benzo(a)fluoranthenes	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

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Sample ID: OPR-012116

Page 1 of 1

Lab Sample ID: OPR-012116

QC Report No: AUD1-Maul Foster & Alongi

LIMS ID: 16-500

Project: Seaport Authority

Matrix: Water

NA

Data Release Authorized: *mmw*

Date Sampled: NA

Reported: 01/26/16

Date Received: NA

Date Extracted: 01/21/16

Sample Amount: 1000 mL

Date Analyzed: 01/25/16 14:12

Final Extract Volume: 20 uL

Instrument/Analyst: AS1/PK

Dilution Factor: 1.00

Acid Cleanup: Yes

Silica-Florisil Cleanup: Yes

Silica-Carbon Cleanup: No

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

ORGANICS ANALYSIS DATA SHEET
 Dioxins/Furans by EPA 1613B
 Page 1 of 1



Sample ID: OPR-012116

Lab Sample ID: OPR-012116

QC Report No: AUD1-Maul Foster & Alongi

LIMS ID: 16-500

Project: Seaport Authority

Matrix: Water

NA

Data Release Authorized: *MW*

Date Sampled: NA

Reported: 01/26/16

Date Received: NA

Date Extracted: 01/21/16

Sample Amount: 1000 mL

Date Analyzed: 01/25/16 14:12

Final Extract Volume: 20 uL

Instrument/Analyst: AS1/PK

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

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: *mmw*

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

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: *mm*
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-Florisisl 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

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

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

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%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: Storm-01
SAMPLE

Lab Sample ID: AUD1A
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: 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%

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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


**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 16-500	Method Blank HC ID: ---	01/15/16	01/15/16	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 98.9%
AUD1A 16-500	Storm-01 HC ID: ---	01/15/16	01/15/16	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 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.

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: *[Signature]*

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

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 01/14/16
ARI Job: AUD1
Project: Seaport Authority

<u>ARI ID</u>	<u>Client ID</u>	<u>Samp Amt</u>	<u>Final Vol</u>	<u>Prep Date</u>
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

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AUD1-Maul Foster & Alongi
Project: Seaport Authority

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-011516	98.9%	0
LCS-011516	97.1%	0
Storm-01	98.7%	0

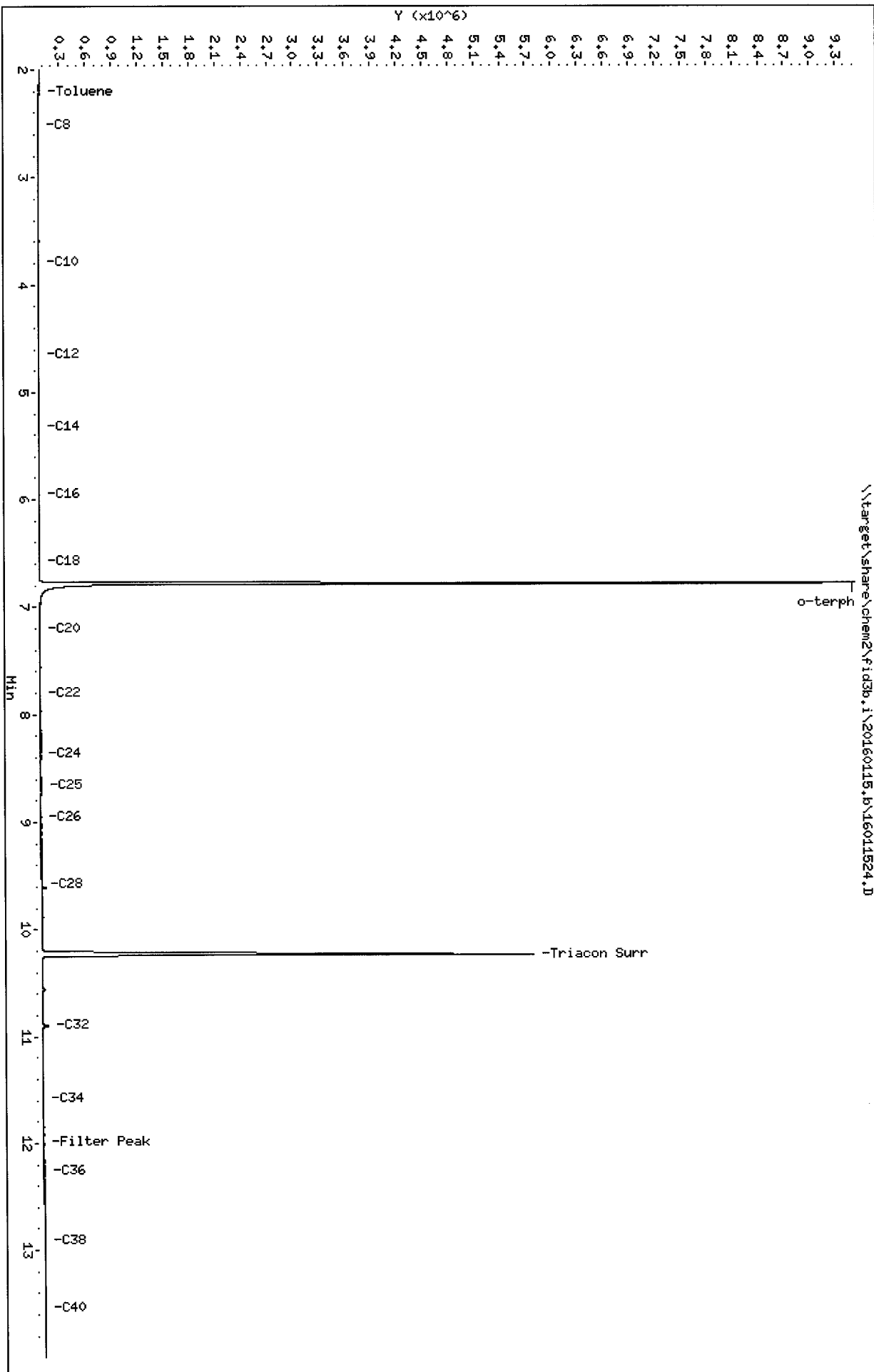
LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

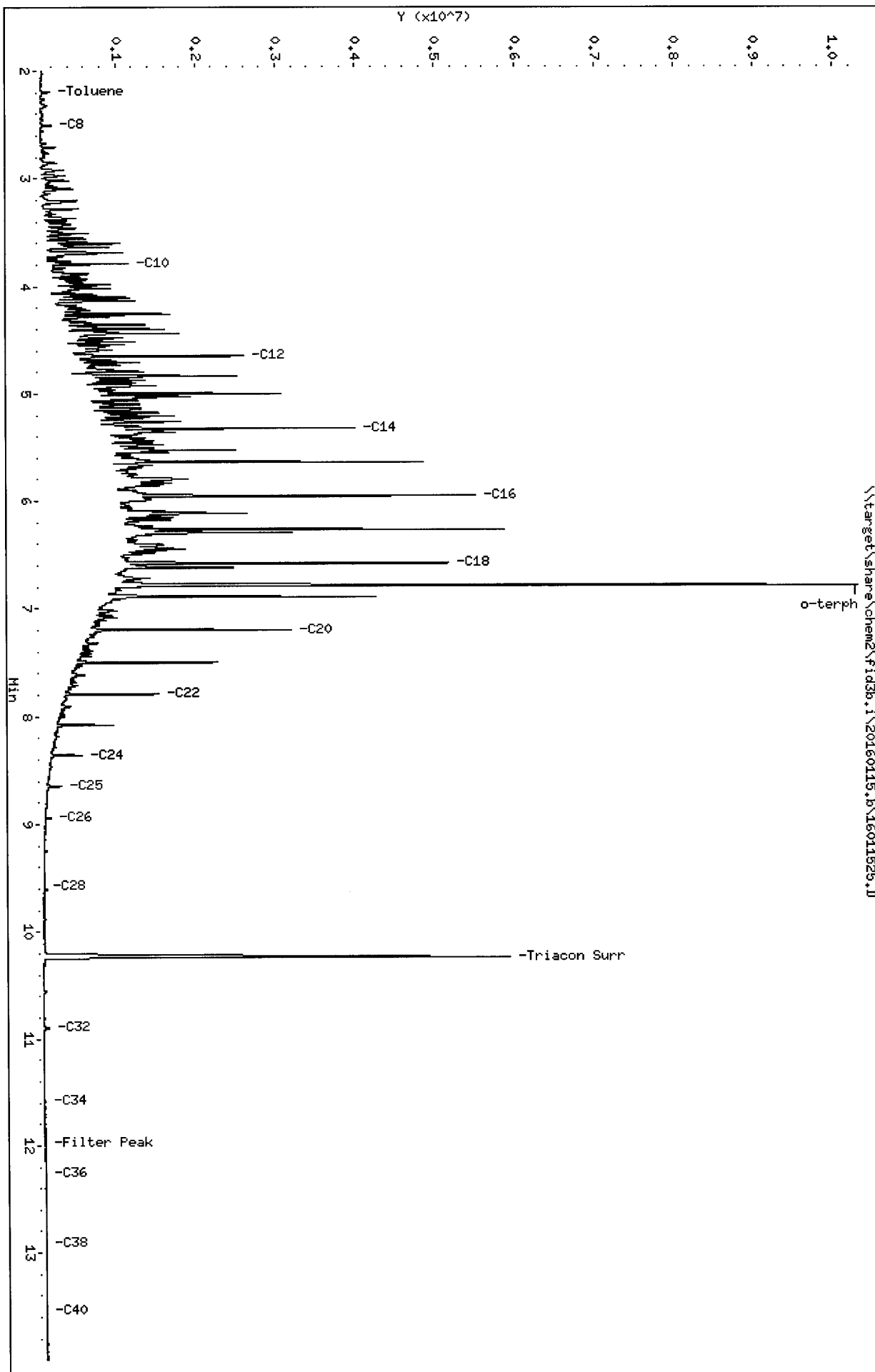
(50-150)

Prep Method: SW3510C
Log Number Range: 16-500 to 16-500



Data File: \\target\share\chem2\fid3p.1\20160115.b\16011525.D
Date : 15-JAN-2016 19:44
Client ID: AUD1LCSM4
Sample Info: AUD1LCSM4
Column phase: RTX-1

Instrument: fid3p.1
Operator: HL
Column diameter: 0.25



Date: 15-JAN-2016 20:03

Client ID: Storm-01

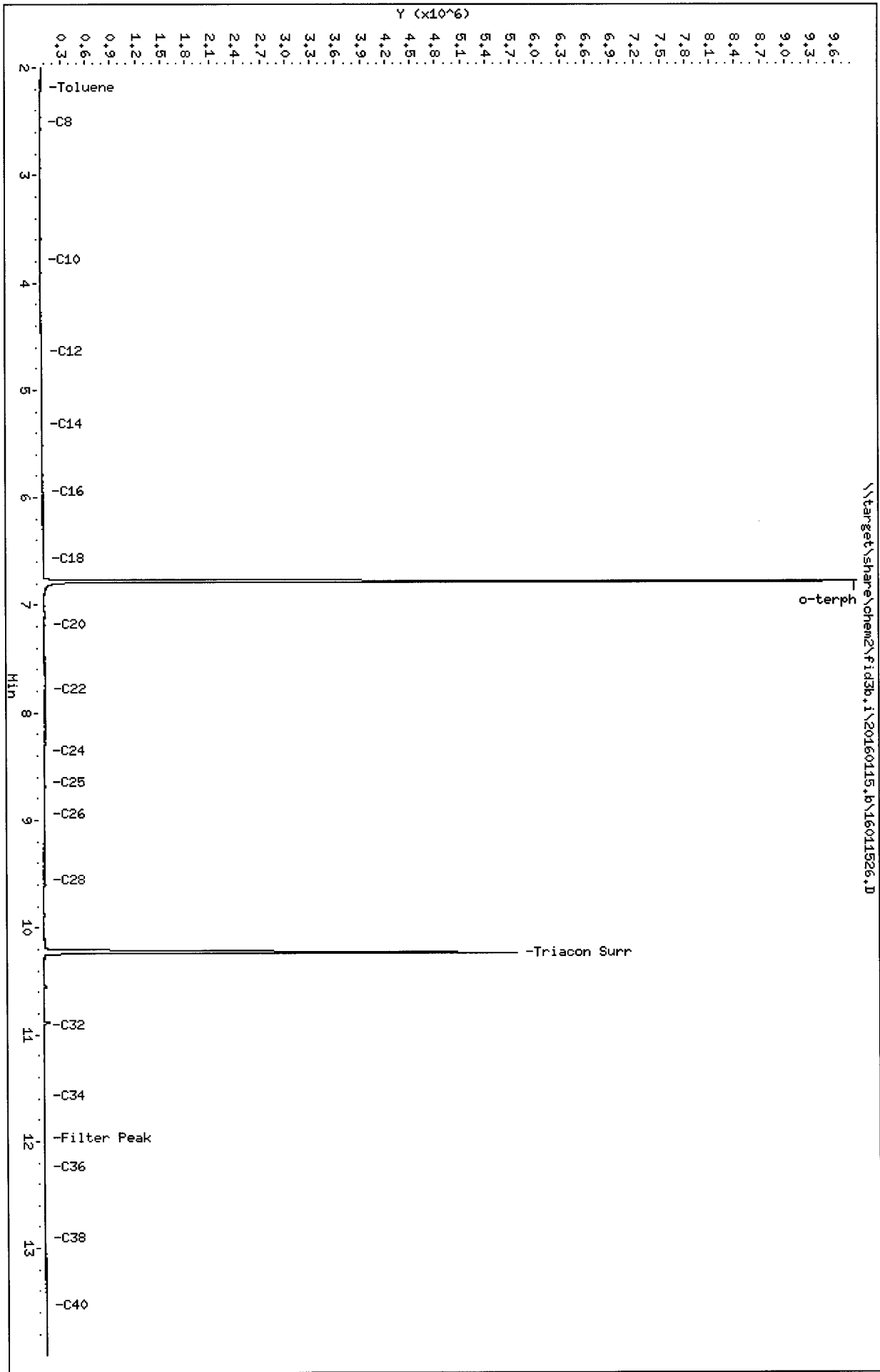
Sample Info: AUD1A

Column phase: RTX-1

Instrument: fid3b.i

Operator: HL

Column diameter: 0.25



INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1


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

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

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%

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

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

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

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%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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%

**INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS**

Sample ID: METHOD BLANK

Page 1 of 1

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

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: GHHS A
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.

Page 2

Murray, MFA
GHSA
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

ARI Client Company: Maul Foster & Alongi Phone: 971 544 2139

Client Contact: Mike Murray

Client Project Name: GHSA

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



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				Notes/Comments						
					Dioxin/ Furan	Bary-Benzyl- Phthalate	Phthalochlorophen	Mercury		SMS compounds with mand Criteria	TOC	Conductivity Total NH4, TS, PM5, PM10	Archive	Salinity	
CR06-10cm	11/7/13	12:00	Sed.	8	X	X	X	X	Archive call						
CR06-1		12:15		4	X	X	X	X	Archive						
CR06-2.5		12:30		8	X	X	X	X	NH4						
CR06-4		12:45		8	X	X	X	X	X						
CR04-10cm		13:00		8	X	X	X	X	Blank						
CR04-1		13:30		3	X	X	X	X	Blank						
CR05-10cm	11/8/13	8:25	Sed	8	X	X	X	X	Blank						
CR05-2.5		8:45		8	X	X	X	X							
CR05-3.5		9:00		2	X	X	X	X							
CR04-2.5		9:40		8	X	X	X	X							
Comments/Special Instructions	Received by: (Signature) <u>Michelle N...</u> (Printed Name) <u>Michelle N...</u> Company: <u>ARI</u>				Relinquished by: (Signature) <u>Jennifer Millsap</u> (Printed Name) <u>Jennifer Millsap</u> Company: <u>ARI</u>				Received by: (Signature) _____ (Printed Name) _____ Company: _____						
Date & Time: <u>11/8/13 2:00 pm</u>				Date & Time: <u>11/8/13 1830</u>				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.

Printed: 11/20/13



Cooler Receipt Form

ARI Client Maul Foster & Alungi
 COC No(s): _____ (NA)
 Assigned ARI Job No: XN64

Project Name GHH3A
 Delivered by Fed-Ex UPS Courier Hand Delivered Other: McDelivery
 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: _____


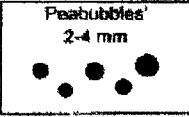
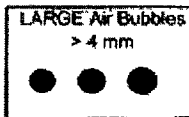
Samples Logged by: JM Date 11/12/13 Time 1740

**** 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)

Subject: RE: GHSA
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: GHSA

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

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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: GHSA
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: GHSA

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 use 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 conventional 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

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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: GHSA

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: GHSA

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
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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: GHSA

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

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Please take our 5 minute online customer survey <<https://www.surveymonkey.com/s/WFDBVJK>>.

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Analytical Resources, Incorporated

Analytical Chemists and Consultants

Client: Maul Foster & Alongi

ARI Job No.: XN64

Client Project: GHSA

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: *Shirley Curtis*
Geotechnical Laboratory Manager

Date: 11/25/13

Reviewed by: *Robert [Signature]*
Lead Technician

Date: November 25, 2013

Sample ID Cross Reference Report



ARI Job No: XN64
Client: Maul Foster & Alongi
Project Event: 0863.01.01
Project Name: GHSA

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



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 \geq 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 $\geq 40\%$ 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

ORGANICS ANALYSIS DATA SHEET

TPHG by Method NWTPHG

Matrix: Sediment



QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

Event: 0863.01.01

Data Release Authorized: *[Signature]*

Reported: 11/14/13

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-111313 13-24856	Method Blank	11/13/13 PID1	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 5.0 U --- 93.3% 89.6%
XN64D 13-24856	CR06-2.5	11/13/13 PID1	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 54 U --- 26.8% 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.

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: *AB*

Reported: 11/14/13

QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

Event: 0863.01.01

Date Sampled: NA

Date Received: NA

Date Analyzed LCS: 11/13/13 11:16

LCS D: 11/13/13 11:46

Instrument/Analyst LCS: PID1/PKC

LCS D: PID1/PKC

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt

LCS D: 100 mg-dry-wt

Analyte	LCS			LCS D			RPD
	LCS	Spike Added-LCS	LCS Recovery	LCS D	Spike Added-LCS D	LCS D Recovery	
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	LCS D
Trifluorotoluene	107%	113%
Bromobenzene	93.3%	99.7%

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: XN64
Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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
(BBZ) = Bromobenzene

(80-120) (65-128)
(80-120) (52-149)

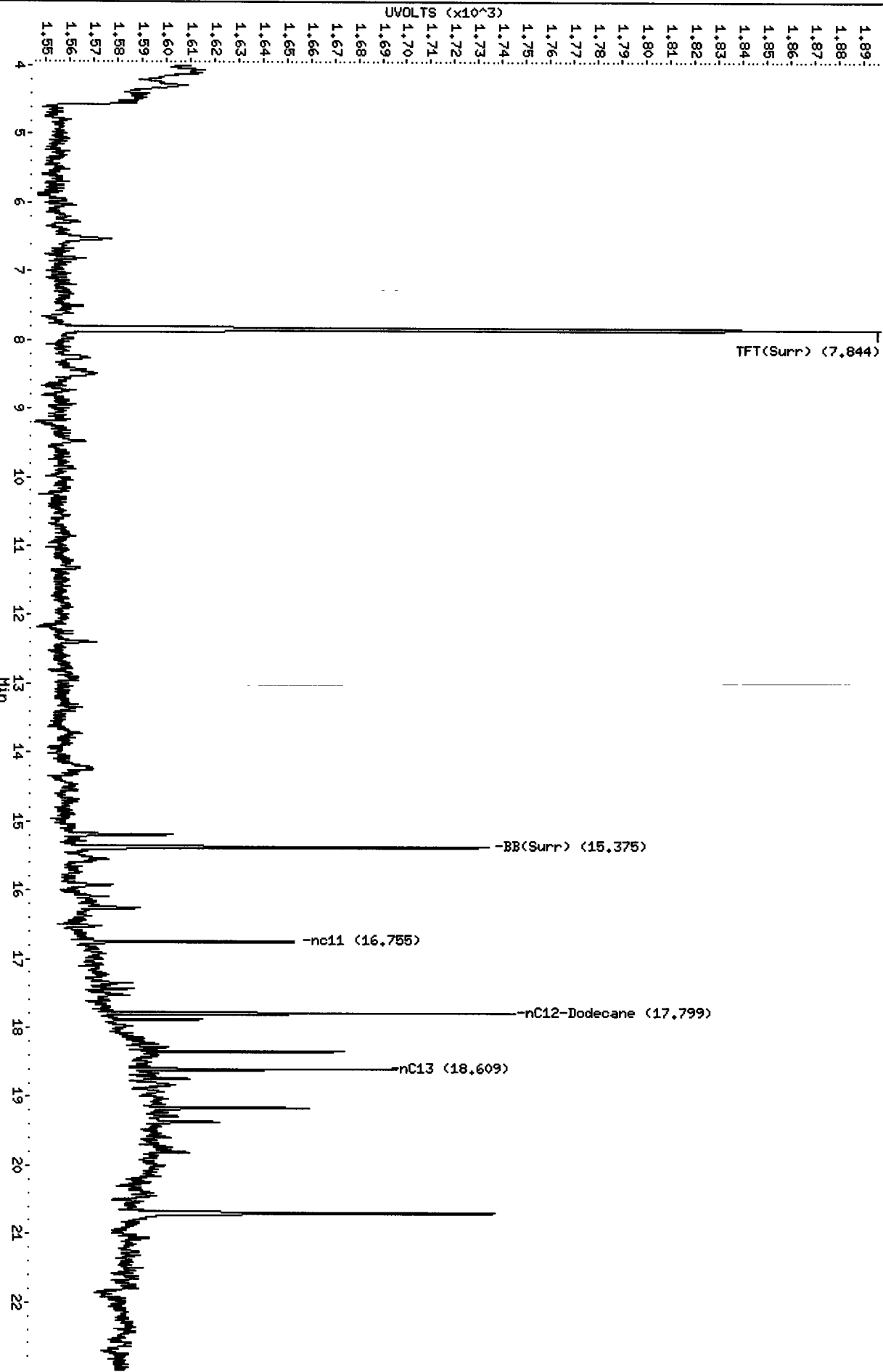
Log Number Range: 13-24856 to 13-24856

Data File: /chem3/pid1.i/20131113-1.b/1113s008.d
Date : 13-NOV-2013 15:59
Client ID: CR06-2.5
Sample Info: XK64D

Column phase: RTX 502-2 FID

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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

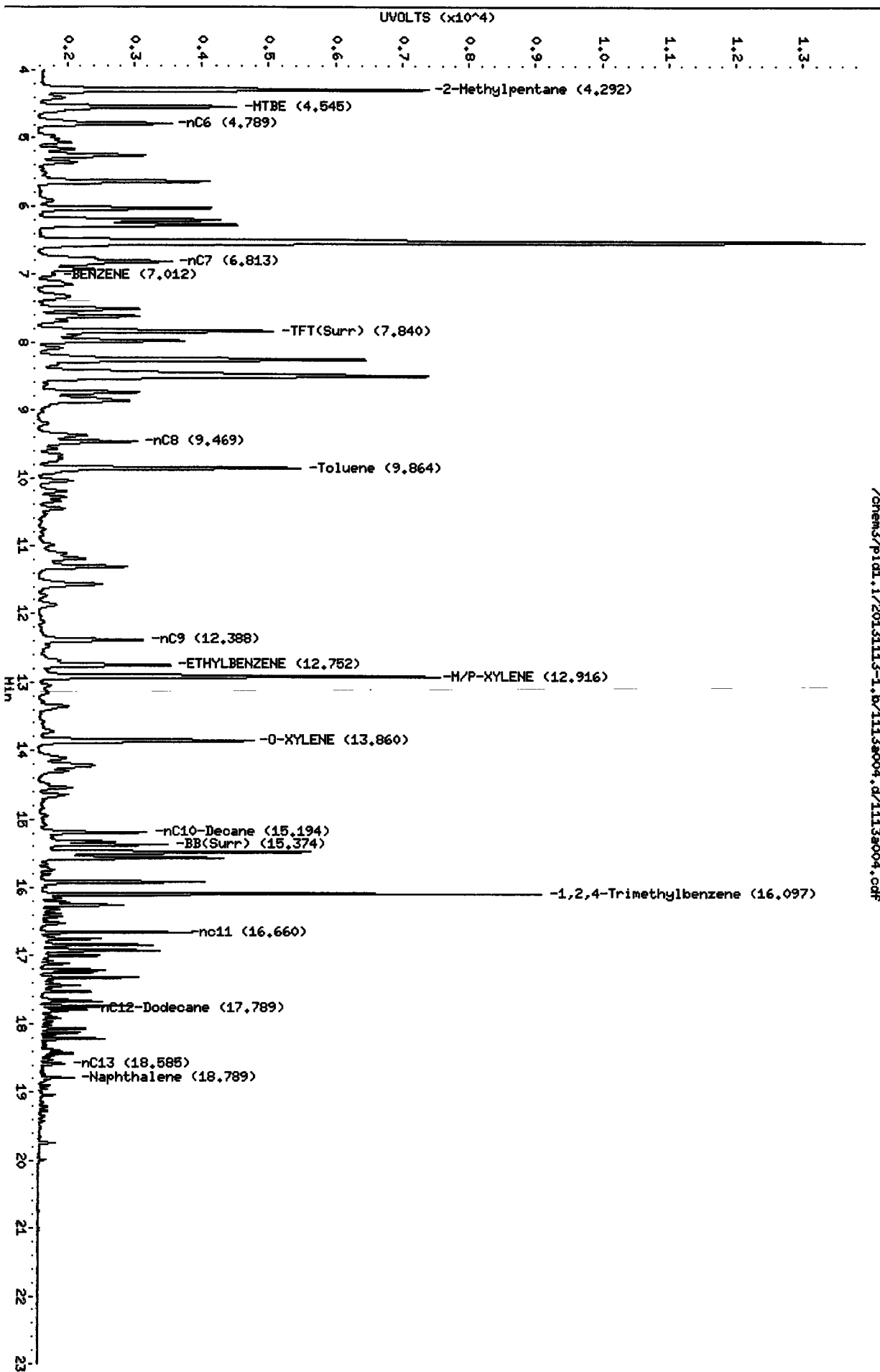
Column phase: RTX 802-2 FID

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Instrument: pid1.i

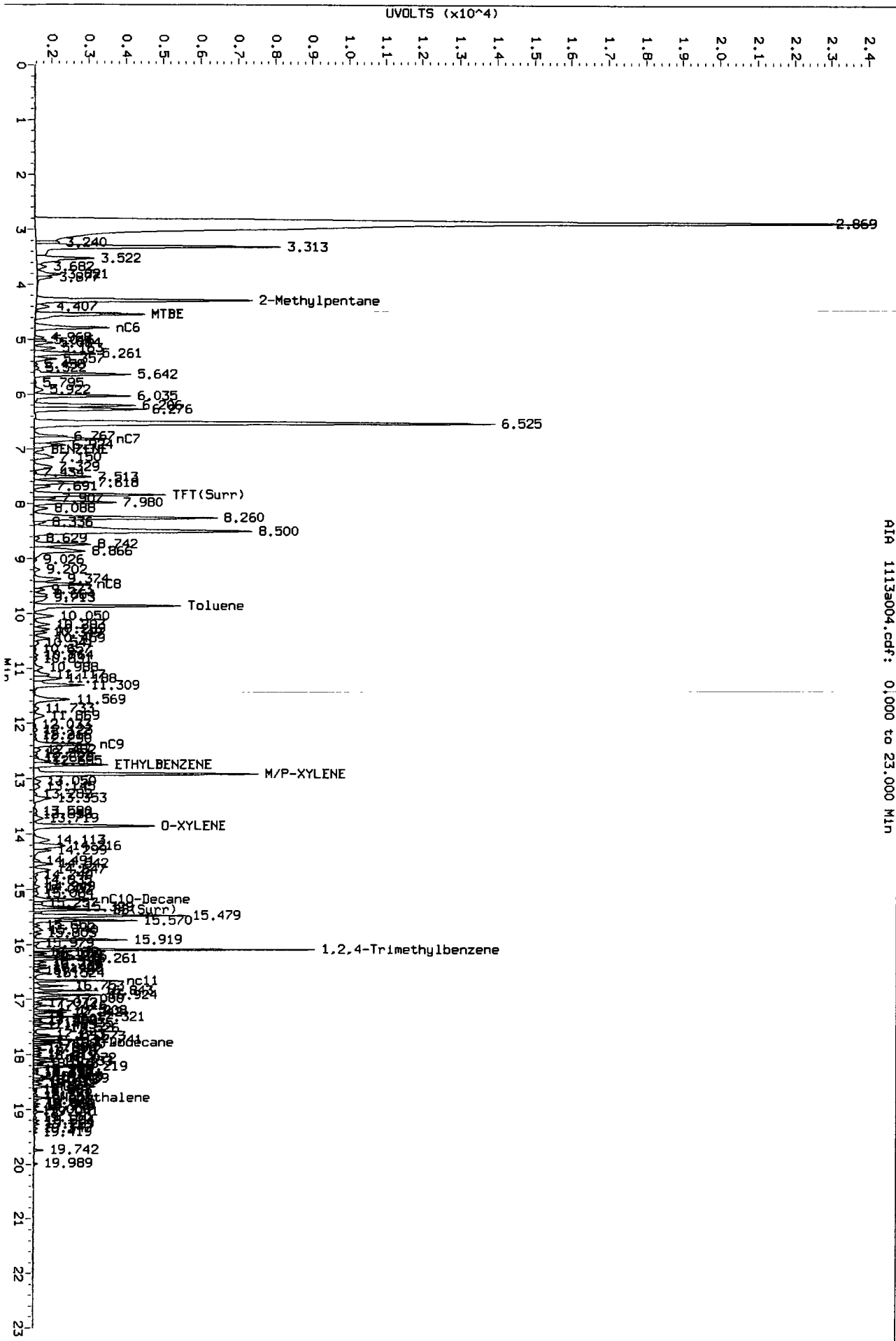
Operator: PC
Column diameter: 0.18

Page 1



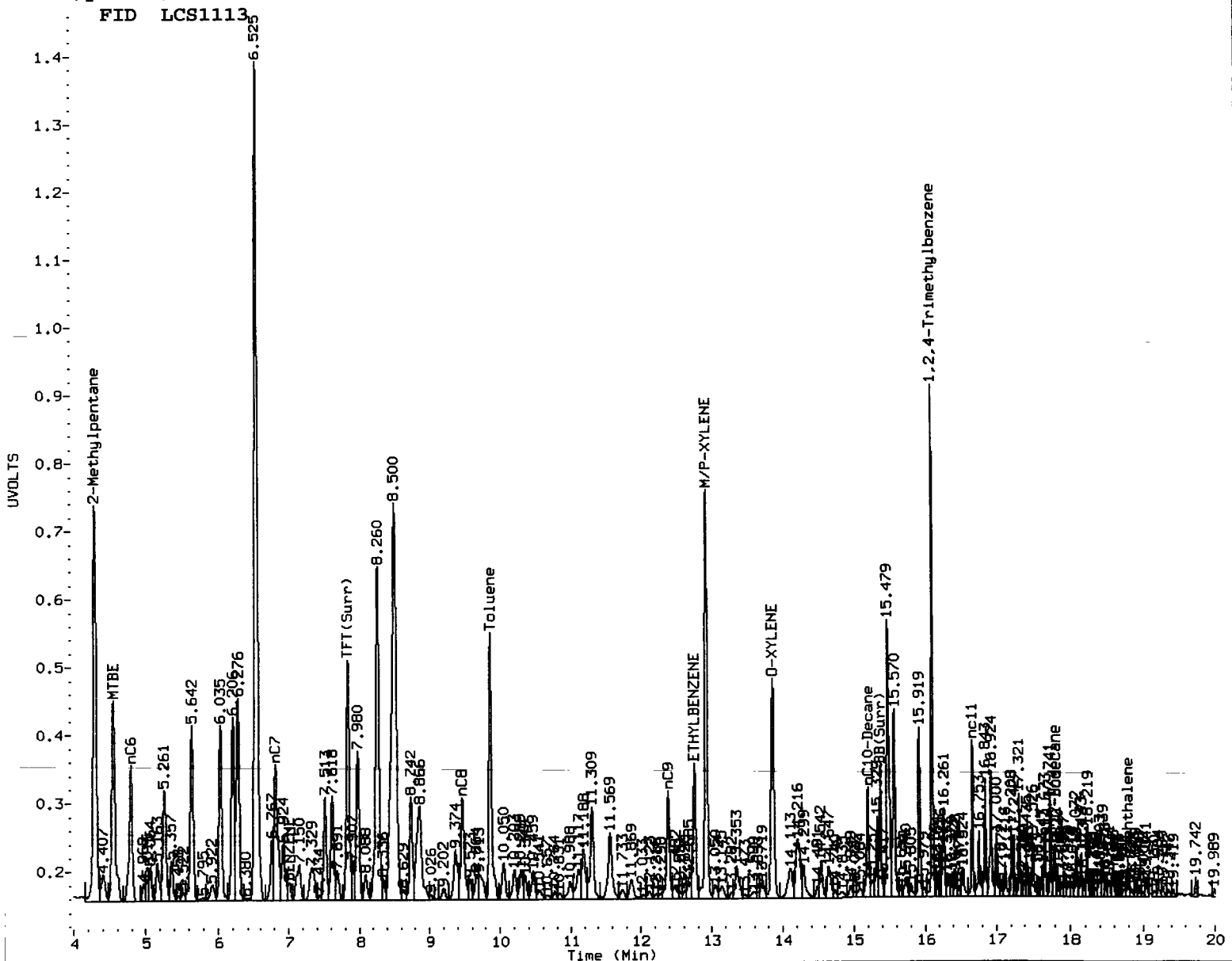
PC
11/14/13

Data File: /chem3/pid1.1/20131113-1.b/1113a004.d/1113a004.cdf
Injection Date: 13-NOV-2013 11:16
Instrument: pid1.1
Client Sample ID:



AIA 1113a004.cdf: 0.000 to 23.000 Min

11/14/13 11:16



MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation

5. Other _____

Analyst: PL

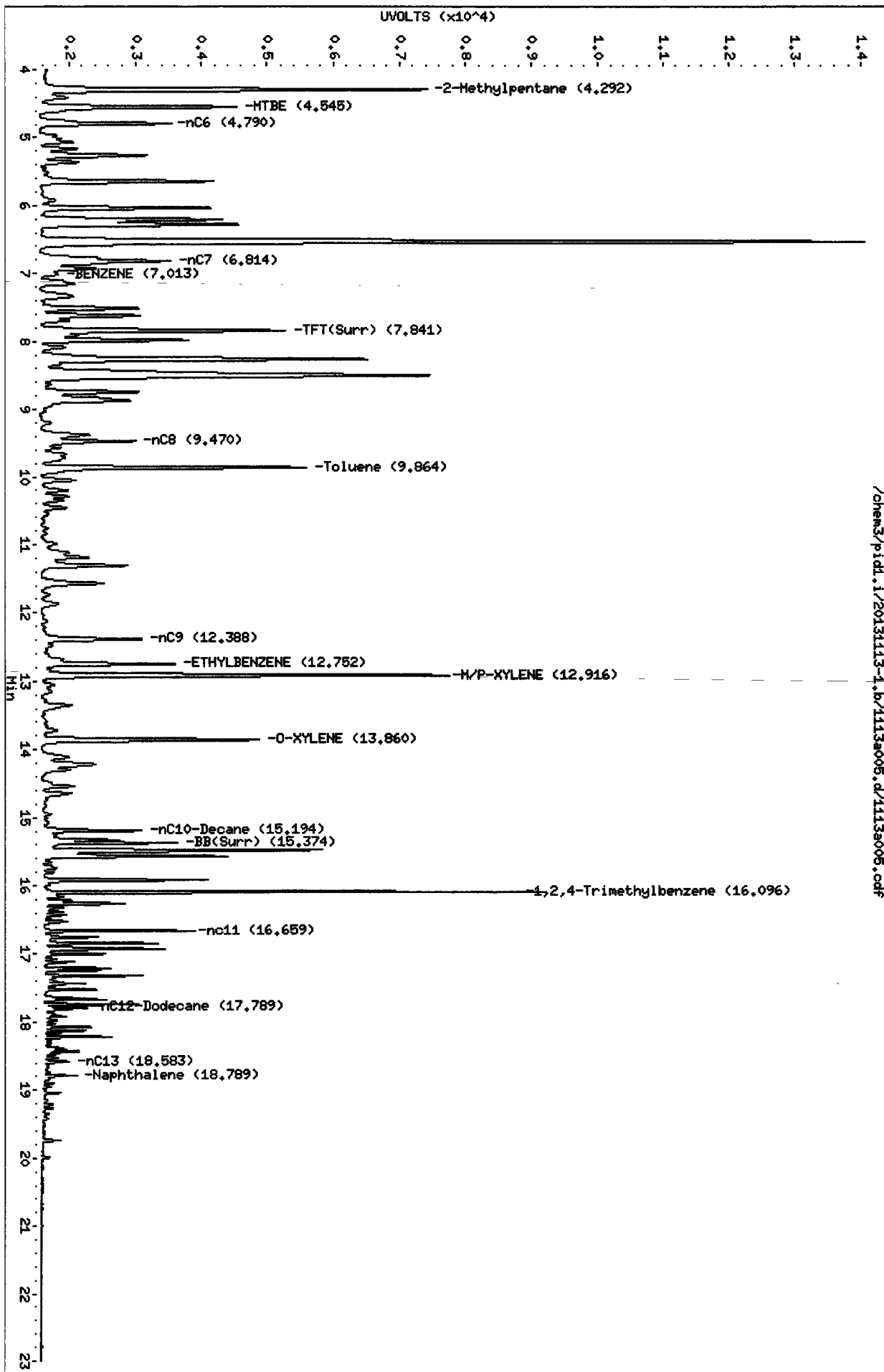
Date: 11/14/13

Data File: /chem3/pid1.i/20131113-1.b/1113a005.d
Date: 13-NOV-2013 11:46
Client ID:
Sample Info: LCSM1113

Column phase: RTX 502-2 FID

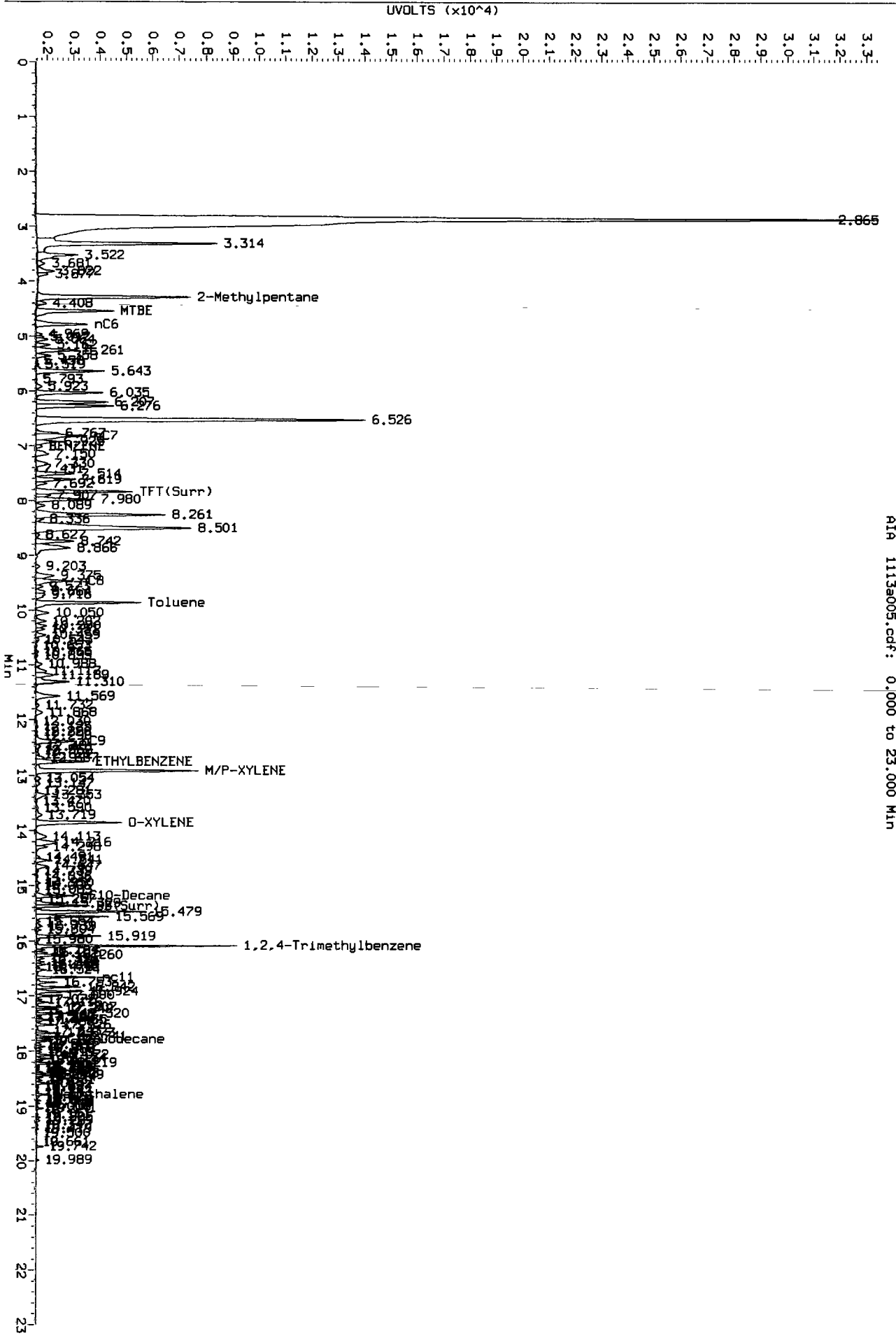
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Instrument: pid1.i
Operator: PC
Column diameter: 0.18

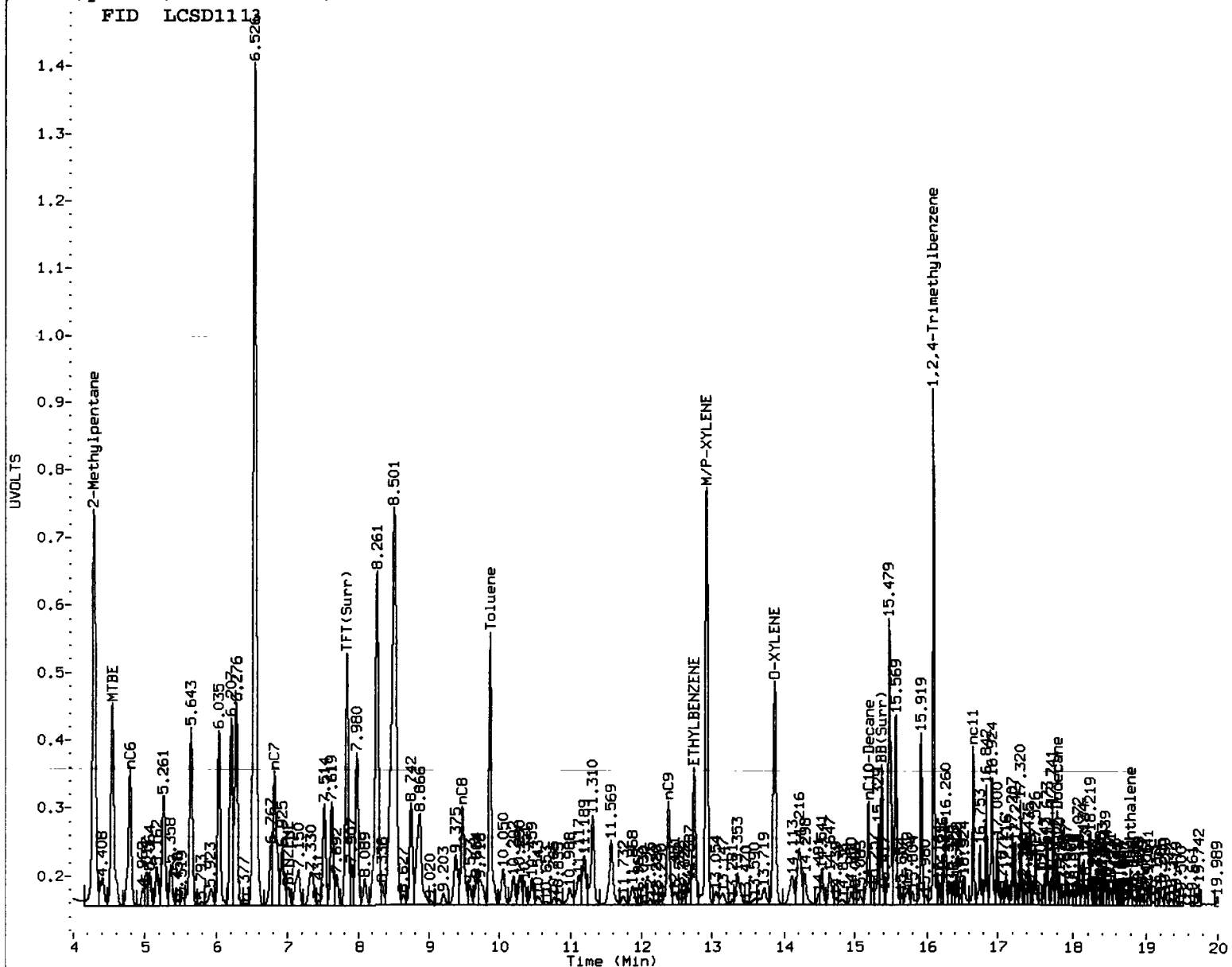


11/14/13

Data File: /chem3/p1d1.1/20131113-1.b/1113s005.d/1113s005.cdf
Injection Date: 13-NOV-2013 11:46
Instrument: p1d1.1
Client Sample ID:



A19 1113s005.cdf: 0.000 to 23.000 Min



MANUAL INTEGRATION

- 1) Baseline correction
- 2. Poor chromatography
- 3) Peak not found
- 4. Totals calculation

5. Other _____

Analyst: KL Date: 11/14/13

Data File: /chem3/pid1.i/20131113-1.b/1113a007.d
Date: 13-NOV-2013 12:57

Client ID:

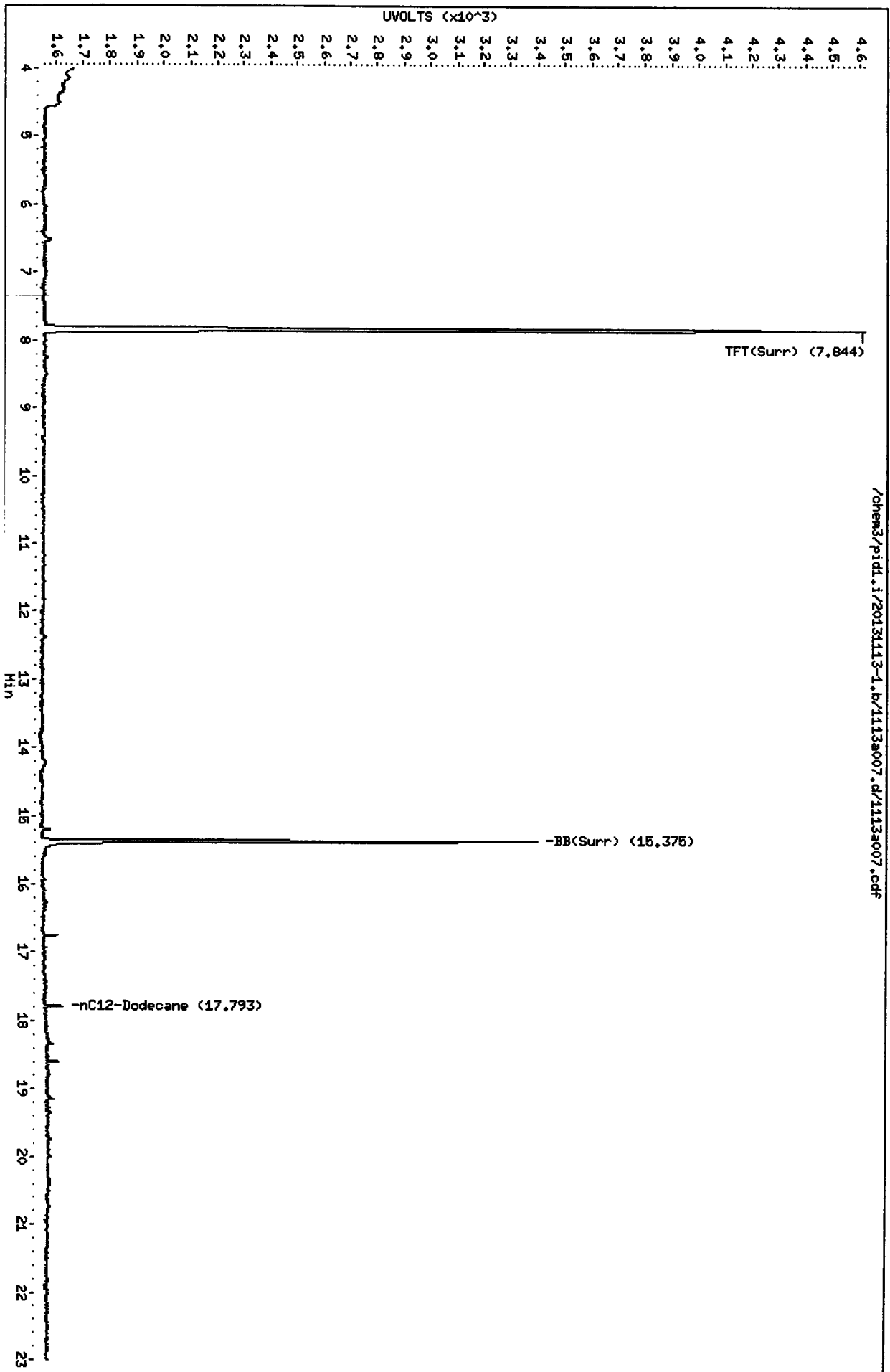
Sample Info: MB1113A

Column Phase: RTX 502-2 FID

Instrument: pid1.i

Operator: PC

Column diameter: 0.18



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: *MW*
 Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
Page 1 of 1

Sample ID: CR06-2.5
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: GHSA
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR01-10cm
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: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
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: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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%

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: GHSA
 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%

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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) = dl4-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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 2

Sample ID: LCS-111513
LAB CONTROL

Lab Sample ID: LCS-111513
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: *MW*
Reported: 11/21/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
 Page 2 of 2

Sample ID: LCS-111513
 LAB CONTROL

Lab Sample ID: LCS-111513
 LIMS ID: 13-24856
 Matrix: Sediment
 Date Analyzed: 11/20/13 15:34

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 0863.01.01

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)

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring 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: *MW*

Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR06-2.5

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XN64D

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24856

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *MM*

Date Sampled: 11/07/13

Reported: 11/22/13

Date Received: 11/08/13

Date Extracted: 11/15/13

Sample Amount: 0.71 g-dry-wt

Date Analyzed: 11/20/13 16:09

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 77.0%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR01-10cm

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XN64F

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24858

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *MW*

Date Sampled: 11/08/13

Reported: 11/22/13

Date Received: 11/08/13

Date Extracted: 11/15/13

Sample Amount: 10.30 g-dry-wt

Date Analyzed: 11/20/13 16:45

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 51.2%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR02-10cm

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XN64G

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24859

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *mm*

Date Sampled: 11/08/13

Reported: 11/22/13

Date Received: 11/08/13

Date Extracted: 11/15/13

Sample Amount: 10.20 g-dry-wt

Date Analyzed: 11/20/13 17:20

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 46.9%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR03-10cm

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XN64H

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24860

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *TW*

Date Sampled: 11/08/13

Reported: 11/22/13

Date Received: 11/08/13

Date Extracted: 11/15/13

Sample Amount: 10.41 g-dry-wt

Date Analyzed: 11/20/13 17:55

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT10/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: 61.6%

Silica Gel Cleanup: No

Alumina 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	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%

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
0863.01.01

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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
(TER) = dl4-p-Terphenyl

(32-120) (27-120)
(42-124) (37-120)

Prep Method: SW3546
Log Number Range: 13-24856 to 13-24860



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: [Signature]
Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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

Table with 4 columns: Analyte, LCS, Spike Added, Recovery. Lists various compounds like Dibenz(a,h)anthracene, 1,4-Dichlorobenzene, etc.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Table with 2 columns: Surrogate Name, Recovery. Lists 2-Fluorophenol and d14-p-Terphenyl.

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		MAX		CURVE TYPE
			RRF	%D / %DRIFT	%D / %DRIFT		
\$ 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

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR06-10cm
SAMPLE

Lab Sample ID: XN64A
 LIMS ID: 13-24853
 Matrix: Sediment
 Data Release Authorized: *B*
 Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR04-10cm
SAMPLE

Lab Sample ID: XN64B
 LIMS ID: 13-24854
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR05-10cm
SAMPLE

Lab Sample ID: XN64C
 LIMS ID: 13-24855
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR04-5
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: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Extraction Method: SW3546
 Page 1 of 1

Sample ID: MB-112713
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: GHSA
 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%

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: *AB*
 Reported: 12/02/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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)

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

0863.01.01

<u>Client ID</u>	<u>NBZ</u>	<u>FBP</u>	<u>TPH</u>	<u>DCB</u>	<u>PHL</u>	<u>2FP</u>	<u>TBP</u>	<u>2CP</u>	<u>TOT</u>	<u>OUT</u>
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

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
0863.01.01

<u>Client ID</u>	<u>PHL</u>	<u>2FP</u>	<u>TBP</u>	<u>2CP</u>	<u>TOT</u>	<u>OUT</u>
CR04-5	62.3%	50.8%	60.5%	55.5%	0	

	<u>LCS/MB LIMITS</u>	<u>QC LIMITS</u>
(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 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
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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: MB-111813

Lab Sample ID: MB-111813

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24853

Project: GHSA

Matrix: Sediment

0863.01.01

Data Release Authorized: *MW*

Date Sampled: NA

Reported: 11/26/13

Date Received: NA

Date Extracted: 11/18/13

Sample Amount: 10.0 g-dry-wt

Date Analyzed: 11/23/13 08:06

Final Extract Volume: 20 uL

Instrument/Analyst: AS1/PK

Dilution Factor: 1.00

Acid Cleanup: Yes

Silica-Florisil Cleanup: Yes

Silica-Carbon Cleanup: No

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA
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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA
 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	
37C14-2,3,7,8-TCDD			101	31-191	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA
 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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR06-10cm

Lab Sample ID: XN64A

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24853

Project: GHSA

Matrix: Sediment

0863.01.01

Data Release Authorized: *MW*

Date Sampled: 11/07/13

Reported: 11/26/13

Date Received: 11/08/13

Date Extracted: 11/18/13

Sample Amount: 10.0 g-dry-wt

Date Analyzed: 11/22/13 23:04

Final Extract Volume: 20 uL

Instrument/Analyst: AS1/PK

Dilution Factor: 1.00

Acid Cleanup: Yes

Silica-Florisil Cleanup: Yes

Silica-Carbon Cleanup: No

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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA

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	
37C14-2,3,7,8-TCDD			85.7	35-197	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Sample ID: CR04-10cm

Page 1 of 1

Lab Sample ID: XN64B
LIMS ID: 13-24854
Matrix: Sediment
Data Release Authorized: *mmw*
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

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: GHSA
 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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR05-10cm

Lab Sample ID: XN64C
LIMS ID: 13-24855
Matrix: Sediment
Data Release Authorized: *TW*
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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

ORGANICS ANALYSIS DATA SHEET
 Dioxins/Furans by EPA 1613B
 Page 1 of 1



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: GHSA
 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	
37C14-2,3,7,8-TCDD			86.6	35-197	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Sample ID: CR06-2.5

Page 1 of 1

Lab Sample ID: XN64D
LIMS ID: 13-24856
Matrix: Sediment
Data Release Authorized: *mm*
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR06-2.5

Lab Sample ID: XN64D

LIMS ID: 13-24856

Matrix: Sediment

Data Release Authorized: *MMW*

Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

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	
37C14-2,3,7,8-TCDD			84.5	35-197	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR01-10cm

Lab Sample ID: XN64F

QC Report No: XN64-Maul Foster & Alongi

LIMS ID: 13-24858

Project: GHSA

Matrix: Sediment

0863.01.01

Data Release Authorized: *MW*

Date Sampled: 11/08/13

Reported: 11/26/13

Date Received: 11/08/13

Date Extracted: 11/18/13

Sample Amount: 10.0 g-dry-wt

Date Analyzed: 11/23/13 02:43

Final Extract Volume: 20 uL

Instrument/Analyst: AS1/PK

Dilution Factor: 1.00

Acid Cleanup: Yes

Silica-Florisil Cleanup: Yes

Silica-Carbon Cleanup: No

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



ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA

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	
37C14-2,3,7,8-TCDD			85.0	35-197	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Sample ID: CR02-10cm

Page 1 of 1

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: GHSA
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

ORGANICS ANALYSIS DATA SHEET
 Dioxins/Furans by EPA 1613B
 Page 1 of 1



Sample ID: CR02-10cm

Lab Sample ID: XN64G
 LIMS ID: 13-24859
 Matrix: Sediment
 Data Release Authorized: *[Signature]*
 Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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	
37C14-2,3,7,8-TCDD			92.5	35-197	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Sample ID: CR03-10cm

Page 1 of 1

Lab Sample ID: XN64H
LIMS ID: 13-24860
Matrix: Sediment
Data Release Authorized: *MMW*
Reported: 11/26/13

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

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: GHSA
 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	
37C14-2,3,7,8-TCDD			91.2	35-197	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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: *mmw*

Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

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%

ORGANICS ANALYSIS DATA SHEET
 PSDDA PCB by GC/ECD
 Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR06-2.5
 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: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
 Page 1 of 1

Sample ID: CR01-10cm
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: GHSA
 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%

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: GHSA
 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%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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: *mm*
 Reported: 11/22/13

QC Report No: XN64-Maul Foster & Alongi
 Project: GHSA
 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%

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
0863.01.01

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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: GHSA

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
Page 1 of 1

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
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 o-Terphenyl	100	< 100 U 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 o-Terphenyl	430	61,000 E 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 o-Terphenyl	4,300	60,000 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.

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: *[Signature]*

Reported: 11/19/13

QC Report No: XN64-Maul Foster & Alongi

Project: GHSA

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

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Sediment
Date Received: 11/08/13

ARI Job: XN64
Project: GHSA
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

TPHD SURROGATE RECOVERY SUMMARY

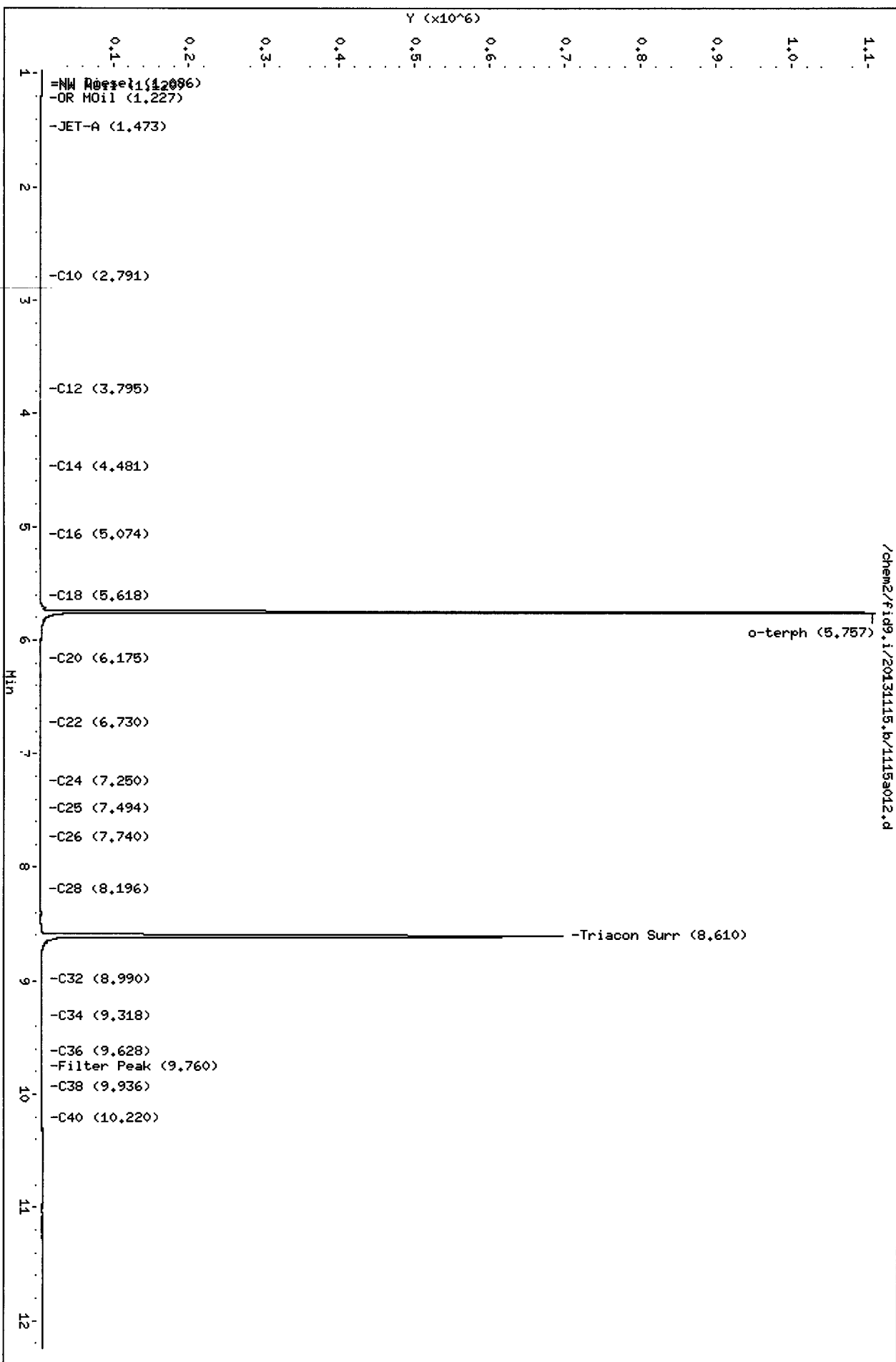
Matrix: Sediment

QC Report No: XN64-Maul Foster & Alongi
Project: GHSA
0863.01.01

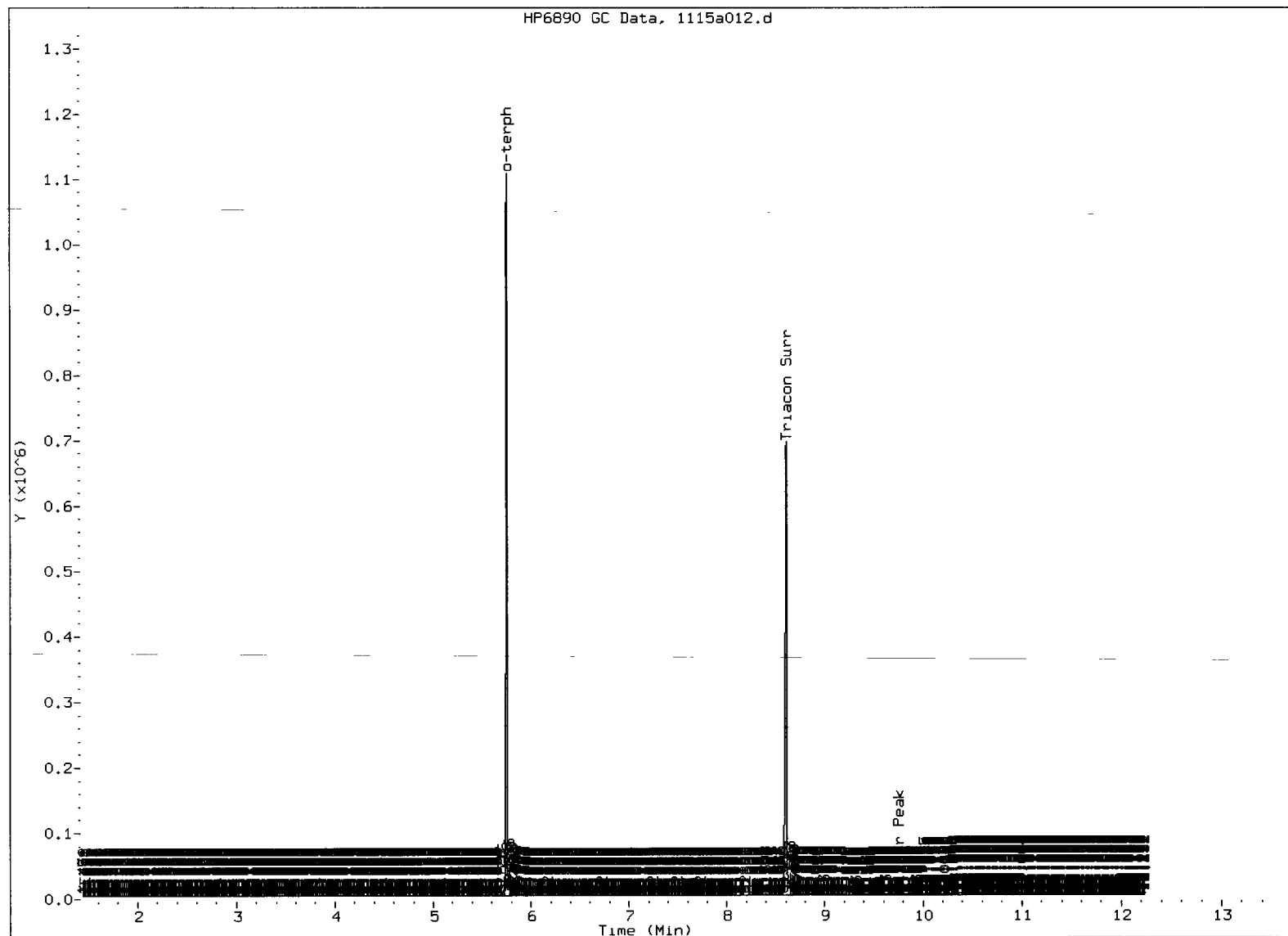
<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
111413MBS	77.0%	0
111413LCS	77.1%	0
CR06-2.5	66.6%	0
CR06-2.5 DL	63.3%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: DL
Log Number Range: 13-24856 to 13-24856



HP6890 GC Data, 1115a012.d



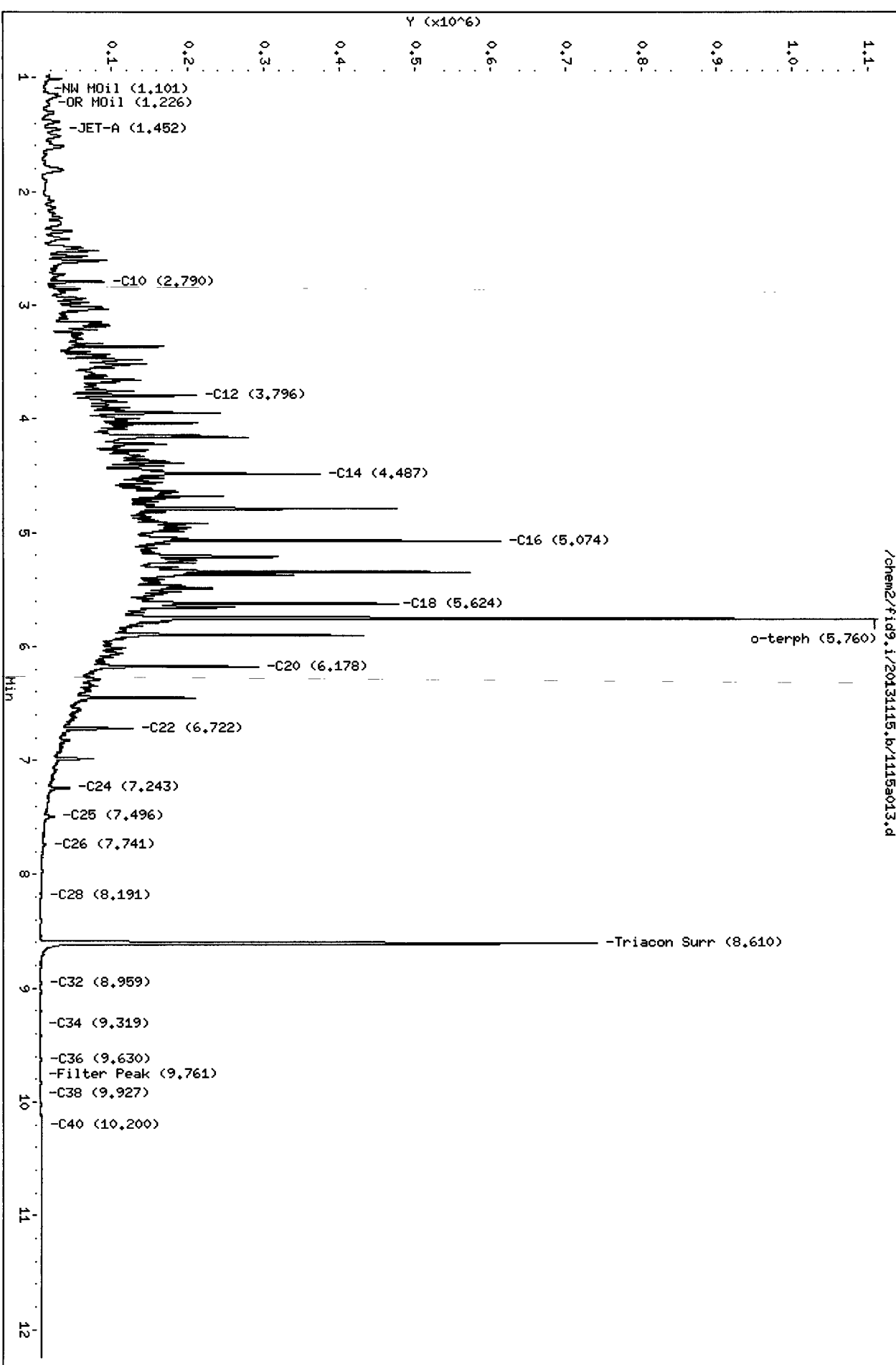
MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation
- 5. Surrogate Skipped

Analyst: *SL*

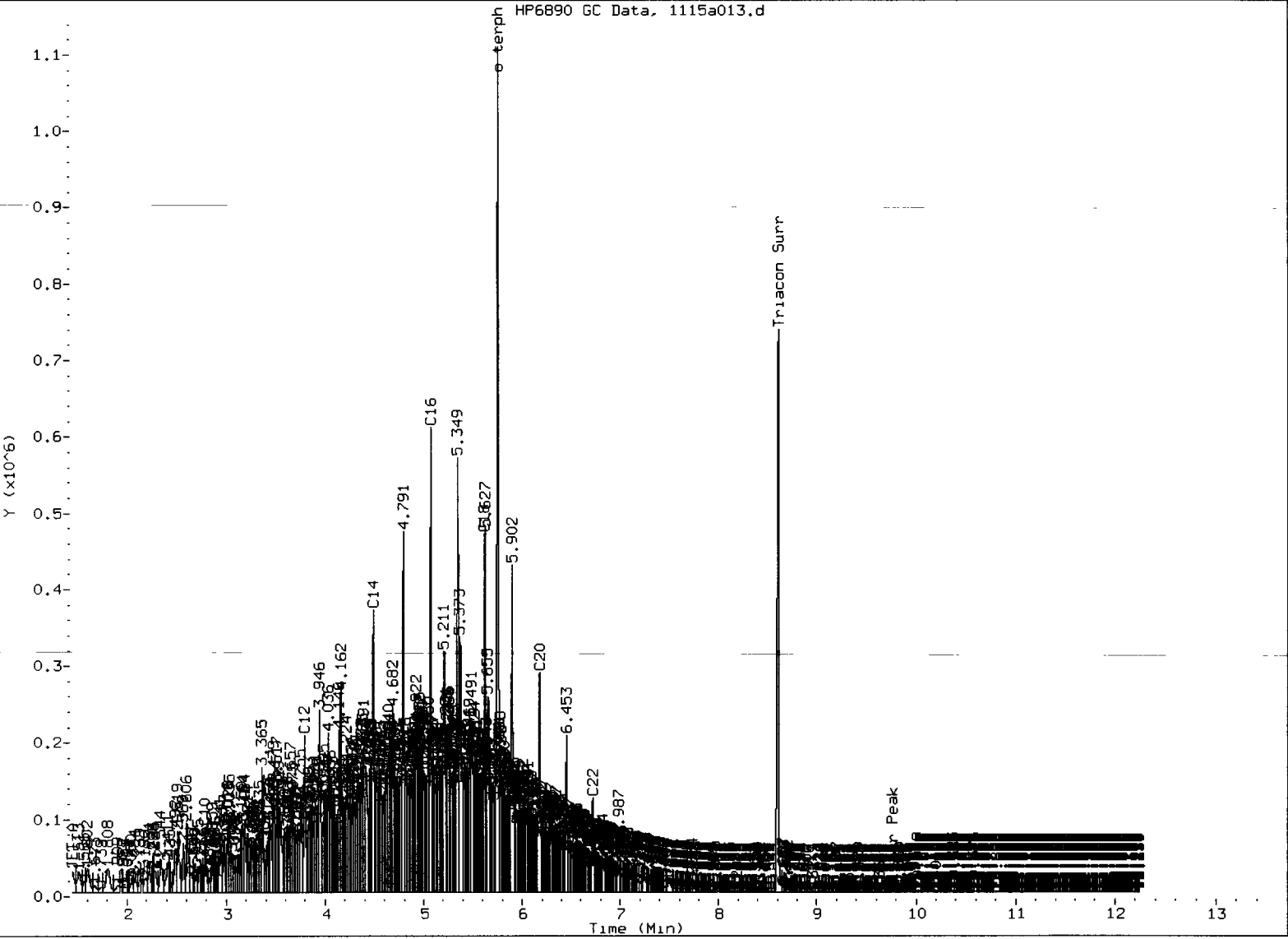
Date: *11/19/02*

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XN64LCSS1

HP6890 GC Data, 1115a013.d

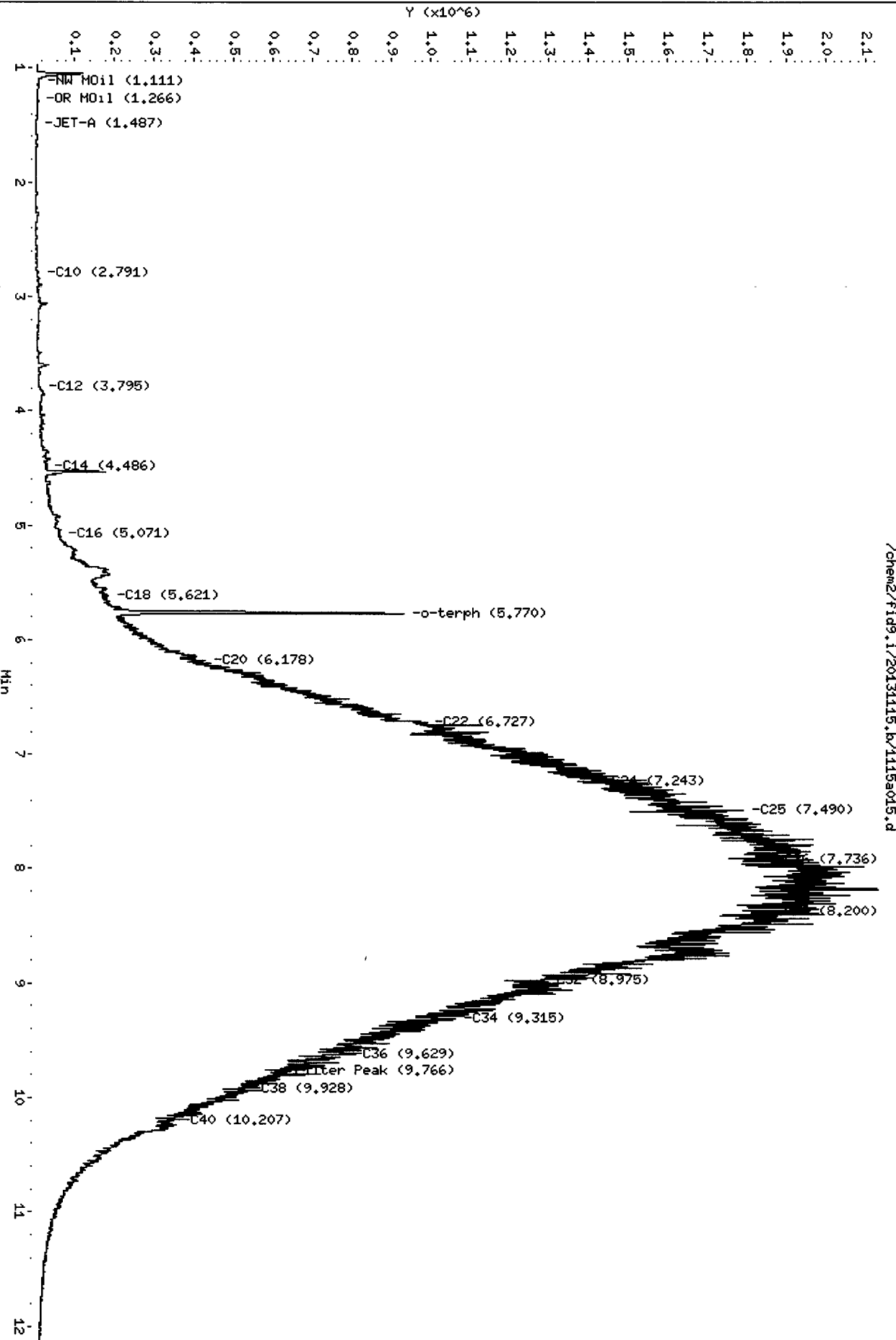


MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation
- 5. Surrogate Skipped

Analyst: SW

Date: 11/19/10

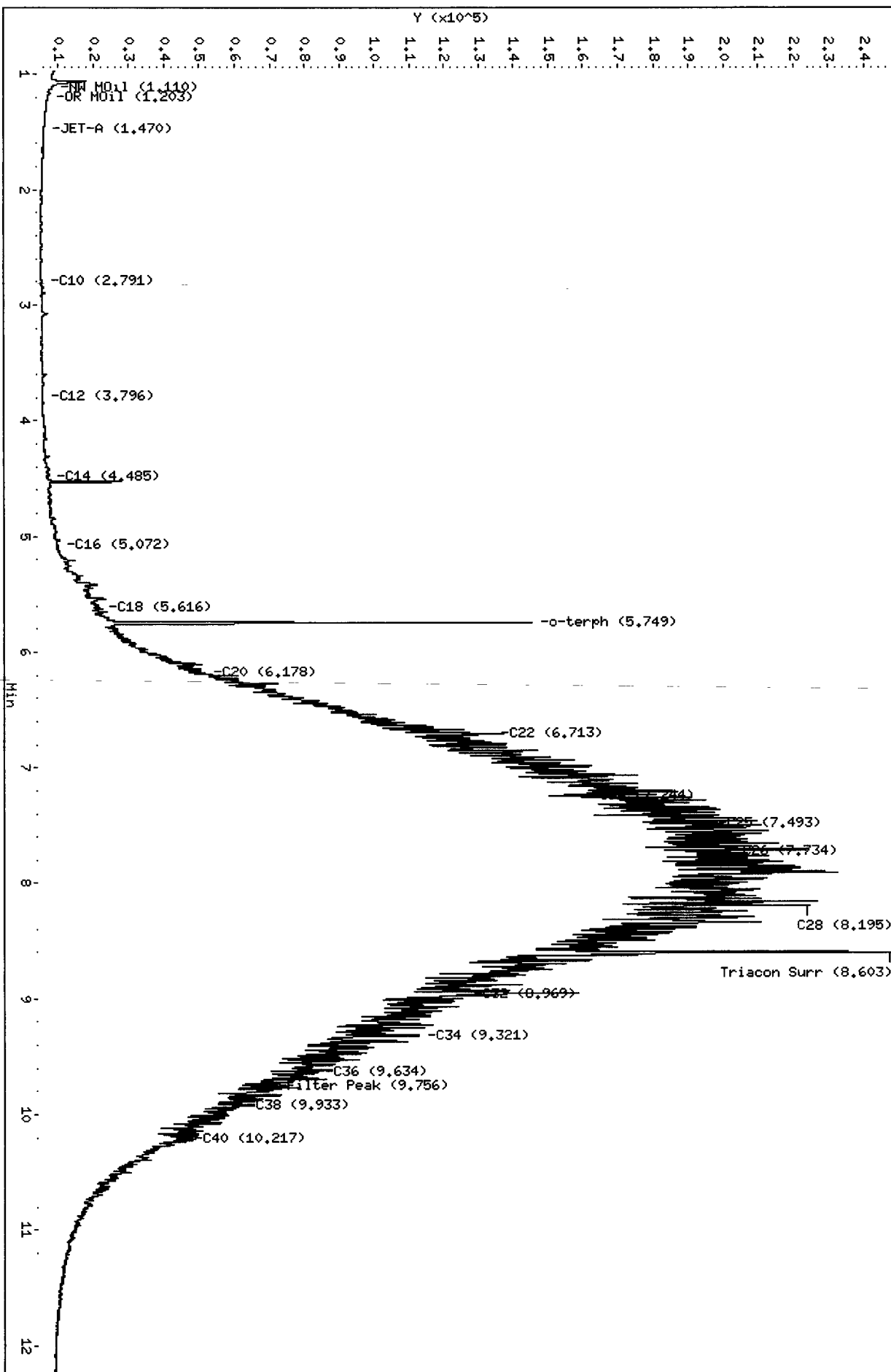


XN51 : 90091

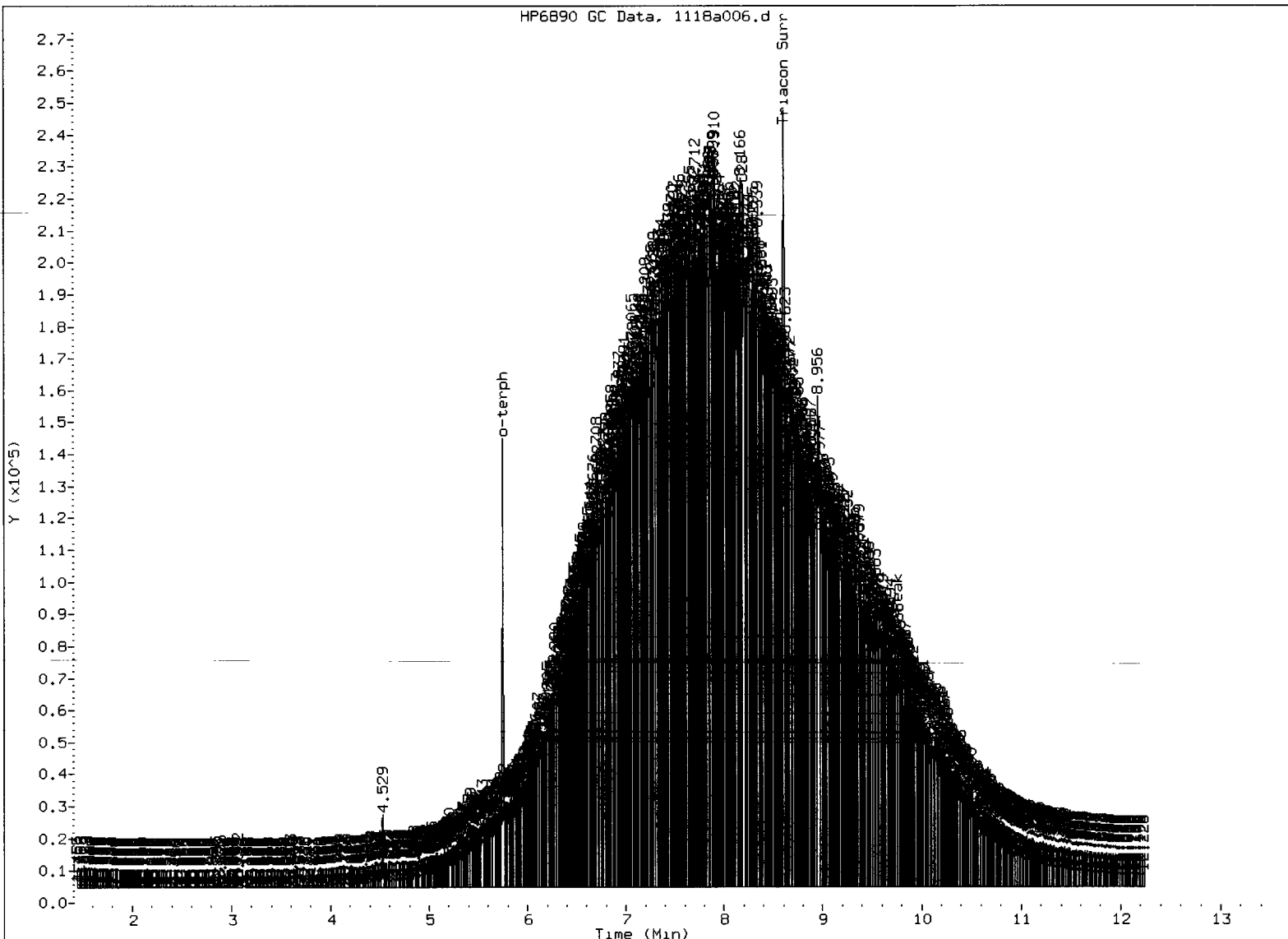
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Date: 18-NOV-2013 12:29
Client ID: CR06-2.5
Sample Info: XN64D.10
Column phase: RTX-1

Instrument: fid9.i
Operator: JM
Column diameter: 0.25

/chem2/fid9.i/20131118.b/1118a006.d



HP6890 GC Data, 1118a006.d



MANUAL INTEGRATION

- 1. Baseline correction
- 2. Poor chromatography
- 3. Peak not found
- 4. Totals calculation
- 5. Surrogate Skipped

Analyst: ju

Date: 4/19/10

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHSA
Event: 0863.01.01
Date Sampled: 11/07/13
Date Received: 11/08/13

Client ID: CR06-10cm
ARI ID: 13-24853 XN64A

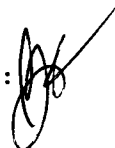
Analyte	Date	Method	Units	RL	Sample
Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	21.40
Preserved Total Solids	11/13/13 111313#1	SM2540G	Percent	0.01	19.81
Total Volatile Solids	11/13/13 111313#1	SM2540E	Percent	0.01	60.05
N-Ammonia	11/13/13 111313#1	EPA 350.1M	mg-N/kg	0.46	1.37
Sulfide	11/12/13 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.

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: 
Reported: 11/26/13

Project: GHSA
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.

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHSA
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.

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
 Data Release Authorized:
 Reported: 11/26/13

Project: GHSA
 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.

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

Project: GHSA
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.

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: 
Reported: 11/26/13

Project: GHSA
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

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: 
Reported: 11/26/13

Project: GHSA
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

SAMPLE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

A handwritten signature in black ink, appearing to be 'M. Foster', written over the 'Data Release Authorized' text.

Project: GHSA
Event: 0863.01.01
Date Sampled: 11/08/13
Date Received: 11/08/13

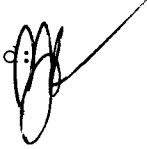
Client ID: CR03-10cm
ARI ID: 13-24860 XN64H

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

METHOD BLANK RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: 
Reported: 11/26/13

Project: GHSA
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 11/14/13	mg/kg	0.17 < 0.05 U	PREP PREP
Total Organic Carbon	11/26/13	Percent	< 0.020 U	ICB

LAB CONTROL RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

A handwritten signature in black ink, appearing to be a stylized 'P' or similar character.

Project: GHSA
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%

STANDARD REFERENCE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized
Reported: 11/26/13


A handwritten signature in black ink, appearing to be 'JL' or similar, written over the 'Data Release Authorized' text.

Project: GHSA
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%

REPLICATE RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized: 
Reported: 11/26/13

Project: GHSA
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%

MS/MSD RESULTS-CONVENTIONALS
XN64-Maul Foster & Alongi



Matrix: Sediment
Data Release Authorized:
Reported: 11/26/13

A handwritten signature in black ink, appearing to be 'M. Foster', written over the 'Data Release Authorized' text.

Project: GHSA
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%

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: GHSA

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

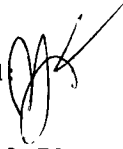
Page 1 of 1

**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: GHSA

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

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: GHSA

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

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: GHSA

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

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: GHSA
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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

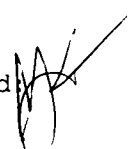
Sample ID: CR06-2.5

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: GHSA

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%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

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: GHSA

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

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: GHSA

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

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: GHSA

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

**INORGANICS ANALYSIS DATA SHEET
TOTAL METALS**

Sample ID: METHOD BLANK

Page 1 of 1

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: GHSA

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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

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: GHSA

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%

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	
	-3 3/8"	-2 #4 (4750)	-1 #10 (2000)						0 #18 (1000)	1 #35 (500)	2 #60 (250)	3 #120 (125)	4 #230 (63)	5	6
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:

- 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.

XN64

Maul Foster & Alongi
GHSA
0863.01.01

Apparent Grain Size Distribution Summary
Percent Retained in Each Size Fraction

Sample No.	Gravel < -1 > #10 (2000)	Very Coarse Sand -1 to 0 10 to 18 (2000-1000)	Coarse Sand 0 to 1 18-35 (1000-500)	Medium Sand 1 to 2 35-60 (500-250)	Fine Sand 2 to 3 60-120 (250-125)	Very Fine Sand 3 to 4 120-230 (125-62)	Coarse Silt 4 to 5 62.5-31.0	Medium Silt 5 to 6 31.0-15.6	Fine Silt 6 to 7 15.6-7.8	Very Fine Silt 7 to 8 7.8-3.9	Clay			Total Fines > 4 <230 (<62)
											8 to 9 3.9-2.0	9 to 10 2.0-1.0	> 10 <1.0	
Phi Size														
Sieve Size (microns)														
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.

XN64

QA SUMMARY

Client:	Maul Foster & Alongi	Client Project:	GHSA
ARI Trip. Sample ID:	XN50 B	Client Project No.:	0863 01 01
		Batch No.:	XN64-1

Sample ID	Relative Standard Deviation, By Phi Size													
	-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%

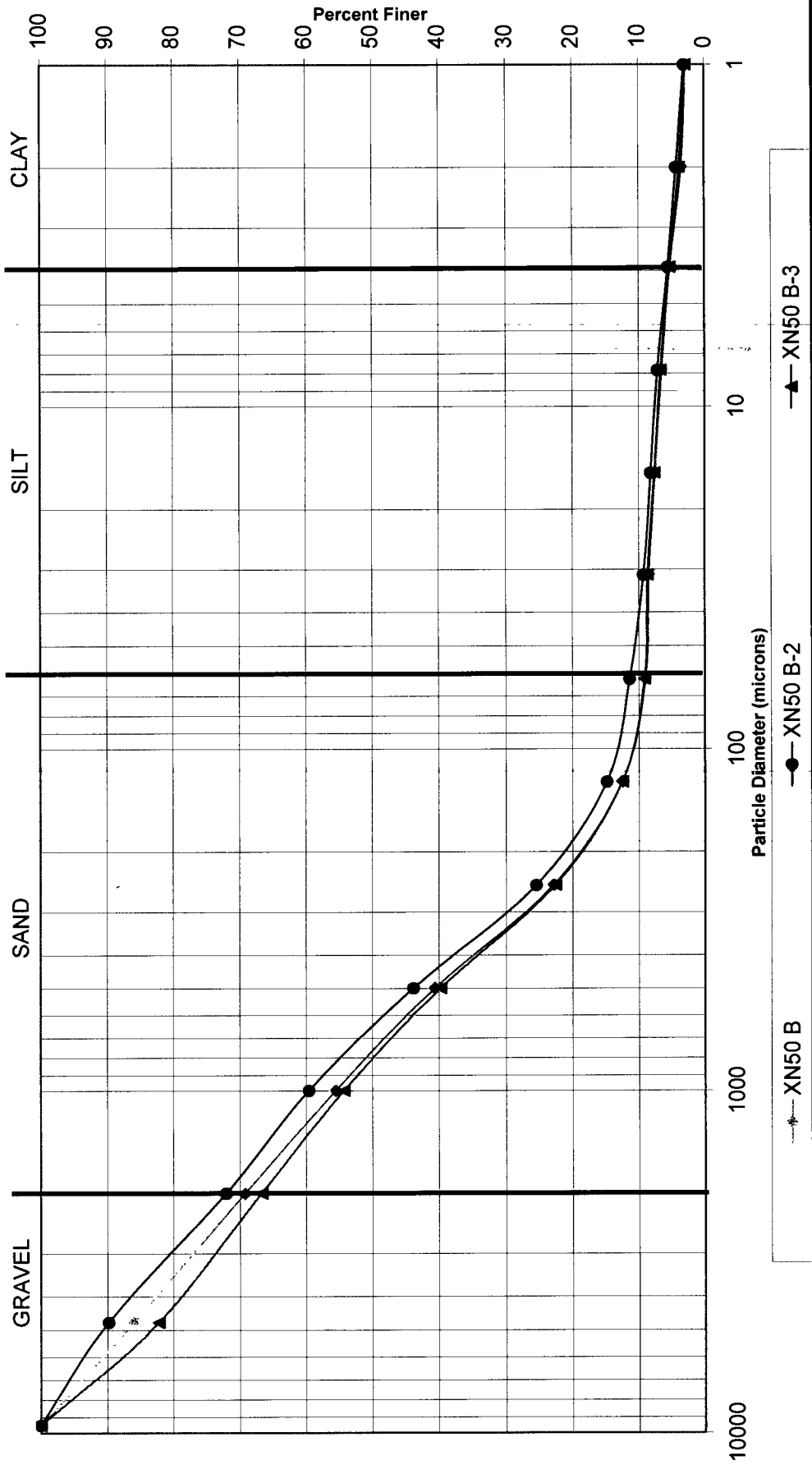
Notes to the Testing:

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.

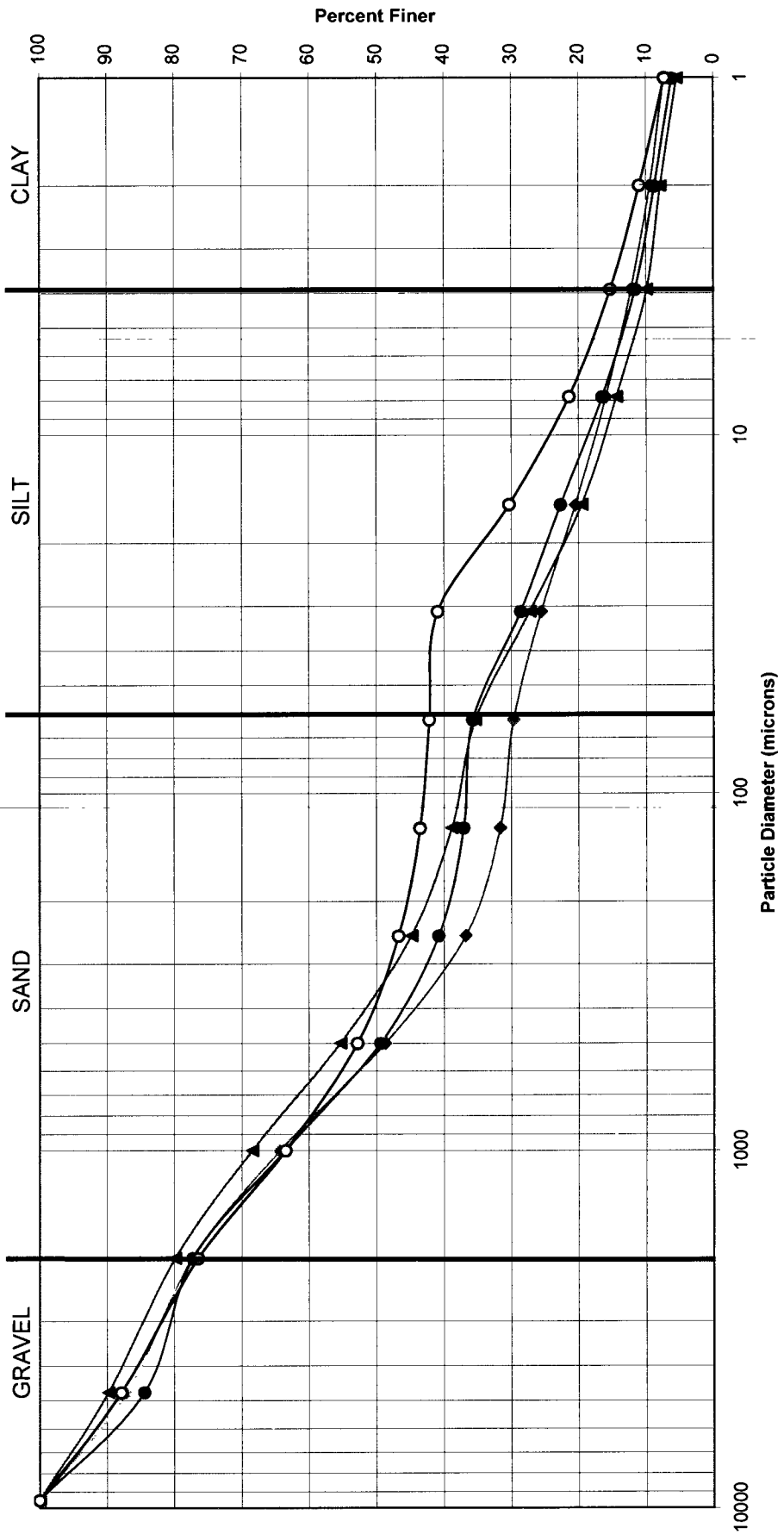
XN64

PSEP Grain Size Distribution

Triplicate Sample Plot



PSEP Grain Size Distribution



CR04-5
 CR05-10cm
 CR04-10cm
 CR06-10cm

Sample ID Cross Reference Report



ARI Job No: X000
Client: Maul Foster & Alongi
Project Event: 0863.01.01
Project Name: GHSA

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. CR01-10CM	X000A	13-25167	Pore Water	11/14/13 11:25	11/14/13 11:45
2. CR02-10CM	X000B	13-25168	Pore Water	11/14/13 11:25	11/14/13 11:45
3. CR03-10CM	X000C	13-25169	Pore Water	11/14/13 11:25	11/14/13 11:45

SAMPLE RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

A handwritten signature in black ink, appearing to be 'M. Foster'.

Project: GHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Client ID: CR01-10cm
ARI ID: 13-25167 X000A

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

SAMPLE RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

A handwritten signature in black ink, appearing to be a stylized name, located to the right of the matrix information.

Project: GHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Client ID: CR02-10cm
ARI ID: 13-25168 X000B

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

SAMPLE RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



Matrix: Pore Water
Data Release Authorized:
Reported: 11/15/13

A handwritten signature in black ink, appearing to be 'J. J.', written over the 'Data Release Authorized' text.

Project: GHSA
Event: 0863.01.01
Date Sampled: 11/14/13
Date Received: 11/14/13

Client ID: CR03-10cm
ARI ID: 13-25169 X000C

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

METHOD BLANK RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



Matrix: Pore Water
Data Release Authorized
Reported: 11/15/13

A handwritten signature in black ink, appearing to be a stylized 'A' or similar character.

Project: GHSA
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	

LAB CONTROL RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



Matrix: Pore Water
Data Release Authorized
Reported: 11/15/13


A handwritten signature in black ink, appearing to be 'AK' or similar, written over the 'Data Release Authorized' text.

Project: GHSA
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%

STANDARD REFERENCE RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



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%

REPLICATE RESULTS-CONVENTIONALS
X000-Maul Foster & Alongi



Matrix: Pore Water
Data Release Authorized
Reported: 11/15/13

A handwritten signature in black ink, appearing to be 'M. Foster'.

Project: GHSA
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: X000A 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%



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: GHSA
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

Subject: RE: XN64-GHSA
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-GHSA

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-GHSA

All:

Attached are the final EDD for the bulk of the sediment samples (X000 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/WPDEVJK>>.

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

ARI Assigned Number: XNH Turn-around Requested: Standard

ARI Client Company: Maui Foster & Alongi Phone: 9715442139

Client Contact: Mike Murray

Client Project Name: GHSA

Client Project #: 0803.01.01 Samplers: MRM/MN

Page: 1 of 2

Date: 11/8/13 Ice Present? ✓

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				Notes/Comments						
					Dioxin/ Furan	Butyl-Benzyl Phthalate	Mercury	SMS compound with mandelic acid		TOC	Concentrations with TSS, TDS, Turbidity	Archive	Solids in port water		
CR06-10cm	11/7/13	12:00	sed.	8	X	X	X	X	X	Archive all					
CR06-1		12:15		4						removing					
CR06-2.5		12:30		8						sample					
CR06-4		12:45		8						volume					
CR04-10cm		13:00		8	X	X	X	X	X						
CR04-1		13:30		3											
CR05-10cm	11/8/13	8:25	sed	8	X	X	X	X	X						
CR05-2.5		8:45		8											
CR05-3.5		9:00		2											
CR04-2.5		9:40		8											
Comments/Special Instructions	Relinquished by (Signature) <u>Michael Noshak</u>				Received by (Signature) <u>Jennifer Millsap</u>	Relinquished by (Signature) _____				Received by (Signature) _____	Printed Name _____				
	Printed Name <u>Mad. Noshak</u>				Printed Name <u>Jennifer Millsap</u>	Printed Name _____				Printed Name _____	Company _____				
	Company <u>MFA</u>				Company <u>ARI</u>	Company _____				Company _____	Date & Time _____				
	Date & Time <u>11/8/13 2:00 pm</u>				Date & Time <u>11/8/13 1830</u>	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.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN64 Turn-around Requested: Standard

ARI Client Company: Madi Foster + Alangi Phone: 9715442139

Client Contact: Mike Morrison

Client Project Name: PHS GHSA

Client Project #: 0830101 Samplers: MRM/MN

Page: 2 of 2

Date: 11/8/13 Ice Present? ✓

Nb. of Coolers: 3 Cooler Temps: 3.2, 0.4, 5.2

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested			Notes/Comments
					TOC	MS/MS	Other	
CR04-5	11/8/13	10:00	Sed	4				Archive all
CR01-10cm		11:15		5	X			remaining
CR02-10cm		11:30		5	X			sample
CR03-10cm		12:00		5	X			volume

Relinquished by	Received by
(Signature) <u>Madi Novak</u>	(Signature) <u>[Signature]</u>
Printed Name <u>Madi Novak</u>	Printed Name <u>Jennifer Millsap</u>
Company <u>MFA</u>	Company <u>ARI</u>
Date & Time <u>11/8/13 2 pm</u>	Date & Time <u>11/8/13 1830</u>

Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)



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Chain of Custody Record & Laboratory Analysis Request

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: GHSA

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	Analysis Requested				Notes/Comments			
					Doxin/ Furan	Bryl-Benzyl- Phthalate	Mercury	SMS compounds with mandelic acid		TOC	Comments Total N, H, S, PMS & Fines	
CR06-10cm	11/7/13	12:00	Sed.	8	X	X	X	X	Archive	Solids in port water		
CR06-1	12:15	12:15		4	X	X	X	X	Archive	"Comments" include: TOC, TVS, total solids, NH4, TS, pore water, sulfides, % fines		
CR06-2.5	12:30	12:30		8	X	X	X	X	Archive	Archive call		
CR06-4	12:45	12:45		8	X	X	X	X	Archive	Renewing		
CR04-10cm	13:00	13:00		8	X	X	X	X	Archive	sample		
CR04-1	13:30	13:30	↓	3	X	X	X	X	Archive	volume		
CR05-10cm	11/8/13	8:25	Sed	8	X	X	X	X	Archive			
CR05-2.5	8:45	8:45		8	X	X	X	X	Archive			
CR05-3.5	9:00	9:00		2	X	X	X	X	Archive			
CR04-2.5	9:40	9:40	↓	8	X	X	X	X	Archive			
Comments/Special Instructions	Reinquired by: (Signature) <u>[Signature]</u> Received by: (Signature) <u>[Signature]</u>				Reinquired by: (Signature) <u>[Signature]</u> Received by: (Signature) <u>[Signature]</u>				Printed Name: <u>Jennifer Millsap</u> Printed Name: <u>Jennifer Millsap</u>		Company: <u>ARI</u> Company: <u>ARI</u>	
Date & Time: <u>11/8/13 2:00 pm</u>				Date & Time: <u>11/8/13 1830</u>				Date & Time: <u>11/8/13 1830</u>				

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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.

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Analytical Chemists and Consultants
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: XN64 Turn-around Requested: Standard

ARI Client Company: Madi Foster + Alangi Phone: 9715442139

Client Contact: Mike Morrison

Client Project Name: ETS GTHSA

Client Project #: 08630101 Sample ID: MRM/MN

Page: 2 of 2

Date: 11/8/13 Ice Present? Y

No. of Coolers: 3 Cooler Temps: 3.2, 0.4, 3.2

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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				Notes/Comments
					Dioxin	Perchloroethylene	Mercury	SMS Contaminants	
CRO4-5	11/8/13	10:00	Sed	4	X	X	X	X	Archives all remaining
CRO1-10cns	11.15	11:15	↓	5	X	X	X	X	Sample returned
CRO2-10cns	11.30	11:30	↓	5	X	X	X	X	
CRO3-10cns	12:00	12:00	↓	5	X	X	X	X	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)
	<u>Madi Novak</u>	<u>Madi Novak</u>
	Printed Name: <u>Madi Novak</u>	Printed Name: <u>Madi Novak</u>
	Company: <u>MFA</u>	Company: <u>ARI</u>
	Date & Time: <u>11/8/13 2 PM</u>	Date & Time: <u>11/8/13 1830</u>

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.





Cooler Receipt Form

ARI Client Maul Foster & Alving
 COC No(s): _____ (NA)
 Assigned ARI Job No: XN64

Project Name GHH3A
 Delivered by Fed-Ex UPS Courier Hand Delivered Other: McDelivery
 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#: 9087952

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 _____

<p>Small Air Bubbles ~2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles > 4 mm</p>	<p>Small → "sm" (< 2 mm)</p> <p>Peabubbles → "pb" (2 to < 4 mm)</p> <p>Large → "lg" (4 to < 6 mm)</p> <p>Headspace → "hs" (> 6 mm)</p>
-----------------------------------	------------------------------	--	--



Sample ID Cross Reference Report



ARI Job No: XQ70
Client: Maul Foster & Alongi
Project Event: 0863.01.01
Project Name: GHSA

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



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 \geq 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 $\geq 40\%$ 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)**



Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

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: *[Signature]*
 Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
 Project: GHSA
 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%

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: *TWW*
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
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%

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: *MW*
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
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%

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: *TW*
Reported: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
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: 12/20/13

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
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%

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
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

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
Page 1 of 2

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: GHSA
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%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270 GC/MS
 Page 2 of 2

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: GHSA
 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)

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	RFS	CCAL RRF5	MIN RRF	%D / %DRIPT	MAX %D / %DRIPT	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		MIN		MAX		CURVE TYPE
	RRF	AMOUNT		RRF5	RRF	%D	%DRIFT	%D	%DRIFT	
\$ 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		
\$ 55 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	___		CCAL	MIN	MAX		CURVE TYPE
	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	
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

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: MB-121013

Extraction Method: SW3546

METHOD BLANK

Page 1 of 1

Lab Sample ID: MB-121013

QC Report No: XQ70-Maul Foster & Alongi

LIMS ID: 13-26908

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *MM*

Date Sampled: NA

Reported: 12/20/13

Date Received: NA

Date Extracted: 12/10/13

Sample Amount: 10.00 g-dry-wt

Date Analyzed: 12/16/13 22:31

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT14/YZ

Dilution Factor: 1.00

GPC Cleanup: Yes

Percent Moisture: NA

Silica Gel Cleanup: No

Alumina 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
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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR04-10cm

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XQ70A

QC Report No: XQ70-Maul Foster & Alongi

LIMS ID: 13-26908

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *MM*

Date Sampled: 11/07/13

Reported: 12/20/13

Date Received: 11/08/13

Date Extracted: 12/10/13

Sample Amount: 2.37 g-dry-wt

Date Analyzed: 12/19/13 14:35

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT14/YZ

Dilution Factor: 5.00

GPC Cleanup: Yes

Percent Moisture: 80.3%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR05-10cm

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XQ70B

QC Report No: XQ70-Maul Foster & Alongi

LIMS ID: 13-26909

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *Thw*

Date Sampled: 11/08/13

Reported: 12/20/13

Date Received: 11/08/13

Date Extracted: 12/10/13

Sample Amount: 4.31 g-dry-wt

Date Analyzed: 12/19/13 15:10

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT14/YZ

Dilution Factor: 5.00

GPC Cleanup: Yes

Percent Moisture: 73.1%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR05-2.5

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XQ70C

QC Report No: XQ70-Maul Foster & Alongi

LIMS ID: 13-26910

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *MW*

Date Sampled: 11/08/13

Reported: 12/20/13

Date Received: 11/08/13

Date Extracted: 12/10/13

Sample Amount: 2.85 g-dry-wt

Date Analyzed: 12/19/13 15:44

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT14/YZ

Dilution Factor: 5.00

GPC Cleanup: Yes

Percent Moisture: 74.2%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

ORGANICS ANALYSIS DATA SHEET

Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: CR04-2.5

Extraction Method: SW3546

SAMPLE

Page 1 of 1

Lab Sample ID: XQ70D

QC Report No: XQ70-Maul Foster & Alongi

LIMS ID: 13-26911

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *MW*

Date Sampled: 11/08/13

Reported: 12/20/13

Date Received: 11/08/13

Date Extracted: 12/10/13

Sample Amount: 3.10 g-dry-wt

Date Analyzed: 12/19/13 16:18

Final Extract Volume: 1.0 mL

Instrument/Analyst: NT14/YZ

Dilution Factor: 5.00

GPC Cleanup: Yes

Percent Moisture: 82.8%

Silica Gel Cleanup: No

Alumina Cleanup: No

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%

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
0863.01.01

<u>Client ID</u>	<u>FPH</u>	<u>TER</u>	<u>TOT OUT</u>
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
(TER) = d14-p-Terphenyl

(32-120) (27-120)
(42-124) (37-120)

Prep Method: SW3546
Log Number Range: 13-26908 to 13-26911

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

QC Report No: XQ70-Maul Foster & Alongi

LIMS ID: 13-26908

Project: GHSA

Matrix: Sediment

Event: 0863.01.01

Data Release Authorized: *SWW*

Date Sampled: NA

Reported: 12/20/13

Date Received: NA

Date Extracted: 12/10/13

Sample Amount LCS: 10.00 g-dry-wt

Date Analyzed LCS: 12/16/13 23:05

Final Extract Volume LCS: 1.0 mL

Instrument/Analyst LCS: NT14/YZ

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%

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	CCAL		MIN		MAX		CURVE TYPE
	RRF / AMOUNT	RF1	RRF1	RRF	%D / %DRIFT	%D / %DRIFT	
\$ 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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

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: GHSA
 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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

Sample ID: MB-121013

Lab Sample ID: MB-121013
 LIMS ID: 13-26910
 Matrix: Sediment
 Data Release Authorized: *MMW*
 Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
 Project: GHSA
 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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

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: GHSA
 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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: OPR-121013

Lab Sample ID: OPR-121013

LIMS ID: 13-26910

Matrix: Sediment

Data Release Authorized: *Thw*

Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi

Project: GHSA

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	
37C14-2,3,7,8-TCDD			90.1	31-191	

Reported in Percent Recovery

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

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: GHSA

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

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B
 Page 1 of 1

Sample ID: CR05-2.5

Lab Sample ID: XQ70C
 LIMS ID: 13-26910
 Matrix: Sediment
 Data Release Authorized: *mmw*
 Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
 Project: GHSA
 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

ORGANICS ANALYSIS DATA SHEET

Dioxins/Furans by EPA 1613B

Page 1 of 1

Sample ID: CR05-2.5

Lab Sample ID: XQ70C

LIMS ID: 13-26910

Matrix: Sediment

Data Release Authorized: *mmw*

Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi

Project: GHSA

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	
37C14-2,3,7,8-TCDD			83.8	35-197	

Reported in Percent Recovery

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: *www*

Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi

Project: GHSA

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	
37C14-2,3,7,8-TCDD			94.7	35-197	

Reported in Percent Recovery

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: *mmw*

Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi

Project: GHSA

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

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: GHSA

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	
37C14-2,3,7,8-TCDD			66.3	35-197	

Reported in Percent Recovery

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: GHSA

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

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
 Page 1 of 1

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: GHSA
 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%

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: GHSA
 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%

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: *MMW*
 Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
 Project: GHSA
 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%

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: *MMW*
 Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
 Project: GHSA
 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%

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: *MMW*
 Reported: 12/17/13

QC Report No: XQ70-Maul Foster & Alongi
 Project: GHSA
 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%

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
0863.01.01

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
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

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: GHSA

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)

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: GHSA
 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 13-26908	Method Blank HC ID: ---	12/10/13	12/12/13 FID3B	10.0 1.0	Diesel Range Motor Oil Range o-Terphenyl	50 100	< 50 U < 100 U 89.8%
XQ70A 13-26908	CR04-10cm HC ID: DRO/MOTOR OIL	12/10/13	12/12/13 FID3B	10.0 1.0	Diesel Range Motor Oil Range o-Terphenyl	250 500	2,400 7,400 76.4%
XQ70B 13-26909	CR05-10cm HC ID: DRO/MOTOR OIL	12/10/13	12/12/13 FID3B	10.0 1.0	Diesel Range Motor Oil Range o-Terphenyl	180 370	1,200 4,800 85.3%
XQ70C 13-26910	CR05-2.5 HC ID: DRO/MOTOR OIL	12/10/13	12/12/13 FID3B	10.0 1.0	Diesel Range Motor Oil Range o-Terphenyl	190 390	3,200 13,000 76.2%
XQ70D 13-26911	CR04-2.5 HC ID: DRO/MOTOR OIL	12/10/13	12/12/13 FID3B	10.0 1.0	Diesel Range Motor Oil Range o-Terphenyl	290 580	3,200 10,000 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.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: XQ70-Maul Foster & Alongi
Project: GHSA
0863.01.01

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
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

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: GHSA
 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%
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Results reported in mg/kg

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

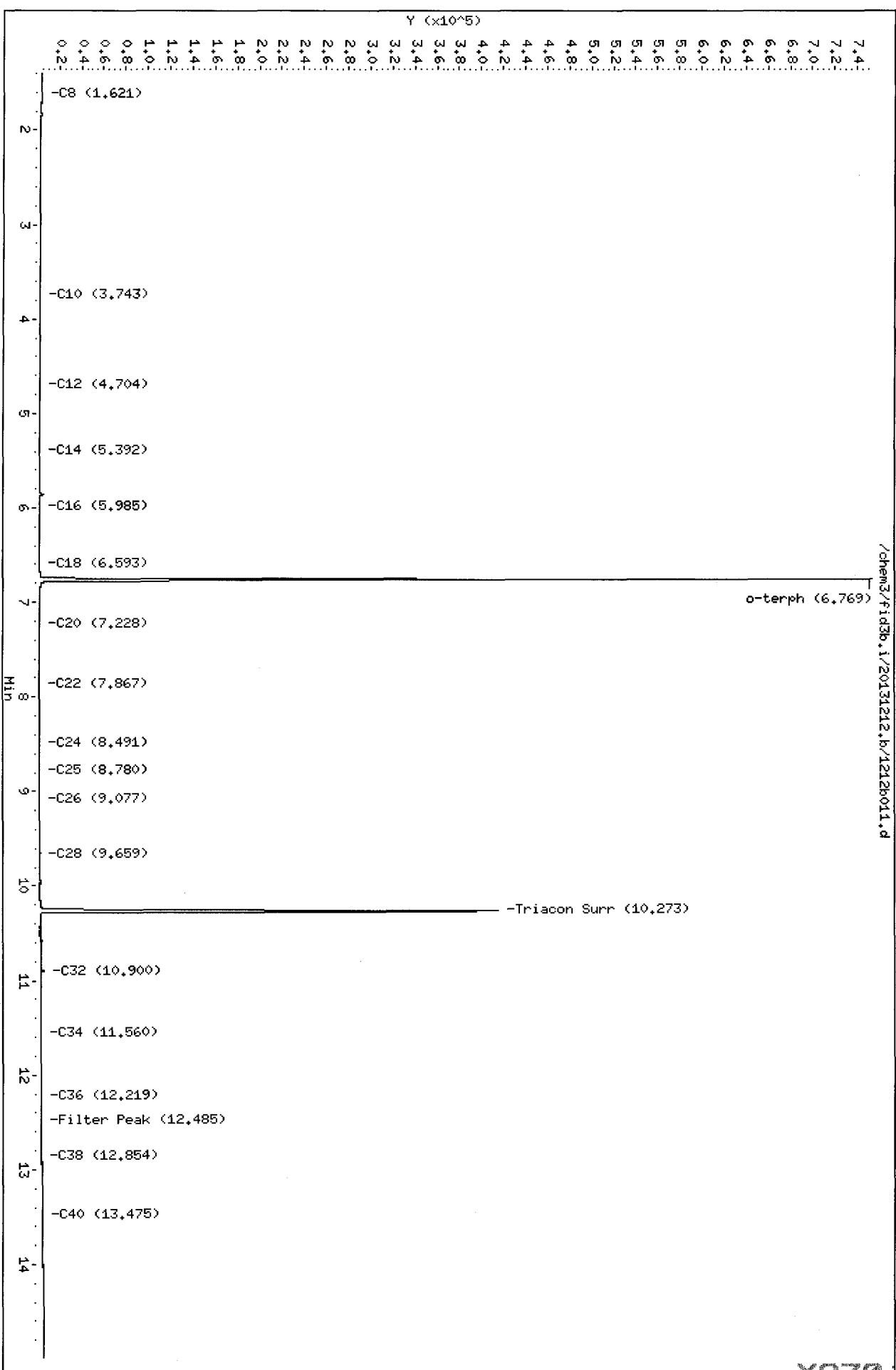
Matrix: Sediment
Date Received: 11/08/13

ARI Job: XQ70
Project: GHSA
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

Data File: /chem3/fid3b.i/20131212.b/1212b011.d
Date: 12-DEC-2013 13:22
Client ID: XQ70HBS1
Sample Info: XQ70HBS1
Column Phase: RTX-1

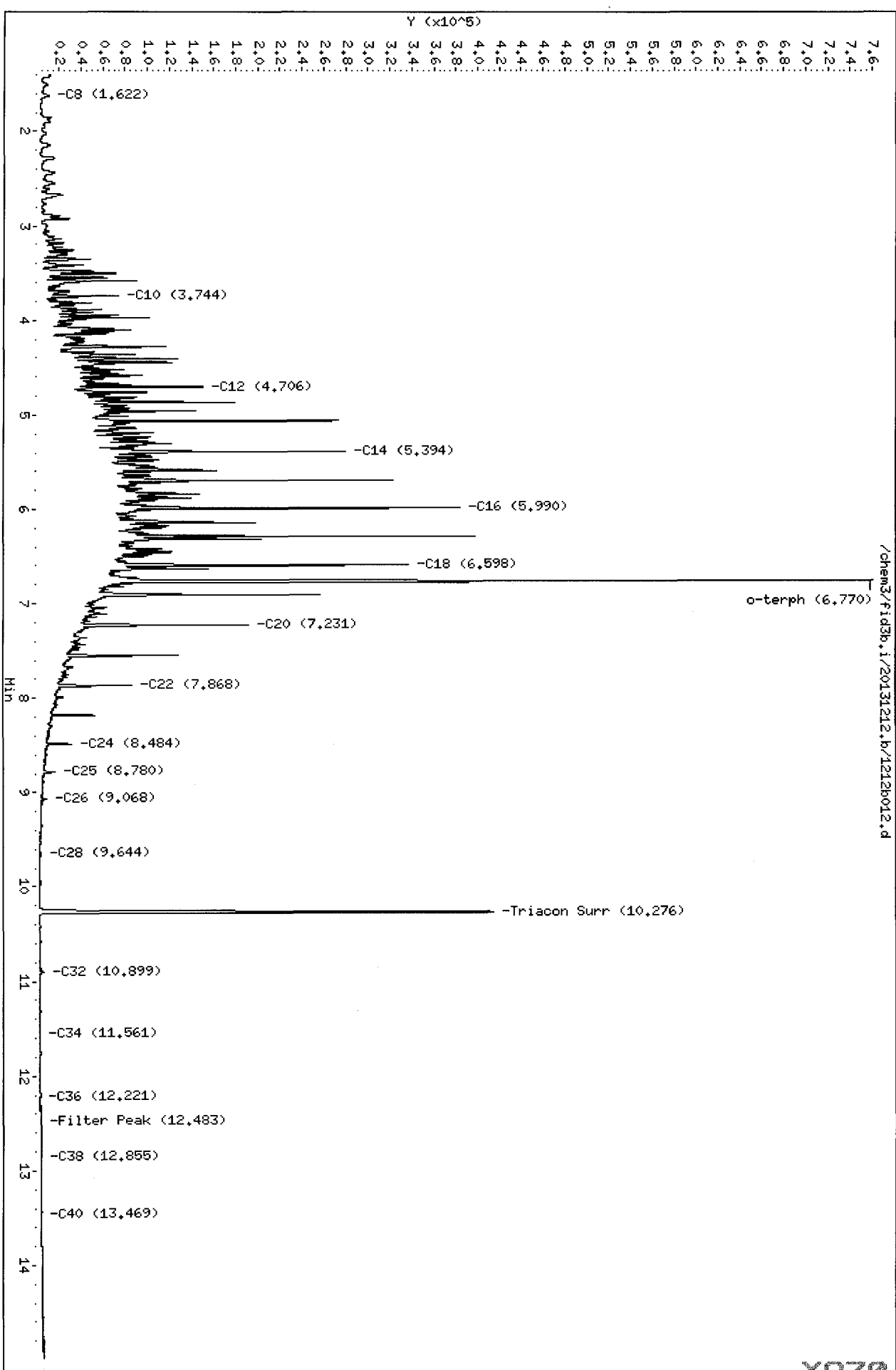
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Operator: JM
Column diameter: 0.25



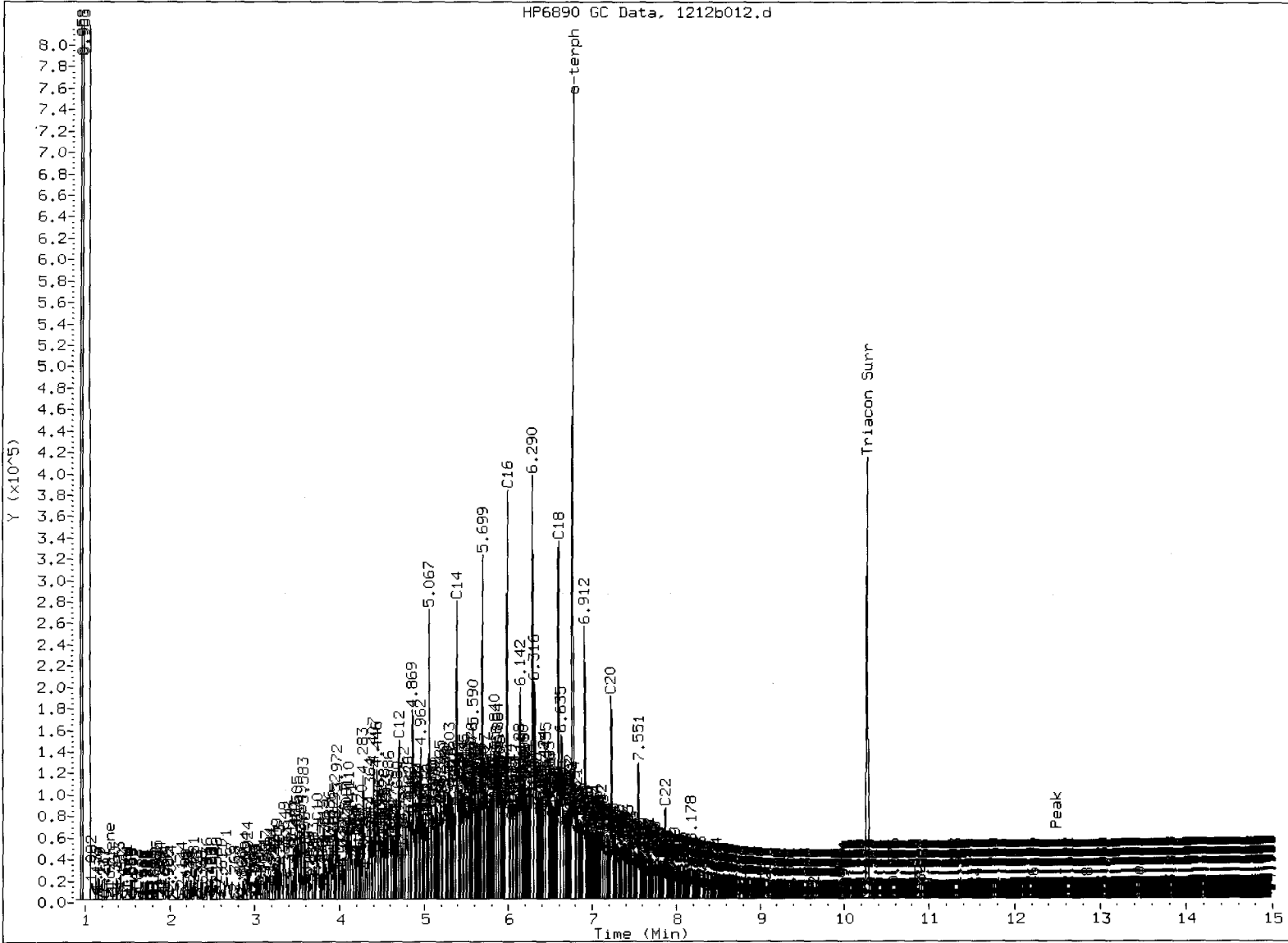
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Data File: /chem3/fid3b.i/20131212.b/1212b012.d
Date: 12-DEC-2013 13:47
Client ID: XQ70LCSS1
Sample Info: XQ70LCSS1
Column phase: RTX-1

Instrument: fid3b.i
Operator: JM
Column diameter: 0.25

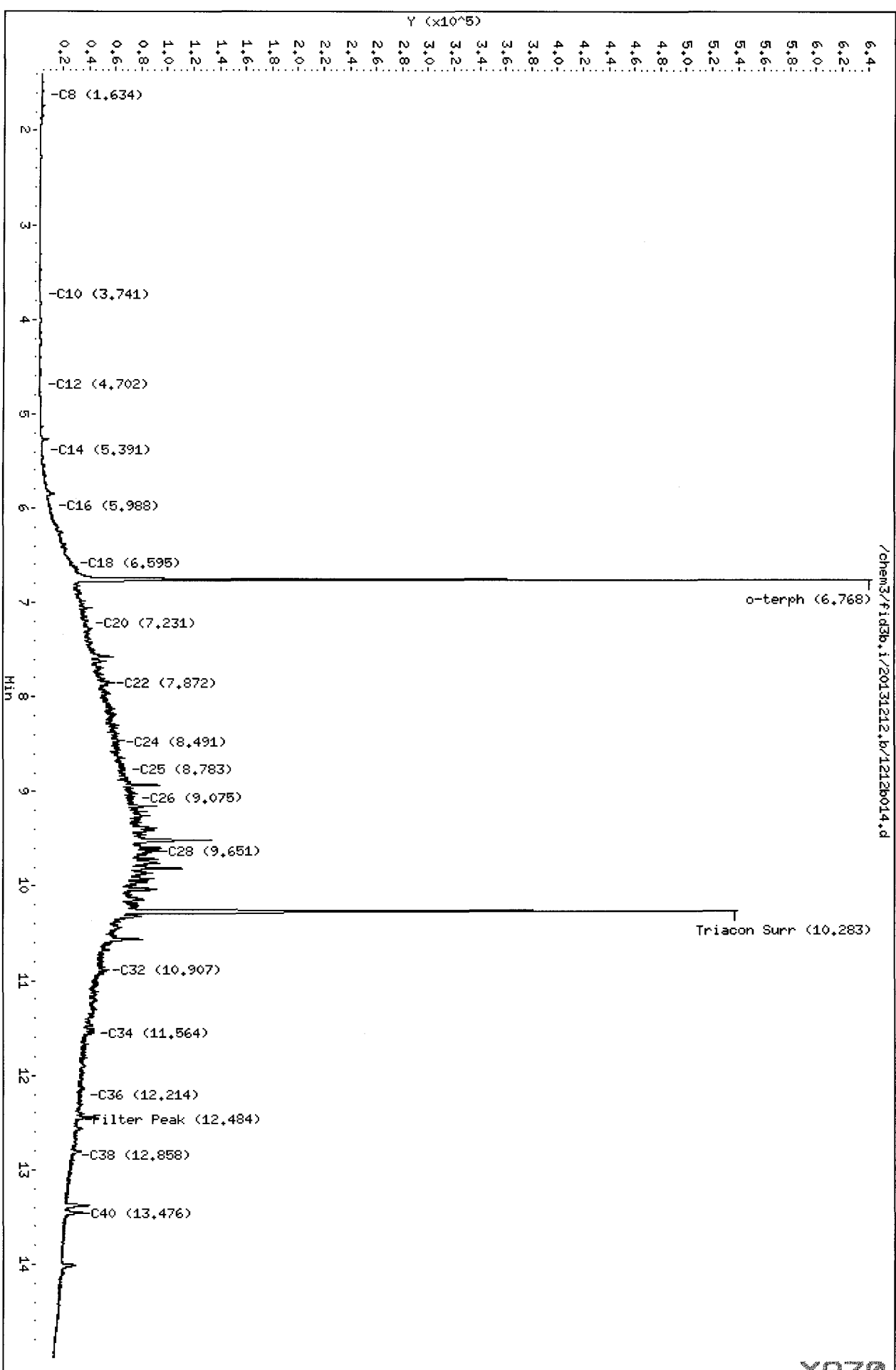


XQ70 000000



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

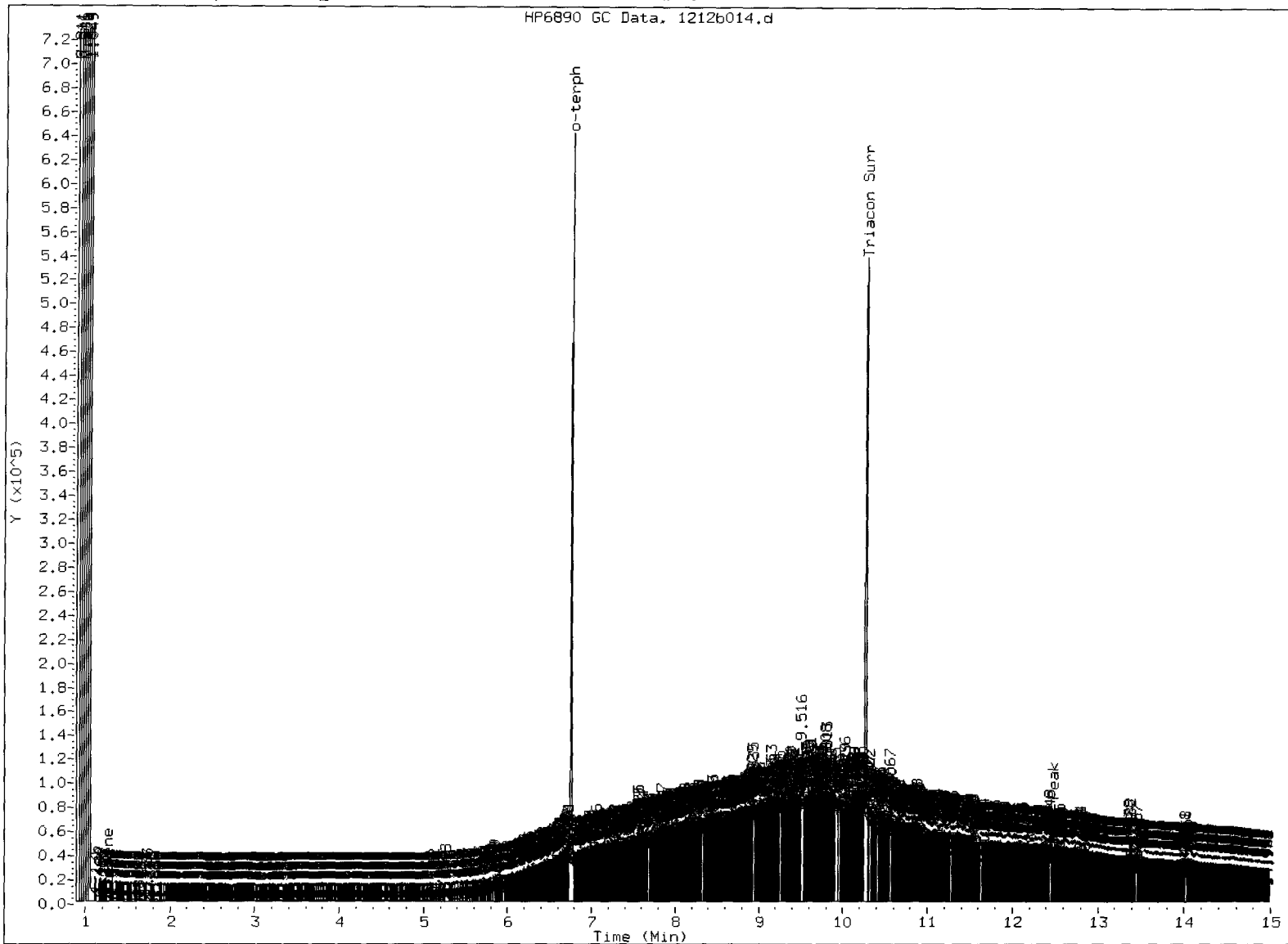
Instrument: fid3b.i
Operator: JM
Column diameter: 0.25



FID:3B-2C/RTX-1 XQ70A

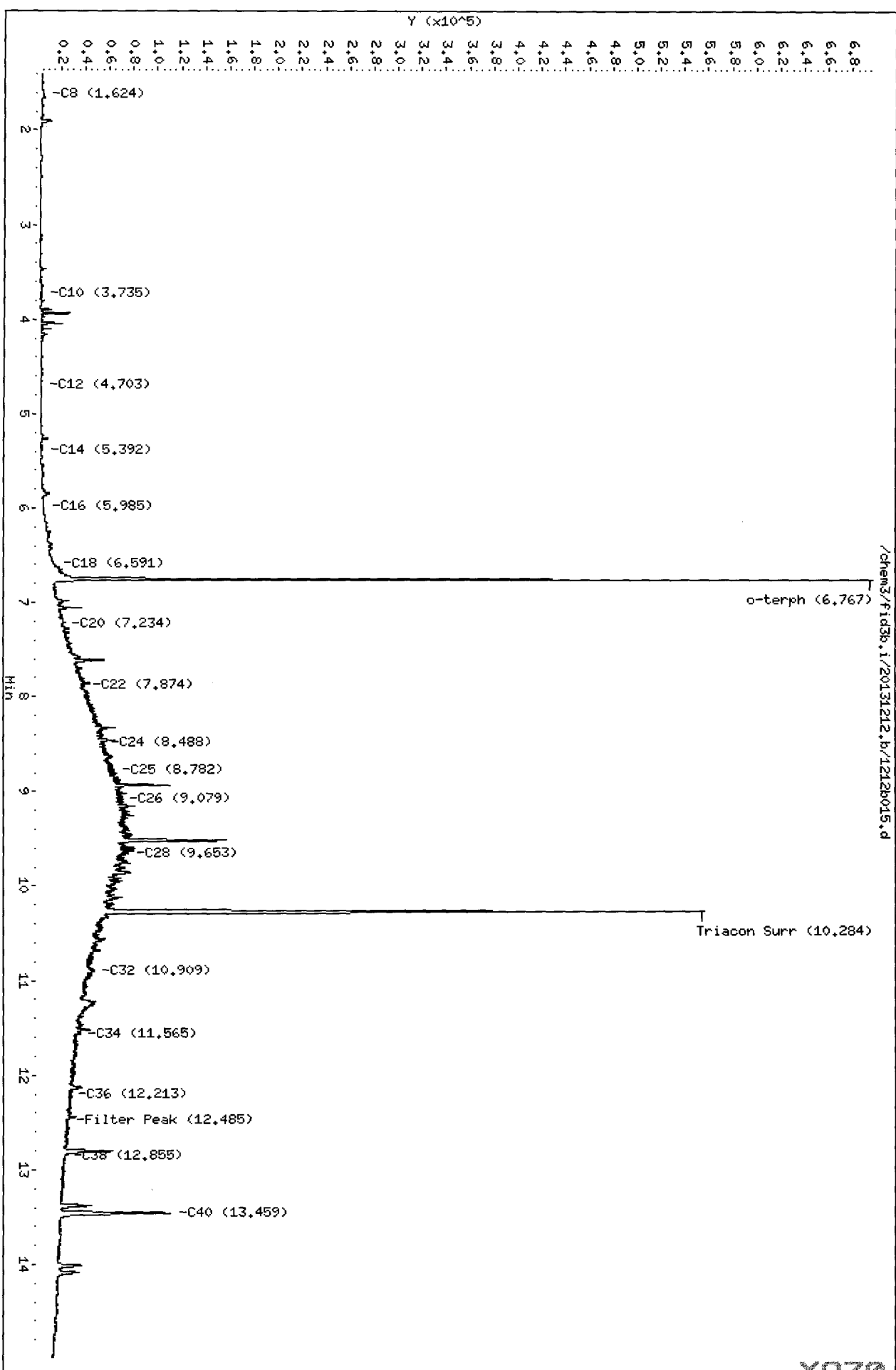
FID:3B SIGNAL

HP6890 GC Data, 1212b014.d

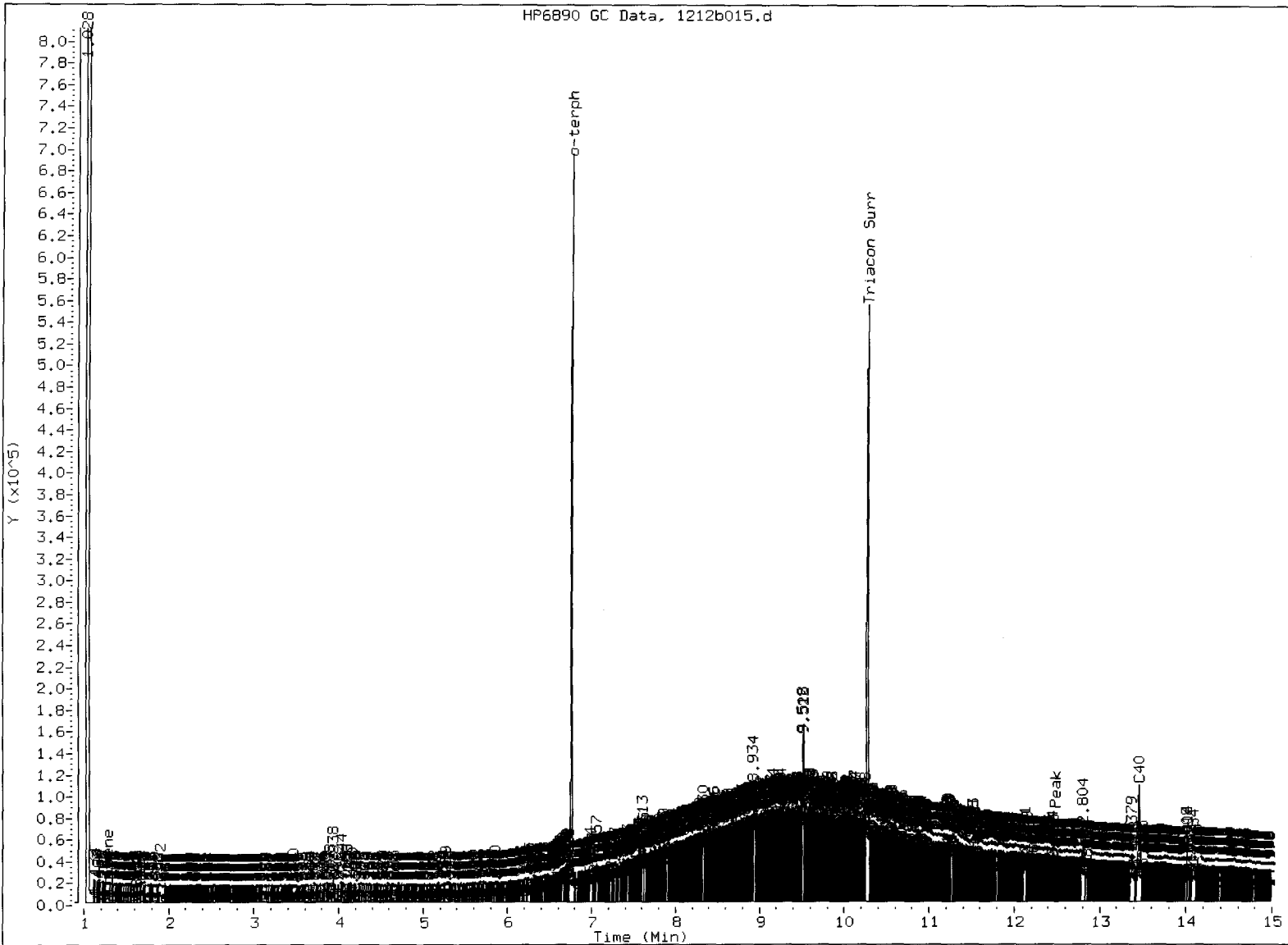


Data File: /chem3/fid3b.i/20131212.b/1212b015.d
Date: 12-DEC-2013 15:02
Client ID: CR05-10cm
Sample Info: XQ70B
Column phase: RTX-1

Instrument: fid3b.i
Operator: JM
Column diameter: 0.25



XQ70 00000



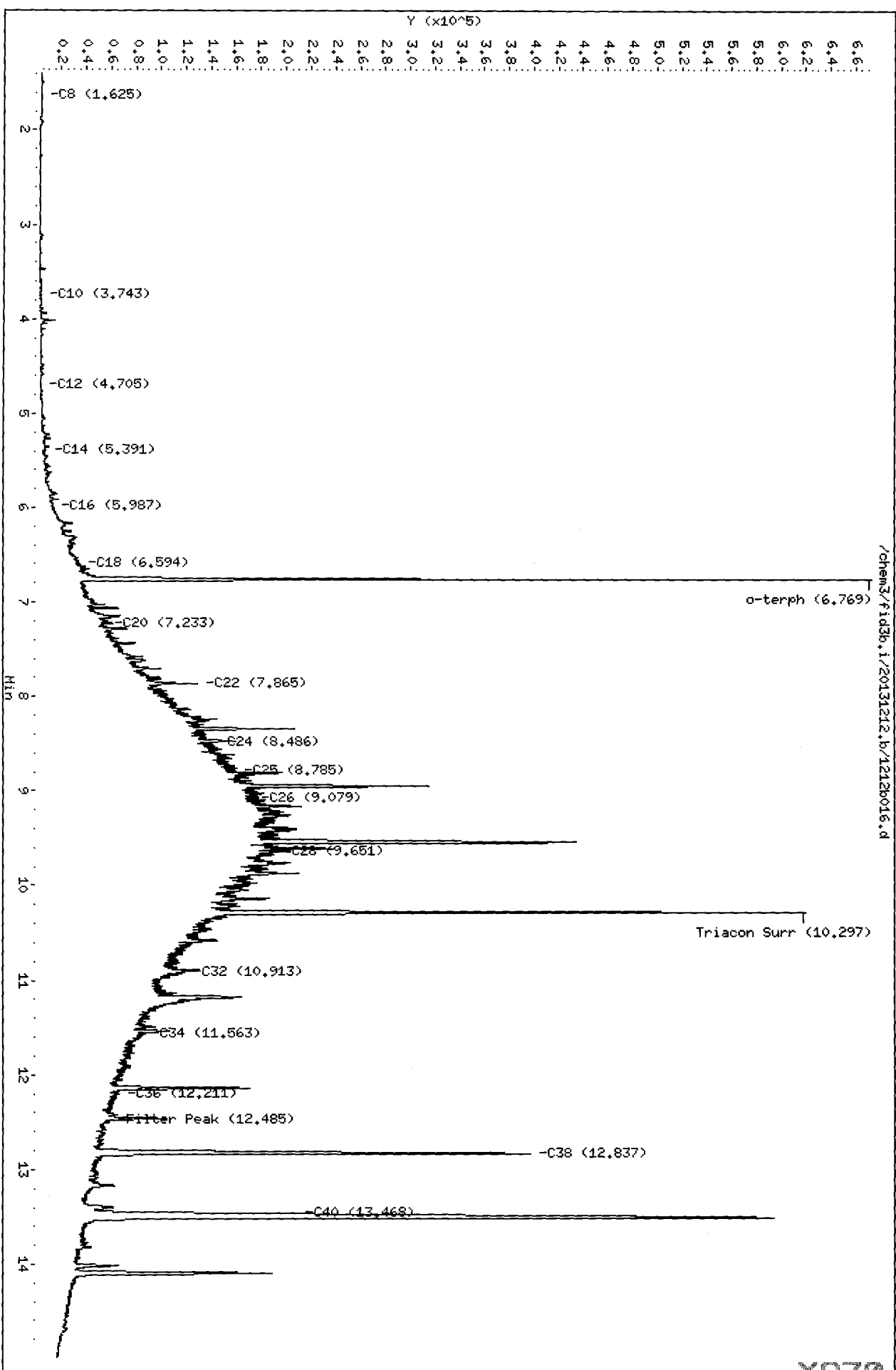
MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

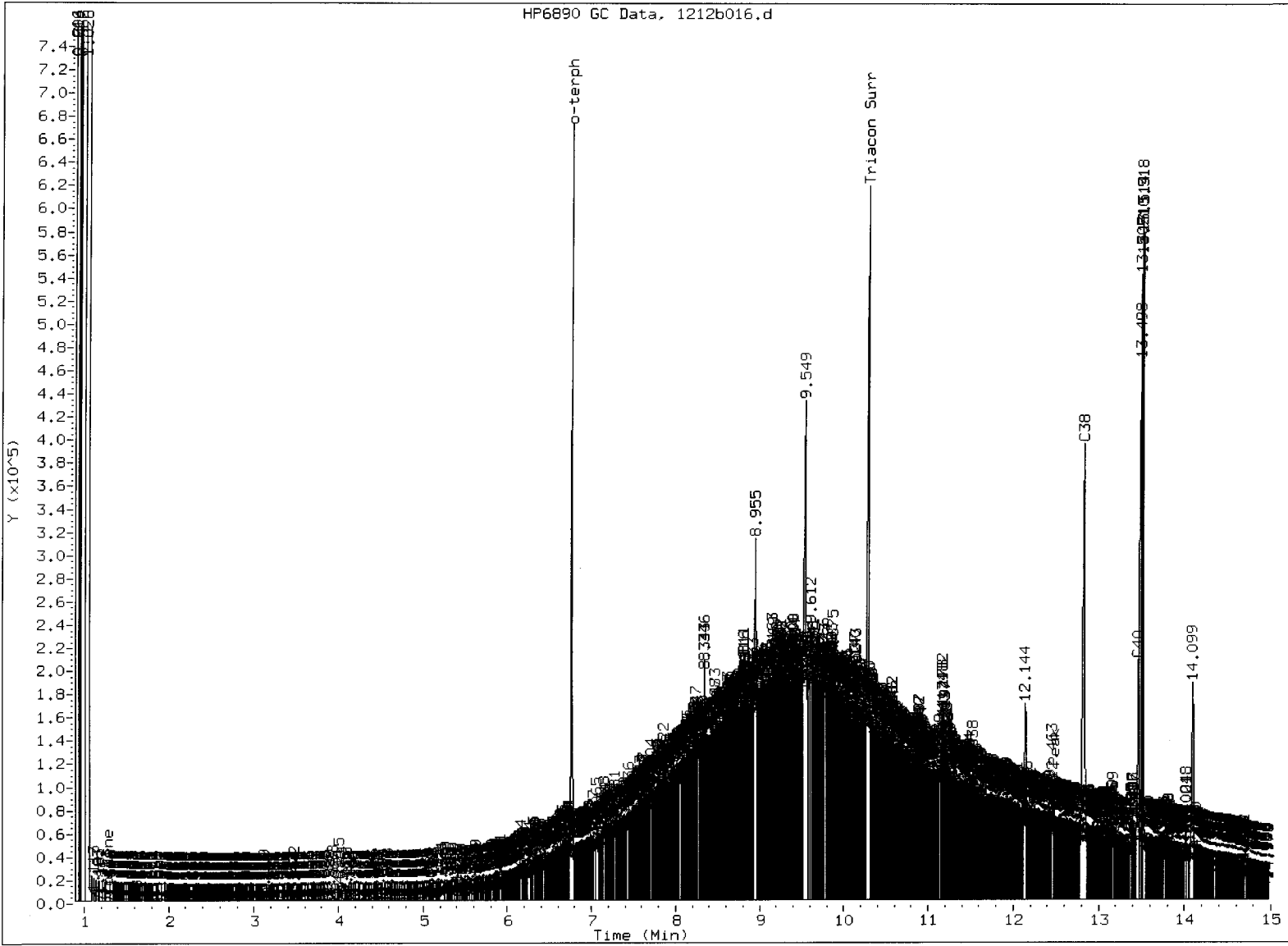
Analyst: JD Date: 12/10

Data File: /chem3/fid3b.i/20131212.b/1212b016.d
Date: 12-DEC-2013 15:27
Client ID: OR05-2.5
Sample Info: X070C
Column phase: RTX-1

Instrument: fid3b.i
Operator: JM
Column diameter: 0.25



X070 00000



MANUAL INTEGRATION

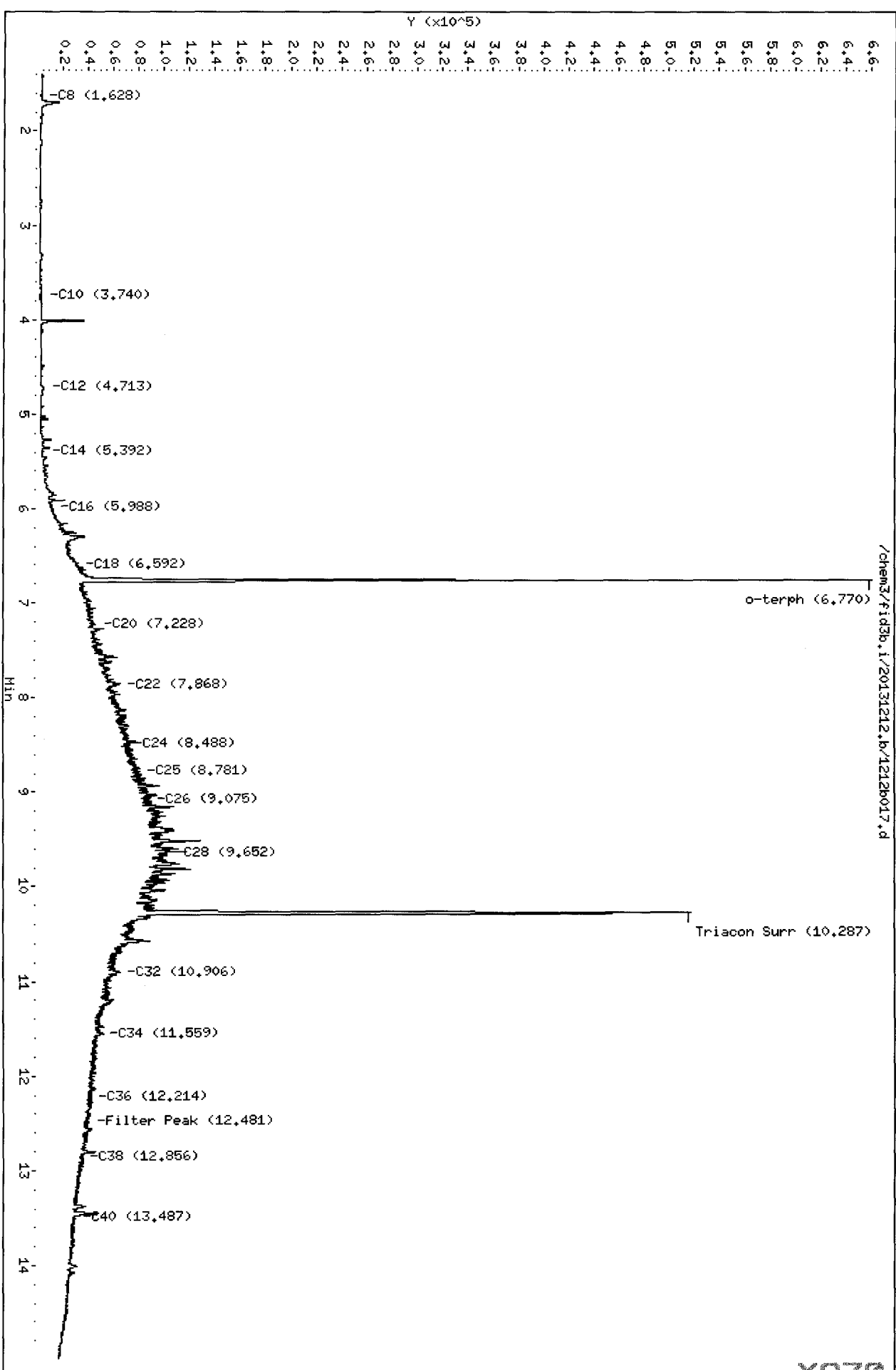
- 1. Baseline correction
- 3. Peak not found
- ⑤ Skipped surrogate

Analyst: JW

Date: 12/10

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

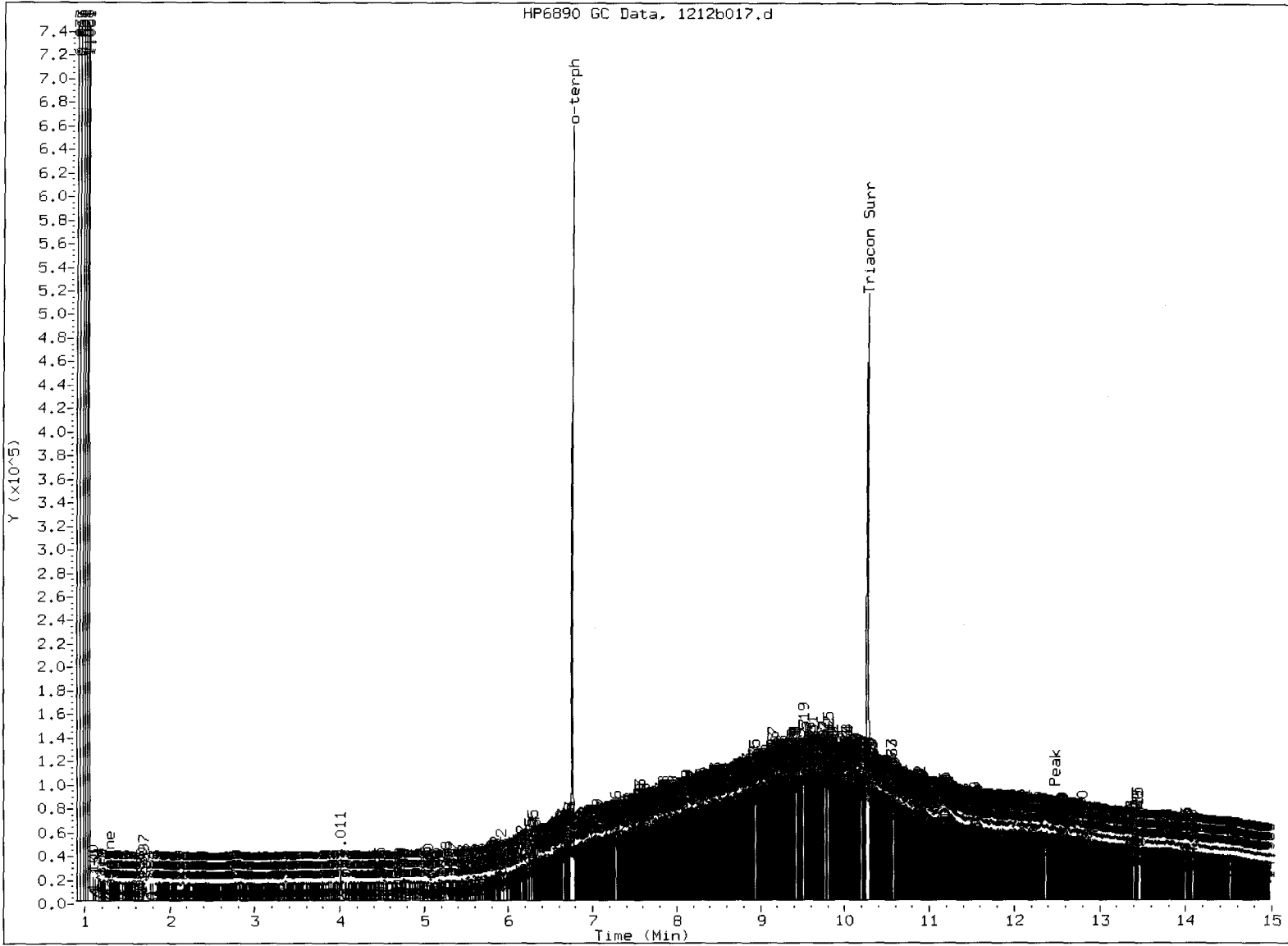
Instrument: fid3b.i
Operator: JM
Column diameter: 0.25



FID:3B-2C/RTX-1 XQ70D

FID:3B SIGNAL

HP6890 GC Data, 1212b017.d



MANUAL INTEGRATION

- 1. Baseline correction
- 3. Peak not found
- (5) Skipped surrogate

Analyst: JD

Date: 12/13/10

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: GHSA

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

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: GHSA
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

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Sample ID: METHOD BLANK

Page 1 of 1

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: GHSA
 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

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: GHSA

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%



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